Wonderware®

SCADAlarm™ User's Guide

Revision A

Last Revision: 10/21/04

Invensys Systems, Inc.

All rights reserved. No part of this documentation shall be reproduced, stored in a retrieval system, or transmitted by any means, electronic, mechanical, photocopying, recording, or otherwise, without the prior written permission of Invensys Systems, Inc. No copyright or patent liability is assumed with respect to the use of the information contained herein. Although every precaution has been taken in the preparation of this documentation, the publisher and the author assume no responsibility for errors or omissions. Neither is any liability assumed for damages resulting from the use of the information contained herein.

The information in this documentation is subject to change without notice and does not represent a commitment on the part of Invensys Systems, Inc. The software described in this documentation is furnished under a license or nondisclosure agreement. This software may be used or copied only in accordance with the terms of these agreements.

© 2004 Invensys Systems, Inc. All Rights Reserved.

Invensys Systems, Inc.
26561 Rancho Parkway South
Lake Forest, CA 92630 U.S.A.
(949) 727-3200
http://www.wonderware.com

Trademarks

All terms mentioned in this documentation that are known to be trademarks or service marks have been appropriately capitalized. Invensys Systems, Inc. cannot attest to the accuracy of this information. Use of a term in this documentation should not be regarded as affecting the validity of any trademark or service mark.

Alarm Logger, ActiveFactory, ArchestrA, Avantis, DBDump, DBLoad, DT Analyst, FactoryFocus, FactoryOffice, FactorySuite, FactorySuite A2, InBatch, InControl, IndustrialRAD, IndustrialSQL Server, InTouch, InTrack, MaintenanceSuite, MuniSuite, QI Analyst, SCADAlarm, SCADASuite, SuiteLink, SuiteVoyager, WindowMaker, WindowViewer, Wonderware, and Wonderware Logger are trademarks of Invensys plc, its subsidiaries and affiliates. All other brands may be trademarks of their respective owners.

Contents

CHAPTER 10: Integration with HMI Applications 167

Before You Begin

About This Guide

This *SCADAlarm™ User's Guide* describes how to use SCADAlarm for alarm reporting and acknowledgement via local annunciation, voice calling, paging, and e-mail.

It is assumed that you are familiar with the HMI software that you want to use with SCADAlarm, as well as with general telephone, paging, and e-mail technologies.

Document Conventions

This documentation uses the following conventions:

Convention	Used for
Initial Capitals	Paths and filenames.
Bold	Menus, commands, dialog box names, and dialog box options.
`Monospace`	Code samples and display text.

C H A P T E R 1

Getting Started

To get started with SCADAlarm™, you will need to review main concepts and become familiar with the SCADAlarm software application.

Contents

About SCADAlarm

The Wonderware® SCADAlarm is an alarm notification system that interacts with various HMI/SCADA software programs to generate alarms, send notifications to operators using a variety of communication modes, and send acknowledgements back to the HMI/SCADA system. SCADAlarm requests data values from Windows applications ("servers") in order to send alarm acknowledgements back to the HMI/SCADA system. These Windows applications include Wonderware I/O Servers, Wonderware InTouch™, Industrial Application Server, Microsoft Excel, and so on.

SCADAlarm can communicate with any server that supports any of the following protocols:

- DDE
- SuiteLink
- Message Exchange (MX)

The data points include I/O tags that are linked to inputs and outputs from programmable controllers, process computers, and data from network nodes or memory tags (also called internal, or system, tags) that reside at the server only.

When a tag alarm value is reached, the SCADAlarm system can be configured to:

- Annunciate alarms locally. To provide in-plant annunciation, use an external speaker or amplifier.
- Call voice telephones.
- Send messages to pagers or cellular telephones.

- Send e-mail.

SCADAlarm will perform these functions during their enabled times. The schedule can vary from day-to-day and can include holidays.

By using the SCADAlarm system, operators can acknowledge alarms, request status and numeric reports, or change set-points over the telephone. SCADAlarm administrators can change or rearrange voice menus and tag report scripts at any time, limit operator access to system configuration information, and limit access to the telephone menu functions.

General Features

- Easy-to-use interface.
- Works with any Windows DDE and/or SuiteLink aware application. Also works with Industrial Application Server via the MX protocol.
- Supports multiple servers.
- Ability to enable/disable SCADAlarm from the server.
- Software licensing; no hardware key or dongles.
- Works with any hardware that supports TAPI.
- Automatic file upgrade from earlier versions.
- The SCADAlarm Sound File Conversion Utility (VCONVERT.exe) is provided that allows you to convert different voice modem formats to the RIFF file format (.wav) that is used by SCADAlarm.
- Adjustable maximum size for the SCADAlarm log file. The date can be included in the log file name.
- Ability to automatically schedule SCADAlarm system tests.
- "System alarms" that dial out in the event of a server failure, excessive failed login attempts, and so on.
- "System alarms" that notify the server in the event of a bad telephone line, and so on.
- Log comments, events, and errors to a printer or the log file.

Operator Features

- One or more operators can be notified when an alarm is raised, cleared, or acknowledged.
- Operators can have individual IDs and PINs, two levels of security, a configurable greeting, and up to four telephone numbers or e-mail addresses.
- Automatic operator login or restricted login based on the caller's phone number.
- Configurable "on-call" operator list.
- Each operator has a personal schedule that determines the time, order, and method of alarm notification.

- Operators can call in to check process, acknowledge alarms, and/or change set-points over the telephone.
- Operators are alerted to existence of unacknowledged alarms at the beginning and end of the call.
- Configurable phone menu tree with individual voice prompts for each menu and security level.

Alarm Features

- Each alarm/event can be independently directed to a specific group of operators.
- Tagnames do not have to be the same as the server item names, making it possible to have two different SCADAlarm tags pointing to same item name on the same or different servers.
- You can set up an alarm based on when the value is NOT equal to specified value.
- Operator(s) can be notified when an alarm clears/recurs or has been acknowledged.
- The alarm window appears as the top window, allowing easy acknowledgment.
- Each alarm/event has an adjustable alarm delay and alarm priority, which may be used to determine the order of notification.
- SCADAlarm can be configured to acknowledge HMI/SCADA system alarm points.
- SCADAlarm can access any field in HMI/SCADA database, allowing the SCADA system to make alarm decisions. You can use SCADAlarm to change set points in the HMI.
- Configurable tag report scripts define how a tag is reported and/or acknowledged.
- You can preview (listen to) a tag report script without having to trigger an alarm.
- The tag report script copy function saves you time by allowing you to replicate similar tag report scripts.
- Convert text to speech for alarm reporting.
- The Tag-Vue Utility allows you to view/modify the attributes of several tagnames simultaneously.
- You can specify a daily schedule and holidays.
- "Acknowledge-on-delivery" (one-shot alarming) is supported, which is designed for alarm/event notification without acknowledgement. "Acknowledge on clear" is also supported, which will automatically acknowledge an alarm when its alarm state clears. Use caution when implementing either of these options.

- The Database Utility is provided that allows you to import/export the SCADAlarm tag database to/from a comma separated value (.csv) text file. You can edit the .csv file using an editor or a spreadsheet program such as Microsoft Excel.
- Custom .wav files may be recorded that describe on state/off states of discrete tagnames. For example, "in alarm/cleared."
- Limits for data change values can be set over the telephone between user-configured minimum and maximum values. Spoken decimal precision for up to six decimal places is configurable for each analog tagname.

Local annunciation, Telephone, Paging, and E-mail Features

- Alphanumeric paging and SMS text messaging with TAP and UCP protocol support.
- Numeric-only paging.
- Voice paging. SCADAlarm can call voice pager, answering services, and answering machines.
- E-mail capability. Alarm messages and reports, scheduled or on-demand, can be e-mailed.
- Local audio annunciation (speaker or plant-wide) through standard computer audio systems (sound cards).
- Voice calling.
- Support for paging terminals.
- Record custom prompt messages and playback any message for easy review.
- Enable voice calls, paging, e-mail and/or local annunciation hours according to the default "Backup" operator group, if no one answers from the primary operator group.
- Adjustable number of rings before SCADAlarm will answer an incoming telephone call.
- Periodic telephone line test.

Key Concepts

Before using SCADAlarm, review the following key concepts.

Operators

Operators are the people that are notified by SCADAlarm when an alarm occurs. Each operator is assigned a personal four-digit PIN and may have up to four contact methods. An operator's calling preferences define the order that his/her telephone numbers are dialed and when the operator is on-call. You can organize operators into group on-call lists, allowing you to notify a specific operator group when an alarm occurs. SCADAlarm will call each person on the list when an alarm occurs until someone acknowledges it.

Notification Methods

The notification method is how SCADAlarm will report the alarm. Available notification methods are local annunciation, voice calling, alphanumeric and numeric-only paging, voice paging, and e-mail.

SCADAlarm Alarms/Tags

The SCADAlarm tag database links SCADAlarm to any DDE or SuiteLink server, or to Industrial Application Server. SCADAlarm will "advise" the server that it is interested in these tag values, and the server will update SCADAlarm when the tag values change. Typically, the SCADAlarm tag database is a small subset of an HMI tag database. The server item name for each tag corresponds to the name of the data point in the HMI system, in the format the HMI system expects.

Tag Report Scripts

A tag report script defines the way you want a tag to be conveyed to the operator. In the event of an alarm, SCADAlarm will annunciate locally, and/or dial-out, executing the tag report script for the alarm. For example, the tag report script for an intrusion alarm might say:

> "The status of the intrusion alarm is IN ALARM."

Numeric values may be included in tag report scripts so that operators can hear process values, such as a tank level. Scripts can include voice prompt files that describe current alarm and status conditions. Voice prompt files are sound files (.wav) that are created either using the recorder or a string of text (text-to-speech) and can played back using the SCADAlarm voice modem or local multimedia hardware. There are also pre-configured tag report script functions that allow you to acknowledge alarms and change set-point values over the telephone.

Message Formats

A message format defines how an alarm notification message from SCADAlarm will appear or sound when received on a telephone, pager, or via e-mail. These formats may contain variable placeholders for current data that is filled in at the time of the message delivery. SCADAlarm will automatically build pager, text-to-speech, and e-mail formats that are patterned after the alarm's tag report script, if a script has been configured. If not, a default format is used.

Menu Tree

A menu tree works like a standard voice mail system, where the person dialing in uses telephone dual-tone-multi-frequency (DTMF) keys to make selections. For each menu, you will need to create a voice prompt file describing the available keypad selections. For example, you can configure a "Top Menu" as follows:

> "Top Menu: For active alarms, press ONE; For unacknowledged alarms, press TWO; To acknowledge all alarms, press THREE; For the set-point menu, press FOUR; To hang up, press ZERO."

Note The operator can use the telephone's dual-tone-multi-frequency (Touch Tone®) keys to access menus and data, and to change data. In this documentation, these keys are referred to as DTMF keys in order to distinguish them from computer keyboard keys, which are simply called keys.

What Happens When an Alarm Occurs

The following steps outline what happens when an alarm from the server occurs. The exact steps that occur are based upon features that are enabled or disabled.

1. An alarm occurs.
2. The SCADAlarm **Alarm** window is displayed at the computer console. A list of currently unacknowledged alarms is displayed and an **Acknowledge** button is provided, allowing the operator to acknowledge the alarm from the computer console.
3. If local annunciation is enabled, the alarm will be annunciated locally. The tag report script for the active alarm will be spoken.
4. If voice dial-out is enabled, and the tag report script is an interactive voice script, SCADAlarm will call operators in the order specified in the on-call group list. SCADAlarm will annunciate the alarm over the telephone by speaking the tag report script for the active alarm.
    A. If an operator receives a voice call from SCADAlarm, he/she will hear SCADAlarm announce itself. The operator will be prompted to log in using the operator ID and PIN that were configured by the SCADAlarm administrator.
    B. The operator will get three chances to successfully log in.
    C. The system will either respond with a greeting or fail to recognize the operator and start over again. After the operator is recognized, the main (or "top") menu will be spoken.
    D. SCADAlarm will describe the menu tree options that are available to the operator. Specifically, an operator will hear an option, followed by the DTMF key. For example, "To hear active alarms, press 1."
    E. In order for the SCADAlarm to consider its job complete, all alarms must be acknowledged.
5. If paging is enabled, SCADAlarm will send a pager message. If e-mail is enabled, SCADAlarm will send an e-mail. If the tag report script is a text-to-speech message, SCADAlarm will annunciate the alarm over the telephone by speaking the text-to-speech message for the active alarm.
    A. Upon receiving the message from SCADAlarm, the operator will have a preset amount of time to call SCADAlarm on the telephone and acknowledge the alarm. When an operator calls SCADAlarm on the telephone, the login sequence and menu functions are generally the same as described in the previous steps. However, the operator may not be required to log in or may be restricted to call in from a certain number, depending on how the administrator has configured the operator's profile.

B. If the alarm is not acknowledged within the preset period of time, the system will call the next phone number in the operator's calling preferences, or contact the next operator on the group on-call list.

DDE, SuiteLink, and Message Exchange

Dynamic Data Exchange (DDE) is a communication protocol developed by Microsoft to allow applications in the Windows environment to send and receive data and instructions to and from each other. It implements a client-server relationship between two concurrently running applications. The *server* application provides the data and accepts data requests from other applications. Requesting applications are called *clients*. Some applications, such as Wonderware InTouch and Microsoft Excel, can simultaneously be both a *client* and a *server*.

Wonderware SuiteLink uses a TCP/IP based protocol. SuiteLink is designed specifically to meet industrial needs, such as data integrity, high-throughput, and easier diagnostics. This protocol standard is only supported on the Microsoft Windows NT 4.0 or later operating system.

Message Exchange (MX) is a protocol used by Industrial Application Server for communication between platforms. It is not used for communications with data servers.

Disclaimer for Errors or Failures

SCADAlarm cannot be responsible for external errors or failures.

SCADAlarm is designed to integrate seamlessly with all the services described in this user documentation and to be versatile enough to adapt to a wide variety of data sources and operator contact methods. If you have a problem, verify that everything besides SCADAlarm is operating correctly before calling technical support. Problems can occur due to pager companies who do not conform to industry standards or who have defects in their paging software. Also, incorrect telephone numbers or intermittent dial tones from the telephone company can cause problems. If SCADAlarm appears to be having trouble, be sure that the external calling, paging, and e-mail systems are working properly.

Getting Started with SCADAlarm

Getting familiar with SCADAlarm includes starting SCADAlarm for the first time, logging in and out, learning about the SCADAlarm toolbars and menu commands, and setting program preferences.

Running SCADAlarm the First Time

If SCADAlarm detects that data files from a previous version exist, it will convert any existing data files to the format required by the current version. A list of files and data that have been converted to the new SCADAlarm file format will be included in the log file.

If data files form an earlier installation does not exist, SCADAlarm creates new data files.

To run the SCADAlarm for the first time

1. On the **Windows** start menu, point to **Programs**, point to **Wonderware**, point to the **SCADAlarm** program group, and then click **SCADAlarm**. The **Operator Information** dialog box appears.
2. Enter the desired information for the first operator.

   For more information, see "Creating an Operator Profile" on page 49.
3. When you choose to save the first operator's data, the following dialog box may appear:

Note This dialog box is verifying whether a PIN Number of "0000" is OK to use. If it is not, you can change it now by clicking **No** or, you can change it later by selecting the **Change Operator** command on the **Maintenance** menu.

4. Once SCADAlarm has successfully started up, you will hear, "This is SCADAlarm".

Toolbar

The SCADAlarm toolbar appears just below the menu bar.

The most commonly used functions are available from the toolbar:

Button	Use To
	Log in or log out.
	Send a page or e-mail, log a comment, or convert text to a .wav file.
	View the system status window.

Button	Use To
	Add or modify an operator.
	Configure calling preferences.
	Configure group on-call lists.
	Configure alarm/tag definitions.
	Configure tag report scripts.
	Access the Tag-Vue spreadsheet.
	Construct a telephone menu tree for operators.
	Set the control schedule for SCADAlarm.

You can hide the toolbar. For more information, see "Configuring General Preferences for SCADAlarm" on page 22.

Status Bar

The status bar describes the state of SCADAlarm program.

Also, when you hover over a menu command with your mouse, the status bar displays information regarding the command.

Menu Commands

The following tables describe all of the menu commands for SCADAlarm.

Access Menu

Command	Used to
Login	Log in to the SCADAlarm program.
Logout	Log out of the SCADAlarm program.
Calling Preferences	Configure the calling schedule for operators.
Send Page or Log Comment	Send a text message to a pager, an e-mail address, or to the SCADAlarm log file. Create a .wav file from a text message.

Command	Used to
System Status	View the status of SCADAlarm events and data servers, as well as information useful for reporting problems to Technical Support.
Exit	Close the SCADAlarm program.

Maintenance Menu

To access the **Maintenance** menu, you must first log in.

Command	Used to
Operator File	Create or change the profile for an operator.
Group On-call Lists	Create groups of operators.
Alarms / Tag Names	Create alarm tags in SCADAlarm.
Tag-Vue	Edit certain properties of multiple configured alarm tags at the same time.
Tag Report Scripts	Create the message that SCADAlarm will speak locally or over the telephone or send via a pager or e-mail to an operator when an alarm occurs.
Menu Tree	Create the telephone menu tree that operators will hear when they call in to SCADAlarm.
Schedule	Configure the dates and times that certain SCADAlarm functionality is enabled.

Configuration Menu

To access the **Configuration** menu, you must first log in.

Command	Used to
Driver Configuration	Create voice prompts for alarm notification, configure options for the SCADAlarm voice modem, and select hardware devices to be used for the different types of alarm notification.
System Parameters	Configure system-wide parameters for logging, alarm acknowledgements, text-to-speech, SCADAlarm program preferences, telephone, paging, and e-mail notification, and other miscellaneous parameters.
Dump configuration to a File	Save the current SCADAlarm configuration to a file.

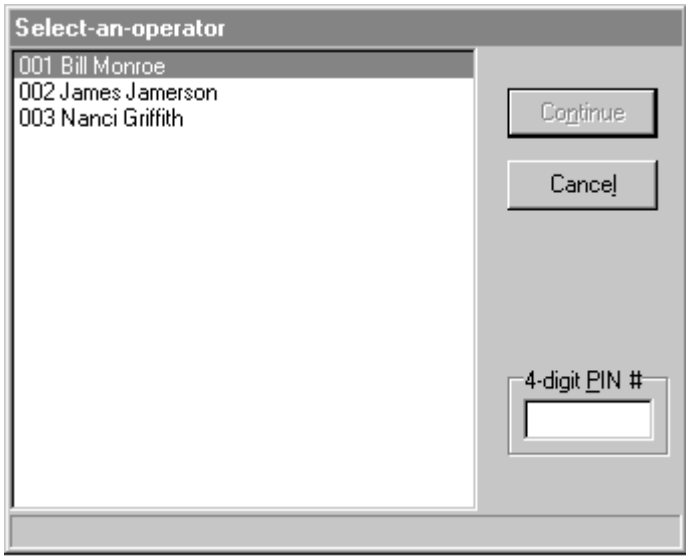
Help Menu

Command	Used to
Contents	Launch the Help file with the **Contents** pane displayed.
Index	Launch the Help file with the **Index** pane displayed.
Search	Launch the Help file with the **Search** pane displayed.
Wonderware Web Site	View the Wonderware home page in the default Internet browser for the local computer.
About	View version information for SCADAlarm.

Logging on to SCADAlarm

To log on to SCADAlarm

1. On the **Access** menu, click **Login**. The **Select-an-operator** dialog box appears, displaying all operators with administrative privileges.



2. Select your name in the window.
3. In the **4-digit PIN** box, type the PIN that was assigned to you by the SCADAlarm administrator.
4. Click **Continue**.

All menus now become available.

Note If only one operator is configured, and that operator is using the default four-digit PIN, pressing the F3 key or selecting the **Login** command on the **Access** menu will automatically log that operator in.

Logging out of SCADAlarm

Note The **Maintenance** and **Configuration** menus are unavailable when no operators are logged in at the computer console.

To log out of SCADAlarm

- On the **Access** menu, click **Logout**.

Exiting SCADAlarm

Upon exiting, SCADAlarm will stop playing any sound files and hang up the telephone.

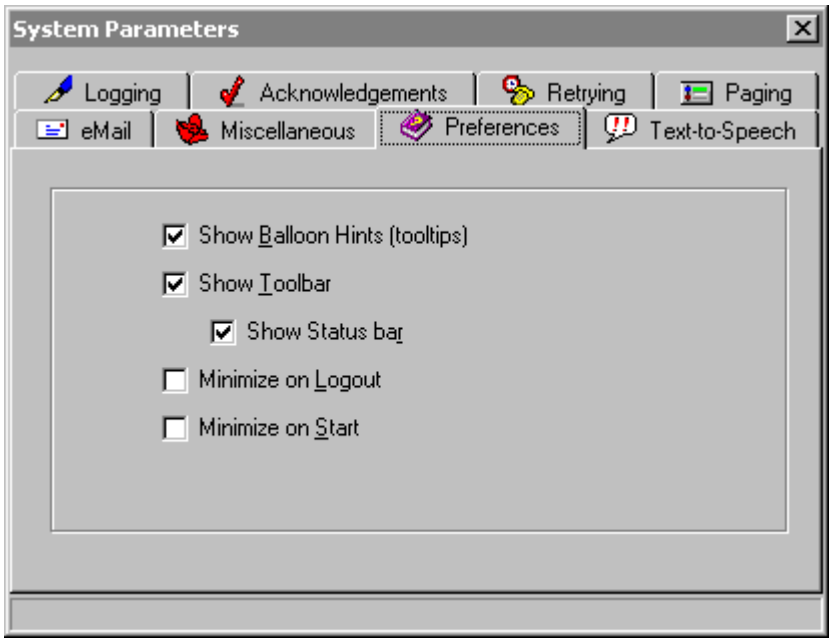
To exit (close) the SCADAlarm program

- On the **Access** menu, click **Exit**.

Configuring General Preferences for SCADAlarm

To configure general preferences

1. On the **Configuration** menu, click **System Parameters**. The **System Parameters** dialog box appears.
2. Click the **Preferences** tab.



3. Select the appropriate check boxes.

   Show Balloon Hints (tooltips)
   If selected, balloon help will be available for items that have tooltips configured.

Show Toolbar
If selected, the toolbar will appear on the main menu bar.

Show Status Bar
If selected, the status bar will appear on the main menu bar.

Minimize on Logout
If selected, the SCADAlarm software interface will appear minimized after the current operator has logged out.

Minimize on Start
If selected, the SCADAlarm software interface will appear minimized when it starts.

4. Close the dialog box.

Configuration Overview

Before you begin to use the SCADAlarm system, you will need to perform some configuration tasks. These tasks include configuring operators, adding operators to group on-call lists, adding tags to the SCADAlarm database, building tag report scripts for each applicable tag, building a menu tree, and configuring the control schedule.

SCADAlarm project configuration consists of the following general steps:

1. Select the device for each SCADAlarm function. For example, you could assign one device for paging and another device for voice calling.

   For more information, see "Assigning Hardware Devices to SCADAlarm Functions" on page 144.

2. Configure operators. SCADAlarm notifies operators in the event of an alarm. Each operator must have at least one configured contact method. SCADAlarm supports the following contact methods: voice telephone, numeric pager, alphanumeric pager or GSM phone, voice pager, and e-mail.

   For more information, see Chapter 3, "Operators."

3. Set up the calling preferences for each operator. The calling preferences define the order that the operator's telephone numbers are dialed and the times of day and days of week that the operator is on-call.

   For more information, see "Configuring Calling Preferences for an Operator" on page 55.

4. (optional) Configure group on-call lists for your operators. You can configure SCADAlarm to notify a specific operator group when an alarm is detected. An operator may be a member of more than one group.

   For more information, see "Group On-Call Lists" on page 58.

5. Add tags to the SCADAlarm database. Each tag added to SCADAlarm will create a data link to the server (typically an HMI/SCADA system).

   For more information, see Chapter 4, "Alarm Tags."

6. Configure a tag report script for each alarm in your system. A tag report script defines the way you want the alarm to be verbally conveyed to the operator. When configuring tag report scripts, you will record voice prompt files with the SCADAlarm voice modem and use built-in scripting functions. In the event of an alarm, SCADAlarm executes the alarm's tag report script locally (local annunciation) and/or over the telephone.

   For more information, see Chapter 5, "Alarm Reporting and Acknowledgment."

   Also, see "Voice Prompts" on page 135.

7. Configure message formats for each alarm in your system. Message formats define the message will appear on the recipient's pager or e-mail message, or will be played via text-to-speech. SCADAlarm automatically generates default formats, which you can edit. Formats may contain variable placeholders for live data that can be conveyed to the page recipient (for example, process values, alarm states, and so on).

   For more information, see Chapter 5, "Alarm Reporting and Acknowledgment."

8. Configure a telephone menu tree for your operators. The menu tree works like a typical voice mail system, allowing operators to navigate through the system using phone keys (DTMF keys) to make selections. For example, you may want to allow operators to hear all active alarms by pressing 1, hear all unacknowledged alarms by pressing 2, and acknowledge all alarms by pressing 3. Be sure to record a spoken menu file that accurately describes the options available to the operator. For example, the spoken menu file might contain this message, "For active alarms, press 1. For unacknowledged alarms, press 2. To acknowledge all alarms, press 3. To hang up, press 0."

   For more information, see "Telephone Menu Trees" on page 120.

9. Create and save schedules that control how SCADAlarm functions during particular times.

   For more information, see Chapter 7, "Control Schedules."

C H A P T E R 2

Notification Methods

SCADAlarm can notify operators about alarms via the following methods: local annunciation, voice calling, paging, and e-mail.

Contents

Local Annunciation

If an alarm occurs and local annunciation is enabled, SCADAlarm will annunciate the alarm's tag report script over the voice modem or computer speaker. An operator is expected to call in to SCADAlarm, log in (depending on the login style), traverse the menu tree, and acknowledge the alarm(s).

Follow these general steps to configure local annunciation:

1. Select the device used for local annunciation. For more information, see "Assigning Hardware Devices to SCADAlarm Functions" on page 144.
2. Configure system parameters for local annunciation. For more information, see "Configuring the Local Annunciation Repeat Delay" on page 26.
3. Configure at least one operator that you want to be able to acknowledge the alarm. For more information, see Chapter 3, "Operators."
4. Create the alarm tag(s). For more information, see Chapter 4, "Alarm Tags."
5. Create the tag report script that SCADAlarm will announce for the alarm tag. For more information, see Chapter 5, "Alarm Reporting and Acknowledgment."

   Set up either an interactive voice script or a text-to-speech message. If you use an interactive voice script, SCADAlarm will not announce the parts of the script that require operator interaction.

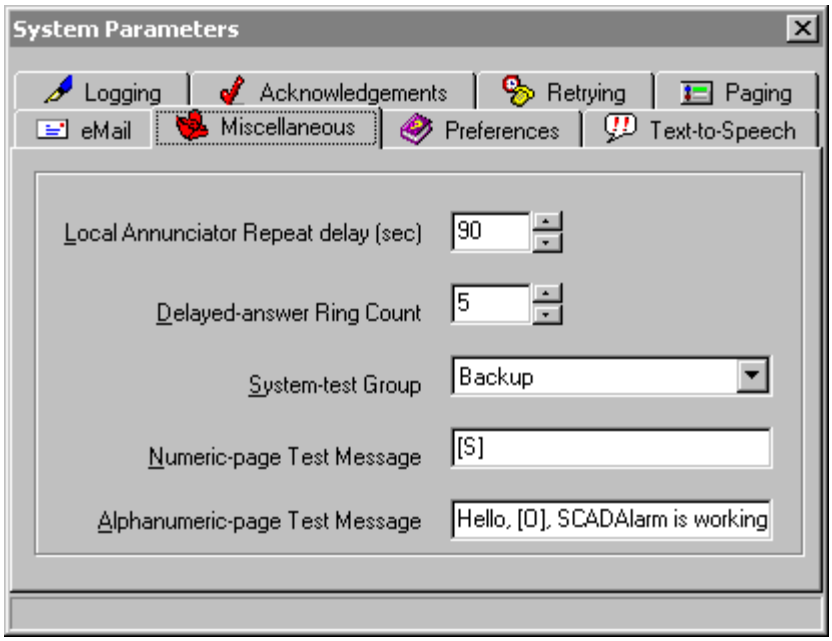
6. Configure a telephone menu tree that the operator will use when he/she calls into SCADAlarm. For more information, see Chapter 6, "Handling Incoming Voice Calls."
7. Enable local annunciation in the SCADAlarm control schedule. For more information, see Chapter 7, "Control Schedules."

Configuring the Local Annunciation Repeat Delay

The local annunciation repeat delay controls how often the local annunciation (speaker output) is activated. The delay occurs between the first announcement and subsequent announcements.

To configure the delay

1. On the **Configuration** menu, click **System Parameters**. The **System Parameters** dialog box appears.
2. Click the **Miscellaneous** tab.



3. In the **Local Annunciator Repeat Delay** box, specify the amount of time, in seconds, between when local annunciation is activated.
4. Close the dialog box.

Voice Calling

If an alarm occurs and voice calling is enabled, SCADAlarm will call a voice phone number for an operator and play the tag report script.

If the tag report script is a text-to-speech message (not text-to-speech in an interactive report script), the operator is expected to listen to the message, call in to SCADAlarm, log in (depending on the login style configured for the operator), traverse the menu tree, and acknowledge the alarm(s).

If the tag report script is an interactive voice script, the operator is expected to login and then acknowledge the alarm over the phone, or call SCADAlarm back and provide the acknowledgement, depending on how you have set up the report script.

Follow these general steps to configure voice calling:

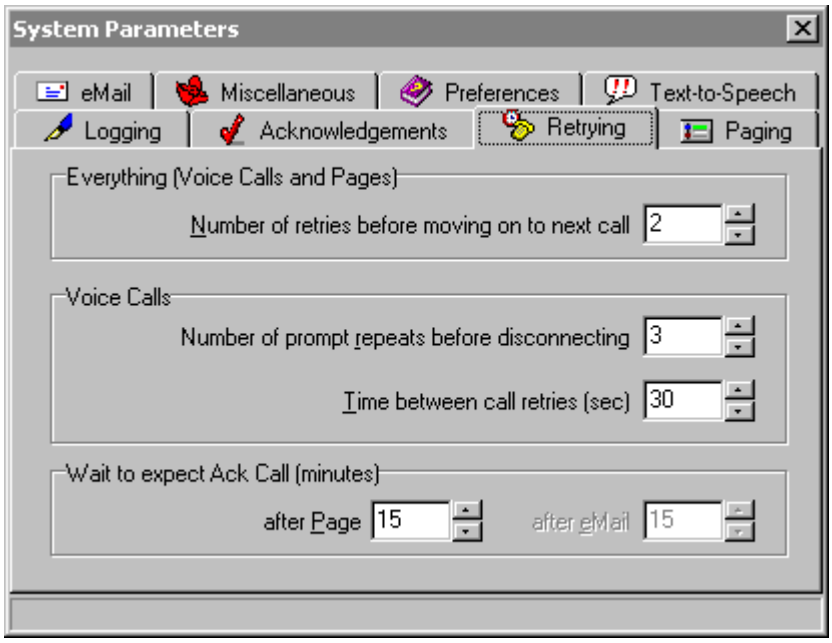
1. Select the device used for voice calls. For more information, see "Assigning Hardware Devices to SCADAlarm Functions" on page 144.
2. Configure system parameters for voice calling. For more information, see "Configuring Telephone Retrying Parameters" on page 27.
3. Configure at least one operator that you want to be able to acknowledge the alarm and specify a voice phone number as a contact method. For more information, see Chapter 3, "Operators."
4. Enable voice calling in the operator's calling preferences. For more information, see Chapter 3, "Operators."
5. Create the alarm tag(s). For more information, see Chapter 4, "Alarm Tags."
6. Create the tag report script that SCADAlarm will speak over the phone for the alarm tag. Specifically, set up either an interactive voice script or a text-to-speech message. For more information, see Chapter 5, "Alarm Reporting and Acknowledgment."
7. Configure a telephone menu tree that the operator will use when he/she calls into SCADAlarm. For more information, see Chapter 6, "Handling Incoming Voice Calls."
8. Enable voice calling in the SCADAlarm control schedule. For more information, see Chapter 7, "Control Schedules."

Configuring Telephone Retrying Parameters

To configure telephone retrying parameters

1. On the **Configuration** menu, click **System Parameters**. The **System Parameters** dialog box appears.

2. Click the **Retrying** tab.



3. In the **Number of retries before moving on to next call** box, specify the number of times SCADAlarm should try the same operator before moving on to the next available phone number or operator in the on-call list.

   For example, if you specify one retry, operators with only one configured telephone number will be tried two times (one try and one retry), and an operator with two configured telephone numbers will be tried two times at each of the two telephone numbers.

4. In the **Voice Calls** area, configure the retry parameters for voice calls.

   Number of prompt repeats before disconnecting
   Specify the number of times SCADAlarm should repeat a menu prompt without receiving a DTMF key response from the operator before disconnecting.

   Time between call retries
   Specify the amount of time, in seconds, that SCADAlarm will wait before trying the next telephone number on the list, whether it is the same operator again at his or her primary or secondary telephone or moving on to the next operator in the on-call list.

5. In the **Wait to expect Ack Call** area, configure amount of time, in minutes, that SCADAlarm will wait for an acknowledgement after a page or e-mail is sent.

   If this time expires without the alarm being acknowledged, SCADAlarm will retry the page or e-mail (if the retry count has not been exhausted) or move on to the next call.

6. Close the dialog box.

Using SCADAlarm with Pulse Telephone Systems

SCADAlarm can be used with pulse telephone systems to call out (or dial out) only. With pulse systems, an operator can be called by SCADAlarm, but cannot log in or acknowledge the alarm. If the operator has access to a cellular or DTMF phone, then he/she can call in and operate SCADAlarm normally. If operators do not have access to a tone or DTMF phone, you should re-record the system ID file to give a more general announcement:

System ID File	Default Voice File	Change To
z_sys_id.wav	"This is SCADAlarm"	"There is an alarm at central processing plant located at 331 First Street. Good-bye."

If your telephone requires the use of pulse dialing, select that property for your modem using the Phone and Modem utility in the Windows Control Panel. If it does not appear there, you must precede all operator telephone numbers with the letter "P," for pulse. For example: P555-1212.

Paging

SCADAlarm can send alarm notifications to operators via voice pagers, numeric-only pagers, alphanumeric pagers, and paging terminals.

With all types of paging, once SCADAlarm determines that it has successfully notified an operator with a pager message, it will wait before paging again. The amount of time it will wait is specified by the **Wait to expect Ack Call after page** system parameter. For more information, see "Configuring Paging Parameters" on page 32.

If you are using multiple pager service providers, the lowest baud rate will apply to the system. The minimum level supported by SCADAlarm is the same as the minimum level supported in the TAPI specification.

Numeric Paging

If an alarm occurs and numeric paging is enabled, SCADAlarm will call a numeric pager for an operator and leave a numeric message. The operator is expected to read the message and then call SCADAlarm, log in (depending on the login style configured for the operator), traverse the menu tree, and acknowledge the alarm within the specified amount of time.

Follow these general steps to configure numeric paging:

1. Select the device used for numeric paging. For more information, see "Assigning Hardware Devices to SCADAlarm Functions" on page 144.
2. Configure system parameters for paging. For more information, see "Configuring Paging Parameters" on page 32.
3. Configure at least one operator that you want to be able to acknowledge the alarm and specify a numeric pager number as a contact method. For more information, see Chapter 3, "Operators."

4. Enable numeric paging in the operator's calling preferences. For more information, see Chapter 3, "Operators."
5. Create the alarm tag(s). For more information, see Chapter 4, "Alarm Tags."
6. Create the tag report script that SCADAlarm will send to the pager for the alarm tag. Specifically, set up a numeric pager message format. For more information, see Chapter 5, "Alarm Reporting and Acknowledgment."
7. Configure a telephone menu tree that the operator will use when he/she calls into SCADAlarm. For more information, see Chapter 6, "Handling Incoming Voice Calls."
8. Enable paging calls in the SCADAlarm control schedule. For more information, see Chapter 7, "Control Schedules."

Alphanumeric Paging

If an alarm occurs and alphanumeric paging is enabled, SCADAlarm will call an alphanumeric pager for an operator and leave a message. The operator is expected to read the message and then call into SCADAlarm, log in (depending on the login style configured for the operator), traverse the menu tree, and acknowledge the alarm within a specified amount of time.

Follow these general steps to configure alphanumeric paging:

1. Select the device used for alphanumeric paging. For more information, see "Assigning Hardware Devices to SCADAlarm Functions" on page 144.
2. Configure system parameters for paging. For more information, see "Configuring Paging Parameters" on page 32.
3. Configure at least one operator that you want to be able to acknowledge the alarm and specify an alpha pager number as a contact method. For more information, see Chapter 3, "Operators."
4. Enable alpha paging in the operator's calling preferences. For more information, see Chapter 3, "Operators."
5. Create the alarm tag(s). For more information, see Chapter 4, "Alarm Tags."
6. Create the tag report script that SCADAlarm will send to the pager for the alarm tag. Specifically, set up an alphanumeric pager message format. For more information, see Chapter 5, "Alarm Reporting and Acknowledgment."
7. Configure a telephone menu tree that the operator will use when he/she calls into SCADAlarm. For more information, see Chapter 6, "Handling Incoming Voice Calls."
8. Enable paging calls in the SCADAlarm control schedule. For more information, see Chapter 7, "Control Schedules."

You can optionally set up a paging terminal to handle alphanumeric pages coming from SCADAlarm. For more information, see "Using Paging Terminals" on page 33.

Voice Paging and Answering Machines

For voice paging, in the event of an alarm, the following events occur:

1. SCADAlarm will dial the voice pager telephone number.
2. When the phone is answered by the pager service provider, SCADAlarm will announce itself, speak its telephone number, and speak the tag report script for the alarm. Since this is a one-way conversation to the voice pager, no login is required.

   SCADAlarm will only speak its telephone number if the **Include in voice page** system parameter is selected. For more information, see "Configuring Paging Parameters" on page 32.
3. SCADAlarm will speak the time of day, then hang up.

The operator is expected to listen to the message and then call into SCADAlarm, log in (depending on the login style configured for the operator), traverse the menu tree, and acknowledge the alarm within a specified amount of time.

Follow these general steps to configure voice paging:

1. Select the device used for voice paging. For more information, see "Assigning Hardware Devices to SCADAlarm Functions" on page 144.
2. Configure system parameters for paging. For more information, see "Configuring Paging Parameters" on page 32 and "Configuring Telephone Retrying Parameters" on page 27.
3. Configure at least one operator that you want to be able to acknowledge the alarm and specify a voice pager number as a contact method. For more information, see Chapter 3, "Operators."
4. Enable voice paging in the operator's calling preferences. For more information, see Chapter 3, "Operators."
5. Create the alarm tag(s). For more information, see Chapter 4, "Alarm Tags."
6. Create the tag report script that SCADAlarm will send to the pager for the alarm tag. For more information, see Chapter 5, "Alarm Reporting and Acknowledgment."

   Set up either an interactive voice script or a text-to-speech message. If you use an interactive voice script, SCADAlarm will not speak the parts of the script that require operator interaction.
7. Configure a telephone menu tree that the operator will use when he/she calls into SCADAlarm. For more information, see Chapter 6, "Handling Incoming Voice Calls."
8. Enable paging calls in the SCADAlarm control schedule. For more information, see Chapter 7, "Control Schedules."

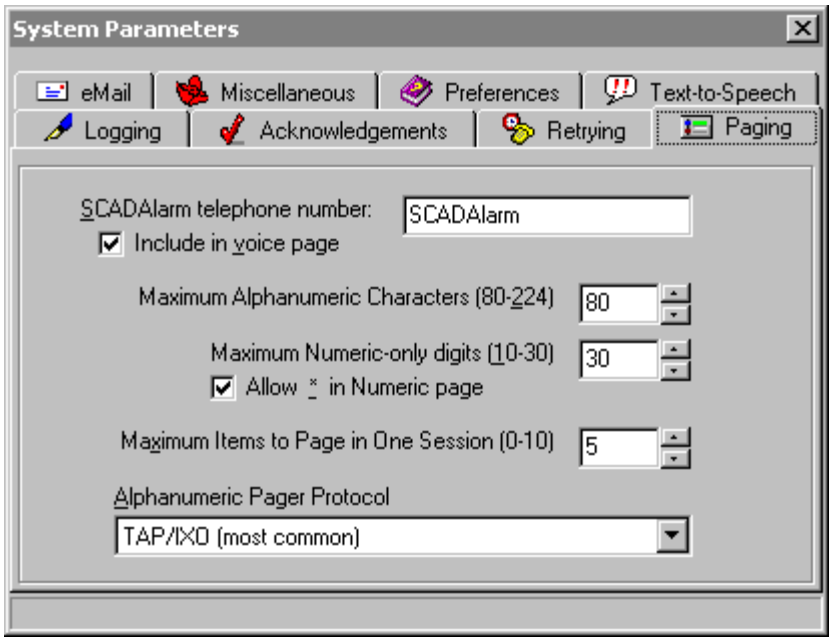
Configuring SCADAlarm to call a voice pager has other useful applications as well:

- **Leaving a message on an answering machine:** SCADAlarm will dial, announce itself, speak the alarm's tag report script, speak the time of day, then hang up. You may miss part of the tag report script due to your answering machine's outgoing message, but that can be adjusted by placing commas after the voice pager's telephone number. For more information, see "Adding a Delay to a Voice Pager Message" on page 40.
- **Notifying an answering service:** You may have a situation where you needs to call an answering service. In turn, the answering service employee would notify plant personnel that an alarm has occurred. It may not be desirable to require answering service employees to login to SCADAlarm. Configuring the answering service telephone number as a voice pager may be useful in this situation, since SCADAlarm will merely speak the alarm's tag report script then hang up, without requiring any interaction with the call recipient.

Configuring Paging Parameters

To configure paging parameters

1. On the **Configuration** menu, click **System Parameters**.
2. Click the **Paging** tab.



3. In the **SCADAlarm telephone number** box, type the phone number that SCADAlarm uses to dial out.

   The SCADAlarm phone number can be included in message formats. In message format, the [S] variable will reflect this phone number.

4. Select the **Include in voice page** check box to have SCADAlarm speak its telephone number when the voice page is delivered.
5. Configure the paging limits.

Max Alphanumeric Characters
The maximum number of characters that will be sent in a alphanumeric pager message.

Max Numeric-only Digits
The maximum number of digits that will be sent in a numeric-only pager message.

These parameters should match the maximum character/digit capacity of your particular paging service provider. When you configure the message format, you will be warned if these limits are exceeded. If you choose to exceed these limits anyway, the message will be truncated at page time and this fact will be logged.

Allow * in Numeric page
Select this check box to allow asterisks (*) to be included in a numeric-only pager message. Most numeric pagers will display the asterisk (*) character as a dash (-). Some paging service providers interpret an incoming asterisk as a request to terminate (or even cancel) the pager message. In these cases, deselect this check box in order to suppress all asterisks in numeric pager formats.

Max Items to page in one session
Used to limit the pager activity to a reasonable number of alarms in case a large number of alarms occur simultaneously.

For example, if this parameter were set to 5, and eight alarms were to be tripped, the first pager message sent will indicate that there are eight unack'ed alarms. The system would then send five pager messages, one for each of the first five alarms received. Set this parameter to 0 if you want only the number of active alarms to be sent to the pager.

6. In the **Alphanumeric Pager Protocol** area, configure the connection protocol used for all outgoing alphanumeric pager messages. Contact your paging service provider to determine which protocols are supported in your area.

   TAP/IXO
   The protocol that is used in the United States and abroad.

   UCP/GSM
   The protocol that is used mostly in Europe.

7. Close the dialog box.

Using Paging Terminals

You can easily connect SCADAlarm directly to a paging terminal. Using a private terminal has several advantages. For example, lower long-term cost, direct control of subscribed pagers, higher paging frequency, and lower pager latency.

The following steps outline the main tasks in setting up a paging terminal for use with SCADAlarm:

1. Connect the hardware. For more information, see "Connecting the Paging Terminal Hardware" on page 34.

2. Set up your paging terminal. For more information, see "Setting up the Paging Terminal" on page 35.
3. Add a direct connection to the Windows modem list. For more information, see "Add a Direct Connection to the Windows Modem List" on page 35.
4. Select the direct connection as alpha paging device for SCADAlarm. For more information, see "Configure SCADAlarm to Use the Paging Terminal" on page 39.
5. Make sure that each alpha pager access number for each operator is blank.

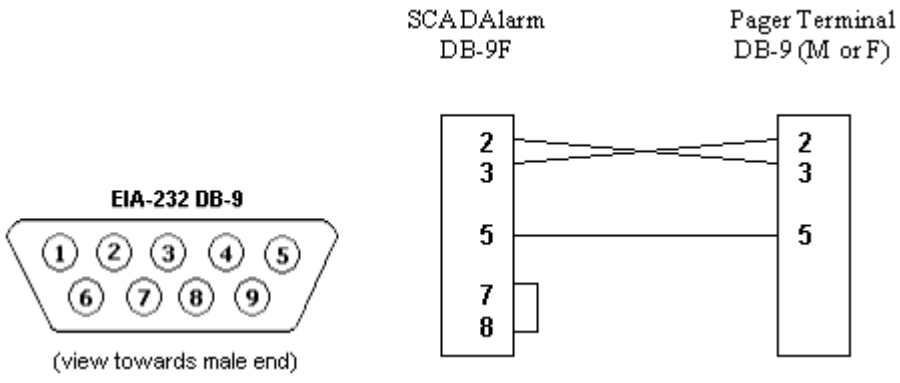
When an alarm condition or event is detected by SCADAlarm, SCADAlarm will call the first pager number configured on its call-out list (the paging terminal). The operator will receive the pager message that was transmitted by his/her on-site pager device.

Connecting the Paging Terminal Hardware

SCADAlarm supports on-site paging terminals that use dedicated TAP- or UCP-compliant paging hardware. A paging terminal must be implemented using the manufacturer's TSP (if available) or TAPI's null-modem configuration.

1. If required, use a null modem cable to connect the serial port of the SCADAlarm computer to the paging terminal's serial port. If the paging terminal's port is a DTE port (intended to connect to a modem, or DCE), a null modem cable is required. For more information, see the documentation for your paging terminal.

Note The following diagram assumes that no handshake signals are required by the paging terminal. For more information, see the documentation for your paging terminal. This cable has been tested with the Visiplex model VS3100 and was determined to be adequate.



2. Select the COM port you will use and connect this cable from that port to your alphanumeric paging terminal.

Setting up the Paging Terminal

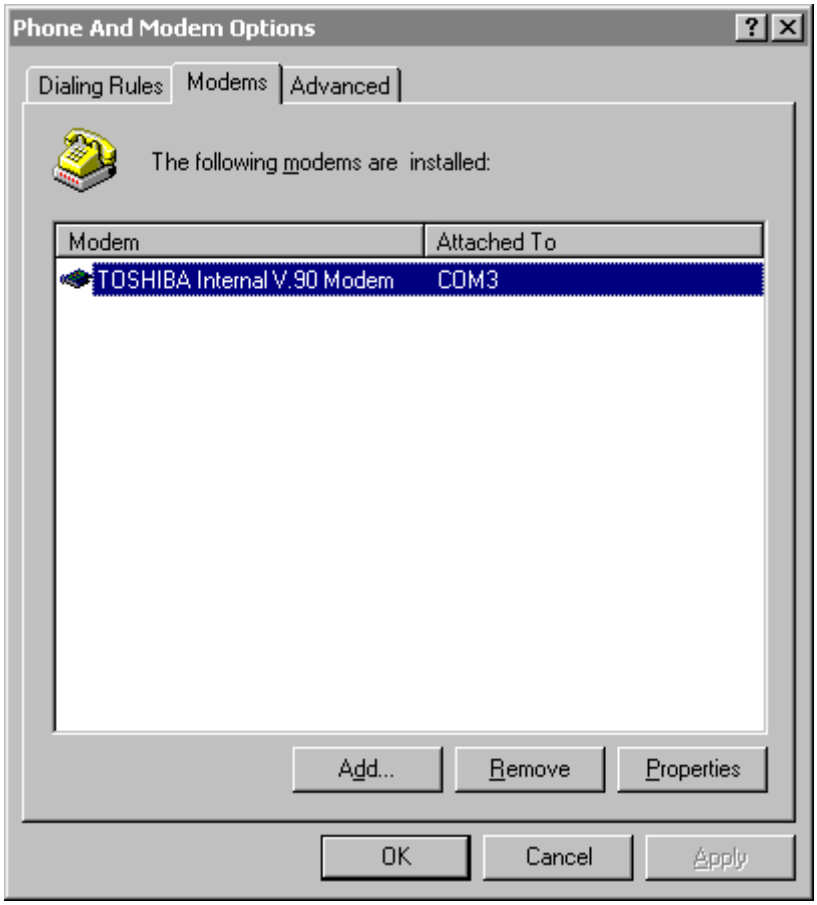
The port on the paging terminal to which SCADAlarm will be connected must be set to use the same paging protocol that SCADAlarm is using. Options are:

- TAP (or IXO)
- UCP (or GSM or SMS)

For more information on setting up the paging terminal, see the paging terminal documentation.

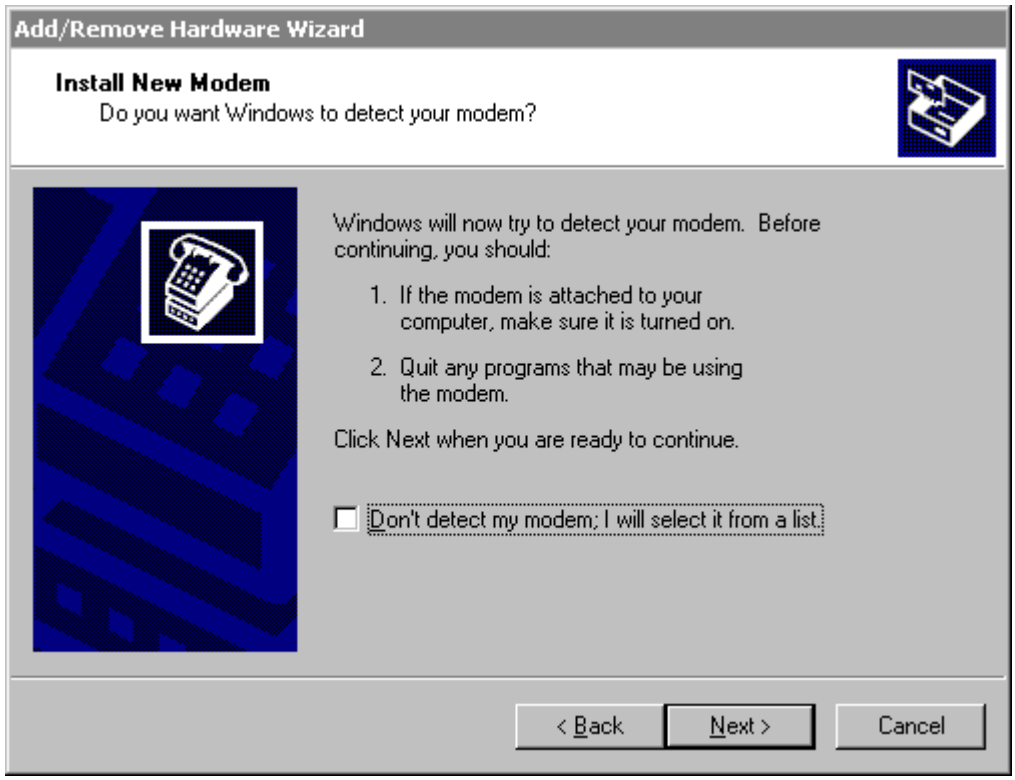
Add a Direct Connection to the Windows Modem List

1. In the Windows Control Panel, click **Phone and Modem Options**. The **Phone And Modem Options** dialog box appears.

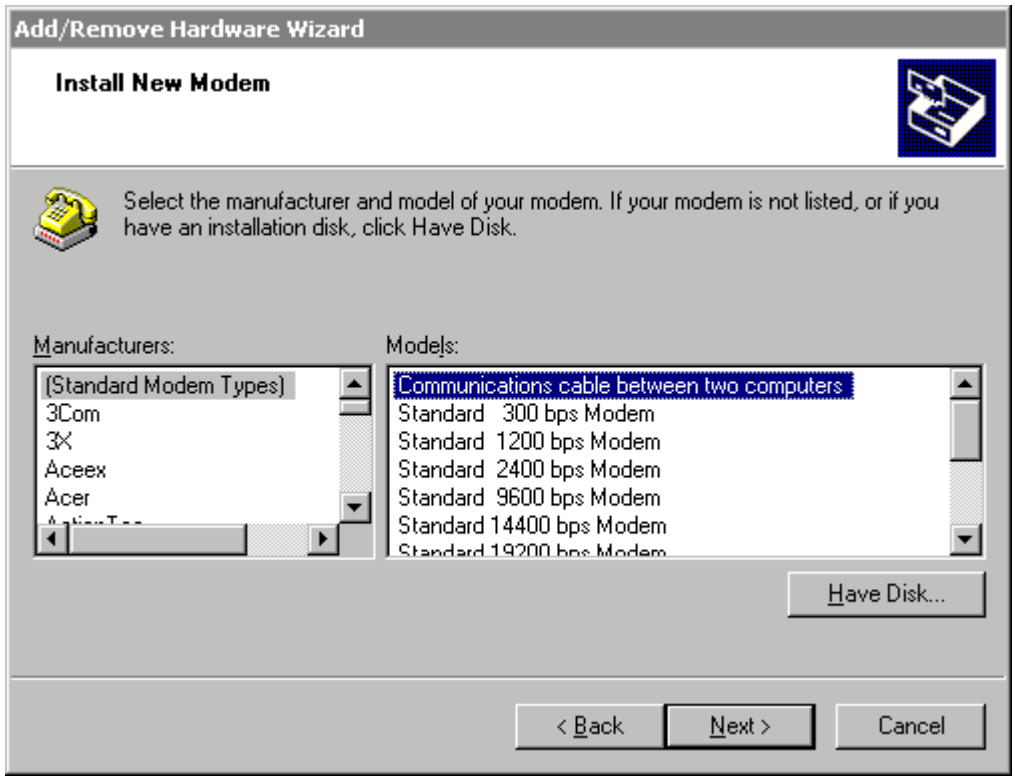


2. Click the **Modems** tab.

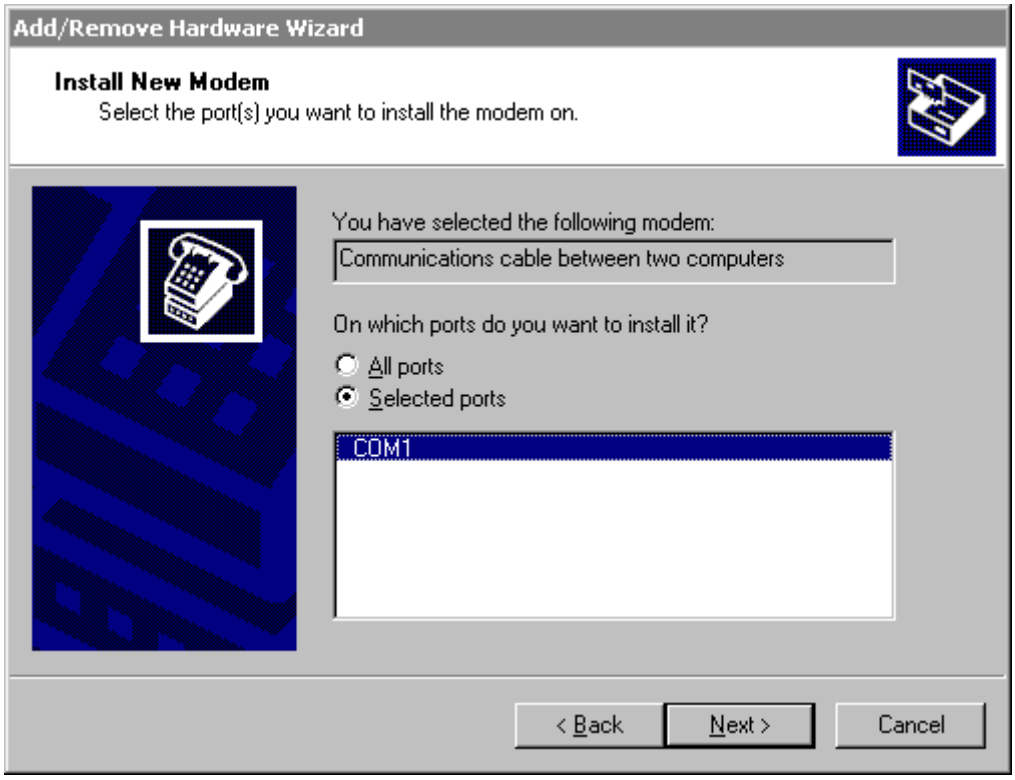
3. Click **Add**. The **Add/Remove Hardware Wizard** dialog box appears.



4. Select the **Don't detect my modem; I will select it from a list** check box.
5. Click **Next**. The **Install New Modem** dialog box appears.

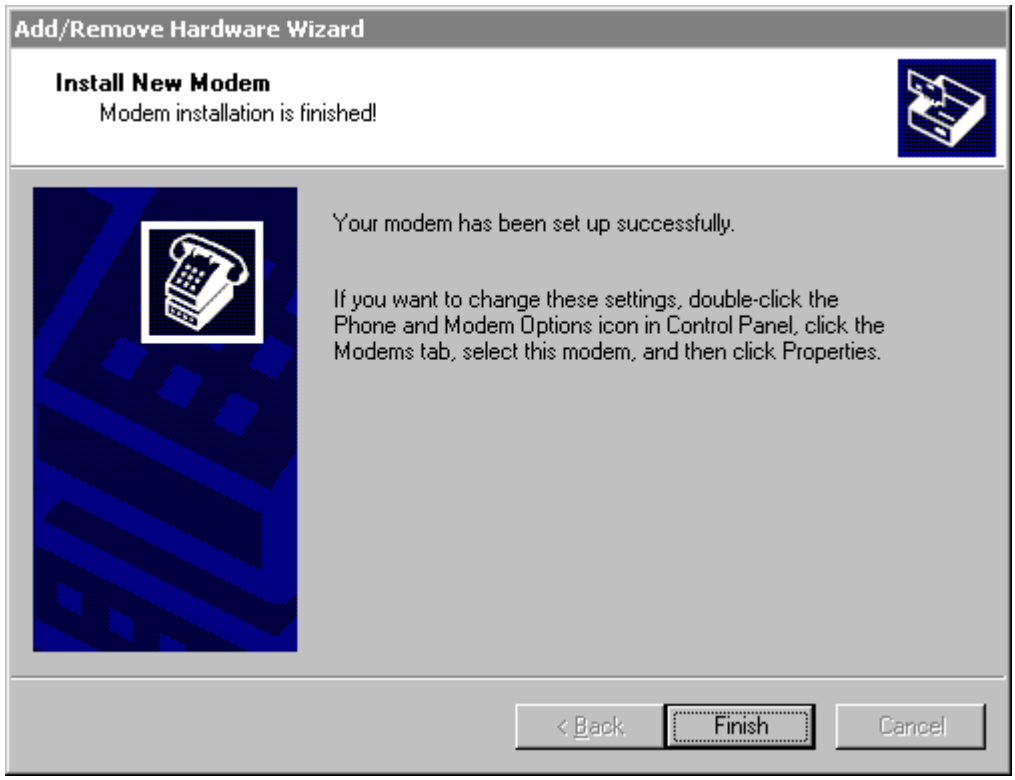


6. In the **Models** list, select **Communications cable between two computers**.
7. Click **Next**. The **Install New Modem** dialog box appears.

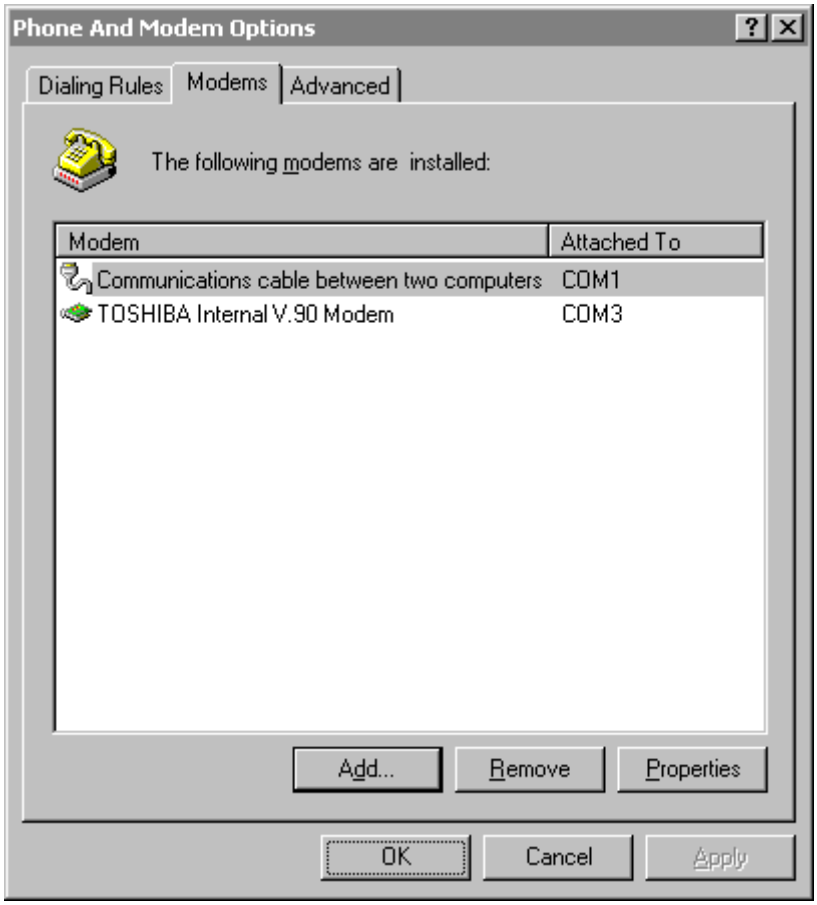


8. Select the COM port to which the paging terminal is connected.

9. Click **Next**. The **Install New Modem** dialog box appears.



10. Click **Finish**. The **Phone And Modem Options** dialog box appears.



11. Remember the new name given by Windows to this device. You will need to select this name when you configure devices in SCADAlarm.

12. Click **OK**.

Configure SCADAlarm to Use the Paging Terminal

To configure SCADAlarm to use the paging terminal

1. Start SCADAlarm.

2. Specify the direct connection device that you configured in Control Panel to be the SCADAlarm alphanumeric paging device. For more information on selecting devices, see "Assigning Hardware Devices to SCADAlarm Functions" on page 144.

3. Configure SCADAlarm to use the alphanumeric pager protocol that matches the protocol of your paging terminal's protocol. For more information, see "Configuring Paging Parameters" on page 32.

4. In the operator's contact method for alpha pagers, leave the **Access Number** option blank. SCADAlarm will then bypass the normal dialing sequence. The **Alpha Pager ID** option should be set to match the ID configured for a pager in the paging terminal. For more information on configuring paging options for operators, see "Creating an Operator Profile" on page 49.

Changing the Alphanumeric Paging Baud Rate

Some alphanumeric paging service providers use slower baud rates (300 or 1200 baud) for their TAP/UCP access numbers. Contact your paging service provider and obtain the baud rate, bits, and parity settings.

SCADAlarm only supports three baud rate entries: 300, 1200, or 33600. If any other baud rate is specified, SCADAlarm will revert to 33600.

To change the baud rate, bits, and parity settings within SCADAlarm

1. Shut down SCADAlarm.
2. Using a text-only editor (such as Notepad), open the SCADALRM.ini file. This file can be found in the SCADALRM application folder.
3. Find the environment variable named:

   Pager Service Comm (RateParityBits)=33600E7

   Note 33600E7 is the default value.

4. Edit this value as follows:

   If the service provider requires 300 baud, change the line to:

   Pager Service Comm (RateParityBits)=300E7

   If the service provider requires 1200 baud, change the line to:

   Pager Service Comm (RateParityBits)=1200E7

5. Save and close the SCADALRM.ini file.
6. Restart SCADAlarm.

Adding a Delay to a Voice Pager Message

You can add a delay to a voice pager message by inserting one or more commas after the phone number. One comma adds a two second pause to the dialing sequence. For example, to add four additional seconds of delay before SCADAlarm speaks on an outgoing call, add `,,*` (two commas followed by an asterisk) to the end of the voice pager phone number.

Manually Sending a Pager Message

This feature can be used as a simple paging terminal. It is also a handy tool for testing pagers during the configuration of your SCADAlarm project.

To manually send a page

1. Configure at least one operator with a pager address.

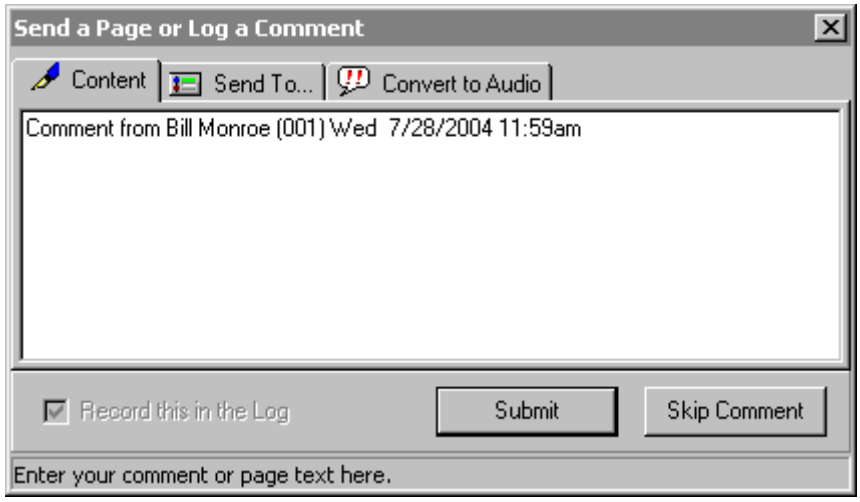
   For more information, see "Creating an Operator Profile" on page 49.

2. On the **Access** menu, select **Send Page or Log Comment**.

3. If you are not currently logged in as an administrator, you will be prompted to select your name from a list and provide your four-digit PIN to continue.

   The **Send a Page or Log a Comment** dialog box appears.

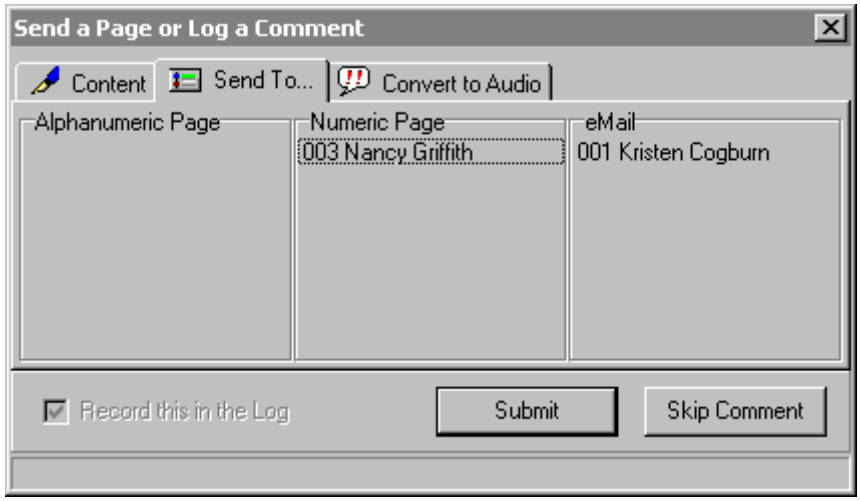
4. Click the **Contents** tab.



5. In the text box, type the comment that you want to send to the pager.

   Note If you are sending a message to a numeric-only pager, make sure to type in a numeric-only message.

6. Click the **Send To** tab.



7. In the **Alphanumeric Page** and/or **Numeric Page** list, select the desired recipients.

Note If no operators are available, verify the operator information and calling preferences.

8. To cancel the page, click **Skip Comment**.
9. To send the page, click **Submit**.

E-mail Notification

If an alarm occurs and e-mail notification is enabled, SCADAlarm will send an operator an e-mail message, formatted according to either the format specified in the tag report script for the alarm tag, or to a default format if no tag report script is specified. The operator is expected to read the message and then call into SCADAlarm, log in (depending on the login style configured for the operator), traverse the menu tree, and acknowledge the alarm within a specified amount of time.

This e-mail will be sent at regular intervals (specified by the **Delay to Expect Ack Call after eMail** on the **Retrying** tab of the **System Parameters** dialog box) until the number of retries for the operator have been exhausted. After that, SCADAlarm will try the next contact method (if there is one) for the same operator, or the next operator on call, exactly as it does for any other contact method.

If you select the **Ack when delivered** option in the **Alarm / Tag Data Point Definition** dialog box, or in the **Tag-Vue** spreadsheet, the **Alarm** window to pop up only briefly. The e-mail is sent, which qualifies as delivery, so SCADAlarm acknowledges the alarm and the window disappears within moments (if no other alarms are present).

Follow these general steps to configure e-mail notification:

1. Verify that the TCP/IP protocol is installed.

   Details regarding this procedure can be found in your Microsoft® Windows® documentation.

2. Verify that you have a secure Internet connection.

   SCADAlarm's e-mail system will wait to send e-mail if there is no Internet connection. Because of this, be sure the Internet is connected whenever you need SCADAlarm to send e-mail.

   Important! Wonderware is not responsible for any security-related problems, failures, entries, or benign or malicious attacks resulting from the use of SCADAlarm's e-mail features or the attachment of other devices or software to enable the use of SCADAlarm's e-mail features.

   For more information, see "E-mail Security Recommendations" on page 43.

3. Configure system parameters for e-mail. For more information, see "Configuring E-mail System Parameters" on page 44.
4. Configure at least one operator that you want to be able to acknowledge the alarm and specify an e-mail address as a contact method. For more information, see Chapter 3, "Operators."

5. Enable e-mail in the operator's calling preferences. For more information, see Chapter 3, "Operators."
6. Create the alarm tag(s). For more information, see Chapter 4, "Alarm Tags."
7. Create the tag report script that SCADAlarm will send to the e-mail address for the alarm tag. Specifically, set up an e-mail message format. For more information, see Chapter 5, "Alarm Reporting and Acknowledgment."
8. Configure a telephone menu tree that the operator will use when he/she calls into SCADAlarm. For more information, see Chapter 6, "Handling Incoming Voice Calls."
9. Enable e-mail notification in the SCADAlarm control schedule. For more information, see Chapter 7, "Control Schedules."

   When e-mail is disabled, a caller requesting an e-mail report via the menu tree will hear "The e-mail request has been cancelled."

The typical use of this type of notification is to send e-mail to pager or cellular telephone providers that accept e-mail messages and announce the arrival of such messages by signaling the pager or telephone.

E-mail Security Recommendations

Wonderware is not responsible for the security of your Internet access. Therefore, we make these recommendations, as a minimum:

- Use a firewall. This prevents unwanted external access from "outside" while connected to the Internet.
- Use a separate proxy server for e-mail. This provides an additional layer of protection from the Internet. Also, the Internet connection can be temporary, and the proxy server will dial up as needed. It is possible to configure a second modem on the same computer to dial out when a network connection is required, but this is not recommended. In any case, you should install the appropriate safeguards against malicious use, either externally or from within.
- To ensure the security of SCADAlarm users that do not use e-mail, a separately configured modem, *not the SCADAlarm modem*, must be used for all Internet access. Since SCADAlarm has control of the modem, the operating system will not allow another application to use it. By design, SCADAlarm cannot establish an Internet connection.

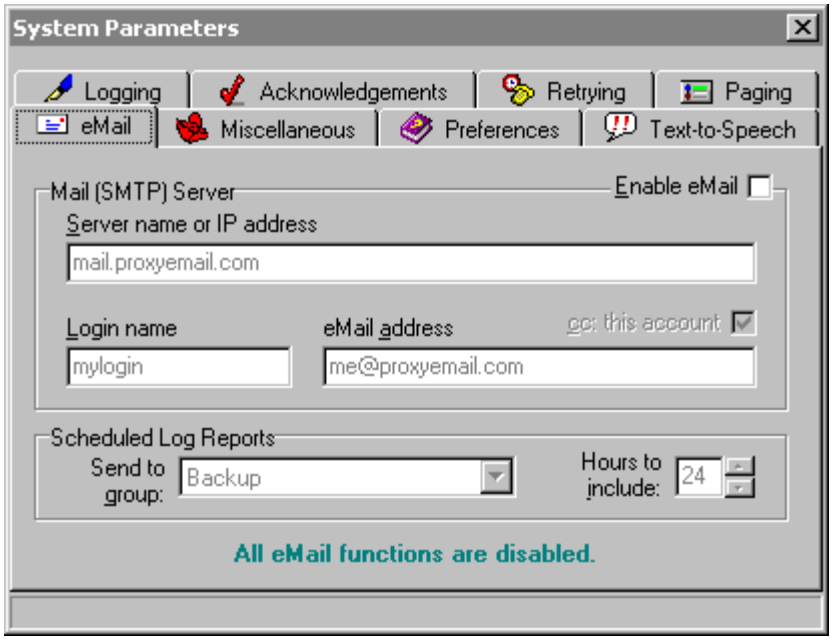
A complete discussion of Internet security is beyond the scope of this manual. Additional security steps can be taken. For more information, consult your system administrator or firewall documentation.

Configuring E-mail System Parameters

You need to specify the e-mail server and the account that SCADAlarm will use to send e-mail to operators. Make sure that the e-mail server can handle the load generated by SCADAlarm. SCADAlarm is capable of generating tremendous amounts of e-mail, enough to keep a server very busy. Therefore, coordinate e-mail use with your system administrator.

To configure e-mail system parameters

1. On the **Configuration** menu, click **System Parameters**. The **System Parameters** dialog box appears.
2. Click the **eMail** tab.



3. Select the **Enable eMail** check box to enable e-mail functionality for SCADAlarm.
4. In the **Server name or IP address** box, type the name or IP address of your Internet service provider's outgoing (SMTP) e-mail server. For example, **mail.nospam.com** or **172.16.209.1**.

   If your Internet connection is frequently down, use the IP address, since that makes the connection easier to detect. If you know the server name, you can determine the IP address. Open a command prompt window and type `ping ServerName.com`. You will be able to see the IP address used by the **ping** command.
5. In the **Login name** box, type the login name for the e-mail account to use to send e-mail notifications.

   A valid e-mail account is required.
6. In the **eMail address** box, type the address for the account.

7. Select the **cc: this account** check box to have a copy of every outgoing e-mail sent to the account SCADAlarm is using.

   If you select this option, you should log in periodically to the SCADAlarm e-mail account to read and delete e-mail.

   Note No blind copies (bcc) are sent by SCADAlarm; all recipients can see who received e-mail.

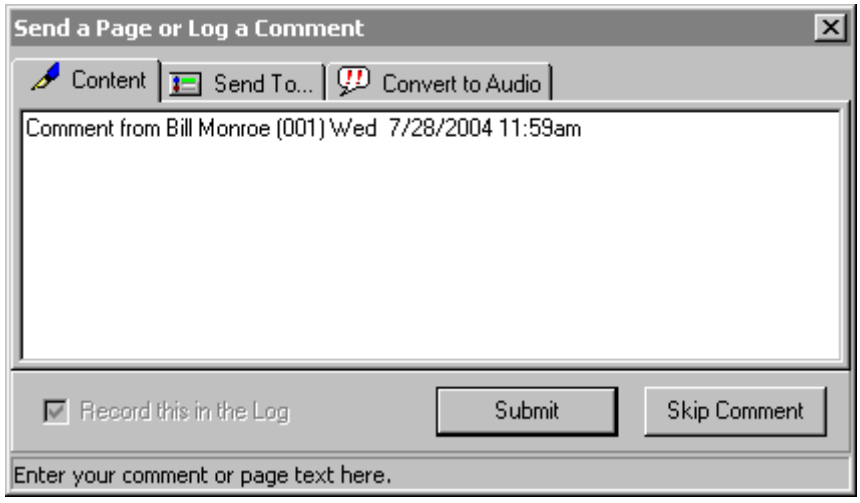
8. Close the dialog box.

Manually Sending an E-mail Message

To manually send an e-mail

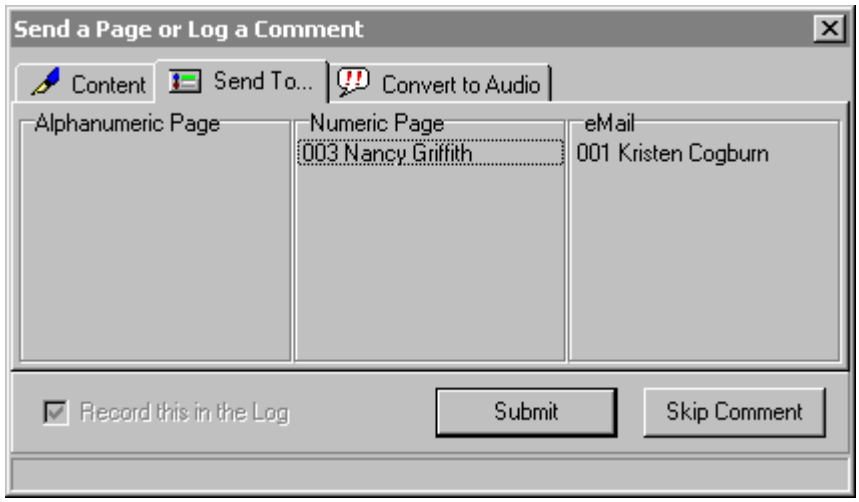
1. On the **Access** menu, select **Send Page or Log Comment**.
2. If you are not currently logged in as an administrator, you will be prompted to select your name from a list and provide your four-digit PIN to continue.

   The **Send a Page or Log a Comment** dialog box appears.
3. Click the **Contents** tab.



4. In the text box, type the message that you want to send via e-mail.

5. Click the **Send To** tab.



6. In the **eMail** list, select the desired recipients.

Note If no operators are available, verify the operator information and calling preferences.

7. To cancel the e-mail, click **Skip Comment**.
8. To send the e-mail, click **Submit**.

C H A P T E R 3

Operators

Operators are the people that are notified by SCADAlarm when an alarm occurs. Each operator is assigned a personal four-digit PIN and may have up to four contact methods. An operator's calling preferences define the order that his/her telephone numbers are dialed and when the operator is on-call. You can organize operators into group on-call lists, allowing you to notify a specific operator group when an alarm occurs. SCADAlarm will call each person on the list when an alarm occurs until someone acknowledges it.

Contents

Operator Profiles

An operator profile contains basic information, such as the name of the operator, operator ID number, personal identification number (PIN), permission level, greeting file, and how the operator will be contacted in the event of an alarm.

Operator Authentication

SCADAlarm assigns each operator a unique ID code. Also, you can assign each operator a security PIN. There are three scenarios in which operator authentication is required:

- SCADAlarm calls the operator at one of the voice phone numbers configured in the operator's profile.
- The operator calls SCADAlarm.
- The operator wants to configure the SCADAlarm software.

If SCADAlarm calls an operator, the operator will always be required to log in.

In order to log in to configure the SCADAlarm software program, an operator must be assigned administrative privileges. The operator is required to provide an ID code and PIN when logging on to the SCADAlarm software.

If the operator calls SCADAlarm on the telephone, the authentication required depends on how you have configured the login style for all of the operator's voice phone contact methods. Options for the login style are: normal, automatic, and restricted.

"Normal" Login

The operator who calls SCADAlarm will be prompted to provide his/her operator ID code and PIN. The operator can be calling from any phone; it does not have to be the same phone number specified as the voice phone contact method.

For example:

Phone Number	Login Type	Authentication
222-2222	Normal	Operator is prompted for ID and PIN.
333-3333	Normal	Operator is prompted for ID and PIN.

"Automatic" Login

The operator will not have to provide the ID code and PIN, as long as he/she is calling from the voice phone that is specified as the voice phone contact method. However, if the phone blocks calling party identification (CPID) delivery, the operator will have to provide the ID code and PIN.

For example:

Phone Number	Login Type	Authentication
333-3333	Normal	Operator is prompted for ID and PIN.
444-4444	Automatic	Operator is automatically logged in.
555-5555 (CPID blocked)	Automatic	Operator is prompted for ID and PIN.

Calling party identification (CPID), also called "Caller ID™," is the process by which the identity of the call origination station is made known to SCADAlarm by the local telephone service provider equipment. CPID is a feature provided by the service provider; it is not automatically available.

SCADAlarm matches the CPID information with the number that is configured in the operator profile. The number of characters required for the match is specified by the **Number of rightmost characters for CPID match** system parameter in the SCADAlarm.ini file. By default, there is no entry in the file. However, the default is set to 7, causing SCADAlarm to require a match on the last seven digits of the caller ID delivered to SCADAlarm. To have SCADAlarm perform a match for a typical area code plus seven-digit phone number, add the following entry in the SCADAlarm.ini file in the System Parameters section.

```
[System Parameters]
Number of right most characters for CPID match=10
```

You can adjust this value to specify more or fewer numbers. For example, you might want to increase the value to 11 to accommodate a country code.

"Restricted" Login

The operator who calls SCADAlarm will be prompted to provide his/her operator ID code and PIN. The operator must be calling from the phone number configured to have the restricted login or from a phone number configured to have an automatic login. If the operator calls from any numbers configured to have a normal login, the login will fail.

For example:

Phone Number	Login Type	Authentication
333-3333	Normal	Operator is prompted for ID and PIN. However, the operator will not be logged in because he/she is not calling from the restricted or automatic number.
444-4444	Automatic	Operator is automatically logged in.
666-6666	Restricted	Operator is prompted for ID and PIN.

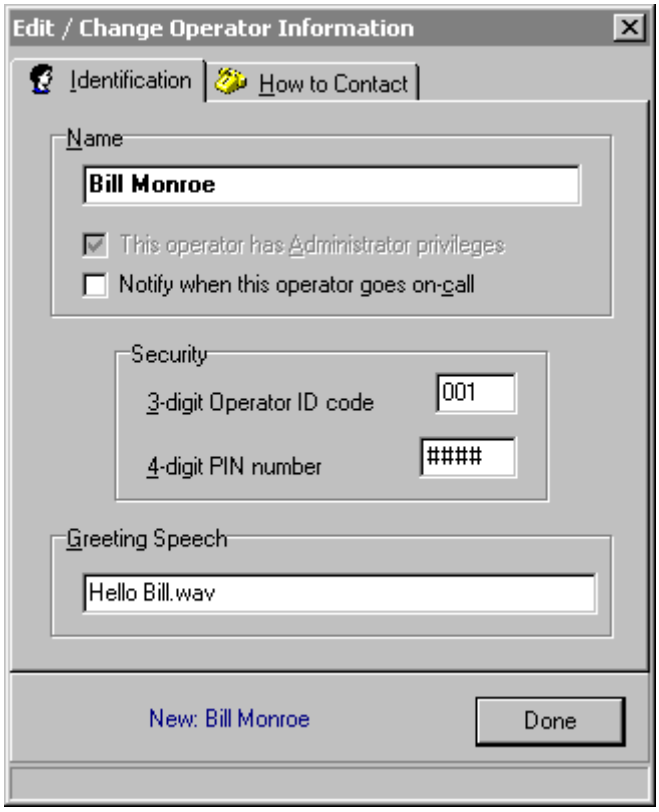
Creating an Operator Profile

You can create a maximum of 250 operator profiles.

To create an operator profile

1. On the **Maintenance** menu, point to **Operator File** and then click **New Operator**. The **Edit / Change Operator Information** dialog box appears.

2. Click the **Identification** tab.



3. In the **Name** box, type the name of the operator.
4. Select the **This operator has Administrator privileges** check box if you want this operator to be able to perform administrative tasks within the system.

   You can design your SCADAlarm system to limit access of certain control functions over the telephone, such as set-point changes and so on, to only operators with administrator privileges.

   For more information, see "Telephone Menu Trees" on page 120.
5. Select the **Notify this operator when on-call** check box if this operator is to be notified when he/she becomes available according to the SCADAlarm schedule.

   The SCADAlarm system can be configured to send a one time only notification to the operator's first available contact method (determined by the operator's calling preferences) when he/she becomes available according to the schedule.
6. In the **Security** area, configure the security code and PIN for the operator.

3-digit Operator ID code
A unique 3-digit operator ID that SCADAlarm automatically assigns to each operator. This number must be keyed in by the operator via DTMF keys in order to log in to the system on the telephone. You may modify the operator's 3-digit ID only when an operator is first created. Once the operator information is saved, this ID cannot be changed. SCADAlarm supports values between 001 to 999.

4-digit PIN number
A personal identification number (PIN) to be keyed in by the operator via DTMF keys in order to log in to the system on the telephone or typed in from the computer keyboard when logging in at the computer console. The PIN is also required for administrators to gain entry to the system maintenance and configuration functions from the computer console.

Use care when typing a PIN number in this entry box. Each number you type is displayed back as a "#" (pound sign).

If you configure an operator with the default PIN, SCADAlarm will ask you to confirm this action. The default PIN is "0000." You should change it to a unique number for each operator, and be sure each operator knows his or her operator number and PIN. Click **Yes** to continue using the default PIN. Click **No** to go back and change the PIN.

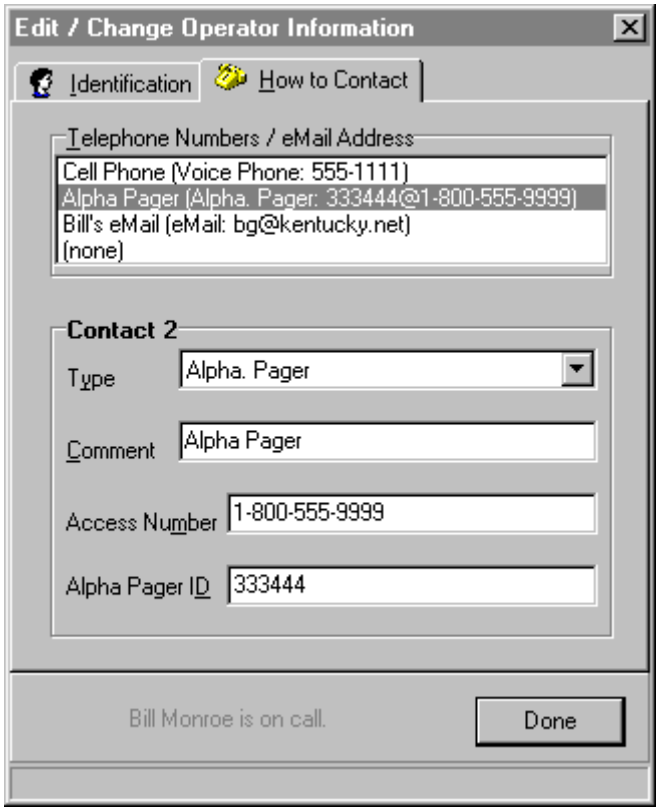
7. In the **Greeting Speech** box, specify a voice file (.wav) that contains the greeting for this operator or a text file (.txt) that will be spoken using text-to-speech.

   The greeting speech is spoken after the operator successfully logs in over the telephone. For example, the greeting file "Hello Bill.wav" might say: "Hello Bill, welcome to SCADAlarm."

   To select a voice file (.wav) or create a new file, double-click in the box or right-click in the box and click **Browse or Record New Speech File**. The **Voice Prompt File** dialog box appears in which you can select or record a prompt. For more information, see "Browsing or Recording a Voice Prompt" on page 136.

   To select a text-to-speech (.txt) file or create a new file, right-click in the box and click **Browse or Create New Text File**. The **SCADAlarm Text-to-speech Text Files** dialog box appears in which you can select or create a text-to-speech file. For more information, see "Browsing or Creating a Text-to-Speech File" on page 138.

8. Click the **How to Contact** tab.



The **Telephone Numbers / eMail Address** window displays all of the configured contact methods for the operator. Each operator may have up to four configured contact methods, such as telephone numbers and/or e-mail addresses.

The phone number entries do not determine the order in which these phone numbers are dialed. The order that these numbers are dialed is specified by an operator's calling preferences. For more information, see "Calling Preferences for Operators" on page 55.

9. In the **Telephone Numbers / eMail Address** window, click **(none)**.
10. In the **Type** list, click the method that SCADAlarm will use to notify the operator. Available options are: **Voice Phone**, **Numeric Pgr**, **Alpha. Pager**, **Voice Pager**, or **eMail**.

Note If you are using a GSM phone, use the alphanumeric pager contact method.

The options in the **Contact** area of the dialog box will change, depending on the contact method that you have selected.

11. In the **Comment** box, type a description for the contact method. For example, "Bill's Numeric Pager," or "Bill's Cell Phone."

12. If you selected the voice phone, numeric pager, or voice pager method, in the **Phone Number** box, type the phone number to be dialed.

    Some telephone systems do not provide a dial tone until a digit is dialed. In this case, when SCADAlarm attempts to dial out, it will indicate that NO DIALTONE is present and abort the attempt. The "blind dialing" feature allows SCADAlarm to attempt a dial out even if no dial tone is present. To enable blind dialing, add an "N" as the first character of the phone number. For example, to dial 5551212, type N5551212 for the phone number.

13. If you selected voice phone, in the **Login Style** list, select how the operator will be authenticated over the phone. For more information, see "Operator Authentication" on page 47.

14. If you selected the alphanumeric pager method, configure the access number and alpha pager ID.

    SCADAlarm supports the following TAP and UCP text paging standards:

    - TAP (Telocator Alphanumeric Protocol) specification, Version 1.8.
    - ETSI TR 101 632 v6.0.0 (1999-04) GSM 03.39 v6.0.0 1997

    Note For GSM phones, the alpha pager ID is sometimes referred to as the address code. The address code is usually the voice telephone number of the GSM phone.

    Access Number
    The telephone number that your alphanumeric paging service provides for modems (such as the SCADAlarm modem) to connect to. When this number is called, the paging service computer asks SCADAlarm for the alpha pager ID.

    Alpha Pager ID
    The direct access number for the pager (sometimes printed on a sticker on the back of the pager), without hyphens or the area code.

    For example, your pager has a sticker that says 707-333-4444, and the Paging Service invoice tells you that all of your pagers are accessed at (800) 555-9999.

    For example:

Number on Pager Sticker	Pager ID	Alpha Pager Access Number
707-333-4444	3334444	1-800-555-9999

15. If you selected the e-mail method, in the **eMail Address** box, type the operator's e-mail address.

16. Click **Done**.

Changing an Operator Profile

To change an operator profile

1. On the **Maintenance** menu, point to **Operator File** and then click **Change Operator**. The **Select-an-operator** dialog box appears.
2. Select the operator's name in the list and then click **Continue**.
3. When prompted to confirm, click **OK**. The **Edit / Change Operator Information** dialog box appears.
4. Make any required changes to the operator definition.

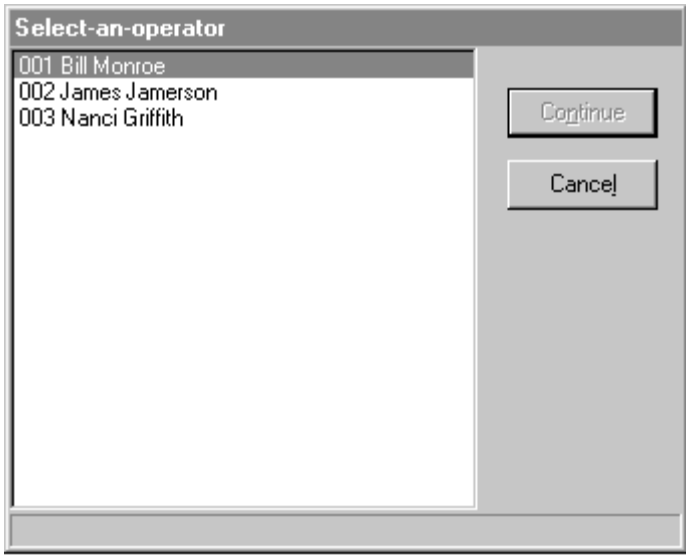
   All of the options are the same as for adding an operator. For more information, see "Creating an Operator Profile" on page 49.
5. Click **Done**.

Deleting an Operator Profile

You cannot delete yourself nor an operator who is a member of an on-call group.

To delete an operator profile

1. On the **Maintenance** menu, point to **Operator File** and then click **Delete Operator**. The **Select-an-operator** dialog box appears.



2. Select the operator's name in the list and click **Continue**. The **Confirm Action** dialog box appears.
3. Click **OK**.

Calling Preferences for Operators

An operator may carry an alphanumeric pager, numeric-only pager, cellular phone, and have an e-mail account. The order in which these "contact methods" are called and the time of day that they are enabled are configured via the on-call preferences schedule for each operator.

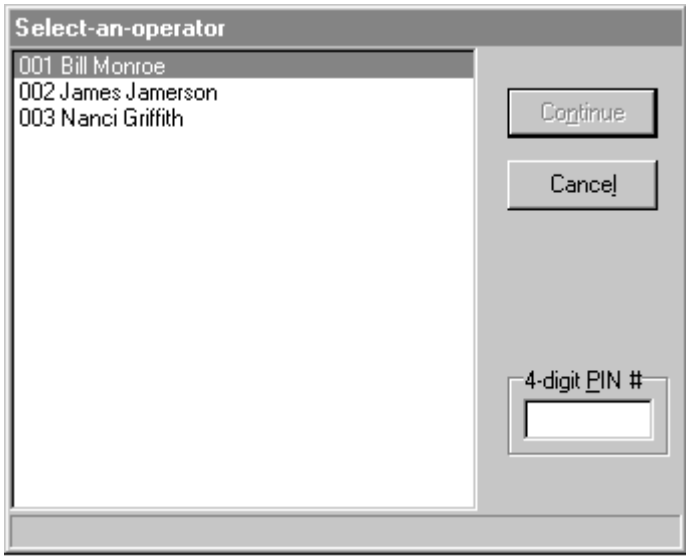
The SCADAlarm control schedule overrides all on-call preference schedules. For example, if paging calls are disabled in the control schedule, no operators will ever be paged, regardless of how their on-call preference schedules are configured. For more information on control schedules, see Chapter 7, "Control Schedules."

Important! As schedules become more complicated, it is possible to have "holes" in your schedule, where no operators are available (that is, where no one is on-call for a period of time). It is recommended that you configure at least one operator to always be on call and make this operator a member of the Backup operator group. If SCADAlarm detects an alarm and cannot contact an available on-call operator, it will "rollover" to the Backup group.

Configuring Calling Preferences for an Operator

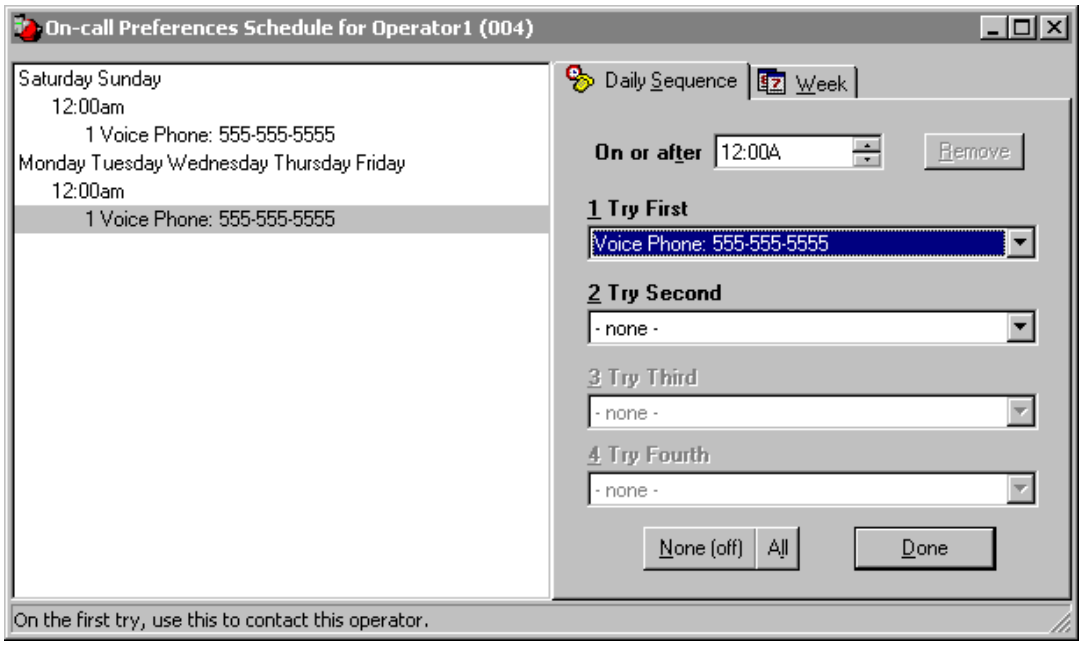
To configure calling preferences for an operator

1. On the **Access** menu, click **Calling Preferences**. The **Select-an-operator** dialog box appears.



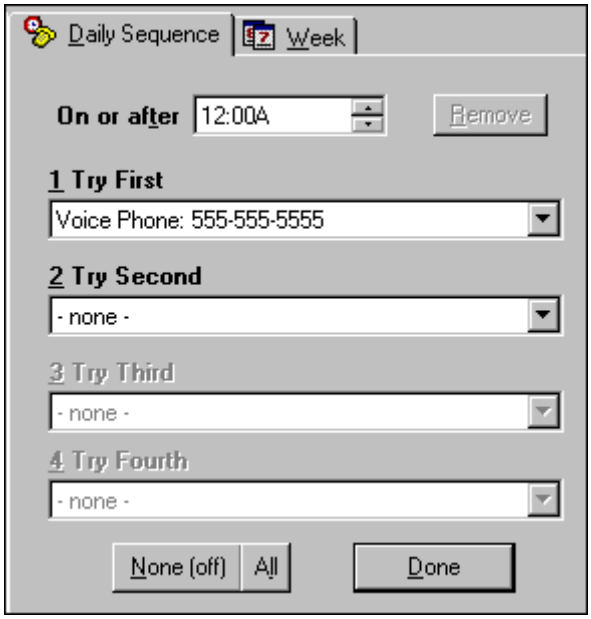
2. Click the name of the operator whose schedule you want to configure.
3. In the **4-digit PIN #** box, type the personal identification number that was assigned to the selected operator. This option will not appear if you have already logged in as an administrator, since administrators can edit all of the settings (profile, on-call preferences, etc) for any operator. An operator that does not have administrative privileges is only allowed to edit his/her own on-call preferences.

4. Click **Continue**. The **On-call Preferences Schedule** dialog box appears.



By default, the Monday through Friday schedules are shared, and the Saturday and Sunday schedules are shared.

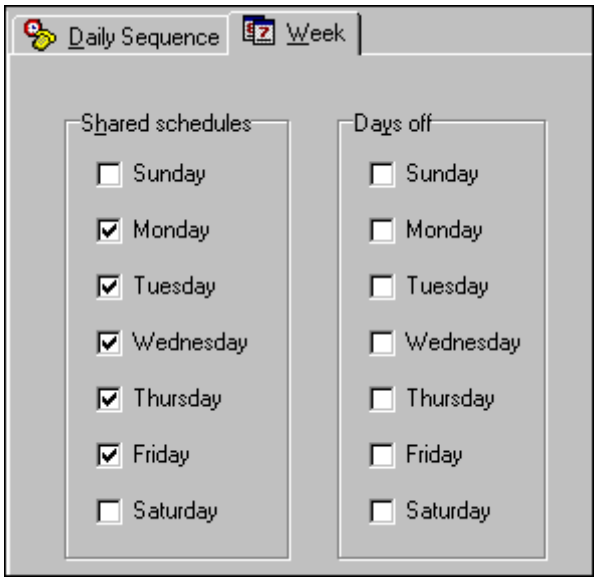
5. Click the **Daily Sequence** tab.



6. In the **On or after** box, type or select the date that the schedule entry will be in effect.
7. In the **Try First** through **Try Fourth** lists, select a method of contact.

   These options determine the order in which the contact methods will be used for the associated time in the schedule.
8. Click **None (off)** to reset all of the contact methods back to -none-.

9. Click **All** to add all of the configured contact methods for this operator to this time period on the schedule.
10. Click **Remove** to remove the selected entry in the schedule window from the schedule.
11. Click the **Week** tab.



12. In the **Shared schedules** area, select the days of the week for which you want the current schedule to be enabled.

    The same schedule will be enabled for the days that you have selected. You can see the schedule added under the appropriate day(s) in the main schedule window. Thus, the same schedule is "shared" between multiple days.

13. In the **Days Off** area, select the days of the week that the operator should not be called.

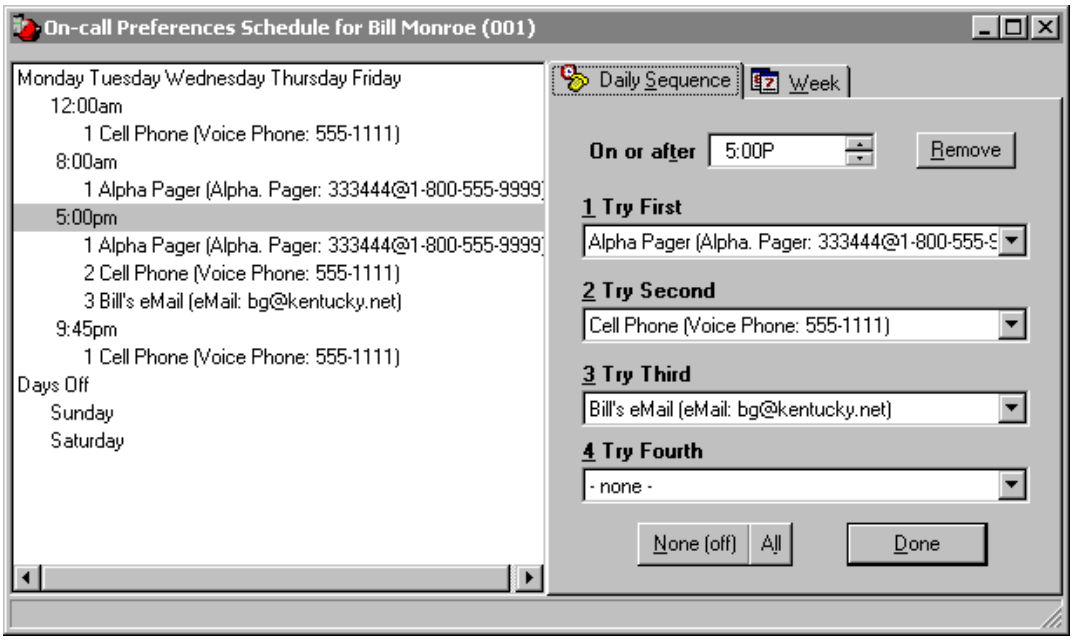
    If an alarm occurs, the operator will not be notified on his/her day(s) off.

14. Click the **Daily Sequence** tab.
15. Click **Done**.

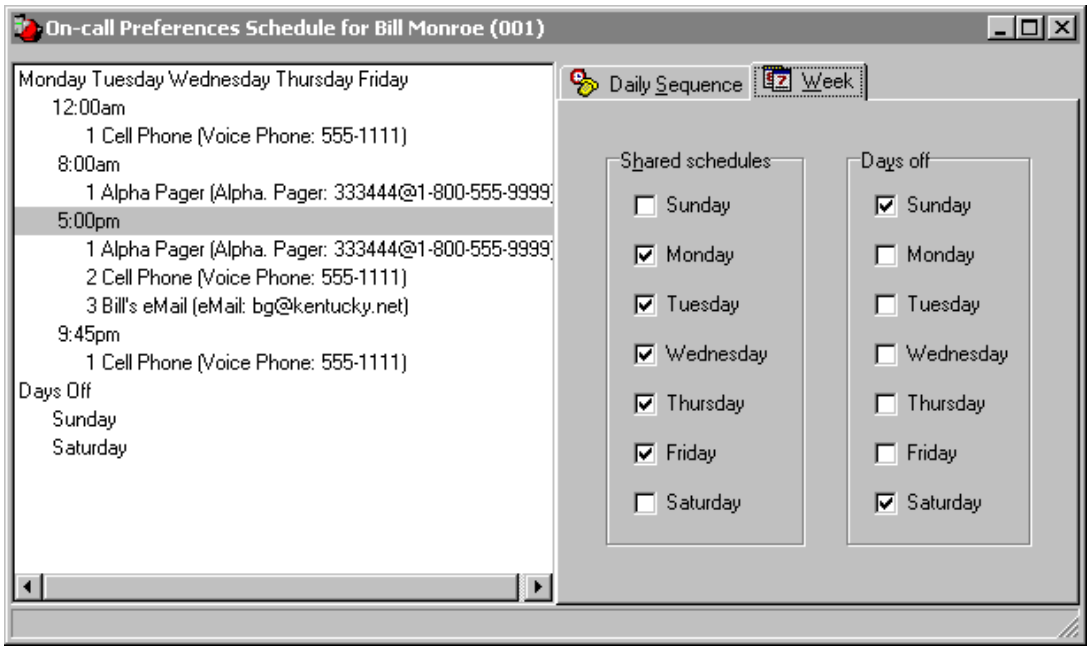
Example Calling Preference for an Operator

In the following example, Operator #001 (Bill Monroe) has been configured with three contact methods. On Monday through Friday, there are three schedule entries. At 8:00 a.m., Bill would like to be paged on his alpha pager only. At 5:00 p.m., he leaves the plant, and would like to be notified in the following order: alpha pager, voice phone (his cell phone), and e-mail. Finally, at 9:45 p.m., he is home and would like to be notified on his cell phone only. Bill has the weekend off.

The following screen shows how Bill's on-call preference at 5:00 p.m. is configured.



The following screen shows how Bill's weekly schedule is configured.



Group On-Call Lists

A group on-call list defines a group of operators. An operator may belong to more than one group. Operators are called only if they are available according to their calling preferences schedule.

When defining an alarm tag, you must assign a call group for the alarm. For example, you could configure your system to call operators in the Security group if an intrusion alarm occurs and to call operators in the Maintenance group if a pump failure alarm occurs. For more information, see "Configuring Group Properties for an Alarm Tag" on page 79.

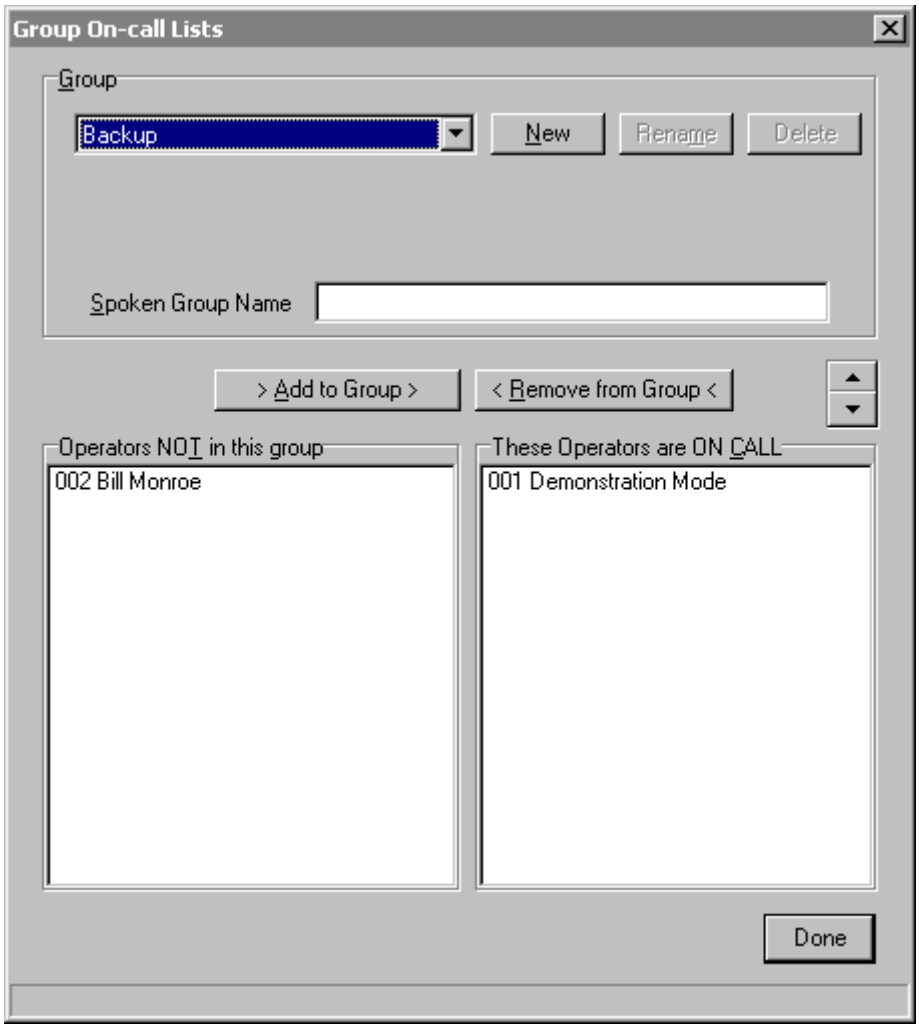
If your system does not require multiple on-call groups (all alarms may notify the same group of operators), just use the default on-call group named "Backup." There is no need to add any new on-call groups.

Creating an Operator Group

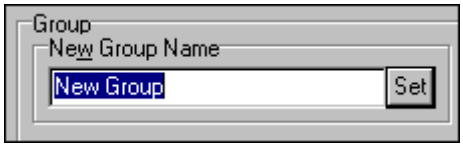
You can create a maximum of 250 operator groups.

To create an operator group

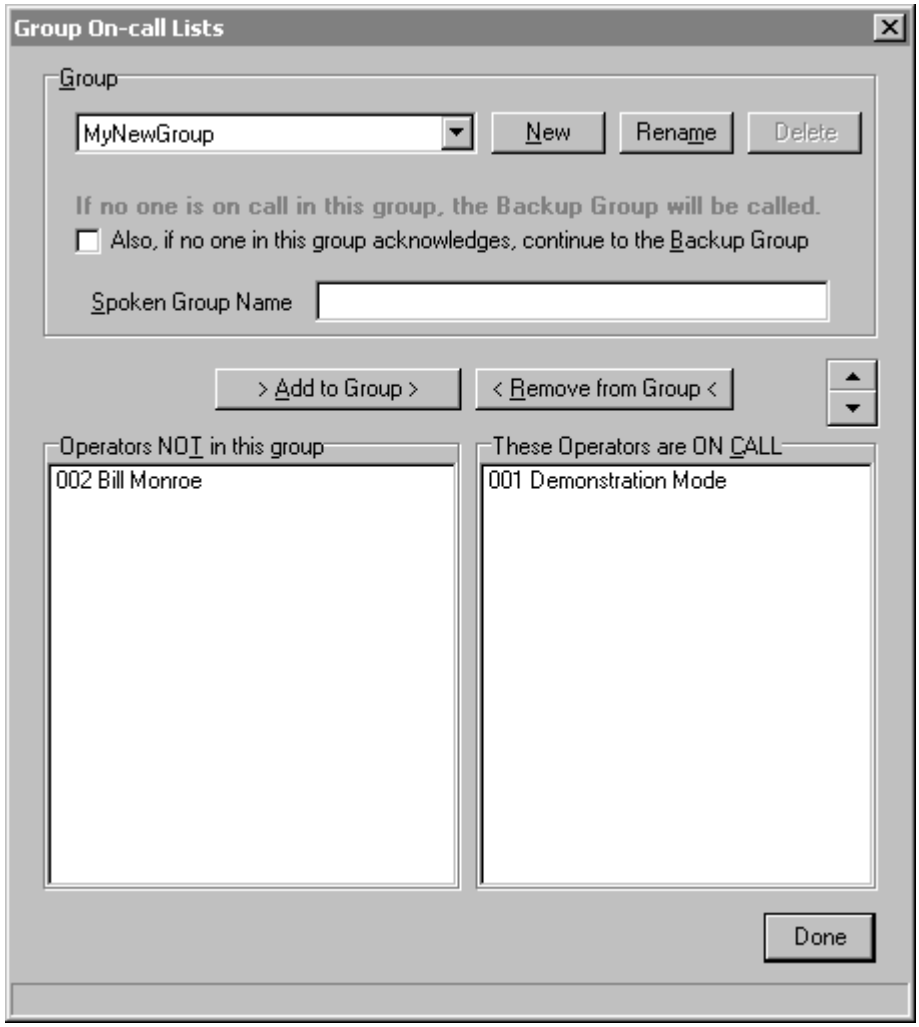
1. On the **Maintenance** menu, click **Group On-Call Lists**. The **Group On-call Lists** dialog box appears.



2. Click **New**. The **New Group Name** area appears.



3. Type the name of the group and click **Set**.



4. Select the **Also, if no one in this group acknowledges, continue to the Backup Group** check box if you want the on-call list to "roll over" to the Backup group if no one in the current on-call group acknowledges the alarm(s). In effect, the Backup group is added to the end of the current group to make one large group.

5. In the **Spoken Group Name** box, type the name of the voice prompt file or text-to-speech file that describes the name of the operator group. This file will be spoken whenever group-related menu functions are accessed over the telephone.

   To select a voice file (.wav) or create a new file, double-click in the box or right-click in the box and click **Browse or Record New Speech File**. The **Voice Prompt File** dialog box appears in which you can select or record a prompt. For more information, see "Browsing or Recording a Voice Prompt" on page 136.

   To select a text-to-speech (.txt) file or create a new file, right-click in the box and click **Browse or Create New Text File**. The **SCADAlarm Text-to-speech Text Files** dialog box appears in which you can select or create a text-to-speech file. For more information, see "Browsing or Creating a Text-to-Speech File" on page 138.

6. To add an operator to the **These Operators are ON CALL** window, select the name in the **Operators NOT in this Group** window and perform any of the following:
   - Click **Add to Group >**.
   - Right-click and then click **Add to Group**.
   - Double-click the name.
   - Drag-and-drop the operator name to the new window.
7. To order the operators in the **These Operators are ON CALL** window, perform any of the following:
   - Drag-and-drop the operator name to the new position in the list.
   - Select the operator name and then use the up and down arrows to change the position.
   - Right-click on the operator name and then click **Move Up** or **Move Down**.
8. To change operator calling preferences, right-click on the operator name in either window and then click **Edit Call Preferences**. The **On-call Preferences Schedule** dialog box appears. For more information, see "Calling Preferences for Operators" on page 55.
9. To change operator information, right-click on the operator name in either window and click **Edit Operator Data**. The **Edit / Change Operator Information** dialog box appears. For more information, see "Changing an Operator Profile" on page 54.
10. Click **Done**.

Renaming an Operator Group

To rename an operator group

1. On the **Maintenance** menu, click **Group On-Call Lists**. The **Group On-call Lists** dialog box appears.
2. In the list box in the **Group** area, click the name of the group to rename.

3. Click **Rename**.
4. In the **New Group Name** box, type the new name of the group.
5. Click **Set**.
6. Click **Done**.

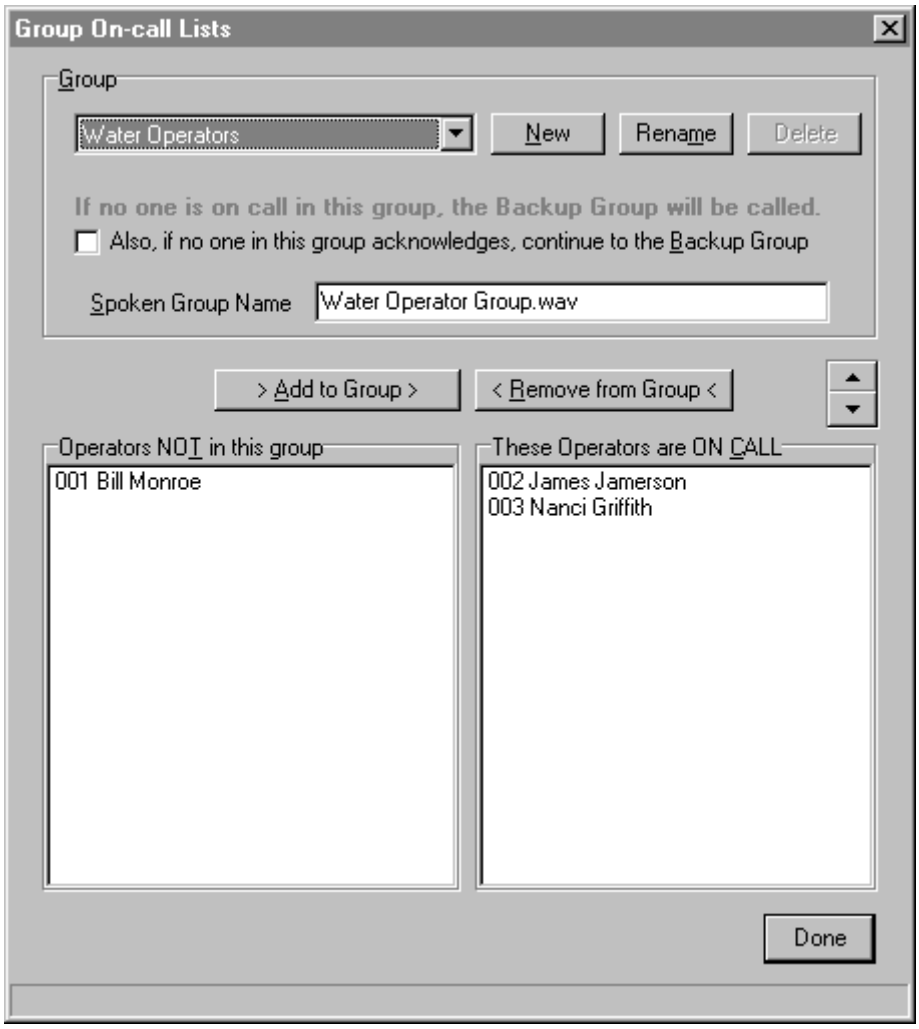
Deleting an Operator Group

To delete an operator group

1. On the **Maintenance** menu, click **Group On-Call Lists**. The **Group On-call Lists** dialog box appears.
2. In the list box in the **Group** area, click the name of the group to delete.
3. Remove all of the operators from the **These Operators are ON CALL** window.
4. Click **Delete**. You will be prompted to verify the deletion.
5. Click **OK**.
6. Click **Done**.

Example Group On-Call List

In this example, if an alarm occurs and the "Water Operators" group is configured to be notified, operator #002 will be notified first. If operator #002 does not properly acknowledge the alarm, then operator #003 will be notified. If operator #003 also fails to acknowledge the alarm, then SCADAlarm will start over at the top of the list. SCADAlarm will continue to "loop" through the on-call group list until the alarm is acknowledged.



Example Calling Sequence for an Operator Group

In this example, the WaterOperators group contains four operators: Operator1, Operator2, Operator3, and Operator4, in that order. The operators have the following configured contact methods:

- Operator1: Voice phone and e-mail
- Operator2: Alphanumeric pager
- Operator3: Voice phone (home) and voice phone (mobile)
- Operator4: Voice phone and alphanumeric pager

For the calling preferences for each operator, all devices are enabled. For more information, see "Calling Preferences for Operators" on page 55.

The following telephone retry parameters have been configured for SCADAlarm:

Parameter	Value
Number of retries before moving on to next call:	1
Time between call retries (sec):	40
Wait to expect Ack Call after Page (min):	15
Wait to expect Ack Call after eMail (min):	10

For more information on retry parameters, see "Configuring Telephone Retrying Parameters" on page 27.

When an alarm that is assigned to this group is detected, the system will dial out as follows, until the alarm is acknowledged. Assume for this example that the alarm is not acknowledged properly in order to illustrate the calling sequence.

1. Call the voice phone for Operator1.
2. After 40 seconds, call the voice phone for Operator1. (One retry is configured, and the time between call retries is set to 40 seconds.)
3. After 40 seconds, send Operator1 an e-mail. (All retries on the voice phone are used up. Move on to the next contact device, which is e-mail.)
4. After 10 minutes, send Operator1 an e-mail. (The **Wait to expect Ack Call after eMail** option is set to 10 minutes.)
5. After 10 minutes, call the alphanumeric pager for Operator2. (All contact methods for Operator1 have been exhausted. Move on to the next operator in the list.)
6. After 15 minutes, call the alphanumeric pager for Operator2 . (The **Wait to expect Ack Call after eMail** option is set to 15 minutes.)
7. After 15 minutes, call the voice phone (home) for Operator3.
8. After 40 seconds, call the voice phone (home) for Operator3.
9. After 40 seconds, call the voice phone (mobile) for Operator3.
10. After 40 seconds, call the voice phone (mobile) for Operator3.
11. After 40 seconds, call the voice phone for Operator4.
12. After 40 seconds, call the voice phone for Operator4.
13. After 40 seconds, call the alphanumeric pager for Operator4.
14. After 15 minutes, call the alphanumeric pager for Operator4.
15. After 15 minutes, call the voice phone for Operator1. The sequence will repeat until the alarm is acknowledged.

C H A P T E R 4

Alarm Tags

The SCADAlarm tag database links SCADAlarm to any DDE or SuiteLink server, or to Industrial Application Server. SCADAlarm will "advise" the server that it is interested in these tag values, and the server will update SCADAlarm when the tag values change. Typically, the SCADAlarm tag database is a small subset of an HMI tag database. The server item name for each tag corresponds to the name of the data point in the HMI system, in the format the HMI system expects.

Contents

Connection Types for Tags

The connection type defines the source for the tag and the type of tag. Typically, the source of a SCADAlarm tag will be the server for an HMI software package, and the type will be "Get Data from <Server Name>."

In addition, SCADAlarm provides various "system" tags, which are described in the following table:

Connection Type	Use To
Data Server Status with <Server Name>	Monitor the state of server (HMI) "health" and provide notification if a failure has occurred.
Ack All Alarms from <Server Name>	Acknowledge all alarms from the HMI.
Disable SCADAlarm from <Server Name>	From the HMI, disable SCADAlarm for a specified number of minutes.
Dead Phone Line: notify <Server Name>	Notify the server (HMI) if the phone line has failed.
eMail Server Failure: notify <Server Name>	Notify the server (HMI) if the e-mail server has failed.

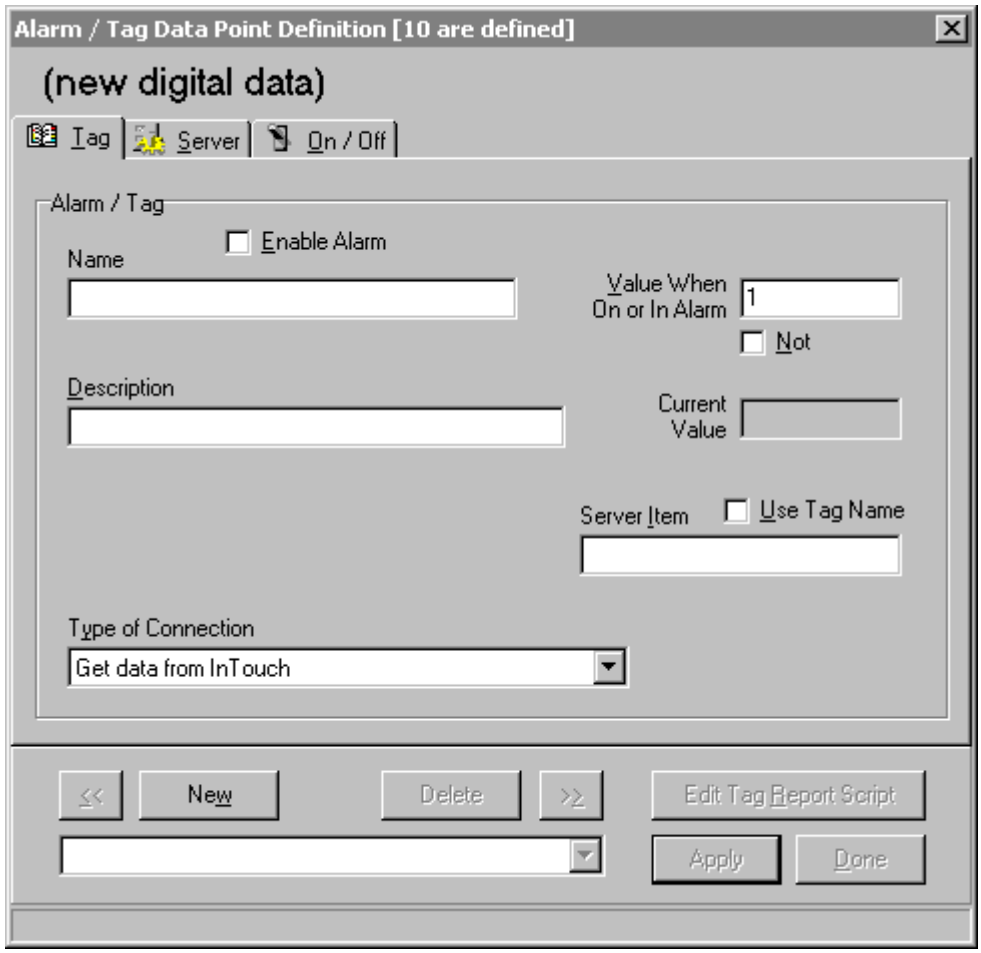
Connection Type	Use To
Bad Login Attempts: notify <Server Name>	Notify the server (HMI) if an excessive number of bad logins are attempted.
Logged Caller: notify <Server Name>	Display the name of the operator that is currently logged in over the telephone.

Adding a Tag to the SCADAlarm Database

For information on using the SCADAlarm tag importer to import tags from InTouch or Industrial Application Server, see Chapter 10, "Integration with HMI Applications."

To add a tag to SCADAlarm

1. On the **Maintenance** menu, click **Alarms / Tag Names**. The **Alarm / Tag Data Point Definition** dialog box appears.



2. Click **New**.

3. In the **Name** box, type the tagname that will be used internally by SCADAlarm for the tag.
4. Click **Apply**.
5. Configure the properties for the alarm tag.

   Note The tabs that appear in the **Alarm / Tag Data Point Definition** dialog box differ based on the type of server connection for the tag.

   See "Configuring Tag Properties for an Alarm Tag" on page 68.

   See "Configuring Server Properties for an Alarm Tag" on page 70.

   See "Configuring On/Off Properties for an Alarm Tag" on page 75.

   See "Configuring Alarm Properties for an Alarm Tag" on page 77.

   See "Configuring Group Properties for an Alarm Tag" on page 79.

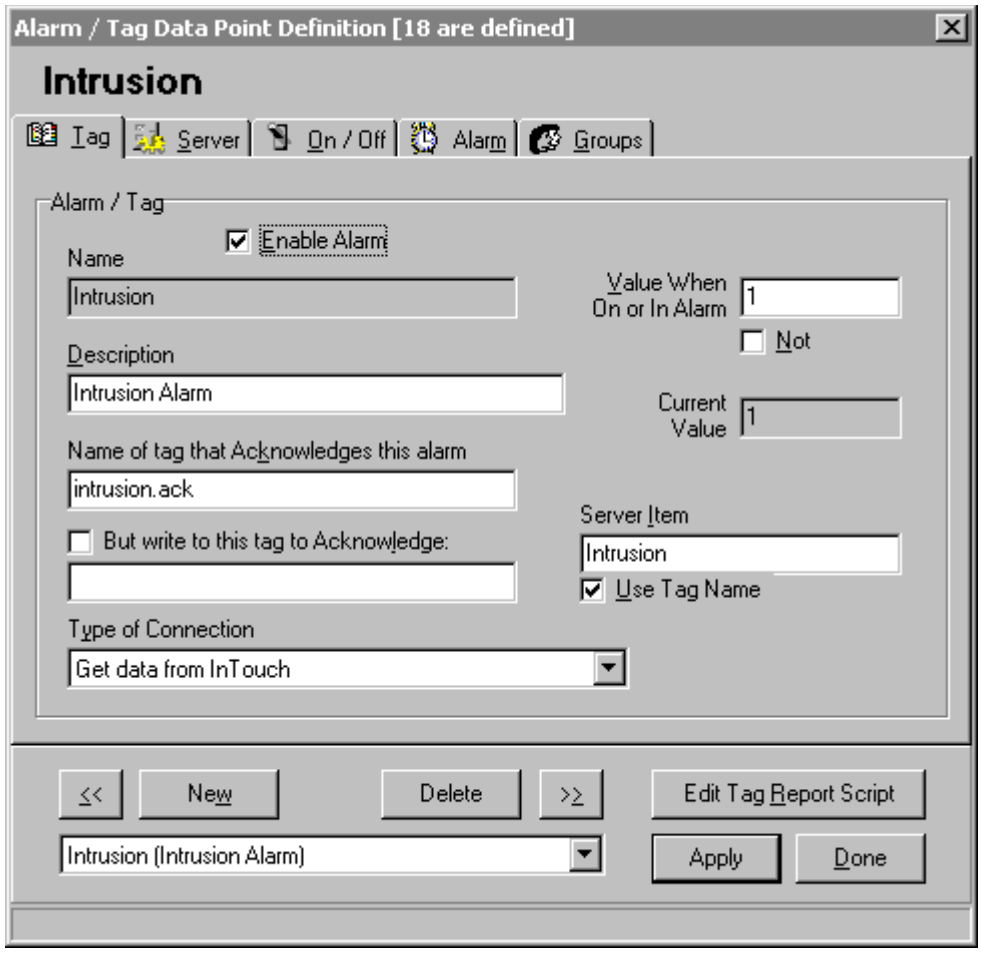
   See "Configuring Numeric Properties for an Alarm Tag" on page 81.
6. To delete the selected tag, click **Delete**.

   A tag cannot be deleted if it has a configured tag report script or if it is being used within another tag's script.
7. To add another tag, click **New**.
8. To scroll through configured tags, click the << (previous) and >> (next) buttons.
9. To configure the report script for the selected tag, click **Edit Tag Report Script**. For more information, see Chapter 5, "Alarm Reporting and Acknowledgment."
10. When you are finished, click **Done**.

Configuring Tag Properties for an Alarm Tag

To configure tag properties

1. In the **Alarm / Tag Data Point Definition** dialog box, click the **Tag** tab.



2. In the **Name** box, type the tagname that will be used internally by SCADAlarm for the tag.
3. In the **Type of Connection** list, select the connection type for the tag.

   For more information, see "Connection Types for Tags" on page 65.
4. In the **Description** box, type a description for the tag. This description will appear in tag lists and in the alarm acknowledgement dialog box. This description can also be included in a message format.

   For more information, see "Message Formats for Alarm Reporting" on page 107.
5. In the **Server Item** box, type the server item name that will be associated with the SCADAlarm tag. Select the **Use Tag Name** check box to use the same name that you specified for the SCADAlarm tag.

Tip Abstracting the SCADAlarm tagname from the server item allows you to create multiple SCADAlarm tags from the same server item or use the same server item for different servers.

6. Select the check box that appears above the **Name** box to enable the functionality for the tag. The name of the check box depends on the connection type you have selected:

   Enable Alarm
   Only appears if you have selected a connection type of Get Data from <Server Name> or eMail Server Failure: notify <Server Name>. Select to enable alarming for this tag.

   Enable Function
   Only appears if you have selected a connection type of Ack All Alarms from <Server Name>, Disable SCADAlarm from <Server Name>, or Logged Caller: notify <Server Name>. Select to enable the connection type function for this tag.

   Enable Testing and Alarm
   Only appears if you have selected a connection type of Data Server Status with <Server Name>, Dead Phone Line: notify <Server Name>, or Bad Login Attempts: notify <Server Name>. Select to enable alarming for this tag. Also, testing will be enabled.

7. In the **Name of tag that Acknowledges this alarm** box, type the name of the item that is to be set in the HMI when the operator acknowledges the alarm over the telephone or from the SCADAlarm alarm acknowledgement dialog box. (This option is not available if you have selected the "Disable SCADAlarm from <Server Name>" or "Logged Caller notify <Server Name>" connection type.)

   For information on using this option with particular HMI systems, see Chapter 10, "Integration with HMI Applications."

   For more information, see "Alarm Acknowledgements" on page 114.

Caution! No control logic should be based on this tag unless you are sure about what you want to do.

8. If applicable, select the **But write to this tag to Acknowledge** check box and specify a different tag (than the acknowledge tag) that will be used to initiate the acknowledgment. For example, for Industrial Application Server, you would write to <attribute name>.AckMsg, which would automatically set the <attribute name>.Acked attribute. This box is hidden until a value is provided in the **Name of tag that Acknowledges this alarm** box.

9. If you are configuring a tag with the "Get data from <Server Name>" connection type, in the **Value When On or In Alarm** box, type the string reported by the HMI system when the point becomes in alarm.

   This entry is case-sensitive. Make sure that the data in this entry matches the data from the HMI system. If this box is left blank, the point is assumed to be information only, and no dial-out will occur. Typically, you would leave this option blank for analog values, which could be used in a pager format or tag report script for the telephone.

   Selecting the **Not** check box will direct the SCADAlarm system to consider the tag to be in alarm when its value is not equal to the value entered in the **Value When On or In Alarm** box.

10. Click **Apply**.

    The **Current Value** box displays the value string that the HMI system is currently reporting. When this string exactly matches the string typed in the **Value When On or In Alarm** box (if available), SCADAlarm will consider the tag to be in alarm and annunciate and/or dial out, if that functionality is enabled.

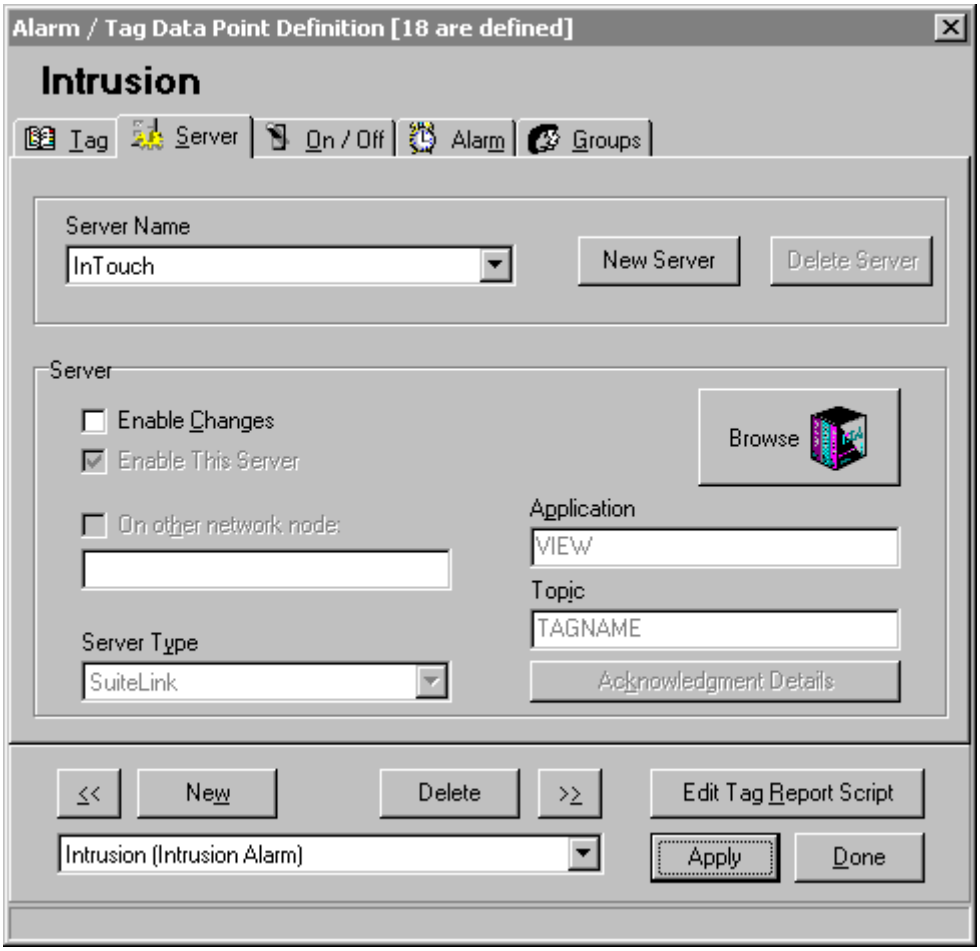
11. If you are finished configuring the tag, click **Done**.

Configuring Server Properties for an Alarm Tag

For more information on configuring server properties for a specific HMI, see Chapter 10, "Integration with HMI Applications."

To configure server properties

1. In the **Alarm / Tag Data Point Definition** dialog box, click the **Server** tab.



2. In the **Server Name** list, click the name of the server to use.
3. To add a new server definition, perform the following:
   - Click **New Server**.
   - In the **Server Name** box, type a name for the server.
   - Click **Set**.
4. To delete the selected server, click **Delete Server**.

   A server can be deleted only if no tags are assigned to it. Restart SCADAlarm to update tag use counts. The default server cannot be deleted; it can be renamed or disabled.
5. Select the **Enable Changes** check box to enable the configuration options for the server you have selected.
6. Select the **Enable This Server** check box to enable the selected server..

Note It is recommended that this check box is always selected.

7. If the server resides on another computer on the network, select the **On other network node** check box and then type the computer node name in the box.
8. In the **Application** and **Topic** boxes, type the parameters that are appropriate for the server. For InTouch, this is VIEW and TAGNAME, respectively.
9. In the **Server Type** list, select the type of protocol used by the server. DDE, SuiteLink, and Galaxy are supported. If the server is on a remote computer (node), only select DDE if the operating system on which both SCADAlarm and the server runs supports NetDDE.
10. Click **Acknowledgment Details** to configure data server acknowledgment parameters that are specific to this particular server. For more information, see "Configuring Data Server Acknowledgment" on page 72.
11. Click **Apply**.

    SCADAlarm will prompt you to connect the current tag to the server that you just created.
12. If you are finished configuring the tag, click **Done**.

Configuring Data Server Acknowledgment

Different HMIs need to be provided with different types of ack messages. For example:

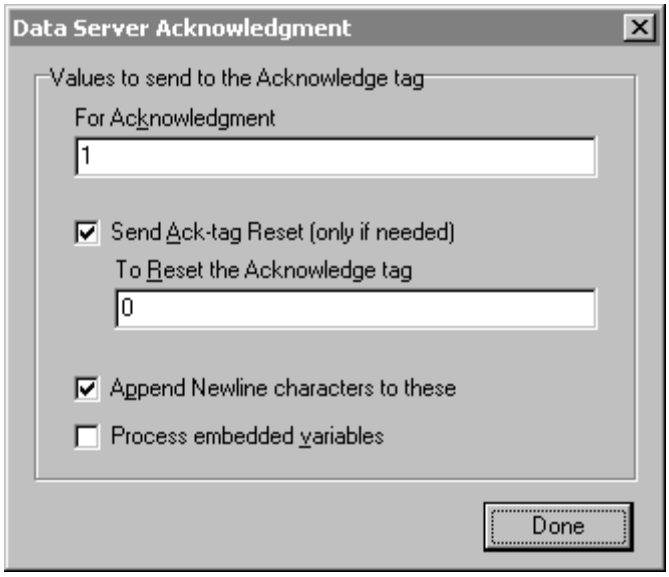
- InTouch needs to be sent a "1" to the .ack field.
- Industrial Application Server needs to be sent a string to its ".AckMsg" attribute, which in turn indicates the alarm is acked.
- Some HMIs require a "0" as the ack bit instead of "1."

SCADAlarm allows you to specify what will be sent to the HMI for the alarm acknowledgement. You can also specify different acknowledgement options particular to your HMI. For more information, see Chapter 10, "Integration with HMI Applications."

To specify the acknowledgement value

1. In the **Alarm / Tag Data Point Definition** dialog box, click the **Server** tab.
2. In the **Server** group, click **Enable Changes**.

3. Click **Acknowledgment Details**. The **Data Server Acknowledgment** dialog box appears.



4. In the **For Acknowledgment** box, type the value that should be sent to the HMI to acknowledge alarms.
5. Select the **Ack-tag Reset** check box to have SCADAlarm reset the acknowledgment tag in the HMI after any transition for the alarm state.

   Some HMIs do not automatically reset the acknowledgment tag after the acknowledgment has occurred.
6. In the **To Reset the Acknowledge tag** box, type the value that will be used for the ack field when SCADAlarm sends the acknowledgment reset request.
7. Select the **Append Newline characters to these** check box if the value that is sent to the acknowledgment tag requires a "new line" character for proper acknowledgment. A new line character is the same as a "linefeed," and is equivalent to pressing Enter on the computer keyboard.

   Some HMIs require that these characters are appended to the acknowledgment tag.

8. Select the **Process embedded variables** check box to have SCADAlarm insert run-time values for any variables in the acknowledgment message string that is sent to the HMI. This only applies to acknowledgment tags of type string. This functionality is same as the variables in SCADAlarm e-mail and pager formats.

   For example, the acknowledgment message string is configured as:

   "Time is [T]. Acked by [O]. Value is [N:AnalogTag]. Alarm State is [A:AnalogTag]."

   The actual processed message will be:

   "Time is 10:33:21. Acked by ShirasR. Value is 92.1. Alarm State is Hi."

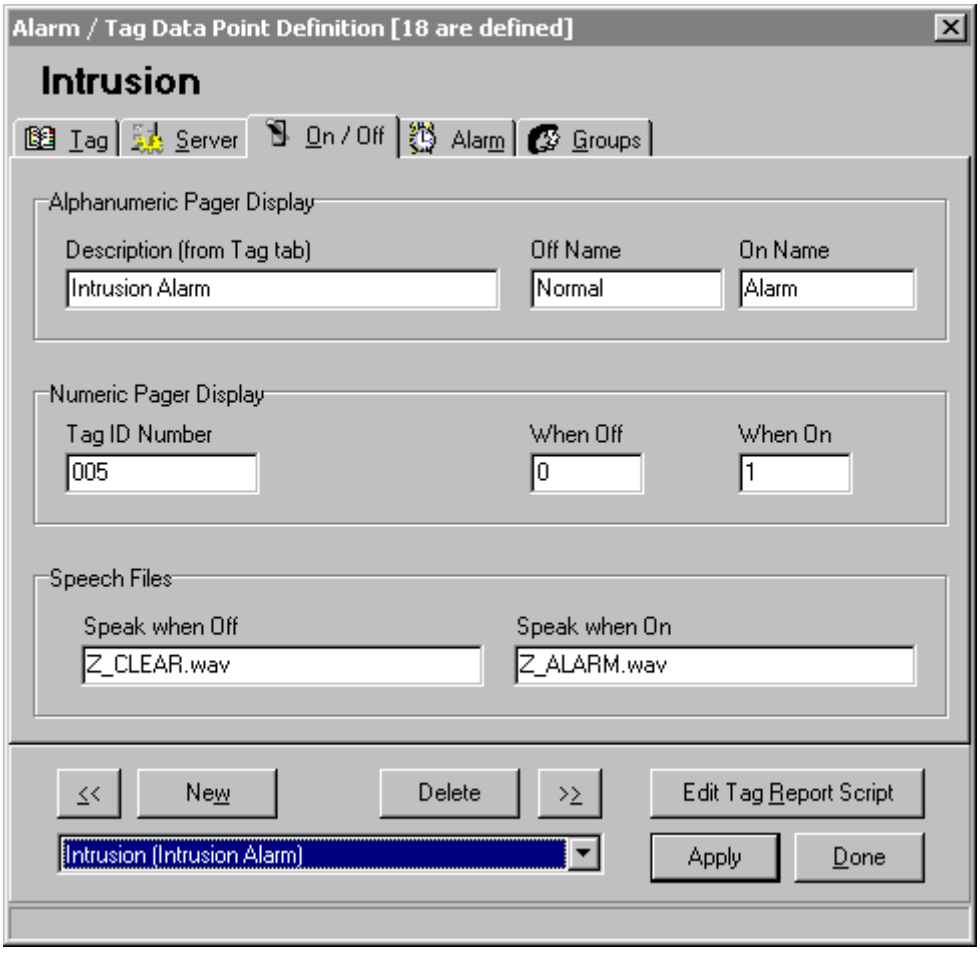
   There is a special case for the D: type of variable. The special construct [D:] can be used to represent the name/description of the tag being acknowledged.

9. Click **Done**.

Configuring On/Off Properties for an Alarm Tag

To configure on/off properties

1. In the **Alarm / Tag Data Point Definition** dialog box, click the **On/Off** tab.



2. In the **Alphanumeric Pager Display** area, configure the descriptions that will be displayed in an alphanumeric pager for this alarm.

   These descriptions can be included as part of the alphanumeric pager/e-mail format for the alarm. For more information, see "Message Formats for Alarm Reporting" on page 107.

   Description
   The description of the alarm.

   Note This is the same description that appears in the **Description** box on the **Tag** tab. Changes to the description will be reflected in the **Tag** tab.

   Off Name
   The description of the "off " (clear) state of this tag.

   On Name
   The description of the "on" (alarm) state of this tag.

3. In the **Numeric Pager Display** area, configure the descriptions that will be displayed in a numeric pager for this alarm.

   These descriptions can be included as part of the numeric pager/e-mail format for the alarm. For more information, see "Message Formats for Alarm Reporting" on page 107.

   Tag ID Number
   A unique number that identifies this alarm. Since a numeric pager can only display numeric data, the alarm can be assigned a unique number (for example "123") that will let the operator receiving the page know which alarm(s) is active.

   When Off
   A number that identifies the "off" (clear) state of this tag. Typically, this value is set to 0.

   When On
   A number that identifies the "on" (alarm) state of this tag. Typically, this value is set to 1.

4. In the **Speech Files** area, specify the voice prompt files for each of the alarm states.

   To select a voice file (.wav) or create a new file, double-click in the box or right-click in the box and click **Browse or Record New Speech File**. The **Voice Prompt File** dialog box appears in which you can select or record a prompt. For more information, see "Browsing or Recording a Voice Prompt" on page 136.

   To select a text-to-speech (.txt) file or create a new file, right-click in the box and click **Browse or Create New Text File**. The **SCADAlarm Text-to-speech Text Files** dialog box appears in which you can select or create a text-to-speech file. For more information, see "Browsing or Creating a Text-to-Speech File" on page 138.

   Speak when Off
   The name of the prompt (.wav or .txt) that will be spoken by SCADAlarm to describe the "normal" state of the tag. A spoken normal state of "CLEARED" (Z_CLEAR.wav) is the default.

   Speak when On
   The name of the prompt (.wav or .txt) that will be spoken by SCADAlarm to describe the "alarm" state of the tag. A spoken alarm state of "IN ALARM" (Z_ALARM.wav) is the default.

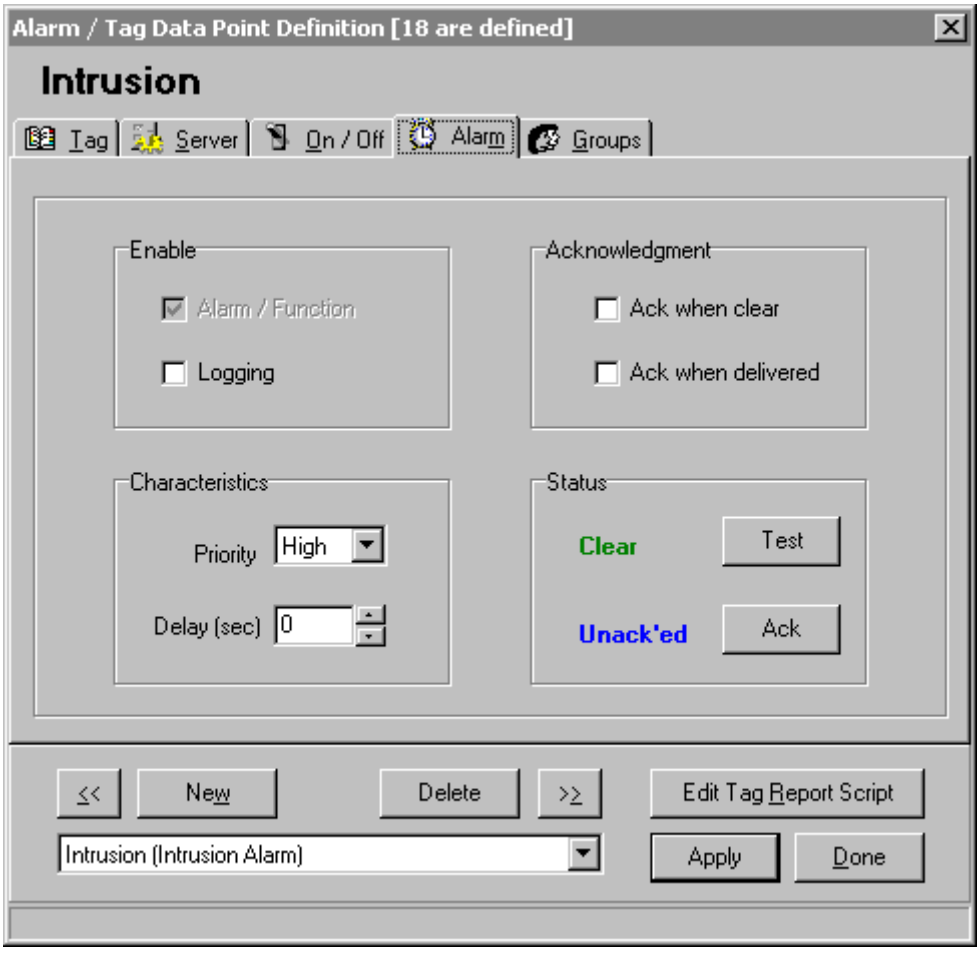
5. Click **Apply**.

6. If you are finished configuring the tag, click **Done**.

Configuring Alarm Properties for an Alarm Tag

To configure alarm properties

1. In the **Alarm / Tag Data Point Definition** dialog box, click the **Alarm** tab.



2. In the **Enable** area, configure whether the alarm and logging for the tag will be enabled.

   Alarm / Function
   If selected, the alarm or function will be enabled for the tag.

   Logging
   If selected, a line will be entered in the log each time the HMI updates the alarm tag value to SCADAlarm. Logging will only be enabled for this tag. This option may be useful if your HMI does not support logging, or if you want to track when SCADAlarm has been notified of the alarm.

   Important! In order for any logging to occur, logging must also be enabled system wide. For more information, see "Enabling and Configuring Logging" on page 150.

3. In the **Acknowledgment** area, configure how alarms will be acknowledged for this tag.

Ack when clear
If selected, the alarm will acknowledge itself automatically when the alarm condition clears.

Caution! This feature has inherent risks. For example, if an alarm occurs, SCADAlarm may start dialing out to notify an operator of the alarm. If the alarm condition clears before dialing is completed, SCADAlarm will acknowledge the alarm (since it has cleared). The operator will receive a telephone call with no active or unacknowledged alarms present. Nuisance alarms (alarms that go in and out of alarm state) will be especially troublesome if **Ack when clear** is selected.

Ack when delivered
If selected, the alarm notification will act as a "one-shot." This alarm will acknowledge itself after it is successfully delivered. The following events qualify as a successful delivery:

- The tag report script for the alarm is executed during a voice telephone call.
- A numeric page is delivered.
- A voice page is delivered.
- An alphanumeric page is delivered.
- An e-mail is sent.

Caution! This feature has inherent risks. For example, if an alarm occurs, SCADAlarm may properly deliver e-mail or a page to an operator, but if the operator has turned his/her pager off or moved out of range of the pager service, or does not check e-mail, he/she will never receive the page. SCADAlarm will still acknowledge the alarm automatically (since it has delivered the message) and no additional dialing will occur for this alarm. **This option should be used to report "status-only," non-critical events.**

---

4. In the **Priority** list, click a priority setting for this alarm tag. Two hundred levels of alarm priority are available, from 1 (HIGH) through 200 (LOW). The priority setting determines the order in which alarms are annunciated and dialed out. For example, if a priority 1 alarm and priority 8 alarm are detected, the priority 1 alarm is dialed out first. Also, a higher priority alarm will interrupt the current processing of a lower priority alarm. For example, if SCADAlarm is waiting 15 minutes to retry a page for a priority 8 alarm, and a priority 1 alarm occurs, the priority 1 alarm notification takes precedence.
5. In the **Delay (sec)** box, type or select the amount of delay (in seconds) that SCADAlarm will wait after detecting an alarm before annunciating or dialing out.

   For example, if the alarm delay is set to 5 seconds and this alarm is detected, SCADAlarm will not call out until 5 seconds have passed. Ensure that the **Delayed Alarms** option is enabled on the Control Schedule.
6. In the **Status** area, verify the alarm point:

Test
Click to test the system using this alarm point.

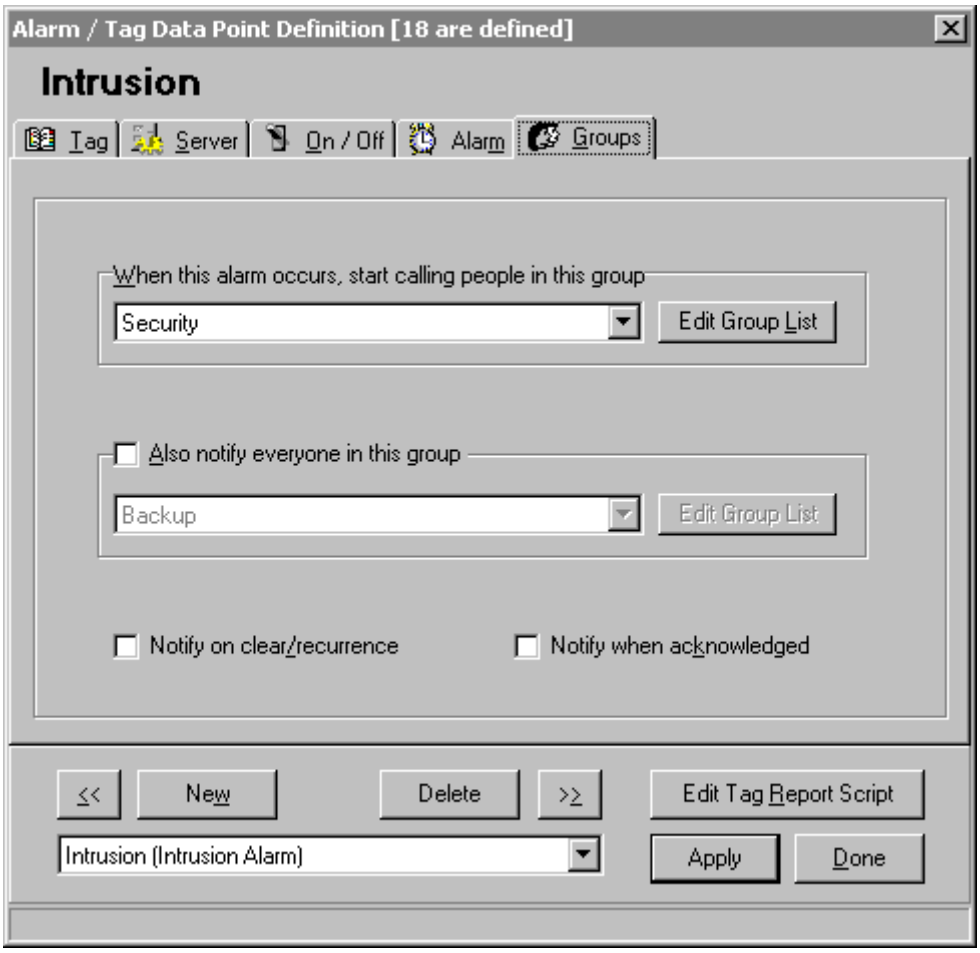
Ack
Click to send an acknowledgment of this alarm point.

7. For more information, see "Testing an Alarm Tag" on page 84.
8. Click **Apply**.
9. If you are finished configuring the tag, click **Done**.

Configuring Group Properties for an Alarm Tag

To configure operator groups

1. In the **Alarm / Tag Data Point Definition** dialog box, click the **Groups** tab.
2. In the **When this alarm occurs, start calling people in this group** list, click the name of the group of operators to be called when the tag goes into alarm.
3. Click **Edit Group List** to edit the selected operator group. The **Group On-call Lists** dialog box appears. For information on configuring an operator group, see Chapter 3, "Operators."



4. Select the **Also notify everyone in this Group** check box to specify the name of an additional group to notify if an alarm occurs. Then, select a group from the list.

   For more information, see "Alarm Notification for an "Also Notify" Operator Group" on page 80.

5. Configure when the alarm notification will be sent to the group.

   Notify on clear/recurrence
   If this check box is selected, a notification will be sent to the group when the alarm condition clears or recurs.

   Notify when acknowledged
   If this check box is selected, a notification will be sent to the group when the alarm has been acknowledged.

   This is for information only, and no acknowledgement is required. All operators in the **Also notify everyone in this Group** on-call group are also notified, if that check box is selected.

6. Click **Apply**.

7. If you are finished configuring the tag, click **Done**.

Alarm Notification for an "Also Notify" Operator Group

SCADAlarm will notify everyone in the "also notify" group at the same time that the first person in the normal security group is notified. SCADAlarm will not require acknowledgement from operators in the "also notify" group.

The "also notify" option can be used to notify a supervisor that an alarm occurred without requiring him/her to acknowledge the alarm(s). The notification that is sent is for informational purposes only; no interaction is expected from an operator in the "also notify" group.

If the **Notify on clear/recurrence** and/or **Notify when acknowledged** check boxes are selected, these options will apply to the "also notify" group, as well. Everyone in the "also notify" group will be notified at the same time the first person in the normal operator group is notified, and will receive a non-interactive message.

Caution! If you create a large "also notify" group, SCADAlarm will spend a great deal of time delivering these notifications when the tag goes into alarm. Remember the available "bandwidth" for a telephone line is finite.

When an alarm occurs that has the **Also notify everyone in this Group** option enabled, SCADAlarm will call all the operators in the specified group using their first available contact method, as determined by their individual calling preferences.

If the first contact method is:	The alarm notification will be:
A voice telephone or voice pager	The tag report script for the alarm tag is executed, with no login prompt.
An alphanumeric pager	The alphanumeric pager format for the tag is sent, along with the text "Note Only."
A numeric pager	The numeric pager format for the tag is sent.
An e-mail address:	The e-mail format for the tag is sent, along with the text "Note Only."

For example, the specified operator group contains two operators, Bill and Scott. The specified "also notify" group contains two operators, Don and Mary, who are supervisors. When the alarm occurs, SCADAlarm will contact Bill and expect an alarm acknowledgement. SCADAlarm will also contact both Don and Mary at the same time Bill is called, but will not expect acknowledgement.

For more information, see "Calling Preferences for Operators" on page 55, "Interactive Voice Scripts for Alarm Reporting" on page 97, and "Message Formats for Alarm Reporting" on page 107.

Configuring Numeric Properties for an Alarm Tag

Numeric properties are alarm properties that require a real or integer number, such an analog (real or integer) tag value that will trigger an alarm.

To configure numeric properties

1. In the **Alarm / Tag Data Point Definition** dialog box, click the **Numeric** tab.

2. In the **Telephone Input Limits** area, define the high and low limits for the **Get Numeric Value** tag report script function. When performing set-point value changes over the telephone, you can set limits on acceptable values.

   For more information, see "Interactive Voice Scripts for Alarm Reporting" on page 97.

3. Use the **Decimal Places** slider to specify the decimal precision that will be spoken whenever the numeric value of this tag is spoken in a tag report script.

4. In the **Speech file for Engineering Units** box, specify name of the prompt (.wav or .txt) that will be spoken whenever the numeric value of the tag is used in a tag report script. For example, a Feet.wav file might say "feet." Whenever the value of a tag TankLevel is spoken in a tag report script, "feet" will be spoken after the numeric value. For example, "Thirteen point four six feet."

   To select a voice file (.wav) or create a new file, double-click in the box or right-click in the box and click **Browse or Record New Speech File**. The **Voice Prompt File** dialog box appears in which you can select or record a prompt. For more information, see "Browsing or Recording a Voice Prompt" on page 136.

   To select a text-to-speech (.txt) file or create a new file, right-click in the box and click **Browse or Create New Text File**. The **SCADAlarm Text-to-speech Text Files** dialog box appears in which you can select or create a text-to-speech file. For more information, see "Browsing or Creating a Text-to-Speech File" on page 138.

5. Click **Apply**.
6. If you are finished configuring the tag, click **Done**.

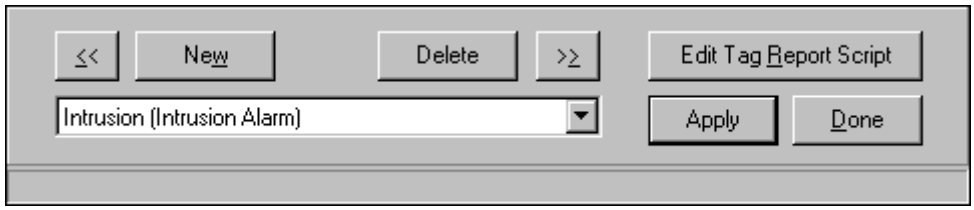
Deleting an Alarm Tag

A tag cannot be deleted if it has a configured tag report script or if it is being used within any tag's script.

To delete a tag

1. On the **Maintenance** menu, click **Alarms / Tag Names**. The **Alarm / Tag Data Point Definition** dialog box appears.
2. In the tag list, click the alarm tag that you want to delete.

   The tag list is located at the bottom of the dialog box.



3. Click **Delete**.

   If the tag is currently being used in a script(s), a dialog box will appear listing the scripts in which the tag is used. You can modify and/or delete the corresponding tag report script(s), stop and restart SCADAlarm to update its use counts, then delete the desired tag.

4. Click **Done**.

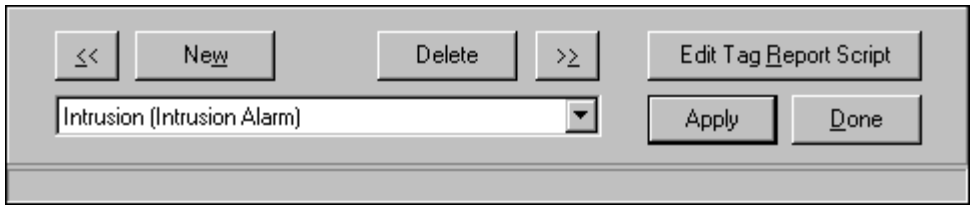
Testing an Alarm Tag

You can test an alarm tag from SCADAlarm without using data from the server.

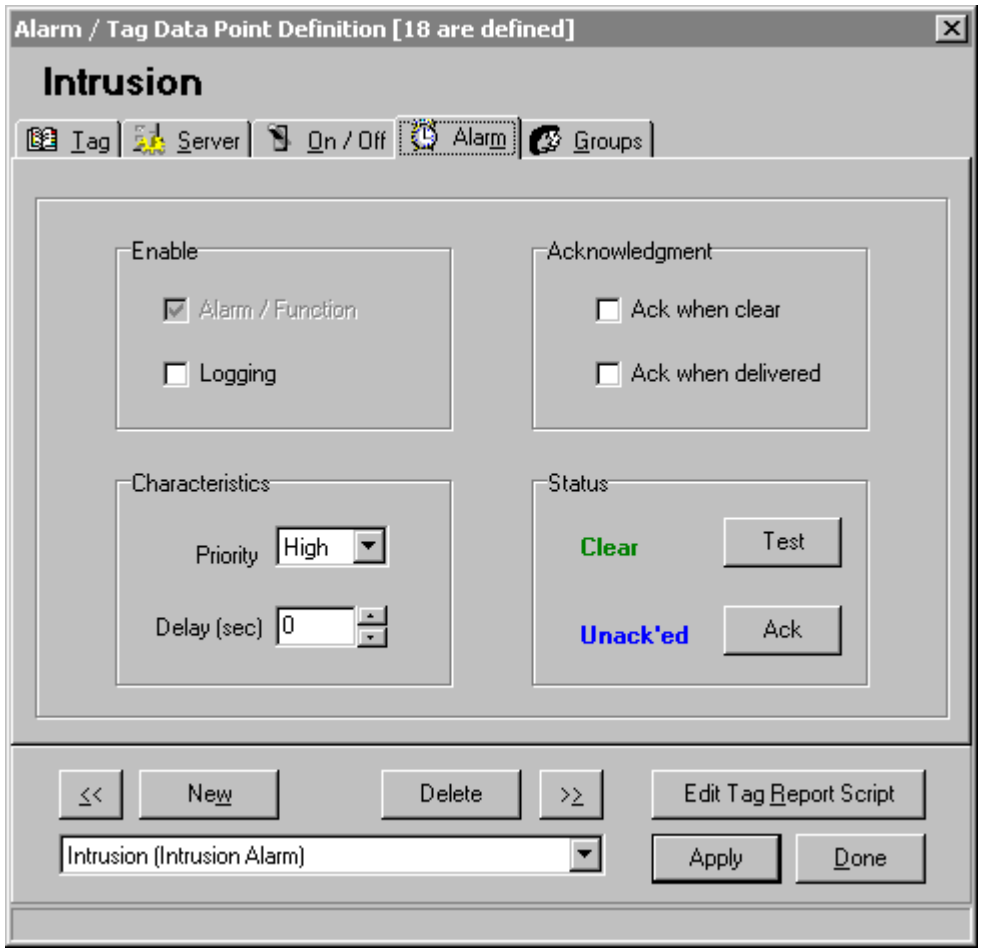
To test an alarm tag

1. On the **Maintenance** menu, click **Alarms / Tag Names**. The **Alarm / Tag Data Point Definition** dialog box appears.
2. In the tag list, click the alarm tag that you want to test.

   The tag list is located at the bottom of the dialog box.

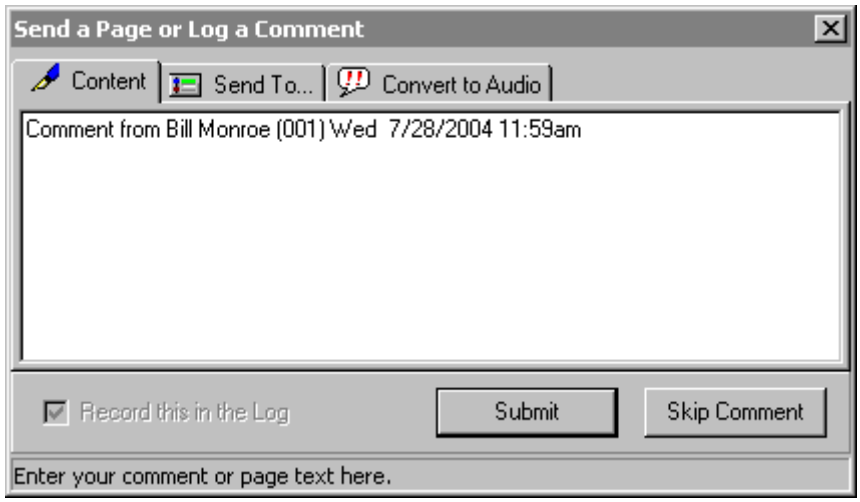


3. Click the **Alarm** tab.



Note The top button in the **Status** area will be labeled **Test** if the alarm is ready to test or **Clear** if the alarm is already active. If the button is labeled **Clear**, click the button to re-arm the alarm.

4. In the **Status** area, click **Test**. The **Send a Page or Log a Comment** window appears.



5. To test the alarm and include a comment in the log, click **Submit**. Otherwise, click **Skip Comment**.
6. The SCADAlarm **Alarm** window appears, indicating that the new alarm has been detected.

7. Click **Acknowledge All**.

Alarm Tag Configuration Examples

Example alarm tag configuration for common scenarios are provided.

Example: Annunciated/Dial-out Alarm Tag

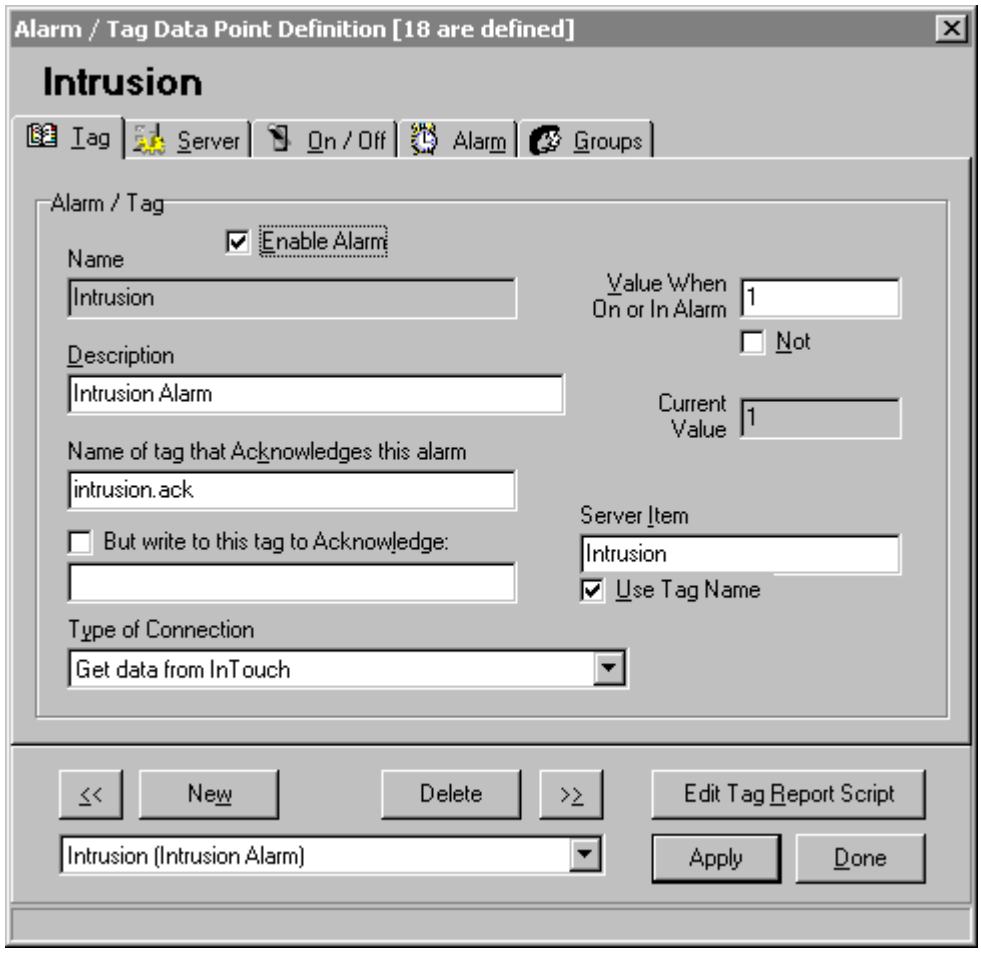
The following is an example of an alarm tag named **Intrusion.** This is how a typical annunciated/dial-out alarm would be configured.

To create an annunciated/dial-out alarm tag

1. In your HMI system, create a tag that you want to set up an alarm in SCADAlarm.

   For example, "Intrusion."

2. Start SCADAlarm.
3. On the **Maintenance** menu, click **Alarms / Tag Names**. The **Alarm / Tag Data Point Definition** dialog box appears.
4. In the **Type of Connection** box, click **Data Server Status with <Server Name>**.
5. Click **New** to add a new tag to SCADAlarm.
6. In the **Name** box, type in the name of the tag that you created in the HMI system (in this example, "Intrusion").
7. Select the **Enable Alarm** check box.



8. Configure all other required fields. For more information, see "Adding a Tag to the SCADAlarm Database" on page 66.
9. Enter all required items. In order to SCADAlarm to detect when a tag is in alarm, you must enter the alarm value or string into the **Value when On or In alarm** field. Also, make sure the **Enable alarm** option is selected. Select the operator **Call Group** that you want to notify in case of alarm.

Example: Analog "Information Only" Tag

The following is an example of an analog (information-only) tag named **TankLevel.** Numeric data tags are typically used in the tag report script of an alarm tag, or as part of a data acquisition tag report script.

Note When the tag is an analog "information only" tag, the **Speech file for Engineering Units** voice prompt file is spoken immediately after the numeric value is spoken in a tag report script (for example, feet, GPM, and so on.)

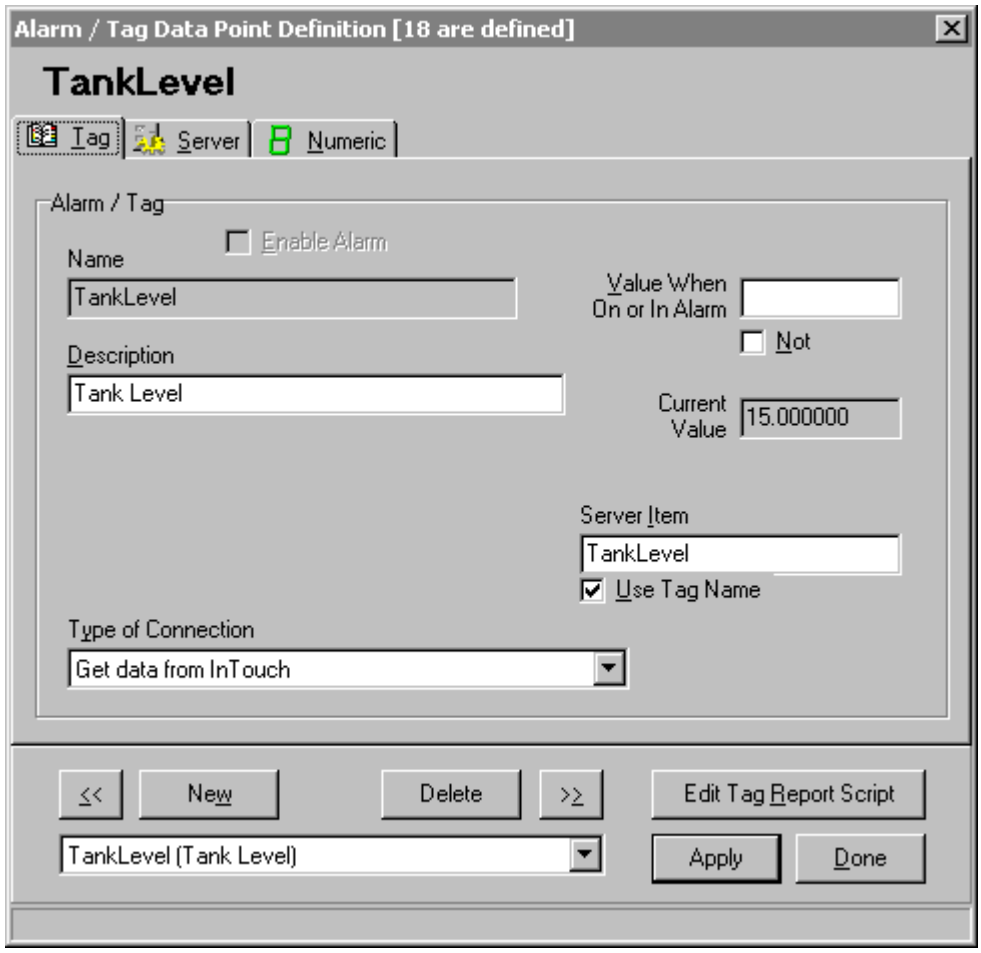
To create an analog "information only" alarm tag

1. In your HMI system, create a tag.

   For example, "TankLevel."

2. Start SCADAlarm.
3. On the **Maintenance** menu, click **Alarms / Tag Names**. The **Alarm / Tag Data Point Definition** dialog box appears.
4. In the **Type of Connection** box, click **Data Server Status with <Server Name>**.
5. Click **New** to add a new tag to SCADAlarm.
6. In the **Name** box, type in the name of the tag that you created in the HMI system (in this example, "TankLevel").

7. Make sure that the **Value When On or In Alarm** box is blank. This indicates that this is an analog status-only tag.



8. Configure all other required fields. For more information, see "Adding a Tag to the SCADAlarm Database" on page 66.

Example: Discrete "Information Only" Tag

The following is an example of a discrete (information-only) tag named **P1Run.** Discrete status tags are typically used in the tag report script of an alarm tag, or as part of a data acquisition tag report script.

To create an discrete "information only" alarm tag

1. In your HMI system, create a tag.

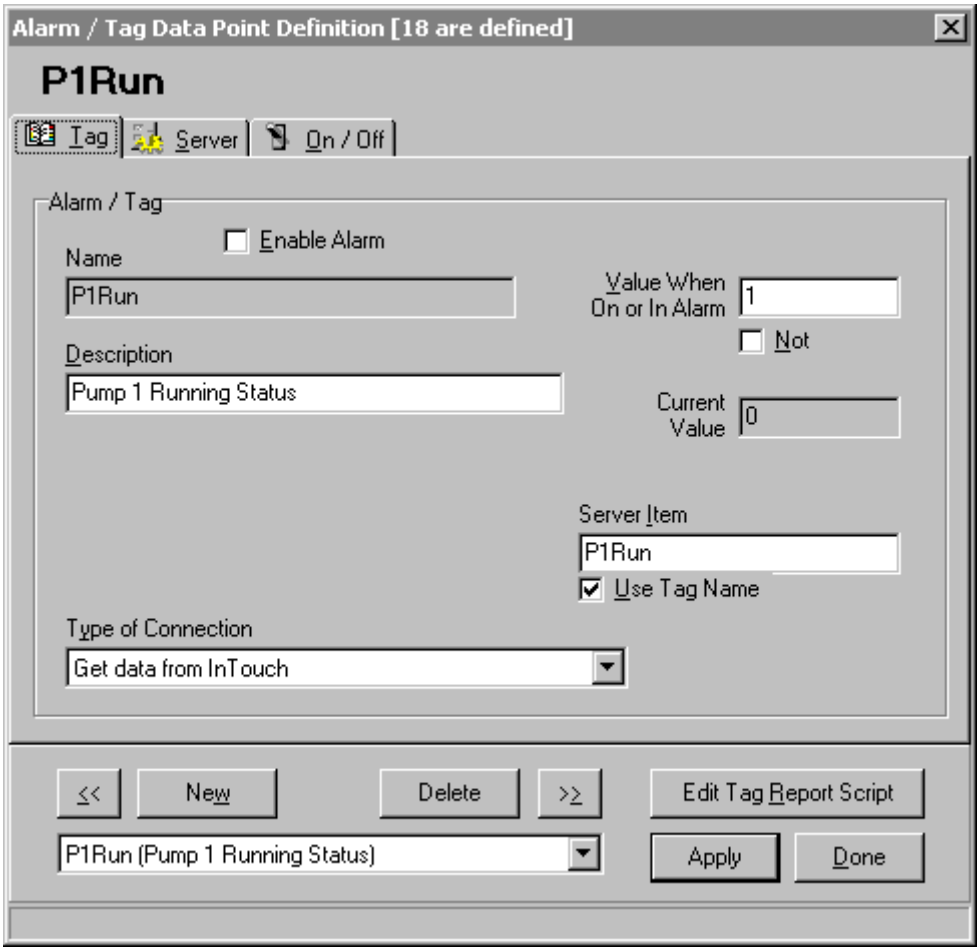
   For example, "P1Run."

2. Start SCADAlarm.

3. On the **Maintenance** menu, click **Alarms / Tag Names**. The **Alarm / Tag Data Point Definition** dialog box appears.

4. Click **New** to add a new tag to SCADAlarm.

5. In the **Name** box, type in the name of the tag that you created in the HMI system (in this example, "P1Run").
6. Make sure that the **Enable alarm** check box is not selected.
7. In the **Value When ON or In Alarm** box, type the string reported by the HMI system when the point becomes in alarm.



8. In the **Type of Connection** list click **Get data from <Server Name>**.
9. Configure all other required fields. For more information, see "Adding a Tag to the SCADAlarm Database" on page 66.

Example: Server Status Tag

Use the **Data Server Status with <Server Name>** data type to create a server "watchdog" tag. This can be used to monitor the status of the connection between a server and SCADAlarm. You could configure SCADAlarm to dial-out in the event that the server fails. Define one data server status tag per server.

To create a "server status" tag

1. In your HMI system, create a discrete tag with read/write capability.

   For example, "ServerStat". In Wonderware InTouch, you would create a "memory discrete" type tag. In Intellution, you would create a "DO" or "DR" with Output Enable capability and an Open Label of **0** and a Close Label of **1**. Configure the SCADAlarm tag with a ".A_CV" field type.

2. Start SCADAlarm.
3. On the **Maintenance** menu, click **Alarms / Tag Names**. The **Alarm / Tag Data Point Definition** dialog box appears.
4. In the **Type of Connection** box, click **Data Server Status with <Server Name>**.
5. Click **New** to add a new tag to SCADAlarm.
6. In the **Name** box, type in the name of the tag that you created in the HMI system (in this example, "ServerStat").
7. Select the **Enable Testing and Alarm** check box.
8. Configure all other required fields. For more information, see "Adding a Tag to the SCADAlarm Database" on page 66.

SCADAlarm will periodically toggle this status bit to the HMI. If SCADAlarm fails to toggle the bit (HMI is down), a server status alarm will be posted at SCADAlarm.

Example: Acknowledge All Tag

Use the **Ack All Alarms from <Server Name>** data type to provide a means of acknowledging all alarms in SCADAlarm from the HMI system. The behavior of this tag is identical to clicking on the **Acknowledge All** button on the SCADAlarm **Alarm** popup window.

Note This data type is global; it is not for a particular server. However, it comes from a particular server.

To create an "acknowledge all" tag

1. In your HMI system, create a discrete tagname.

   For example, **AckfromHMI**. For other examples, see "Example: Server Status Tag" on page 89.

2. Start SCADAlarm.
3. On the Maintenance menu, click **Alarms / Tag Names**. The **Alarm / Tag Data Point Definition** dialog box appears.
4. In the **Type of Connection** box, click **Ack All Alarms from <Server Name>**.
5. Click **New** to add a new tag to SCADAlarm.
6. In the **Name** box, type in the name of the tag that you created in the HMI system (in this example, "AckfromHMI").

7. Select the **Enable Function** check box.
8. Configure all other required fields. For more information, see "Adding a Tag to the SCADAlarm Database" on page 66.
9. On the **Configuration** menu, click **System Parameters**. The **System Parameters** dialog box appears.
10. Click the **Acknowledgements** tab.
11. In the **Acknowledgement Actions** area, select either **Accept Acknowledgements from HMI** or **Both**.

Setting this tag to a value of 1 at the HMI will acknowledge all alarms at SCADAlarm. SCADAlarm will then immediately set the tag value back to 0. This re-arms the tag for future acknowledgements.

Example: Disable SCADAlarm Tag

Use the **Disable SCADAlarm from <Server Name>** data type to provide a means of temporarily disabling SCADAlarm without having to shut it down.

To create a "disable SCADAlarm" tag

1. In your HMI system, create an analog tag.

   For example, "Disable_SCADAlarm." Make sure that this tag is changeable in the HMI. In Wonderware InTouch, you would create a "memory integer" that has read/write capability. In Intellution, you would create an "AO" or "AR" with Output Enable capability.
2. Start SCADAlarm.
3. On the **Maintenance** menu, click **Alarms / Tag Names**. The **Alarm / Tag Data Point Definition** dialog box appears.
4. In the **Type of Connection** box, click **Disable SCADAlarm from <Server Name>**.
5. Click **New** to add a new tag to SCADAlarm.
6. In the **Name** box, type in the name of the tag that you created in the HMI system (in this example, "Disable_SCADAlarm").
7. Select the **Enable Function** check box.
8. Configure all other required fields. For more information, see "Adding a Tag to the SCADAlarm Database" on page 66.

Setting the value of this tag to a non-zero value ("nn") in your HMI will disable SCADAlarm for "nn" minutes. For example, storing "30" in the Disable_SCADAlarm tag will disable SCADAlarm for the next 30 minutes. When the 30 minutes expires, SCADAlarm will set the tag value back to 0. To re-enable SCADAlarm immediately, set the value of this tagname to 0.

Example: Dead Phone Line Tag

Use the **Dead Phone Line: notify <Server Name>** data type to notify the HMI system when the modem cannot detect a dial tone when attempting to dial-out.

To create a "dead phone line" tag

1. In your HMI system, create a discrete tagname.

   For example, "BadPhoneLine."

2. Start SCADAlarm.
3. On the **Maintenance** menu, click **Alarms / Tag Names**. The **Alarm / Tag Data Point Definition** dialog box appears.
4. In the **Type of Connection** box, click **Dead Phone Line: notify <Server Name>**.
5. Click **New** to add a new tag to SCADAlarm.
6. In the **Name** box, type in the name of the tag that you created in the HMI system (in this example, "BadPhoneLine").
7. Select the **Enable Testing and Alarm** check box.
8. Configure all other required fields. For more information, see "Adding a Tag to the SCADAlarm Database" on page 66.

If SCADAlarm does not detect a dial tone on five successive dial-out attempts, this alarm tag is activated. Five is the default number of dial-out attempts before posting a failure. You can adjust this value by changing the **No. of NO DIALTONE for failed-phone-line detection** parameter in the SCADALRM.INI file. After modifying this parameter, you must restart SCADAlarm for the change to take effect.

Example: E-Mail Server Failure Tag

Use the **eMail Server Failure: notify <Server Name>** data type to create an e-mail server "watchdog" tag. This can be used to monitor the status of the connection between SCADAlarm and its configured e-mail server. You could configure SCADAlarm to dial out in the event that the server fails.

To create an "e-mail server failure" tag

1. In your HMI system, create a discrete tag with read/write capability.

   For example, "EMailStat." In Wonderware InTouch, you would create a "memory discrete" type tag. In Intellution, you would create a "DO" or "DR" with Output Enable capability and an Open Label of **0** and a Close Label of **1**. Configure the SCADAlarm tag with a ".A_CV" field type.

2. Start SCADAlarm.
3. On the **Maintenance** menu, click **Alarms / Tag Names**. The **Alarm / Tag Data Point Definition** dialog box appears.
4. In the **Type of Connection** box, click **eMail Server Failure: notify <Server Name>**.
5. Click **New** to add a new tag to SCADAlarm.
6. In the **Name** box, type in the name of the tag that you created in the HMI system (in this example, "EMailStat").
7. Select the **Enable Testing and Alarm** check box.

8. Configure all other required fields. For more information, see "Adding a Tag to the SCADAlarm Database" on page 66.

If SCADAlarm detects that the e-mail server has failed, this alarm tag is activated.

Example: Bad Login Attempts Tag

Use the **Bad Login Attempts: notify <Server Name>** data type to notify the HMI system and SCADAlarm if a consecutive number of unsuccessful telephone logins are detected. This may help alert you to "hacker" activity.

When an operator calls SCADAlarm, he or she will get about three tries to correctly enter an ID and PIN. If the operator fails to log in, SCADAlarm disconnects the call and the hacker-attempt count is incremented. If the log in succeeds, the hacker-attempt count is reset back to zero. By default, the hacker-attempt count must reach 10 before an alarm is generated. You can adjust the hacker-attempt limit by changing the **No. of consecutive bad logins for hacker detection** parameter in the SCADALRM.INI file. After modifying this parameter, you must restart SCADAlarm for the change to take effect.

When an unsuccessful login attempt is made, all available CPID data will be recorded as a line item in the SCADAlarm log.

To create a "bad login attempts" tag

1. In your HMI system, create a discrete tagname.

   For example, "BadLogins."

2. Start SCADAlarm.
3. On the **Maintenance** menu, click **Alarms / Tag Names**. The **Alarm / Tag Data Point Definition** dialog box appears.
4. In the **Type of Connection** box, click **Bad Login Attempts: notify <Server Name>**.
5. Click **New** to add a new tag to SCADAlarm.
6. In the **Name** box, type in the name of the tag that you created in the HMI system (in this example, "BadLogins").
7. Select the **Enable Testing and Alarm** check box.
8. Configure all other required fields. For more information, see "Adding a Tag to the SCADAlarm Database" on page 66.

Example: Logged Caller Tag

Use the **Logged Caller: notify <Server Name>** data type to notify the HMI system when a caller has successfully logged into the SCADAlarm system over the telephone.

To create a "logged caller" tag

1. In your HMI system, create a tag that supports text.

   For example, "operatorname." For InTouch, use a memory message type tagname.

2. Start SCADAlarm.
3. On the **Maintenance** menu, click **Alarms / Tag Names**. The **Alarm / Tag Data Point Definition** dialog box appears.
4. In the **Type of Connection** box, click **Logged Caller: notify <Server Name>**.
5. Click **New** to add a new tag to SCADAlarm.
6. In the **Name** box, type in the name of the tag that you created in the HMI system (in this example, "operatorname").
7. Select the **Enable Function** check box.
8. Configure all other required fields. For more information, see "Adding a Tag to the SCADAlarm Database" on page 66.

When a caller successfully logs into the SCADAlarm system over the telephone, his/her name and operator ID will be displayed in the tag in the HMI.

Viewing and Editing Properties for Multiple Alarm Tags

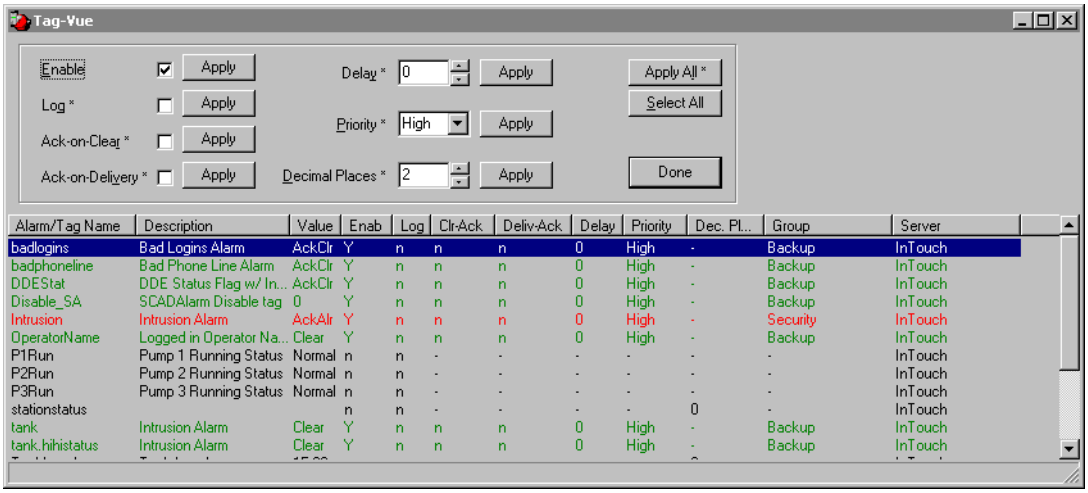
You can view and edit properties for multiple tags by using the Tag-Vue editor from within SCADAlarm or by using the SCADAlarm Database Utility (DBDL.exe).

Using the Tag-Vue Editor

The Tag-Vue editor allows you to display/modify the properties of several SCADAlarm tags simultaneously, instead of having to modify each tag individually from within the **Alarm / Tag Data Point Definition** dialog box.

To edit tag properties using the Tag-Vue editor

1. On the **Maintenance** menu, click **Tag-Vue**. The **Tag-Vue** dialog box appears.



   The bottom section of the dialog box lists all of the configured tags and the properties of each. The options in the top section of the dialog box can be used to change the properties of one or more tags.

2. To sort tags based upon a particular attribute, click the column header in the bottom section of the dialog box.

3. Select the tag(s) to modify in the list. Hold down the **Ctrl** key on your keyboard to select multiple tags. Click **Select All** to select all of the tags in the list.

4. For each property you want to change, configure the new value and then click **Apply**. To apply the values for all of the properties, click **Apply All**. Configurable properties are:

   Enable
   If you select this check box, the alarm or function will be enabled for the tag.

   Log
   If you select this check box, a line will be entered in the log each time the HMI updates the alarm tag value to SCADAlarm. Logging will only be enabled for this tag. This option may be useful if your HMI does not support logging, or if you want to track when SCADAlarm has been notified of the alarm.

   Ack-on-Clear
   If you select this check box, the alarm will acknowledge itself automatically when the alarm condition clears.

   Ack-on-Delivery
   If you select this check box, alarm notification will act as a "one-shot." This alarm will acknowledge itself after it is successfully delivered.

   Delay
   The amount of delay (in seconds) that SCADAlarm will wait after detecting an alarm before annunciating or dialing out.

Priority
The priority setting for this alarm tag. Two hundred levels of alarm priority are available, from 1 (HIGH) through 200 (LOW). The priority setting determines the order in which alarms are annunciated and dialed out. For example, if a priority 1 alarm and priority 8 alarm are detected, the priority 1 alarm is dialed out first. Also, a higher priority alarm will interrupt the current processing of a lower priority alarm. For example, if SCADAlarm is waiting 15 minutes to retry a page for a priority 8 alarm, and a priority 1 alarm occurs, the priority 1 alarm notification takes precedence.

Decimal Places
The decimal precision that will be spoken whenever the numeric value of this tag is spoken in a tag report script.

5. To edit the definition, tag report script, or on-call group for a tag, right-click the row that contains the tag and click one of the following:

Option	Dialog Box Accessed
Edit Tag or Server	**Alarm / Tag Data Point Definition** dialog box
Edit Tag Report Script	**Tag Report Script Construction** dialog box
Edit Group	**Group On-call Lists** dialog box

6. Click **Done**.

Using the SCADAlarm Database Utility

The SCADAlarm Database Utility (DBDL.exe) allows you to export the SCADAlarm tag database to a .csv file. You can edit the .csv file using a program such as Microsoft Excel and then import the changes back into SCADAlarm.

For more information on using this utility, see the SCADAlarm Database Utility documentation.

C H A P T E R 5

Alarm Reporting and Acknowledgment

After adding tags to your SCADAlarm system, you should create a tag report script for each tag that requires one. Tag report scripts are typically used for:

- Tags that require annunciation and/or dial-out notification (that is, alarms)
- Tags that have values you want to modify over the telephone (that is, set-points)

Some tags don't require their own tag report script, but instead are used in scripts for other tags. For example, a tank level analog value tag may be included as part of a HI level alarm tag report script.

Without a tag report script, SCADAlarm will speak, in the configured text-to-speech voice, a default message that includes the tagname and alarm state.

Contents

Interactive Voice Scripts for Alarm Reporting

A tag report script defines how tag information is reported to an operator. A script is associated with a tag, so any time the tag needs to be reported, the script is executed.

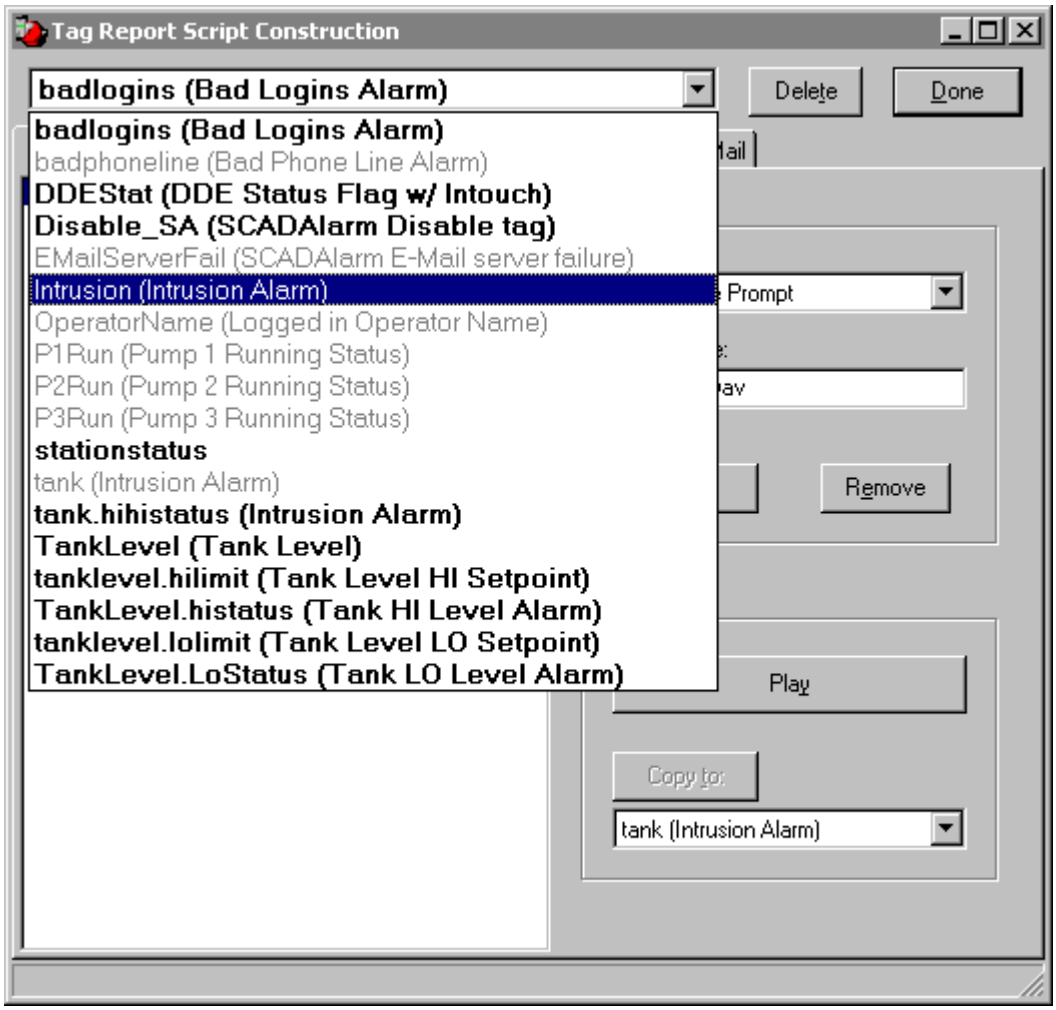
Note Not all tags require a pager format or tag report script; some tags are created solely for inclusion in the scripts and/or formats of other tags.

Creating an Interactive Voice Report Script

To create a voice report script

1. On the **Maintenance** menu, select **Tag Report Scripts**. The **Tag Report Script Construction** dialog box appears.

2. Click the **Interactive Voice Report Script** tab.

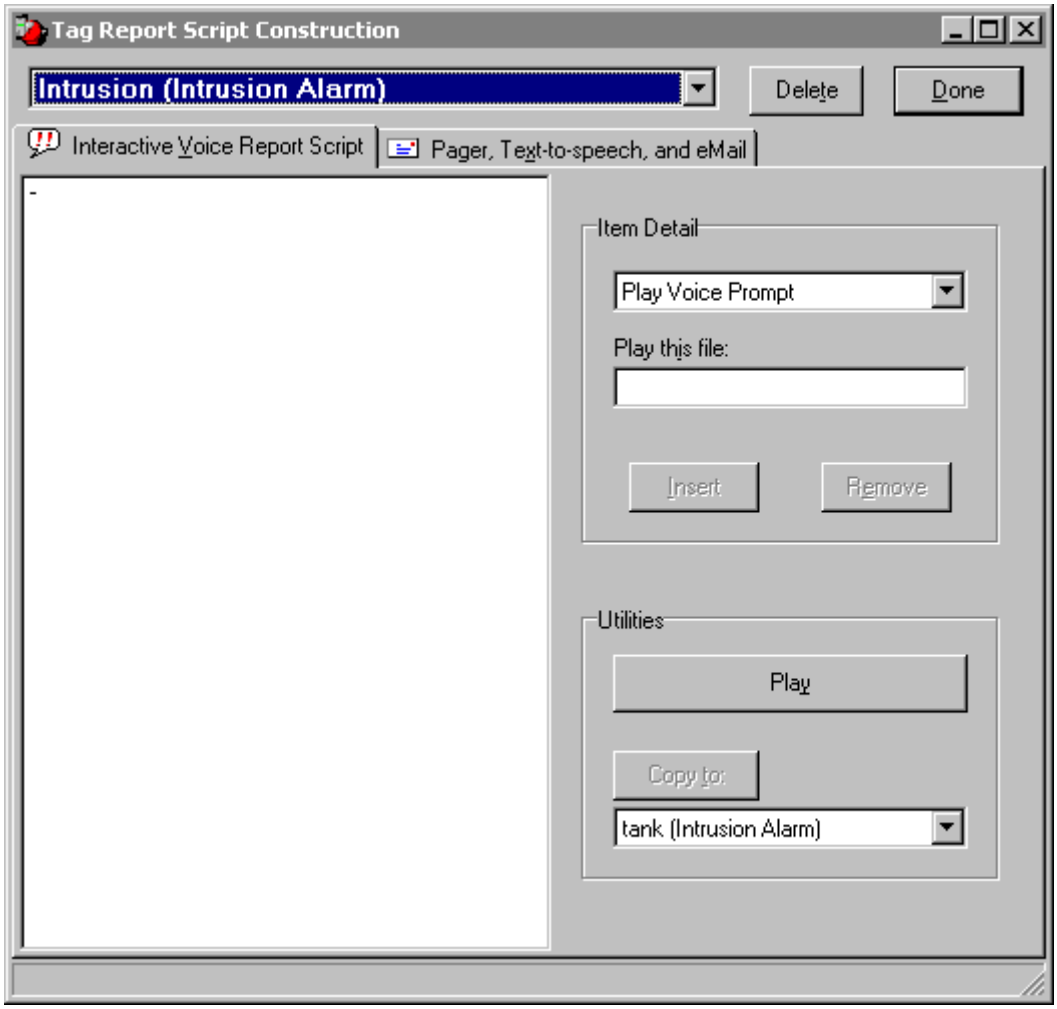


3. In the list at the top of the dialog box, click the alarm tag for which you want to configure the report script.

Note Tags that have existing tag report scripts configured for them are shown in a bold font.

You will be prompted to create a new script for this alarm tag.

4. Click **OK**. The dialog box will be cleared.



5. In the **Item Detail** area, select a script function from the list. Available functions are:

   Play Voice Prompt
   Plays a voice prompt (.wav) file for the caller. During configuration, you are prompted to select or record a voice prompt file.

   For more information, see "Browsing or Recording a Voice Prompt" on page 136.

   Speak Numeric Value
   Speaks the numeric value of the selected tag. During configuration, you will select the tag whose value is to be spoken.

   Speak Alarm State
   Speaks either the "Speak when Off" or "Speak when On" prompt for the selected tag. During configuration, you will select the tag whose state is to be spoken.

   For more information, see "Configuring On/Off Properties for an Alarm Tag" on page 75.

Get Numeric Value
Prompts the caller to enter the new value (using the DTMF "*" key as a decimal point, and the DTMF "#" key to terminate entry), and then repeats the entered value to the caller for confirmation before sending a request to the HMI to change it. During configuration, you will select the tag whose value is to be changed.

This also can be used to turn a discrete tag "on" or "off" by entering a "1" or "0" followed by the pound sign (#).

Acknowledge
If the alarm has already been acknowledged, this function speaks "Alarm has been acknowledged." If not, this function speaks "To Acknowledge, press nine. To continue without acknowledging, press six." and then accepts an appropriate keystroke. During configuration, you will select the tag to be acknowledged.

Note The Play Voice Prompt, Speak Numeric Value, and Speak Alarm State scripts also operate during local annunciation.

6. If you are configuring a **Play Voice Prompt** type script, in the **Play this file** box that appears, select an existing voice prompt file (.wav or .txt) or the name of a new voice prompt file to play.

   To select a voice file (.wav) or create a new file, double-click in the box or right-click in the box and click **Browse or Record New Speech File**. The **Voice Prompt File** dialog box appears in which you can select or record a prompt. For more information, see "Browsing or Recording a Voice Prompt" on page 136.

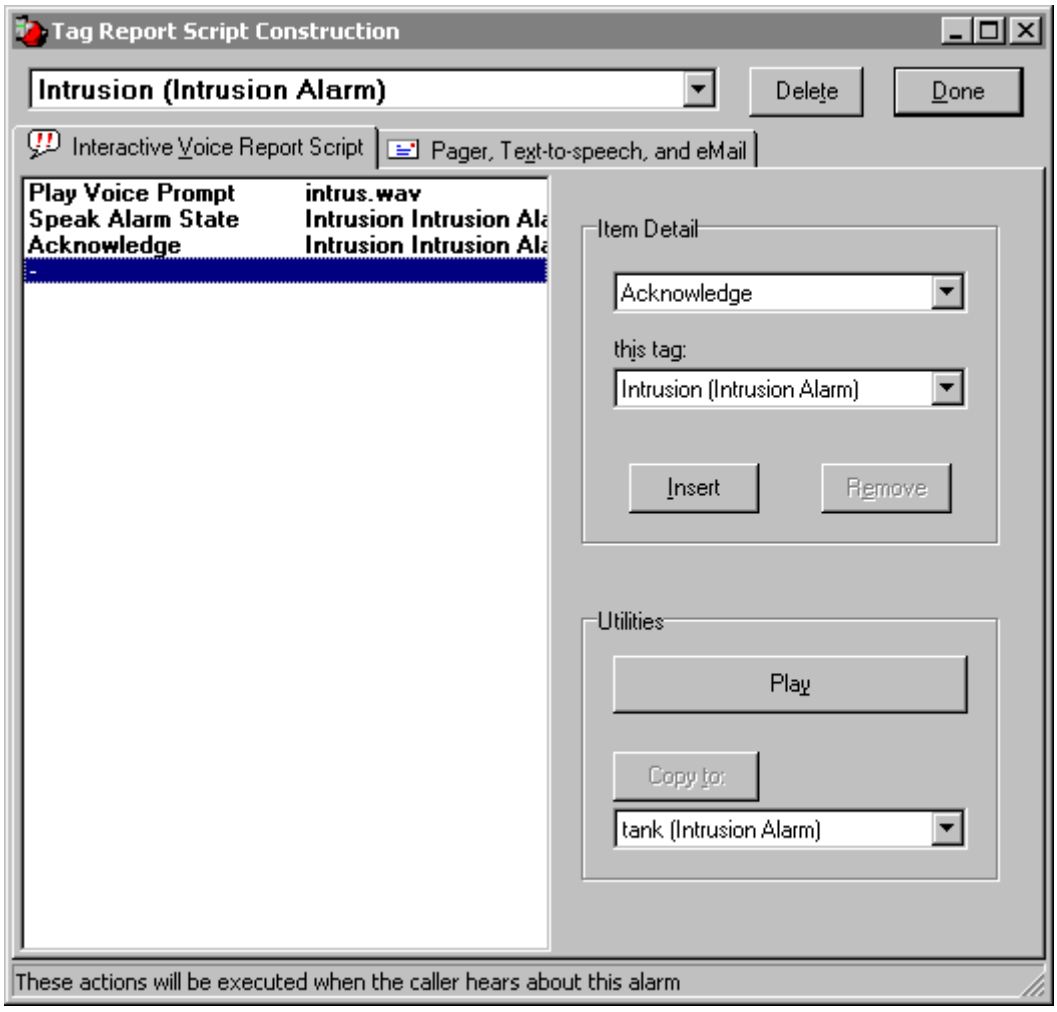
   To select a text-to-speech (.txt) file or create a new file, right-click in the box and click **Browse or Create New Text File**. The **SCADAlarm Text-to-speech Text Files** dialog box appears in which you can select or create a text-to-speech file. For more information, see "Browsing or Creating a Text-to-Speech File" on page 138.

7. If you are configuring any other script type, specify the tag in the **of this tag** box that appears.

8. Click **Insert** to insert the configured entry into the script window.

9. Repeat steps 6 through 9 to add additional functions to the script.

   For example:



10. Click **Play** to hear the tag report script. If the modem hardware is busy, the script will not be played.

11. To copy this tag's script to the script for another tag, select the target tag from the list and then click **Copy to:**.

    When scripts are copied, tagnames are replaced where applicable, but voice prompt files must be manually changed, if desired.

When the alarm is true, this tag report script will execute, performing each of the functions in the order that they appear in the **Tag Report Script Construction** dialog box.

Report Script Examples

Report scripts for some common scenarios are provided.

Example 1: Simple Alarm Script

Note If no script is configured, SCADAlarm will use text-to-speech to construct a temporary script similar to this example.

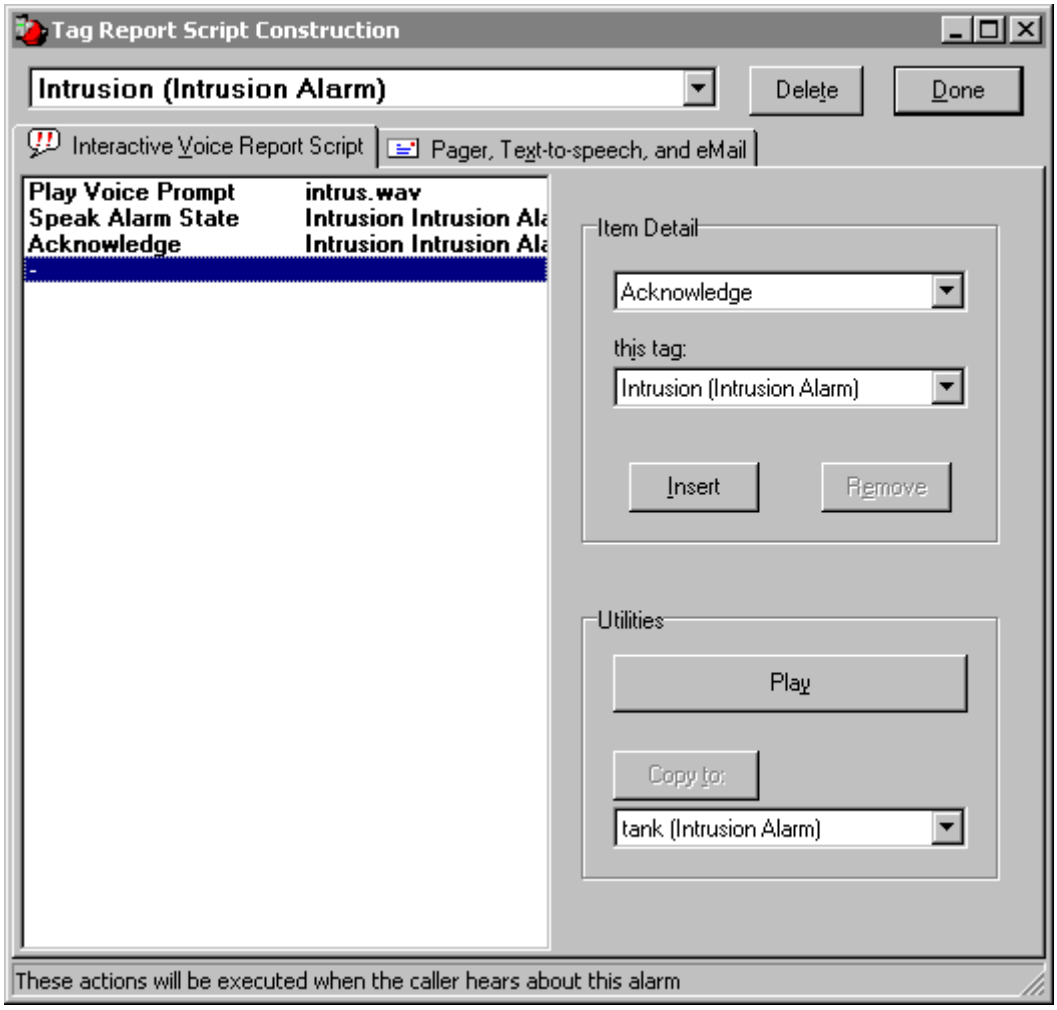
In the following example, a tag report script is created for tag named Intrusion. The tag report script annunciates the alarm and gives the operator an opportunity to acknowledge the alarm. The tag report script might say:

"The status of the Intrusion Alarm is: IN ALARM. To acknowledge press 9, to continue without acknowledging press 6."

The script consists of three script functions:

- A voice prompt that says "The status of the intrusion alarm is"
- The alarm state of the tag, either "IN ALARM" or "CLEARED."
- An acknowledge function for the tag. This is a pre-configured tag report script function. Only the tagname needs to be supplied.

When alarm Intrusion is true, this tag report script will execute, performing each of the functions in the order that they appear in the **Tag Report Script Construction** dialog box.

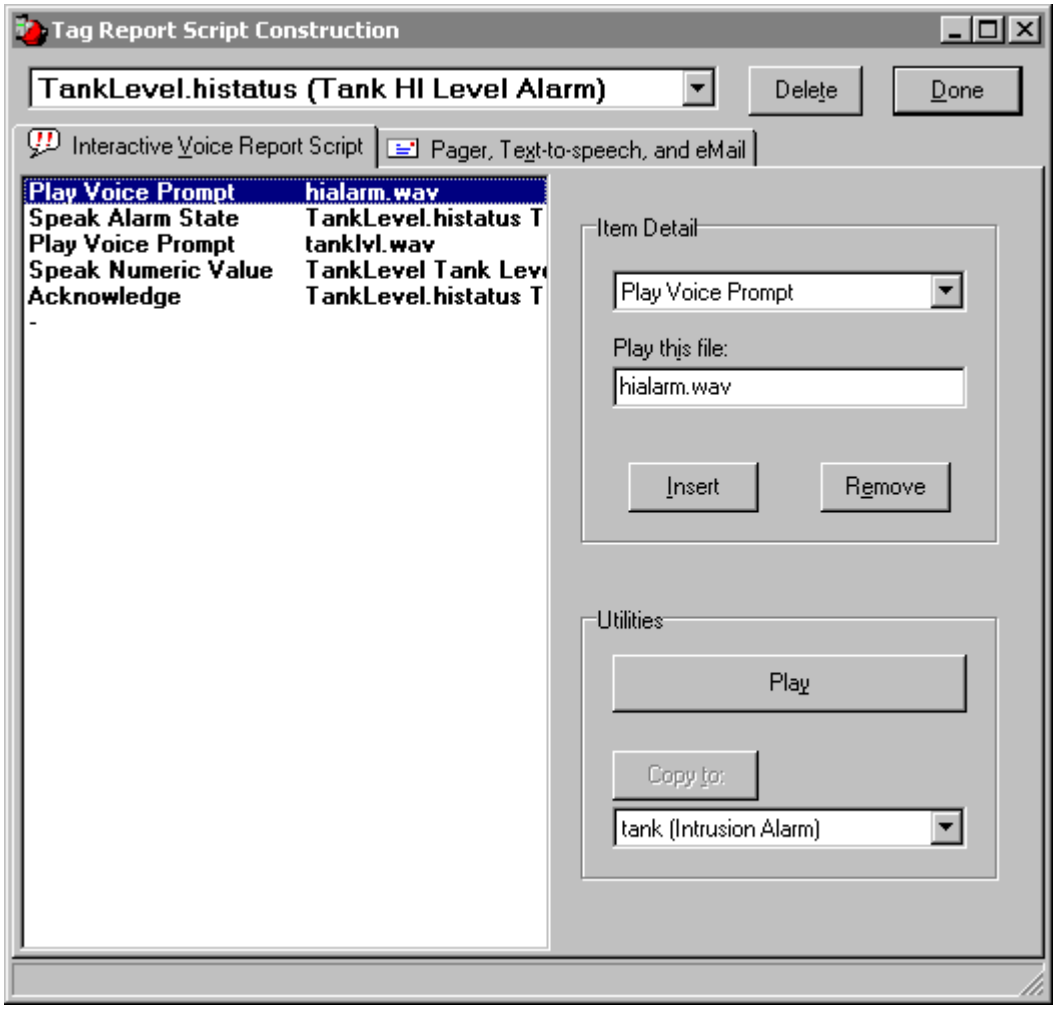


Function	Parameter	What it sounds like
Play Voice Prompt	Intrus.wav	"The status of the intrusion alarm is"
Speak Alarm State	Intrusion	"In ALARM"
Acknowledge	Intrusion	"To acknowledge, press 9. To continue without acknowledging, press 6."

Example 2: Discrete Alarm Script

For this example, the level in a tank (in feet) exists at the HMI as tag **TankLevel** and the high alarm is represented by **TankLevel.histatus**. Here's an example of what the tag report script might say:

"The tank high level alarm is: in alarm. The tank level in feet is: twenty-five point seven. To acknowledge, press nine. To continue without acknowledging, press six."



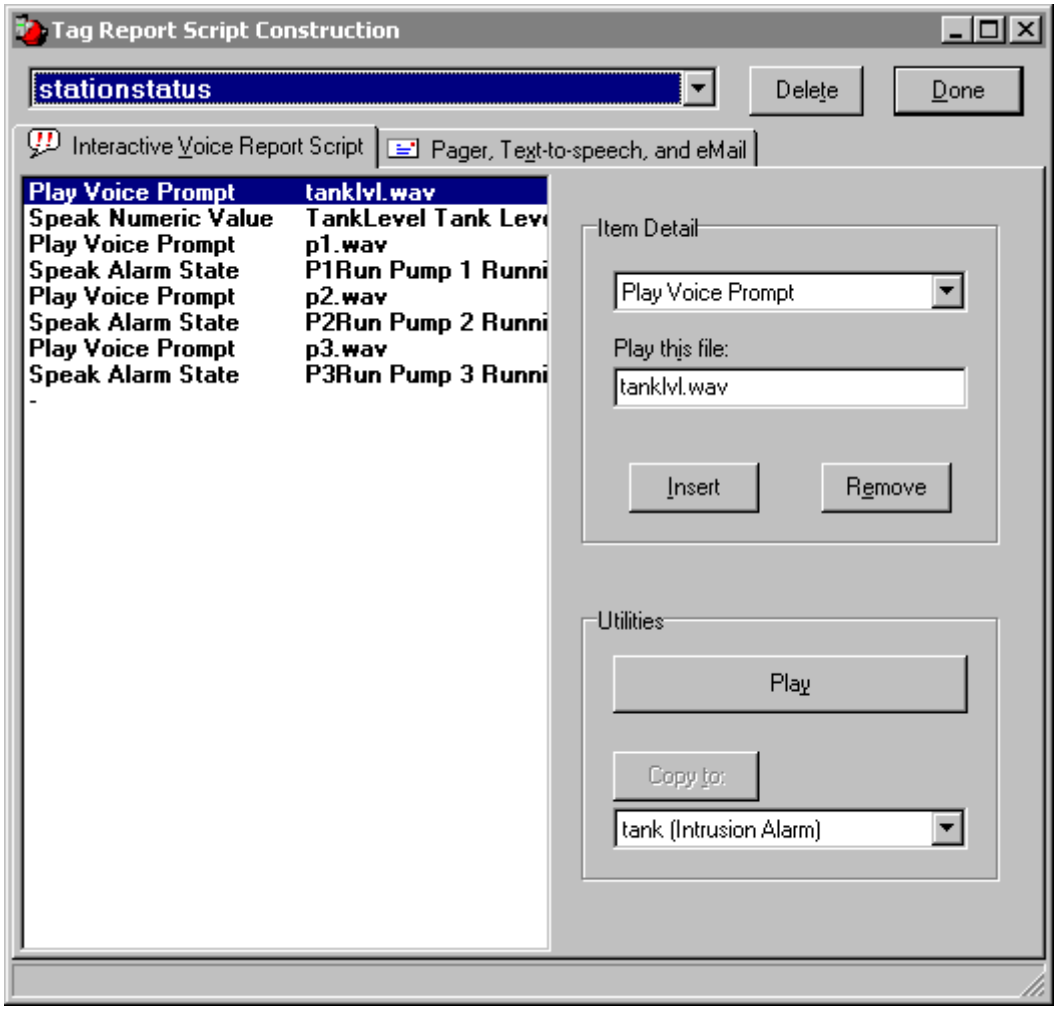
Function	Parameter	What it sounds like
Play Voice Prompt	hialarm.wav	"The tank high level alarm is"
Speak Alarm State	TankLevel.histatus	"In ALARM"
Play Voice Prompt	tanklvl.wav	"The tank level in feet is"
Speak Numeric Value	TankLevel	"Twenty-five point seven"
Acknowledge	TankLevel.histatus	"To acknowledge, press 9. To continue without acknowledging, press 6."

Note The **Acknowledge** function is a pre-configured tag report script function. Just follow the instructions over the telephone to acknowledge the alarm.

Example 3: Data Acquisition Script

In this example, several process values for a pump station are spoken in a single tag report script. The level in a tank (in feet) exists at the HMI as tag **TankLevel** and the pump run status bits are represented by **P1Run**, **P2Run**, and **P3Run**. This script could be configured to sound like this:

"The tank level in feet is: twenty-three point four. Pump one is: Running. Pump two is: Running. Pump three is: Stopped."



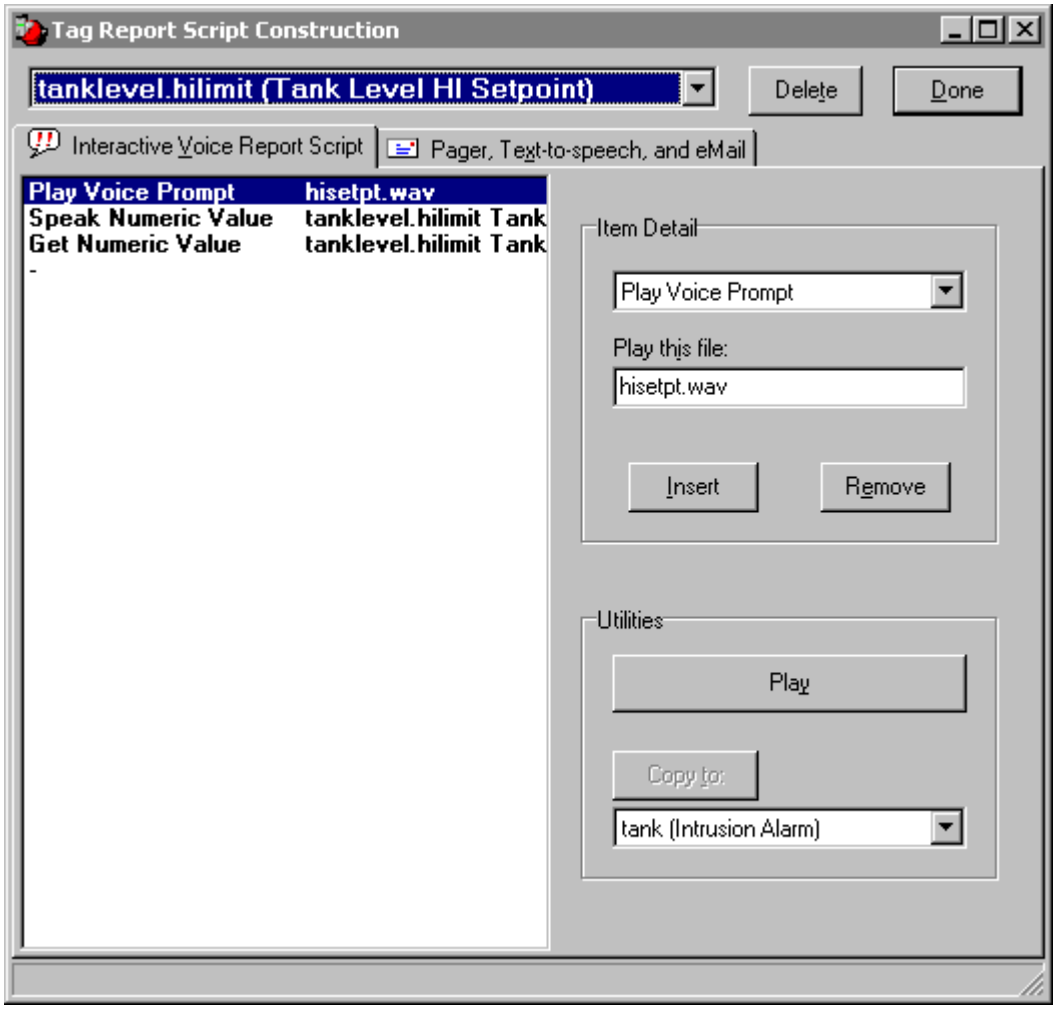
Function	Parameter	What it sounds like
Play Voice Prompt	tanklvl.wav	"The tank level in feet is"
Speak Numeric Value	TankLevel	"Twenty-three point four"
Play Voice Prompt	p1.wav	"Pump one is"
Speak Alarm State	P1Run	"Running"
Play Voice Prompt	p2.wav	"Pump two is."
Speak Alarm State	P2Run	"Running"

Function	Parameter	What it sounds like
Play Voice Prompt	p3.wav	"Pump three is"
Speak Alarm State	P3Run	"Stopped"

Example 4: Set-Point Change Script

For this example, a high level alarm set-point for a tank (in feet) exists at the HMI as tag **TankLevel.hilimit**. This type of interactive remote data entry uses SCADAlarm's **Get Numeric Value** function to retrieve new values over the telephone. A script for a set-point change might say:

"The current set-point value is: thirty-four point seven. Enter a new value. For the decimal point, press the star key. To terminate your entry, press the pound key. To cancel this function, press the pound key only."



Function	Parameter	What it sounds like
Play Voice Prompt	hisetpt.wav	"The current *set-point* value is"

Function	Parameter	What it sounds like
Speak Numeric Value	TankLevel	"Thirty-four point seven"
Get Numeric Value	TankLevel	"Enter a new value. For the decimal point, press the star key. To terminate your entry, press the pound key. To cancel this function, press the pound key only."

Note The **Get Numeric Value** is a pre-configured tag report script function. Just follow the instructions over the telephone to enter the new value and confirm that the new value was sent to the system successfully.

Message Formats for Alarm Reporting

A message format defines:

- The text or numeric message that will appear for a pager or e-mail message.
- The text that will be spoken for a "text-to-speech" message over the phone.

Thus, there are four types of formats:

- Alphanumeric
- Numeric-only
- Text-to-speech
- E-mail

Formats may contain static text and/or variables, whose values are updated when the page or e-mail is sent or when the phone message is spoken.

For alphanumeric paging, text-to-speech, and e-mail formats, the full character set is available, allowing you to describe alarms in detail. Numeric-only paging requires some creativity in describing what alarm has occurred, since only numbers and hyphens are available, and the message length is very short (typically 20 digits).

Message formats contain plain text mixed with embedded variable references. Variables are identified by text enclosed in square brackets (for example, [S]). Some variables are defined in the Alphanumeric Pager Display boxes when defining the alarm tag. For example, the tag description and alarm on name, and so on.

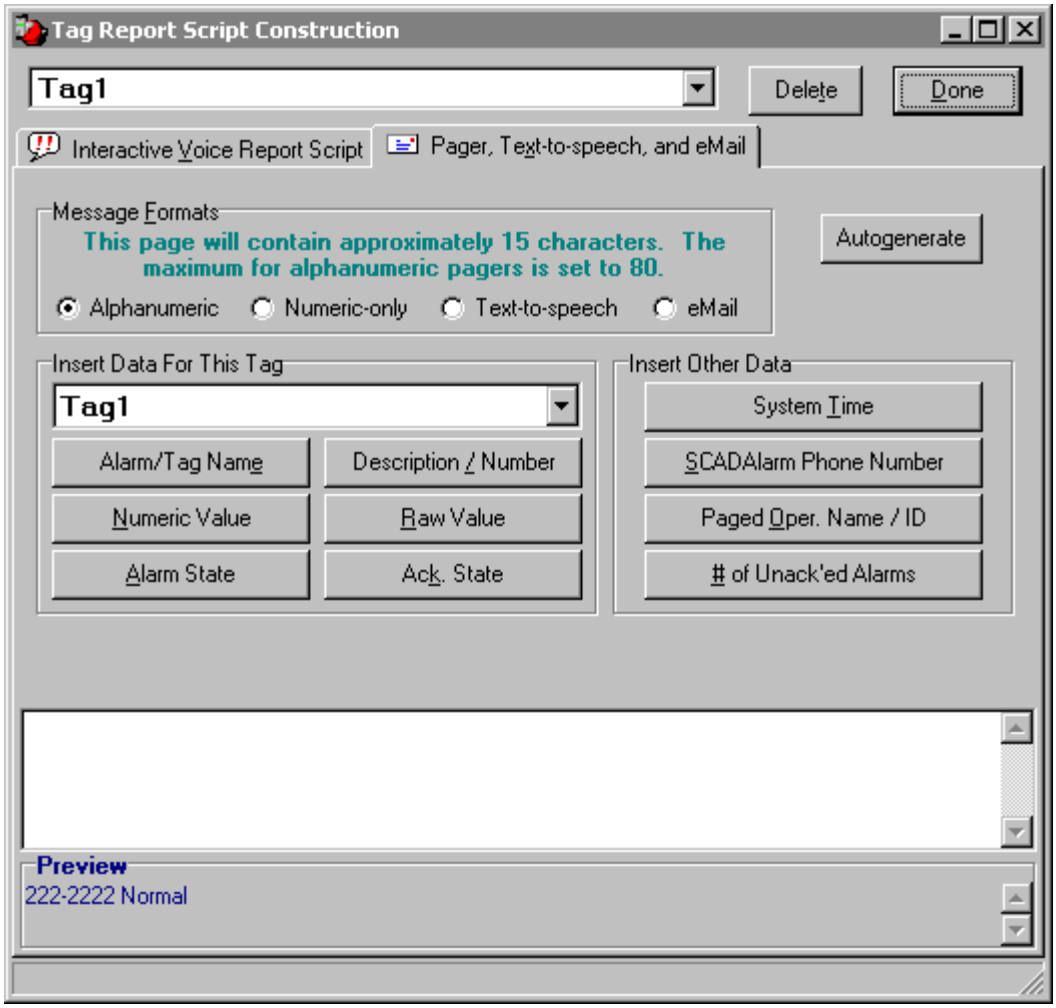
If a tag already has a configured interactive voice report script but no pager format, the format is automatically generated from the voice script; otherwise a default pager format is created. Therefore, if you are planning to use voice scripts and pager/e-mail messages in your SCADAlarm system, it is recommended that you create the voice scripts first, and then the pager/e-mail formats. For more information, see "Interactive Voice Scripts for Alarm Reporting" on page 97.

If there is no interactive voice script, you can convert the alphanumeric pager format to text-to-speech for local or phone annunciation by clicking the **Autogenerate** button.

Creating a Message Format

To create a message format

1. On the **Maintenance** menu, click **Tag Report Scripts**. The **Tag Report Script Construction** dialog box appears.
2. Click the **Pager, Text-to-speech, and eMail** tab.



3. In the list at the top of the dialog box, click the alarm tag for which you want to configure the message format.

   When you first create a message format for a tag, the default format will appear in the window at the bottom of the dialog box. If no tag report script was built for the tag, a default message format is generated.

4. In the **Message Formats** area, click the type of message format to configure, either **Alphanumeric**, **Numeric-only**, **Text-to-speech**, or **eMail**.

   Text will appear that describes the length of the current message and the maximum number of characters allowed for the format type. If the maximum is exceeded, SCADAlarm will truncate the message and log the fact that it did so.

   For more information on defining the maximum length, see "Configuring Paging Parameters" on page 32. These values should be set to the maximum characters allowed by your paging service provider.

5. Click **Autogenerate** if you want SCADAlarm to automatically build the message format from an existing tag report script. If the message format already includes text and/or variables, you cannot autogenerate unless you delete the existing text and/or variables. Skip to step 9.

6. In the **Insert Data For This Tag** list, select the tag from the list.

7. Configure the format in the window at the bottom of the dialog box. Use the buttons in the **Insert Data For This Tag** and **Insert Other Data** areas to insert variables at the current edit cursor location.

   The appropriate buttons will be available for the type of format you are creating. For example, the **Paged Oper. Name / ID** button is not available if you have selected to create a numeric-only format.

   To include a single bracket character ([ ), type two brackets ([[ ).

   Alarm/Tag Name
   The name of the tag.

   Description / Number
   The tag description and/or number. Inserts the variable: [D:tagname]

   Numeric Value
   The numeric value for the tag. Inserts the variable: [N:tagname]

   Raw Value
   The raw value for the tag. This is used to display or speak string data. Inserts the variable: [R:tagname]

   Alarm State
   The alarm state for the tag. This is determined by the Off Name or On Name setting for the tag's definition. Inserts the variable: [A:tagname]

   Ack. State
   The acknowledgment state for the tag. This will be either "Acked" or "UNACK." Inserts the variable: [K:tagname]

   System Time
   The system time. Inserts the variable: [T]

   SCADAlarm Phone Number
   The SCADAlarm telephone number. Inserts the variable: [S]

   Paged Oper. Name / ID
   The name of the operator that is contacted. Inserts the variable: [O]

   # of Unack'ed Alarms
   The number of unacknowledged alarms. Inserts the variable: [#]

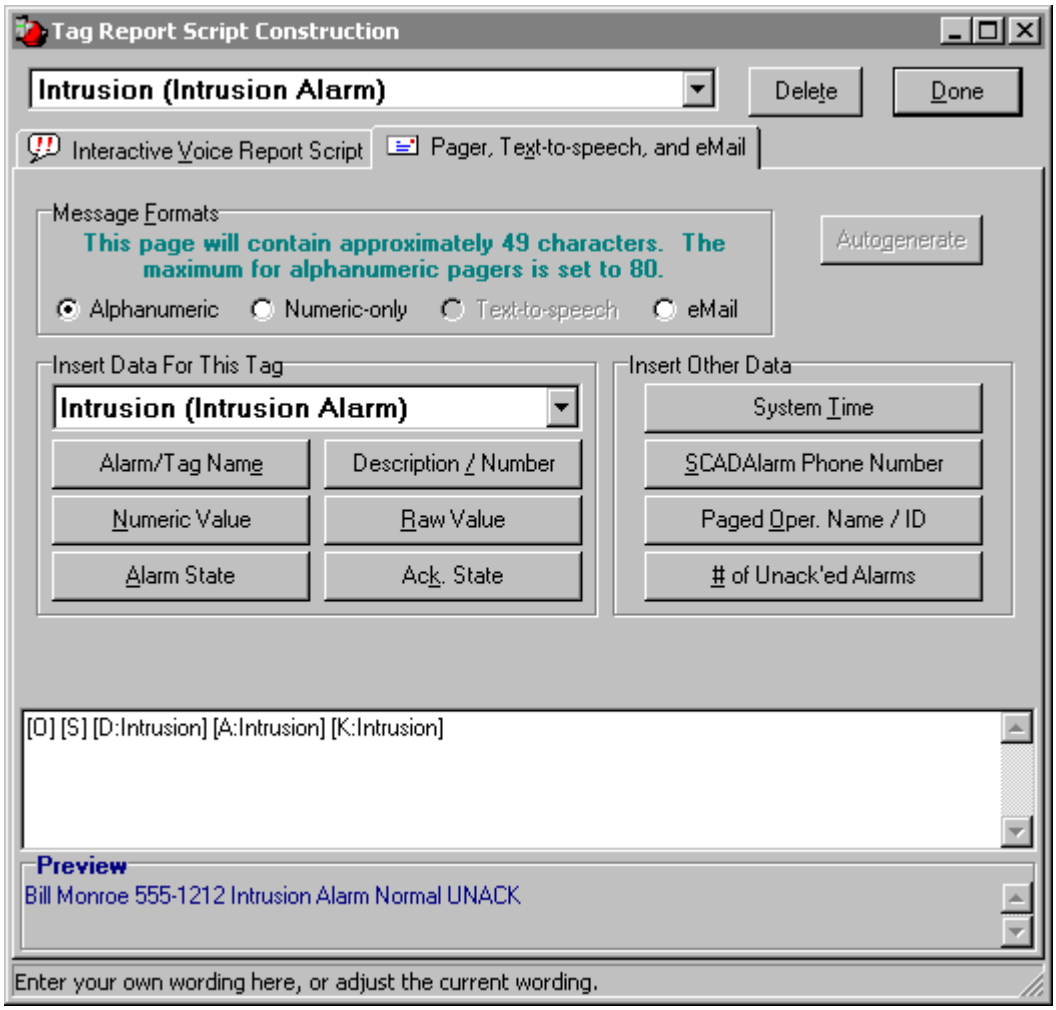
8. If you want to start over and have SCADAlarm re-generate a format, delete the entire contents of the message window and then click **Autogenerate**.
9. In the **Preview** area, verify how the message will appear or be spoken. For a text-to-speech format, you can double-click in the area and listen to the message.
10. Click **Done**.

Message Format Examples

Examples are provided for each of the message format types.

Example 1: Alphanumeric Message Format

In the following example, the operator name ([O]), SCADAlarm telephone number ([S]), tag description ([D]), current alarm state ([A:]), and current acknowledge state ([K:]) of the tag are included in the message format.



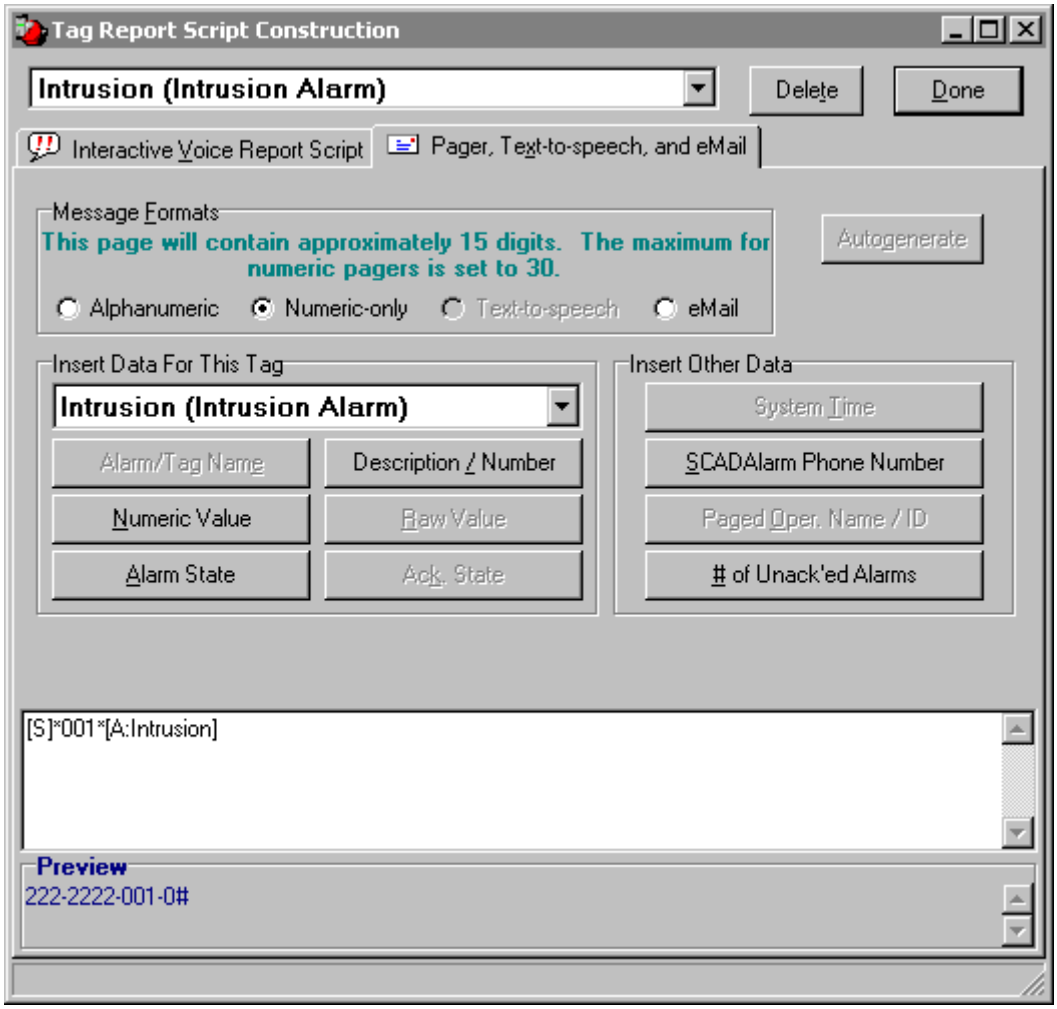
Note If the message format already includes text and/or variables, you cannot autogenerate unless you delete the existing text and/or variables.

Example 2: Numeric-only Message Format

Numeric-only pager formats require a bit of imagination in their construction. You may want to design a coding system that identifies the alarm for the page recipient. For example, tag Intrusion might be represented by "001" on the pager, and its state (alarm or clear) by a number (1 or 0, respectively). This data is entered in the numeric pager display area of the tag's definition.

In the following example, the SCADAlarm telephone number ([S]) and the number and alarm state ([A:]) of one tag is to be included in the pager message. The operator is reminded that he/she will need to call 222-2222 in order to acknowledge this alarm, which alarm occurred (number 001), and the fact that the alarm is now clear (0).

Note For most numeric pager systems, the DTMF star (*) character is displayed on a numeric pager as a dash (-).

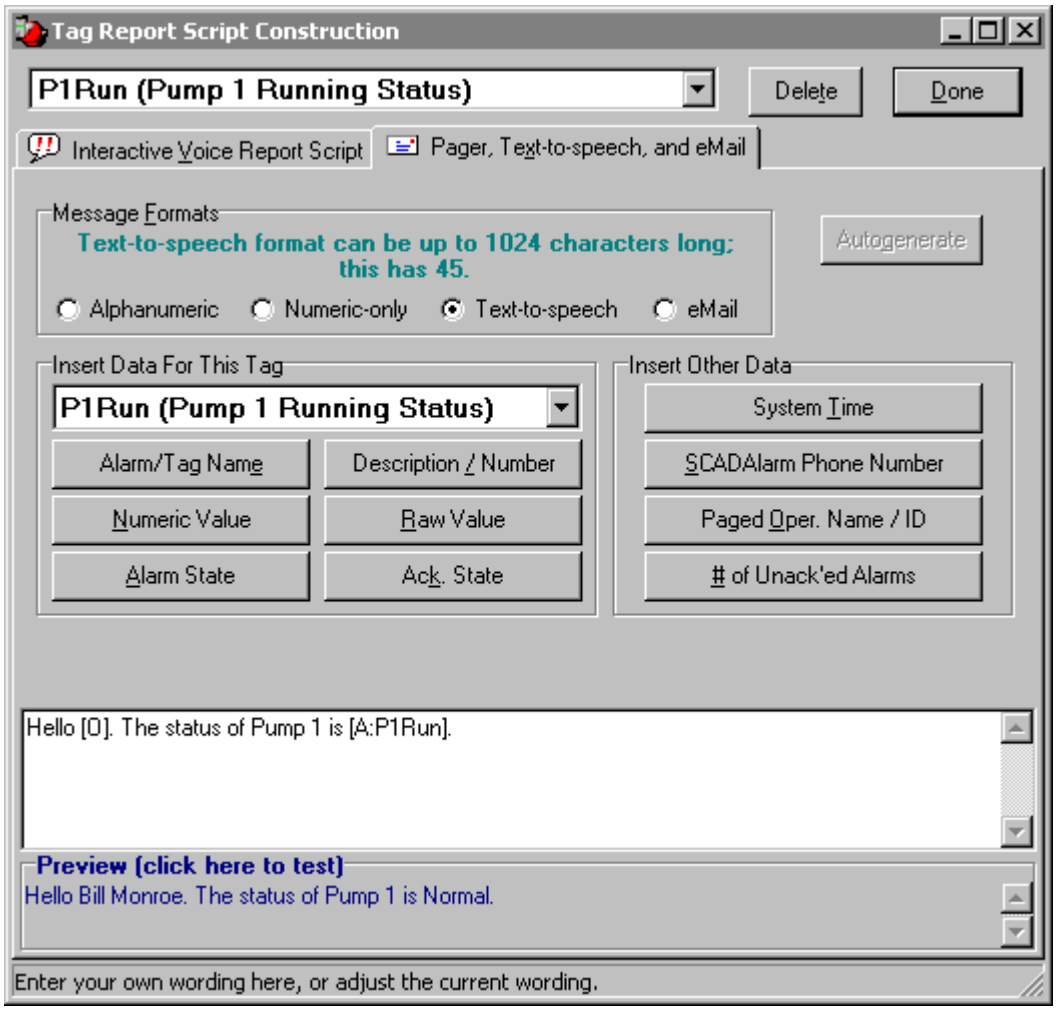


Note If the message format already includes text and/or variables, you cannot autogenerate unless you delete the existing text and/or variables.

Example 3: Text-to-Speech Message Format

In the following example, a text message is configured that greets the operator by name ([O]) and then describes the alarm state ([A:]).

This message can be spoken to the operator over a phone or voice pager.



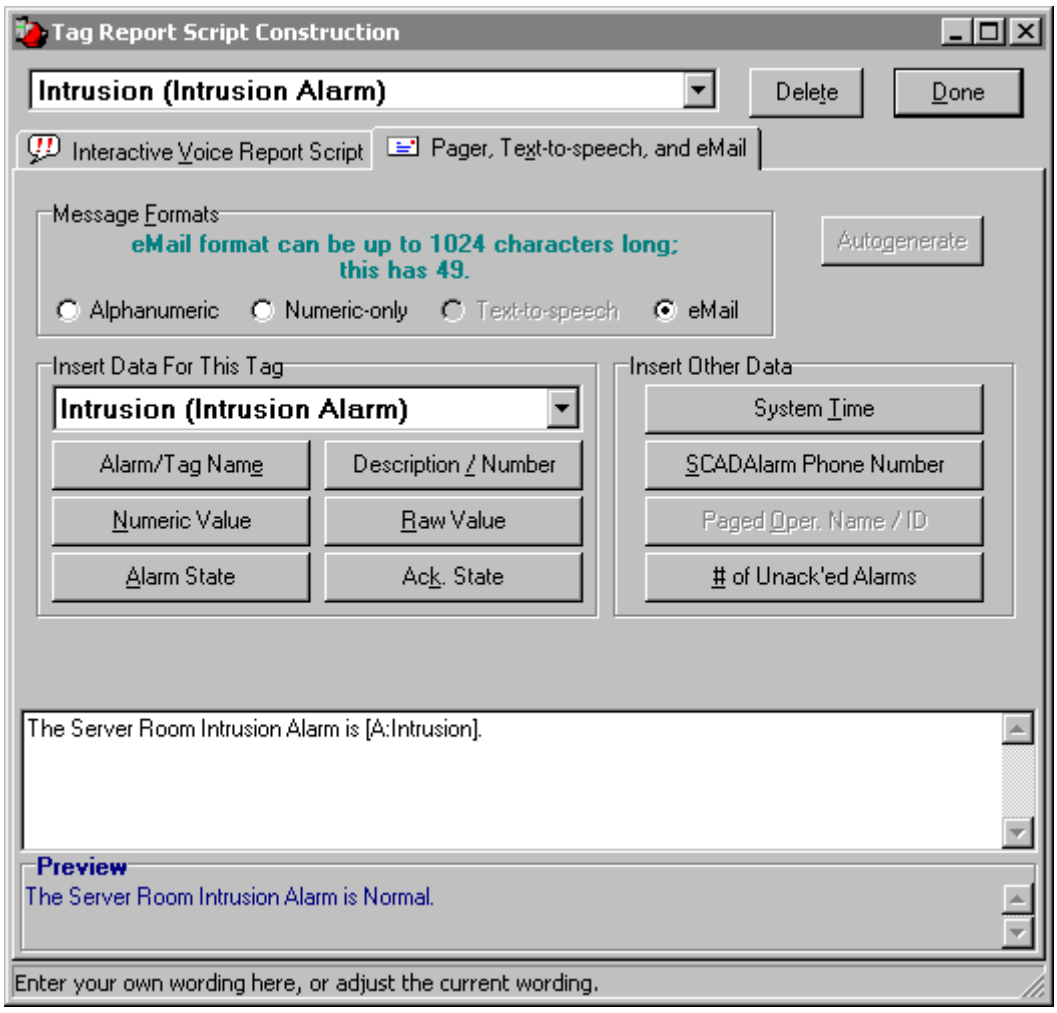
Note If the message format already includes text and/or variables, you cannot autogenerate unless you delete the existing text and/or variables.

Example 4: E-Mail Message Format

You can set up an e-mail format to describe each alarm in the e-mail. If you do not, a default format will be used. This format is interpreted exactly the same as the alphanumeric pager format would be, except it can be longer and can contain newline characters and multiple consecutive spaces (which are compressed to a single space in a pager format).

Note The included Database Utility reads and writes .csv format files, and the .csv format does not support newlines. Using newlines in a format will cause newlines to be inserted into the .csv file, which starts a new CSV record, rather than remaining as part of the same record. Therefore, if you plan to include newlines in your e-mail format, do not use the Database Utility to manage scripts.

In the following example, a text message is included that describes the alarm state ([A:]).



Note If the message format already includes text and/or variables, you cannot autogenerate unless you delete the existing text and/or variables.

Alarm Acknowledgements

When an alarm occurs, SCADAlarm will locally annunciate and/or dial-out based upon which features are enabled when the alarm occurs. **In order for SCADAlarm to consider its job complete, all alarms must be acknowledged**. As long as unacknowledged alarms exist, SCADAlarm will continue to annunciate and/or dial-out.

There are three ways to acknowledge alarms in SCADAlarm:

- In the SCADAlarm software application, click the **Acknowledge All** in the **Alarm** window that appears when an alarm is triggered.
- Acknowledge the alarms over the telephone, via a menu tree function.
- Set the acknowledge tag for the alarm to a value of 1 in the HMI software. (This requires some simple control logic at the HMI). This method works only if a valid acknowledge tag is defined for the alarm tag and if the **Accept Acknowledgements from HMI** or **Both** option is selected in the **Acknowledgements** tab of the **System Parameters** dialog box.

Note Acknowledging the alarm only at the HMI doesn't acknowledge the alarm in SCADAlarm unless the **Acknowledge Tag** is properly configured. The **Acknowledge Tag** is provided as a convenience (strictly optional), which may allow you to acknowledge alarms from a single location.

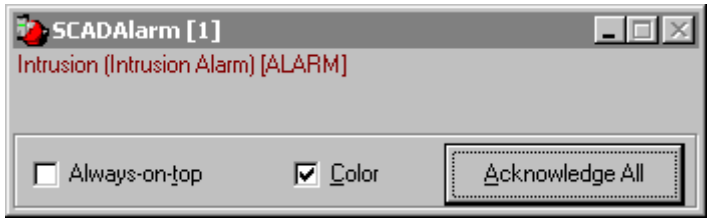
Conversely, the **Acknowledge Tag** option within SCADAlarm allows you to acknowledge the HMI software at the same time you are acknowledging SCADAlarm. This method works only if a valid acknowledge tag is defined for the alarm tag and if the **Send Acknowledgements to HMI** or **Both** option is selected in the **Acknowledgements** tab of the **System Parameters** dialog box.

The SCADAlarm alarm is considered acked even if the acknowledgment sent to the HMI fails.

For more information, see "Configuring Alarm Acknowledgement Parameters" on page 115.

Acknowledging Alarms

The **SCADAlarm** dialog box appears when alarm(s) are detected. The tagname, description, and the current state of the alarm(s) are displayed in the top part of the dialog box.



To acknowledge alarms

1. Acknowledge either one or more single alarms or all alarms:

   To acknowledge all alarms in the window, click **Acknowledge All**.

   To acknowledge a specific alarm (or alarms), select the desired alarm(s) in the list and click **Acknowledge**.

   No further local annunciation or dial-out will occur until a **new** alarm is detected. In addition, the SCADAlarm acknowledge tag(s) for each of the alarm(s) (if configured) will be set to 1. This will also acknowledge alarms at the HMI if the **Send Acknowledgements to HMI** or **Both** option is selected in the **Acknowledgements** tab of the **System Parameters** dialog box.

   For more information, see "Configuring System Parameters" on page 148.

2. Select the **Always-on-top** check box if you want the SCADAlarm dialog box to always appear in front of all software applications currently open on the computer

3. Select the **Color** check box to display the alarm text in color.

You can configure SCADAlarm to not show this alarm window. To disable this window, select the **Never show it** option in the **System Parameters** dialog box, **Acknowledgements** tab.

HMI Software and Remote Acknowledgement

Not all HMI software packages support remote acknowledgement. To determine if support exists for remote acknowledgement, see the documentation for your HMI software.

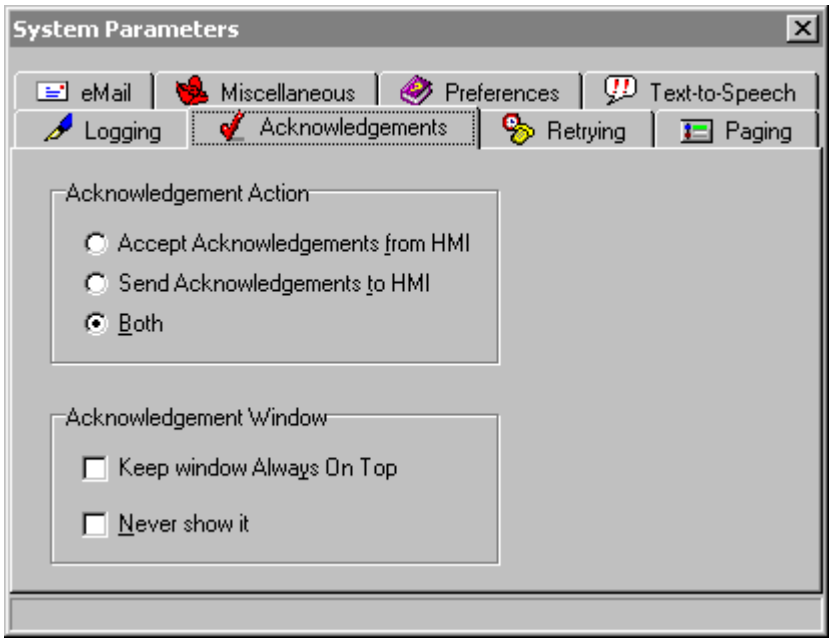
For information on how to set up remote acknowledgement for various HMI software packages, see Chapter 10, "Integration with HMI Applications."

Configuring Alarm Acknowledgement Parameters

To configure alarm acknowledgement parameters

1. On the **Configuration** menu, click **System Parameters**.

2. Click the **Acknowledgements** tab.



3. In the **Acknowledgement Action** area, configure how alarm acknowledgements will interact with the Server (HMI). All options require a properly-defined acknowledge tag definition for the desired alarm(s).

   Accept Acknowledgements from HMI
   If selected, you will be able to acknowledge alarms in SCADAlarm from the HMI.

   Send Acknowledgements to HMI
   If selected, you will be able to acknowledge alarms at the HMI from SCADAlarm.

   Both
   If selected, alarms can be acknowledged from both the HMI and SCADAlarm.

4. In the **Acknowledgement Window** area, configure the behavior of the **SCADAlarm** alarm dialog box.

   Keep window Always On Top
   If selected, the alarm window will always be displayed on top of other software application windows.

   Never show it
   If selected, the alarm window will never be displayed, even if there are alarms.

5. Close the dialog box.

Documenting an Alarm Test

The **Operator Comment** dialog box appears when testing an alarm tag from the **Alarm / Tag Data Point Definition** dialog box, allowing you to document the alarm test. The log file always notes the date and time of the alarm test; the operator comment is optional.

C H A P T E R 6

Handling Incoming Voice Calls

You will need to configure how SCADAlarm will handle incoming voice calls. This includes selecting the device used for incoming calls, configuring operator authentication, and setting up a telephone menu tree that users will hear when they call in.

Contents

Devices for Incoming Voice Calls

You can configure the device to use for incoming calls. For more information, see "Hardware Devices" on page 144.

Security for Incoming Calls

When an operator calls the SCADAlarm phone number, he/she must first login to the system. Login requirements are handled on a per-user basis, and can be configured as part of the operator profile. For more information, see "Operator Profiles" on page 47.

SCADAlarm can detect failed logins and then set an alarm. The number of failed logins to detect can be configured using the **No. of consecutive bad logins for hacker detection** entry in the **[System Parameters]** section of the SCADALRM.ini file. By default, this entry is set to 10.

Both the operator ID code and PIN are checked. Then if the number of failed logins exceeds the configured setting, the time of the call, CPID information, and the operator ID code are written to the SCADAlarm log file. The PIN used by the hacker is not logged.

To generate an alarm for hacker detection, set up a Bad Login Attempts alarm tag.

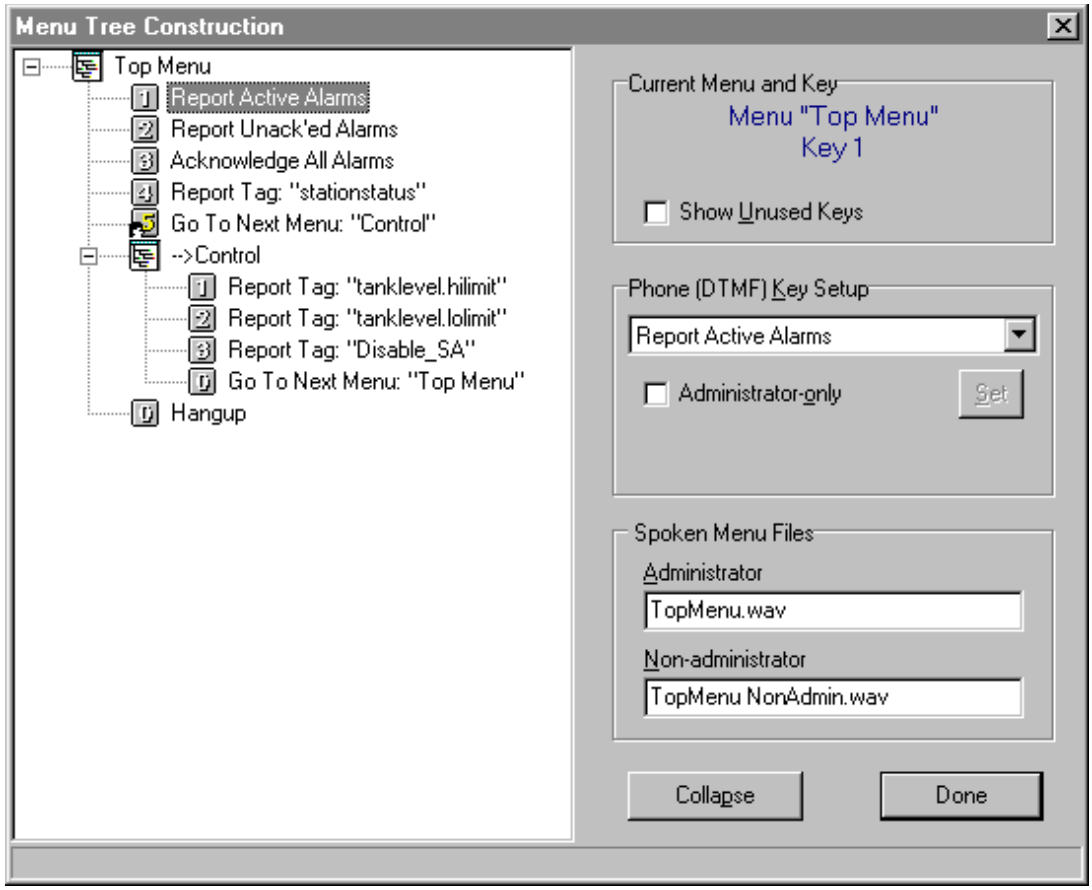
Telephone Menu Trees

The menu tree defines the options available to an operator when he/she is logged in on the telephone. The menu tree functions just like a typical voice mail menu for a telephone. Each menu is limited to 11 DTMF keys. (DTMF key 0 is reserved for hanging up the telephone or returning to the main, or "top," menu.)

After logging in over the telephone, an operator starts in the top menu and SCADAlarm determines whether or not the operator has administrative access. If so, the Administrator Menu Prompt File for the top menu is spoken. Otherwise, the Non-administrator Menu Prompt File is spoken. The menu prompt file should accurately describe the key options that are available to the operator.

The top menu is just like any other menu, with two exceptions. First, it cannot be deleted. Second, the DTMF 0 key terminates the call, whereas in submenus, the DTMF 0 key returns to the top menu.

The **Menu Tree Construction** dialog box is used to set-up the menu structure the users will navigate on the phone. The telephone keys, their functions, what the functions act on, and the permission level for each key are displayed. In the example below, when the operator presses the "1" key on his/her telephone, the "Report Active Alarms" function will be executed. When an administrator presses the "5" key on the telephone, he or she will go to the Control submenu; a non-administrator will just hear the menu again.



If any **DTMF** keys are set up for administrator-only access, you will need to record separate administrator and non-administrator prompt files. The menu prompt files are used to speak a list of active keys for the current menu, so the caller knows which options are available and configured.

For more information, see "Browsing or Recording a Voice Prompt" on page 136 and "Browsing or Creating a Text-to-Speech File" on page 138.

In many cases, no submenus are needed. In fact, the majority of SCADAlarm systems only require four basic functions:

- Report active alarms
- Report unacknowledged alarms
- Acknowledge all alarms
- Hang up the telephone

More menu functions may be required if, for example, areas of a plant must be segregated and reported in detail, or there is a set of functions that require administrator-only access, such as set-point changes. In these cases, submenus work well. The fact that menus can lead to other menus makes a diagram of this type of structure resemble a tree, with the top menu at the root.

If submenus are required, the top menu should lead to other, logically grouped submenus, perhaps by plant area or general function. The Unacknowledged Alarm list should also be in the top menu, allowing the caller to determine which direction to proceed without having to do too much navigation.

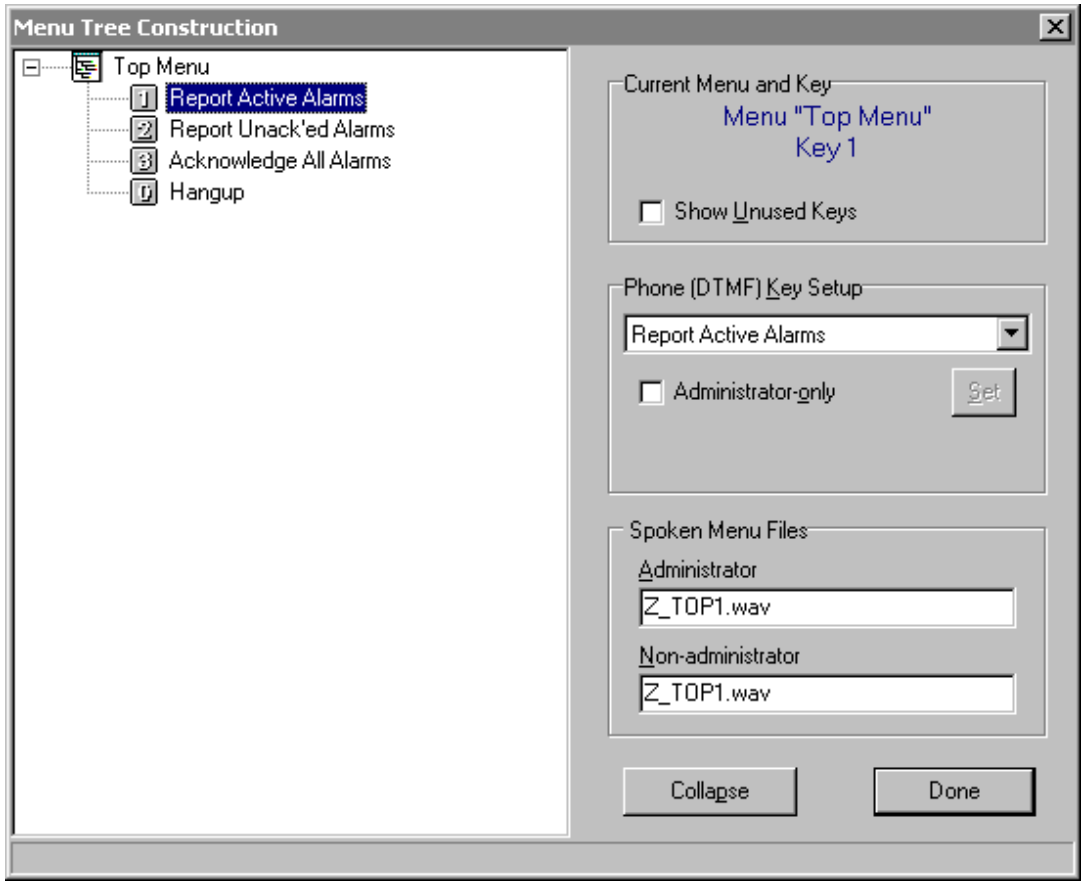
Using the "group" menu commands (**Report Active Group** alarms, **Report Unack'ed Group** alarms, **Acknowledge Group** alarms) allows you to configure your menu tree to report and acknowledge a specific group of alarms, instead of having to listen to the entire list of alarms.

For more information, see "Adding a Tag to the SCADAlarm Database" on page 66.

Constructing a Telephone Menu Tree

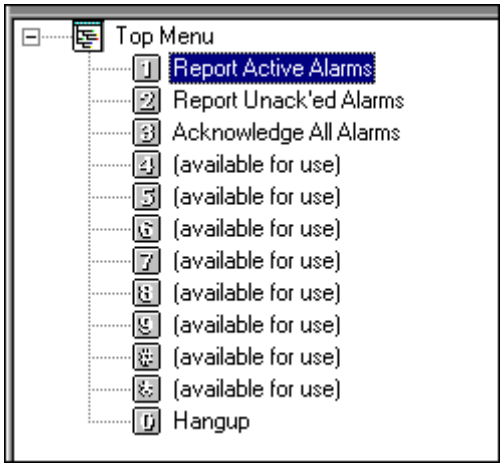
To construct a menu tree

1. On the **Maintenance** menu, click **Menu Tree**. The **Menu Tree Construction** dialog box appears.



The main window displays the menu tree with the four default menu items in the top menu. Each default menu item is assigned to a menu key.

2. Select the **Show Unused Keys** check box to view all available menu keys. Additional keys available for use will appear in the menu tree window.



3. In the menu tree window, select the key to configure.

   If you are adding a new key, click on an **(available for use)** entry.

   To set a menu key back to being available for use, perform any of the following:

   - Right-click on the key and click **Set to "(available for use)"**.
   - In the **Phone (DTMF) Key Setup** list, click **(available for use)**.

4. In the **Phone (DTMF) Key Setup** list, click the function that will be associated with the selected key.

   Some functions require additional configuration. For example, if you select the **Acknowledge Group** function, a list will appear in which you can select the group name. For a list of functions and configure options, see "Available Functions for a Menu Tree" on page 124.

5. Select the **Administrator-only** check box to make the selected function only available to callers with administrative privileges.

   You may want to limit certain menu functions (for example, set-point changes, acknowledgement of all alarms, and so on) only to operators with administrator privileges. If an operator with no administrator privileges attempts to access an administrator-only function, the spoken menu file will be repeated.

6. Click **Set** to update the menu tree window with the new or updated key entry.

7. Repeat steps 3 through 6 to complete the menu tree.

8. Select each menu (the top menu plus any submenus that you have created) and specify in the **Spoken Menu Files** area the menu prompts that will be heard by callers.

   If you are incorporating administrator-only menu functions in the menu tree, you should record two separate menu prompt files: one for administrators and one for non-administrators that describe only the functions available to each.

   To select a voice file (.wav) or create a new file, double-click in the box or right-click in the box and click **Browse or Record New Speech File**. The **Voice Prompt File** dialog box appears in which you can select or record a prompt. For more information, see "Browsing or Recording a Voice Prompt" on page 136.

   To select a text-to-speech (.txt) file or create a new file, right-click in the box and click **Browse or Create New Text File**. The **SCADAlarm Text-to-speech Text Files** dialog box appears in which you can select or create a text-to-speech file. For more information, see "Browsing or Creating a Text-to-Speech File" on page 138.

9. Click **Collapse** to collapse the top menu.

10. When you are finished configuring the menu, click **Done**.

Available Functions for a Menu Tree

The following functions are available for a menu tree:

Menu Function	Description
Report Active Alarms	Executes the tag report scripts for all active alarms.
Report Unack'ed Alarms	Executes the tag report scripts for all unacknowledged alarms.
Acknowledge All Alarms	Acknowledges all alarms.
Report Active Group	Executes the tag report scripts for all active alarms that belong to a specific operator group. During configuration, you will be prompted to specify the on-call group.
Report Unack'd Group	Executes tag report scripts for all unacknowledged alarms belonging to a specific operator group. During configuration, you will be prompted to specify the on-call group.
Acknowledge Group	Acknowledges all unacknowledged alarms that belong to a specific operator group. During configuration, you will be prompted to specify the on-call group.
Go to Next Menu	Allows you to access a submenu. During configuration, you will be prompted to select or create a new menu.

Menu Function	Description
Report Tag	Executes a tag report script. During setup, this gives a list of tag report scripts and allows creation of new ones.
Send eMail Report	Sends an e-mail report to the operator that is currently logged in.
Send eMail Report Group	Sends an e-mail report to all operators in the specified group
Hangup	Disconnects the call.

Example Construction of a Menu Tree

In this example, a menu tree is created that allows the operator to perform the following functions:

DTMF Key	Function
1	Hear the current active alarms.
2	Hear unacknowledged alarms (in either active or clear states).
3	Acknowledge all alarms.
4	Execute an existing tag report script named "stationstatus."
5	Go to a submenu called "Control" that has administrator-only access.
0	Hang up.

To construct the menu tree

1. On the **Maintenance** menu, click **Menu Tree**. The **Menu Tree Construction** dialog box appears.
2. Record a menu prompt file to describe the functions available to operators with administrator access. This .wav file should sound something like this:

   "For active alarms, press 1. For unacknowledged alarms, press 2. To acknowledge all alarms, press 3. For station status, press 4. For the station control menu, press 5. To hang up, press 0."
3. Double-click in the **Administrator** box of the **Spoken Menu Files** area to begin the recording process.
4. Record a menu prompt file to describe the functions available to operators with non-administrator access. This .wav file should sound something like the following (note that option 5 is only available to operators with administrator privileges):

   "For active alarms, press 1. For unacknowledged alarms, press 2. To acknowledge all alarms, press 3. For station status, press 4. To hang up, press 0."

5. Double-click in the **Non-administrator** box of the **Spoken Menu Files** area to begin the recording process.

   For more information, see "Browsing or Recording a Voice Prompt" on page 136.

6. Select the **Show Unused Keys** check box. From the tree view on the left side of the window, highlight the **1** key under the Top Menu. **Menu "Top Menu" Key 1** should be displayed as the Current Menu and Key.

7. In the **Phone (DTMF) Key Setup** list, click **Report Active Alarms** and then click **Set**.

8. Highlight the 2 key under Top Menu. **Menu "Top Menu" Key 2** should be displayed as the Current Menu and Key.

9. In the **Phone (DTMF) Key Setup** list, click **Report Unack'ed Alarms** and then click **Set**.

10. Highlight the 3 key under Top Menu. **Menu "Top Menu" Key 3** should be displayed as the Current Menu and Key.

11. In the **Phone (DTMF) Key Setup** list, click **Acknowledge All Alarms** and then click **Set**.

12. Highlight the 4 key under Top Menu. **Menu "Top Menu" Key 4** should be displayed as the Current Menu and Key.

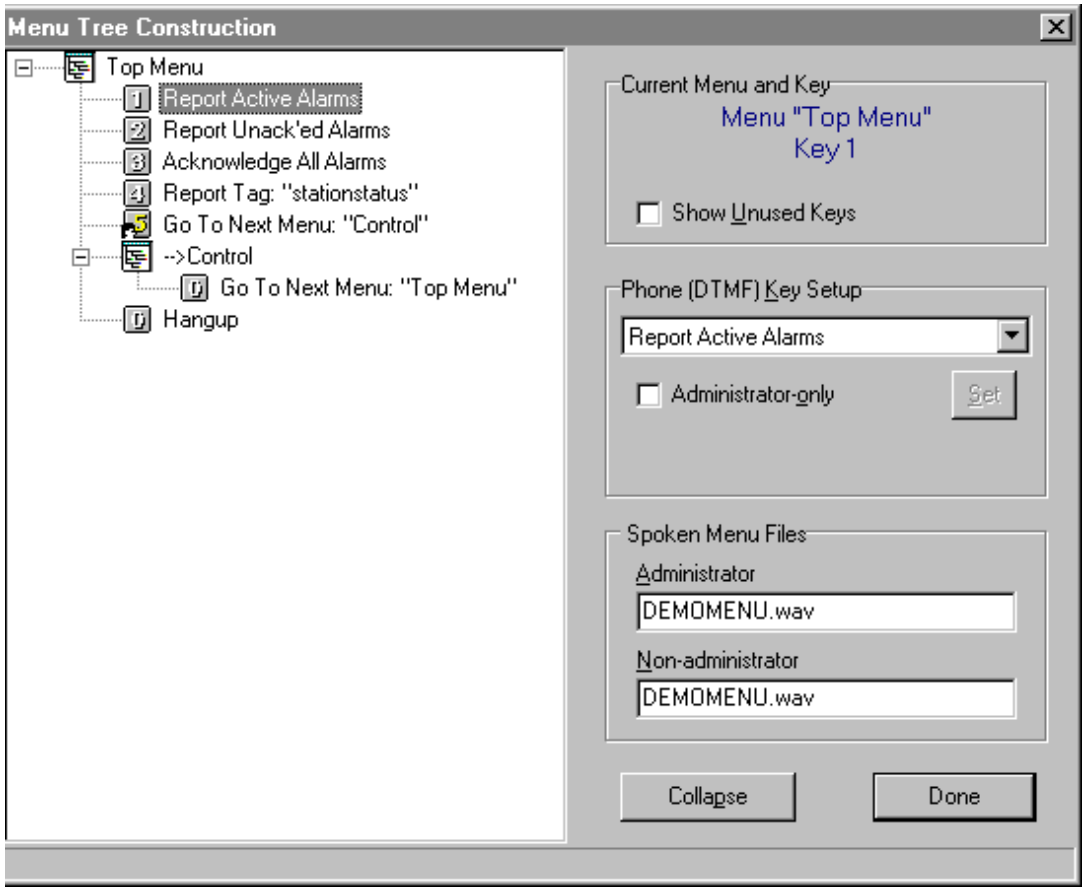
13. In the **Phone (DTMF) Key Setup** list, click **Report Tag**. Select the desired script from list and then click **Set**.

14. Highlight the 5 key under Top Menu. **Menu "Top Menu" Key 5** should be displayed as the Current Menu and Key.

15. In the **Phone (DTMF) Key Setup** list, click **Go to Next Menu**. Select the **Administrator-only** check box. The icon for the 5 key will change, indicating that it has administrator-only access. Type `Control` for the new submenu and create a menu prompt file for this submenu. Click **Set**.

    For more information, see "Available Functions for a Menu Tree" on page 124.

    The menu tree should appear as follows:



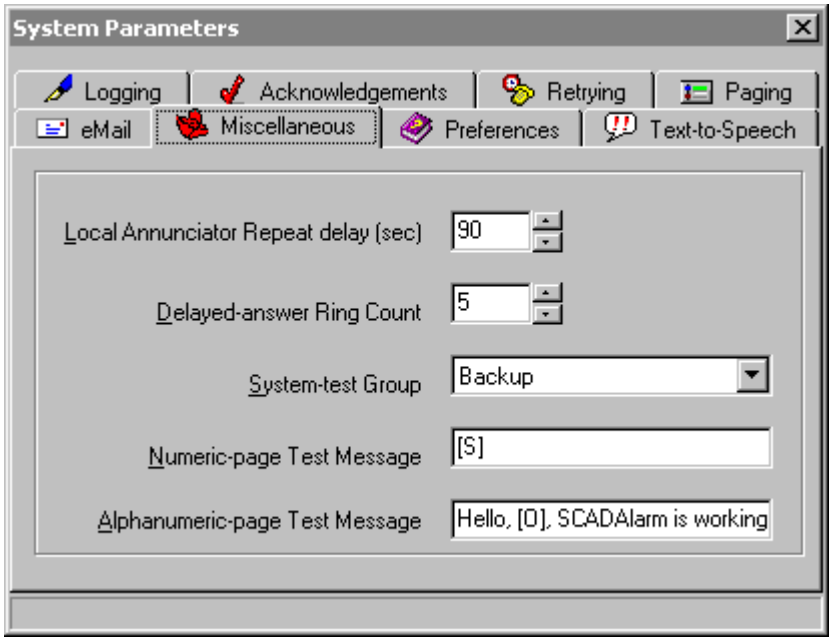
Configuring the Delayed-Answer Ring Count

Normally, SCADAlarm will answer incoming calls on the first ring. There may be times when you would like a chance to answer the telephone before SCADAlarm does. You can configure SCADAlarm to wait before answering or to not answer the telephone.

Note Since SCADAlarm waits for CPID (Caller ID™) information, SCADAlarm will answer as soon as it receives the CPID data, which may be after the second ring begins. The CPID data is received between the first two rings.

To configure the delayed-answer ring count

1. On the **Configuration** menu, click **System Parameters**. The **System Parameters** dialog box appears.
2. Click the **Miscellaneous** tab.



3. In the **Delayed-answer ring count** box, specify the number of rings before SCADAlarm will answer an incoming telephone call.
4. Close the dialog box.

Delayed-answer rings are scheduled from the **Control Schedule**. For more information, see Chapter 7, "Control Schedules."

CHAPTER 7

Control Schedules

You can create and save schedules that control how SCADAlarm functions during particular times. SCADAlarm can be scheduled to enable or disable itself any time of day, any day of the week, and on holidays. For a typical schedule, you might disable voice and paging calls at the start of the workday and re-enable them when everyone goes home.

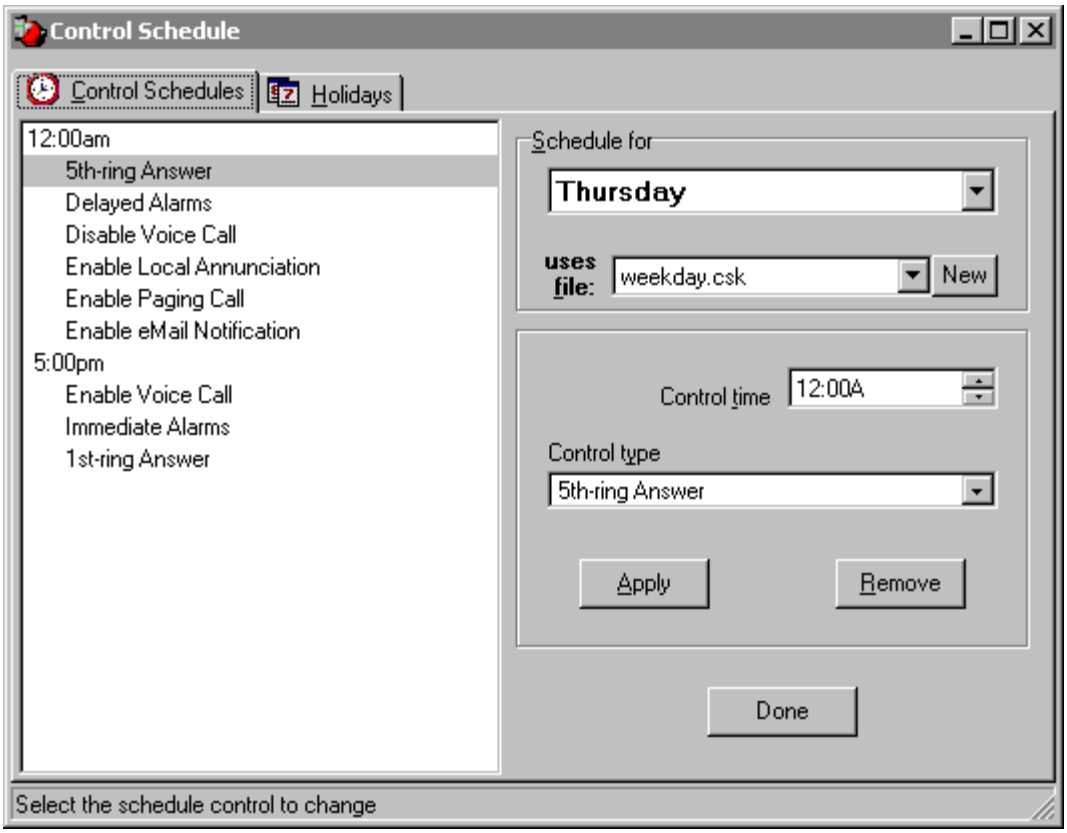
Control schedules are saved as files with the .csk extension. A default schedule file (default.csk) is provided and is set up to always enable calls. A schedule file may be used on more than one day, so if the Tuesday schedule must be different from the other days', be sure it has a different name. A good way to organize schedules is to have one file named "Weekday.csk" and one named "Weekend.csk."

Contents

Creating a Control Schedule

To create a control schedule

1. On the **Maintenance** menu, click **Schedule**. The **Control Schedule** dialog box appears.



2. In the **Schedule for** list, click the name of the day to which the schedule will apply.

   For information on defining a holiday, see "Defining Holidays" on page 133.

3. In the **uses file** list, click the name of the schedule file to use.

   For information on creating a new schedule file, see "Creating or Deleting a Schedule File" on page 131.

4. Add or remove entries to the control schedule.

   For more information, see "Adding or Deleting Control Schedule Entries" on page 131.

5. Click **Done**.

Adding or Deleting Control Schedule Entries

To add a schedule entry

1. On the **Maintenance** menu, click **Schedule**. The **Control Schedule** dialog box appears.
2. In the **uses file** list, click the name of the schedule file to edit.
3. In the **Control time** box, type or select the time for the particular functionality to start.
4. In the **Control Type** list, click the SCADAlarm functionality to control for the selected time.

   For more information on the different control types, see "Control Types for Schedules" on page 132.
5. Click **Apply** to add the new entry under the appropriate time in the schedule window.

To delete a schedule entry

1. In the schedule window, select the schedule entry.
2. Click **Remove**.

Creating or Deleting a Schedule File

All new schedule files will be based on the default schedule file (default.csk).

To create a schedule file

1. On the **Maintenance** menu, click **Schedule**. The **Control Schedule** dialog box appears.
2. Click **New**.
3. In the **New Schedule File** box, type in the new filename. The filename can include any characters that are valid for filenames in the Windows operating system.
4. Click **Set**.
5. Configure desired schedule entries for the new schedule file. For more information, see "Creating or Deleting a Schedule File" on page 131.

To delete a schedule file

1. In Windows Explorer, locate the .csk file and manually delete it.

   By default, this file is located in the following folder:
2. Documents and Settings\All Users\Application Data\Wonderware\SCADAlarm

Control Types for Schedules

The following table describes the available control types:

Control Type	Description
Enable/Disable Voice Call	In the event of an alarm, SCADAlarm will dial-out and prompt the operator for a login. After successfully logging in, the operator will navigate the configured menu tree to listen to current alarms/status.
Enable/Disable Local Annunciation	In the event of an alarm, SCADAlarm will annunciate alarms over the local speaker.
Enable/Disable Paging Call	In the event of an alarm, SCADAlarm will dial-out and leave a pager message.
Enable/Disable eMail Notification	In the event of an alarm, SCADAlarm will send an e-mail message.
Delayed/Immediate Alarms	When delayed alarms are enabled, SCADAlarm will not take any action (local or dial-out) until the delay for that particular alarm has expired. Alarm delays are configured on a per-tag basis from the **Alarm / Tag Data Point Definition** dialog box. For more information, see "Configuring Alarm Properties for an Alarm Tag" on page 77.
# of Answer Rings	The number of rings that SCADAlarm will wait before answering a voice call is configured from the **System Parameters** dialog box. For more information, see "Configuring the Delayed-Answer Ring Count" on page 127.
Test System	You can schedule a system test based on a particular time. When a system test is executed, SCADAlarm attempts to notify all operators that are members of the "System Test Group." The on-call group ("System Test Group") that is notified during a system test is selected from the **System Parameters** dialog box. For more information, see "Configuring Automatic System Testing" on page 160.
EMail Report to <group>	You can schedule an e-mail report to be sent to a group of operators based on time. The amount of data included in the e-mail report can be configured in the **eMail** tab of the **System Parameters** dialog box. For more information, see "Configuring E-mail System Parameters" on page 44.

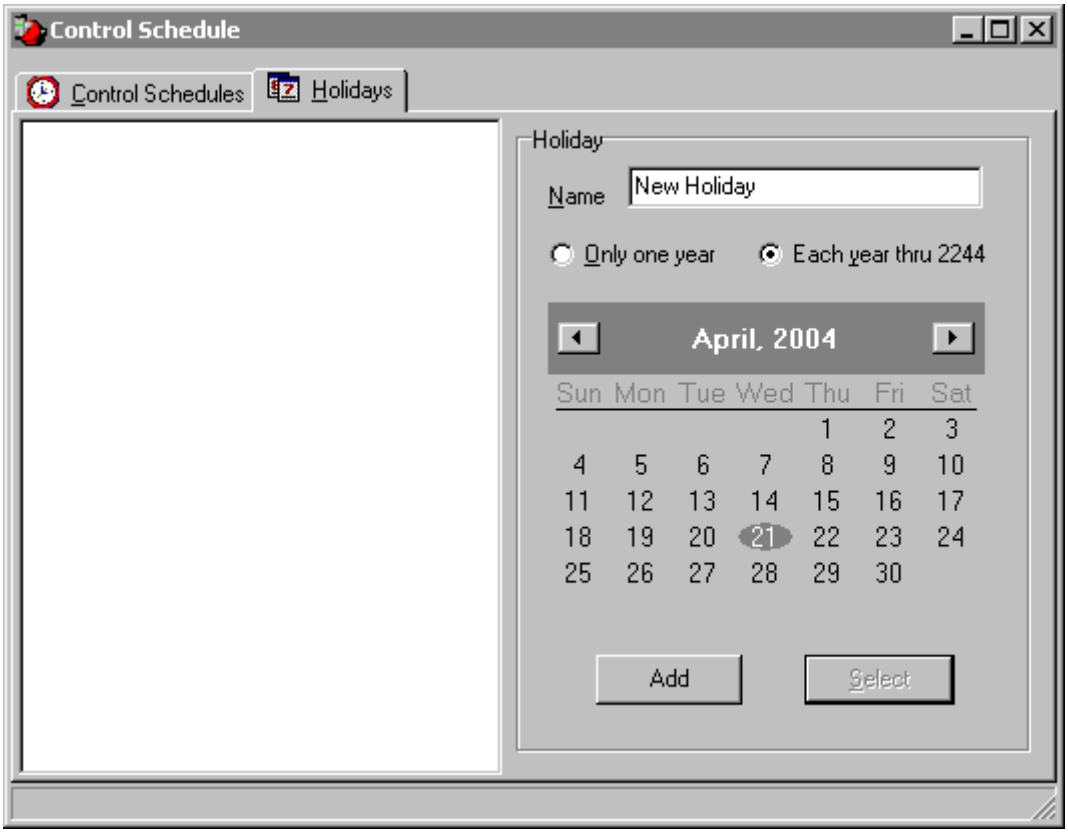
Defining Holidays

You can designate special days of the year as holidays, so that you can create unique control schedules for them.

The format for dates is: MM/DD. For example, 9/12 is September 12.

To create a holiday

1. On the **Maintenance** menu, click **Schedule**. The **Control Schedule** dialog box appears.
2. Click the **Holidays** tab.



The window at the left of the dialog box displays all of the configured holidays.

3. In the calendar, click on the day to designate as a holiday.
4. In the **Name** box, type the name of the holiday.
5. Specify the recurrence of the holiday. Options are as follows:

   Only one year
   The holiday will be in effect for only one year.

   Each year thru 2244
   The holiday will be in effect from the year it was created through the year 2244.

6. Click **Add**.

   The new holiday will be added to the list.

To remove a holiday

1. Select the holiday entry in the window.
2. Click **Remove**.
3. In the confirmation dialog box, click **OK**.

C H A P T E R 8

Configuring the Telephone/Speech Driver

The telephone/speech driver is used to communicate with the hardware devices that SCADAlarm uses for local annunciation, paging, and calling.

Contents

Voice Prompts

Voice prompts are .wav files that SCADAlarm can use for alarm reporting.

Supported .wav files must be of Type 1 RIFF (Linear PCM) format, using a subset of sampling parameter values supported by that format:

Parameter	Range	Unit
Sample rate	7,200 - 192,000	Hz
Sample resolution	8 or 16	bit
Channels	1 or 2	--

Note that any particular modem's coder-decoder (codec) may not support conversion over the full range of these sampling parameters.

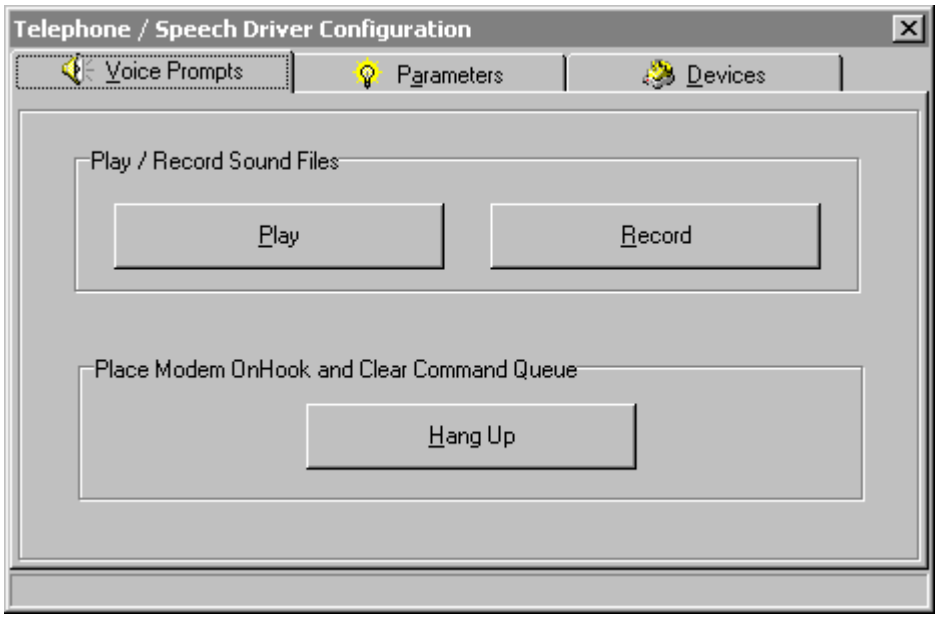
For some modems, multi-channel files may need to be reduced to one channel by averaging each sample set into a single sample. Bit resolutions greater than 16 bits may be truncated to 16 bits; bit resolutions less than 8 may be padded with least-significant zeros to 16 bits.

Configuring Voice Prompts

To configure voice prompts

1. On the **Configuration** menu, click **Driver Configuration**. The **Telephone / Speech Driver Configuration** dialog box appears.

2. Click the **Voice Prompts** tab.



3. Click **Play** to listen to any existing voice (.wav) file. Select the file from the **Play a Voice Prompt File** dialog box that appears. This is how the file will sound to a caller over the telephone or when the file is annunciated locally.
4. Click **Record** to record a new voice prompt file or re-record an existing one. For more information, see "Browsing or Recording a Voice Prompt" on page 136.
5. Click **Hang Up** to command the modem to hang-up the telephone. Typically, you would not need to use this command very often.

Browsing or Recording a Voice Prompt

You can record new voice files or re-record the provided SCADAlarm voice files (files that begin with "Z_"). If you are planning on re-recording provided SCADAlarm voice files, it is recommended that you back them up first, just in case you ever want to revert to the distribution files.

To record voice files, you will need a microphone attached to the appropriate port on your sound card. This is the recommended method. However, depending on your modem type and the drivers associated with it, you may also be able to record using a built-in microphone on your external modem, or an external microphone connected to the internal modem card.

If possible, use a high-quality microphone and sound card for creating .wav files. You can use the basic Windows Sound Recorder, but the files must be saved in 16-bit 8KHz Mono format. It is good practice to include a brief amount of silence (this could be just a fraction of a second) at the beginning of the file.

You can record a voice prompt from various dialog boxes within the SCADAlarm software.

Note The **Telephone / Speech Driver Configuration** dialog box is the only place where you can re-record an existing .wav file.

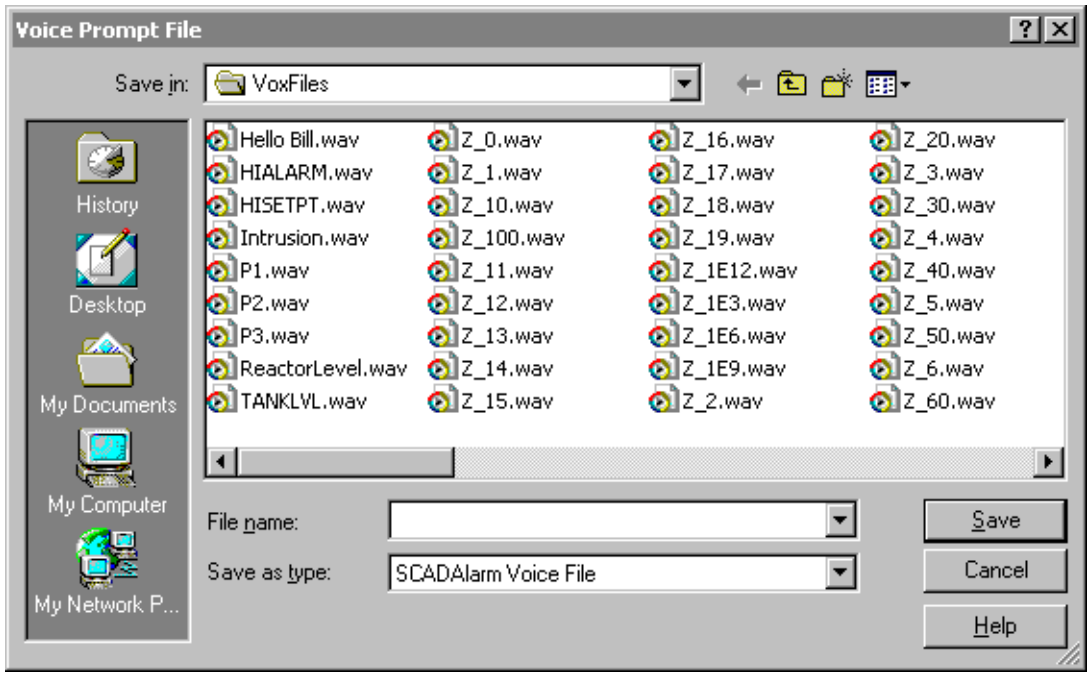
To record (or re-record) a voice file

1. To record using the **Telephone / Speech Driver Configuration** dialog box, click **Record**.

   To record from another dialog box, perform any of the following:

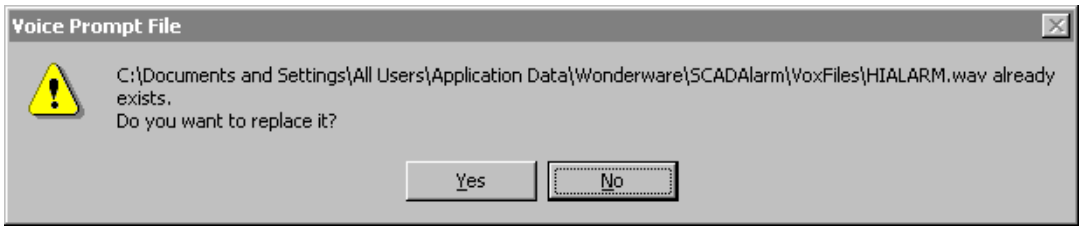
   - Double-click in the text box.
   - Right-click in the text box. In the menu that appears, click **Browse or Record New Speech File**.

   The **Voice Prompt File** dialog box appears.

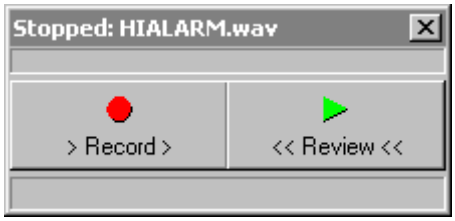


2. Type in a new filename to create a new file, or select an existing file to re-record.

3. If you choose to re-record an existing file, the following message box appears to confirm your action.



The **Recorder** window appears.



4. To record the message, click **Record** and speak clearly.
5. To stop recording, click the **Record** button again.

Note If record is not pressed, the file will not be changed from the original.

6. To play back your recording, click **Review**.

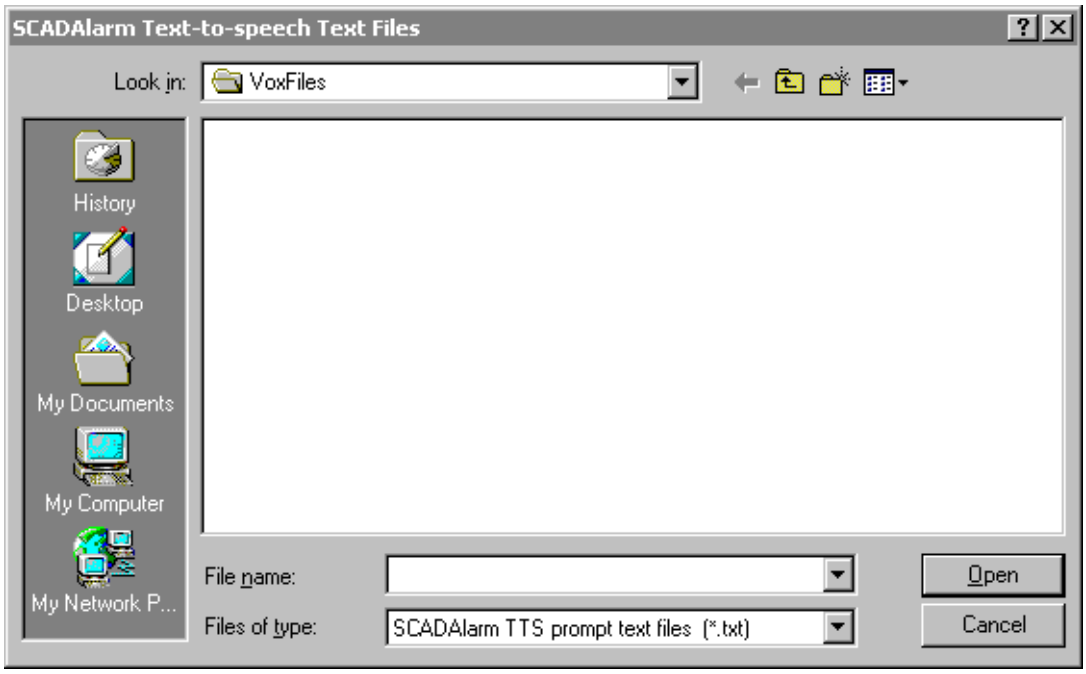
Browsing or Creating a Text-to-Speech File

You can select or create a text-to-speech file from various dialog boxes within the SCADAlarm software.

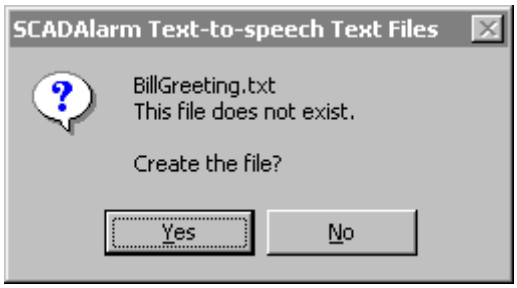
To browse or record a text-to-speech file

1. Right-click in the text box. In the menu that appears, click **Browse or Create New Text File**.

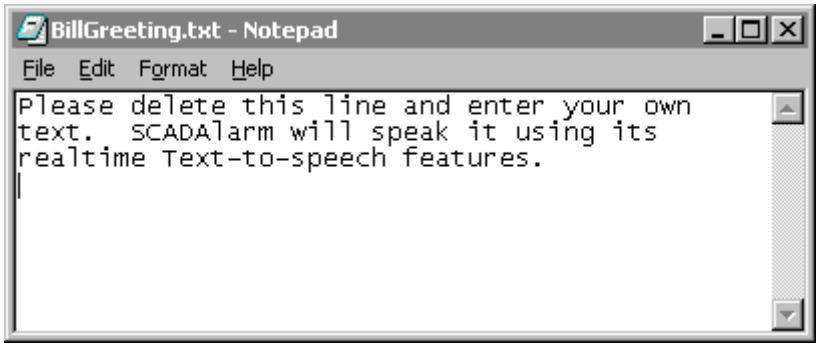
   The **SCADAlarm Text-to-speech Text Files** dialog box appears.



2. Type in a new filename to create a new file, or select an existing file.
3. If you type a new file, a message box appears to confirm your action.



4. Click **Yes**. Notepad will automatically start up.



5. Replace the default message text with the new message text.

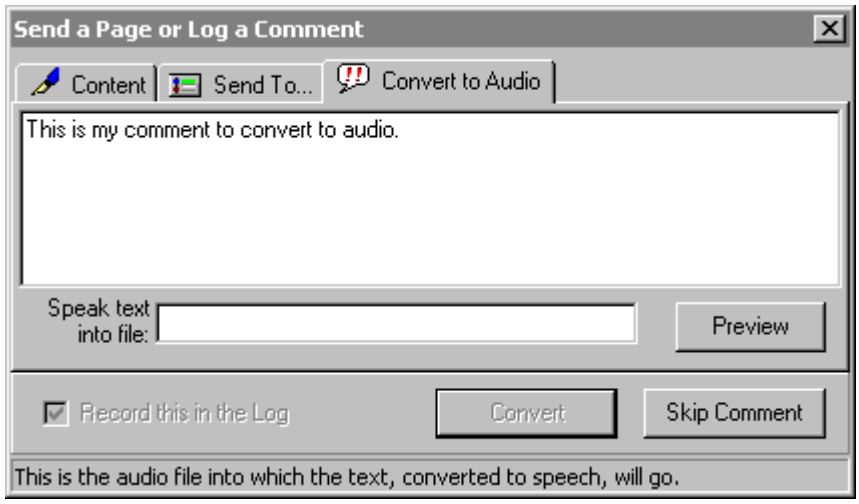
6. Close Notepad.

Converting Text to a Voice Prompt

To convert text to a voice prompt

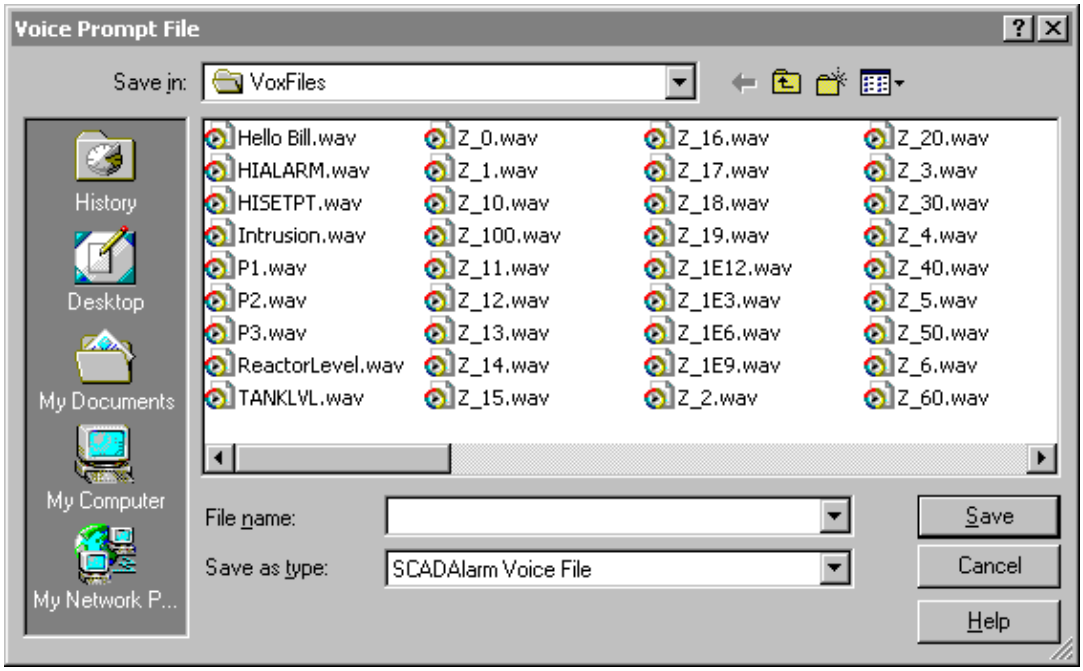
1. On the **Access** menu, click **Send Page or Log Comment**.
2. If you are not currently logged in as an administrator, you will be prompted to select your name from a list and provide your four-digit PIN to continue.

   The **Send a Page or Log Comment** dialog box appears.
3. Click the **Convert to Audio** tab.

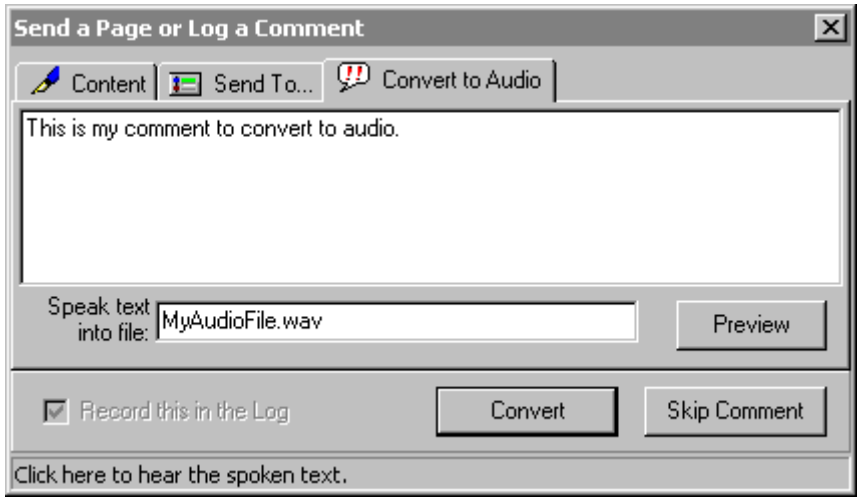


4. In the window, type the text to convert to a .wav file.

5. Double-click in the **Speak text into file** box. The **Voice Prompt File** dialog box appears.



6. In the **File name** box, type the name of the .wav file to create.
7. Click **Save**. The new file will appear in the **Send a Page or Log Comment** dialog box.



8. Click **Preview** to hear the text you have typed spoken.

   The text will be spoken according to how you have configured the text-to-speech system parameters. For more information, see "Configuring Text-to-Speech Parameters" on page 142.
9. To cancel, click **Skip Comment**.

10. Click **Convert** to convert the text and save the file.

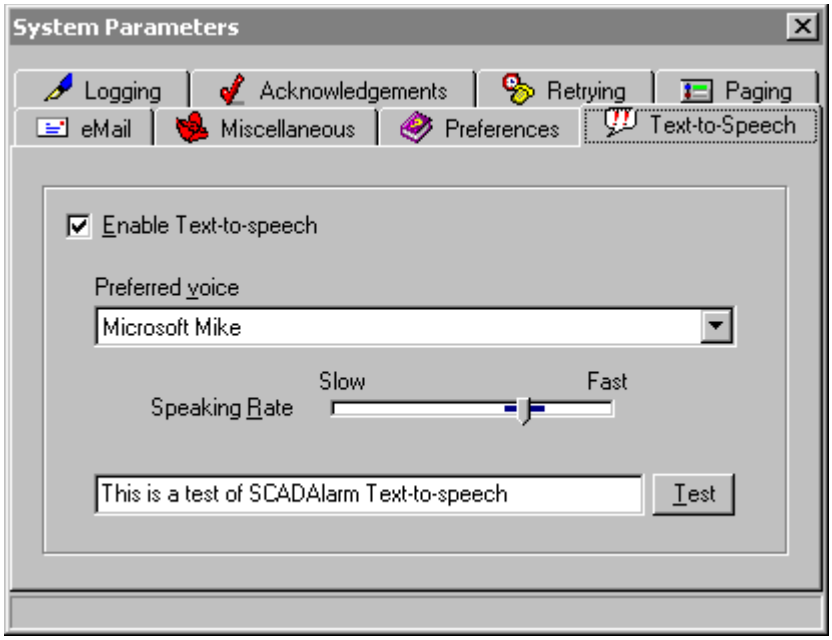
    A message will appear at the bottom of the dialog box to indicate the status of the conversion.

Configuring Text-to-Speech Parameters

You can configure how the voice for a text-to-speech message will sound to the operator over the phone. For example, whether it is a man or woman's voice, or whether speech is slow or fast.

To configure text-to-speech parameters

1. On the **Configuration** menu, click **System Parameters**. The **System Parameters** dialog box appears.
2. Click the **Text-to-Speech** tab.



3. Select the **Enable Text-to-speech** check box to enable text-to-speech for the entire SCADAlarm system. You will then be able to specify text-to-speech for various configuration options within the SCADAlarm software.
4. In the **Preferred voice** list, click the name of the pre-configured voice to use.
5. Adjust the **Speaking Rate** slider to the desired speed of speech.
6. In the box, type a test message.
7. Click **Test** to listen to the test message according to the settings you have configured.
8. Close the dialog box.

Using the SCADAlarm Sound File Conversion Utility

If you created voice prompts (.vox files) using a previous version SCADAlarm, you will need to convert them to .wav files using the SCADAlarm Sound File Conversion Utility (VConvert.exe). This utility can convert different types of sound files to the .wav file format.

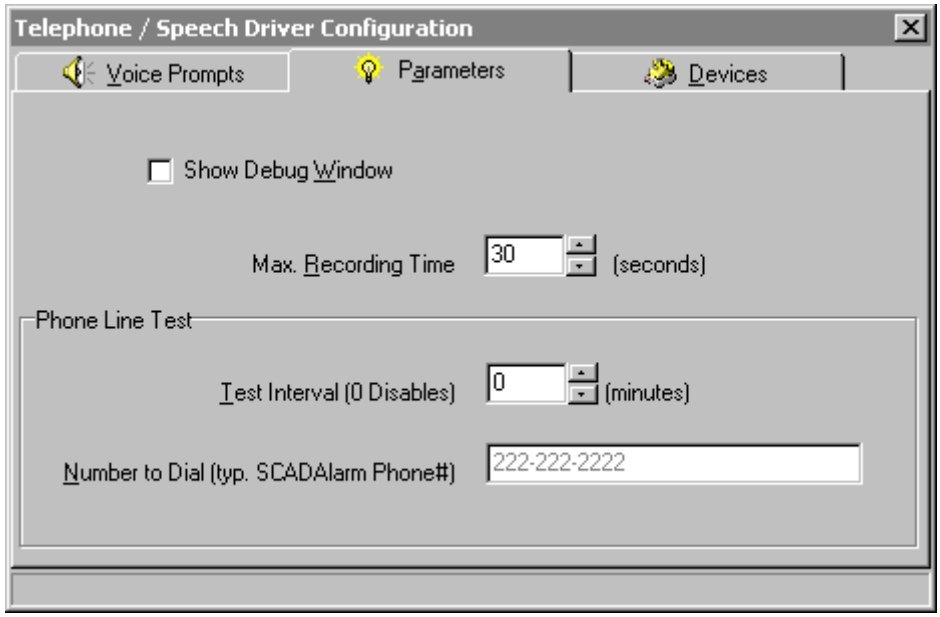
Due to artifacts introduced by the various compression schemes, the conversion process results in varying degrees of intelligibility. In the worst cases, the speech files will need to be re-recorded. All system speech files shipped with SCADAlarm 6.0 or later (z_*.wav) are provided in native RIFF format.

For more information about this utility, see the utility documentation.

Configuring Driver Parameters

To configure driver parameters

1. On the **Configuration** menu, click **Driver Configuration**. The **Telephone / Speech Driver Configuration** dialog box appears.
2. Click the **Parameters** tab.



3. To access **The SCADAlarm Telephony State Driver** dialog box, click **Show Debug Window**. For more information, see "Debugging the Telephony State Driver" on page 158.
4. In the **Max. Recording Time** box, specify the maximum length of time, in seconds, for a .wav file recording. Valid values are 5 to 120.
5. In the **Phone Line Test** area, configure parameters related to phone line testing. For more information about phone line testing, see "Performing a Phone Line Test" on page 159.

6. Close the dialog box.

Hardware Devices

SCADAlarm can only be used with devices that support TAPI. TAPI devices include voice modems, as well as professional telephony cards and PABX systems.

TAPI devices provide the following functionality:

- Device independence.
- Additional hardware and protocol support, such as high-performance telephony cards, T1 lines, and H.323 teleconferencing.
- Multiple COM ports or other I/O devices.
- CPID-based security and auto-login.
- Call progress (CP) detection for improved call termination and diagnostics.
- Support for Windows .wav files instead of proprietary, modem-specific .vox files.
- Support for on-site pager terminals.

You can select different TAPI devices for each of the SCADAlarm functions. For example, you could assign a TAPI data modem for paging (or perhaps just the TAPI null-modem device in the case of on-site paging) and a TAPI Dialogic channel for interactive voice response (IVR) use, with perhaps the second Dialogic channel for backup.

Although multiple channels will be available for different purposes, only one channel will be in use at any given time; that is, multiple simultaneous transactions are not supported.

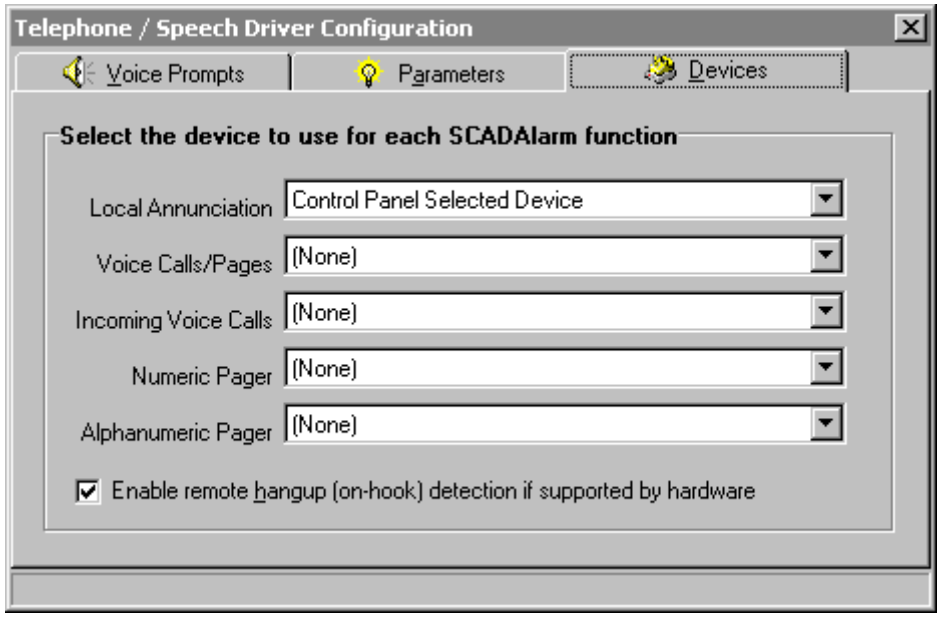
Assigning Hardware Devices to SCADAlarm Functions

For each SCADAlarm function, you can assign a hardware device, such as a voice modem or a channel in a Dialogic card. If you are using a Dialogic card, the outgoing and incoming devices can be set to the same device.

To assign devices to SCADAlarm functions

1. On the **Configuration** menu, click **Driver Configuration**. The **Telephone / Speech Driver Configuration** dialog box appears.

2. Click the **Devices** tab.



If a device is currently in use (for example, SCADAlarm is accepting an incoming call), the device list will be unavailable until the device is idle again.

3. Select the device (or channel) to use for each SCADAlarm function:

Local Annunciation
The device to be used for local annunciation. SCADAlarm can play the tag report script using any available multimedia hardware (sound card) installed in the SCADAlarm computer. You cannot use a voice modem for local annunciation, as playback on modem devices is not supported by the Windows operating system. The voice messages will be adjusted so that they are annunciated at the same volume level.

Voice Calls/Pages
The device to be used by SCADAlarm to perform voice calls and/or pages. If a device provides all the features required by an interactive voice response (IVR) call and voice paging (for example, sound playback and/or DTMF detection), it will be listed. If incoming DTMF reporting is not supported, the message will not be interruptible. For interactive voice devices, SCADAlarm will open a line for its exclusive use.

Incoming Voice Calls
The device to be used to accept all incoming voice calls to SCADAlarm.

Numeric Pager
The device to be used by SCADAlarm to send numeric pages. If a channel provides all the features required by numeric-only paging (for example, DTMF generation), it will be listed. For the device you select, SCADAlarm will open the line for its exclusive use.

Alphanumeric Pager
The device to be used by SCADAlarm to send alphanumeric pages. If a channel provides all the features required by alphanumeric paging (data connection), it will be listed. For the device you select, SCADAlarm will open the line for its exclusive use. If you are selecting a serial port, set the Pager Service Comm parameter in the .ini file.

4. Select the **Enable remote hangup (on-hook) detection if supported by hardware** check box to allow SCADAlarm to call an operator back if the operator hangs up without logging in. This option only pertains to voice calling. For more information, see "Answer and Hangup Detection" on page 146.
5. Close the dialog box.

Answer and Hangup Detection

Some devices are capable of detecting if the operator has either answered or hung up the phone. For example, high-end telephony cards support these features. SCADAlarm will take advantage of answer and hangup detection for voice calling.

All voice modem devices and some low-end telephony cards do not support answer and hangup detection; instead, the device merely guesses, based on no ring signal for a few seconds. Therefore, a delay of up to 10 seconds may occur between when an operator answers the phone and when SCADAlarm plays the login request message.

If the device supports answer detection, the delay between when the operator answers the phone and when SCADAlarm plays the message will be the same as for a typical phone call (a few seconds).

If the device is capable of hangup detection, and the operator that SCADAlarm calls for an alarm hangs up before logging in, the hangup will be detected, and SCADAlarm will call the operator again according to the retry settings. For more information on the retry setting, see "Configuring Telephone Retrying Parameters" on page 27.

C H A P T E R 9

Maintenance and Troubleshooting

Information on how to maintain the SCADAlarm system is provided, such as how to back up a project, set up event logging, monitor the system and server status, and troubleshoot error messages. Answers to frequently asked questions are also included.

Contents

Backing Up a SCADAlarm Project

You should maintain a regular backup of your project files and store them in a safe place, preferably in a different location than your SCADAlarm computer.

Note SCADAlarm project files are not backwards compatible. For example, do not try to restore a Version 5.0.3 project to a computer that has Version 5.00 installed.

To back up your project files

1. Locate your SCADAlarm project directory. The default project directory is listed below (your project directory may be different):

   \Documents and Settings\All Users\Application Data\Wonderware\SCADAlarm

2. From your SCADAlarm project directory, backup all files with .CAR and .CSK extensions. These are your project database and custom schedule files, respectively.
3. Backup your SCADALRM.ini file.
4. Change directories to your \Voxfiles directory. By default, the \VoxFiles directory is a subdirectory of your SCADAlarm project directory. Back up all custom recorded .wav files. Typically, this will be all .wav files that do not begin with "Z_".

To restore your project

1. Verify that the SCADAlarm software has been properly installed.
2. Shut down the SCADAlarm software.
3. Copy the backup files to the directories from which you originally backed them up.
4. Restart SCADAlarm. If you are restoring project files to a computer with a later version of SCADAlarm, the software will automatically convert the project files to the newer file format.

Saving Configuration Information to a File

You can save the current system configuration to a text file for documentation purposes.

To save the configuration

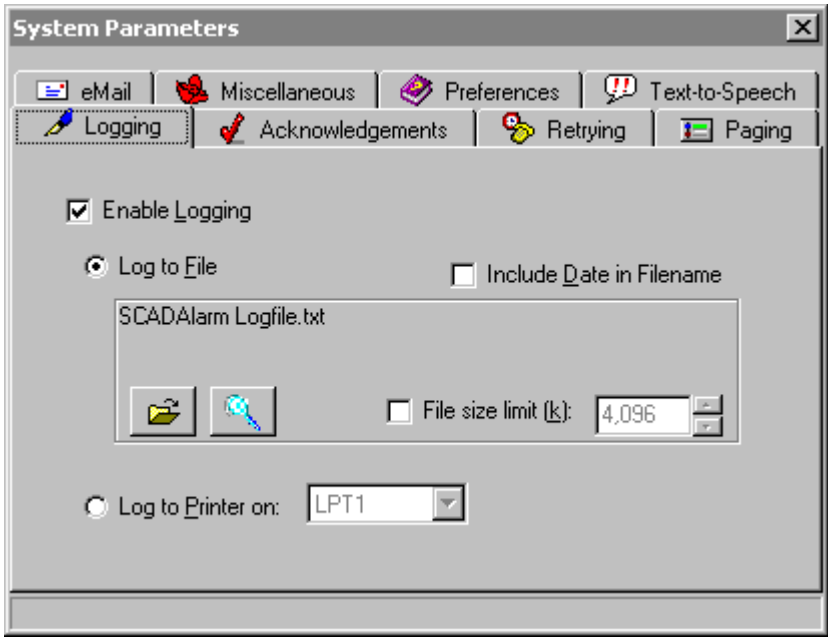
1. On the **Configuration** menu, click **Dump configuration to File**. The **Save As** dialog box appears.
2. Browse to the folder in which to save the file.
3. In the **File name** box, type a name for the .txt file.
4. Click **Save**.

Configuring System Parameters

System settings are configured from the **System Parameters** window. Once the system configuration is complete, the system parameters should rarely (if at all) require future modifications.

To configure system parameters

1. On the **Configuration** menu, click **System Parameters**. The **System Parameters** dialog box appears.



2. Configure the relevant parameters.

   For information on logging parameters, see "Enabling and Configuring Logging" on page 150.

   For information on acknowledgement parameters, see "Configuring Alarm Acknowledgement Parameters" on page 115.

   For information on retrying parameters, see "Configuring Telephone Retrying Parameters" on page 27.

   For information on paging parameters, see "Configuring Paging Parameters" on page 32.

   For information on e-mail parameters, see "Configuring E-mail System Parameters" on page 44.

   For information on miscellaneous parameters, see "Configuring the Local Annunciation Repeat Delay" on page 26, "Adding a Delay to a Voice Pager Message" on page 40, and "Performing a Phone Line Test" on page 159.

   For information on preference parameters, see "Configuring General Preferences for SCADAlarm" on page 22.

   For information on text-to-speech parameters, see "Configuring Text-to-Speech Parameters" on page 142.

3. Close the dialog box.

Logging System Events

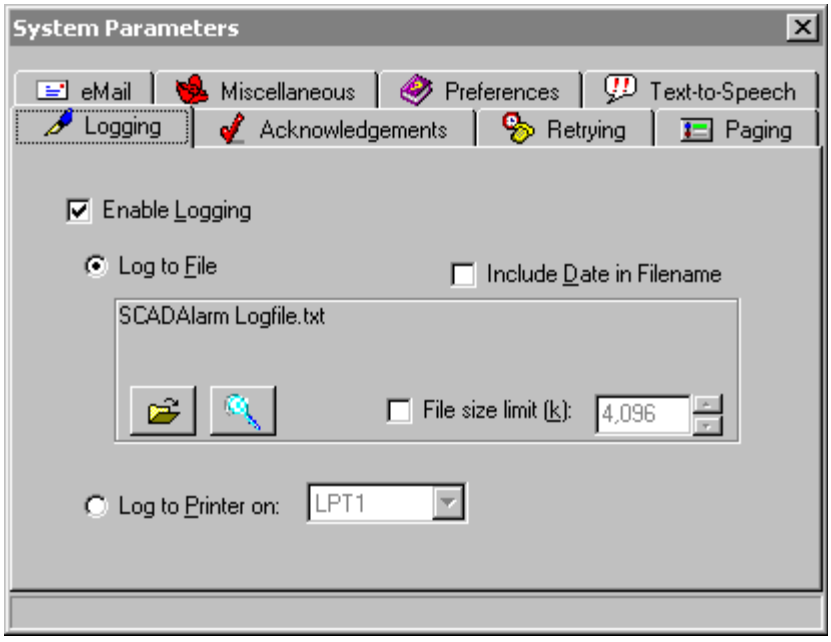
Logging can be switched off or on and directed to a printer or disk file. The log will include a timestamp for the events and an operator ID, if available. System events will be logged when:

- SCADAlarm is started or stopped.
- Operators are called or paged.
- Operators log in over the telephone and actions are performed over the telephone.
- Alarms are acknowledged.
- Changes to system configuration have occurred. For example, changes to tag database, system parameters, and so on.
- A tag value has changed, if logging is enabled for that tag.

Enabling and Configuring Logging

To enable and configure logging

1. On the **Configuration** menu, click **System Parameters**. The **System Parameters** dialog box appears.
2. Click the **Logging** tab.



3. To enable logging, select the **Enable Logging** check box.
4. To log to a printer, click **Log to Print on** and then click the appropriate printer port from the list.
5. To log to a file, click **Log to file** and then configure the following logging options.

log path
The current path to the log file is displayed.

To change the location, click the folder  button.

To view the current log file on disk, click the magnifying glass  button.

Include Date in Filename
If selected, SCADAlarm will generate one log file per day. If not selected, a single log file will be generated.

File size limit (k)
Specify the maximum size of the log file. When the file reaches the maximum size, the oldest entries will be deleted.

6. Close the dialog box.

Sending Log Reports via E-mail

You can configure SCADAlarm to send an e-mail report that contains 1 to 24 hours of log activity. This report is sent when requested by the operator on the phone or via the control schedule.

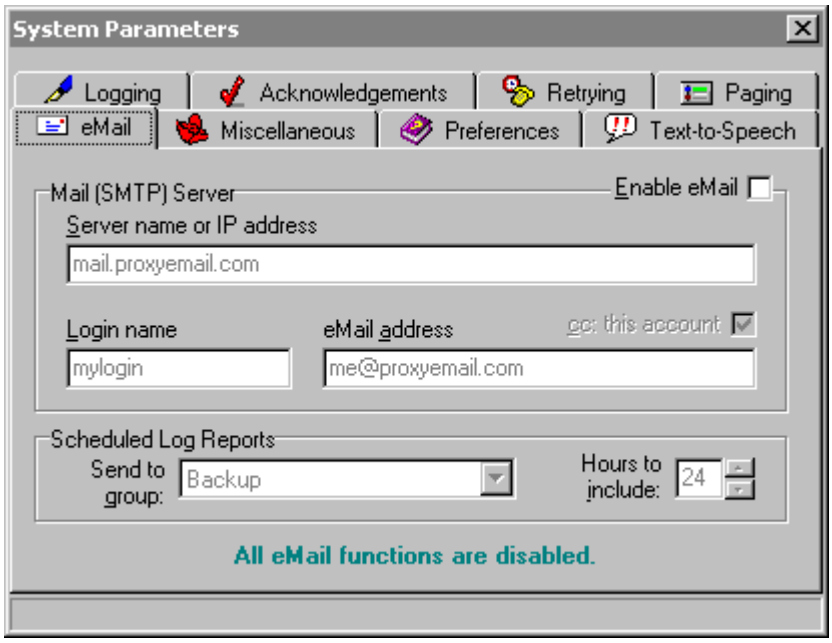
Note Do not attempt to send e-mail reports to alphanumeric pagers, as the size of the report will swamp the pager service.

Scheduling Log Reports

To schedule e-mail reports

1. On the **Configuration** menu, click **System Parameters**. The **System Parameters** dialog box appears.

2. Click the **eMail** tab.

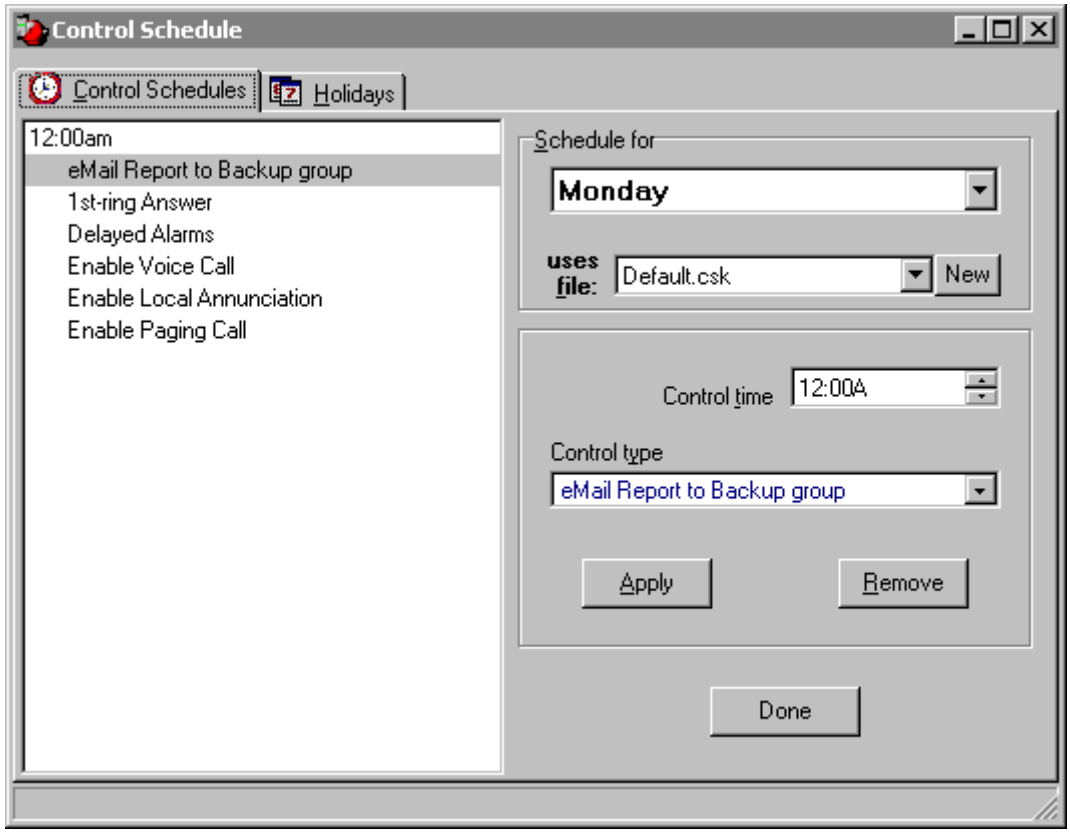


3. Select the **Enable eMail** check box.
4. In the **Send to group** list, click the name of the group that is to receive scheduled reports.

   You might want to create a special operator group that will receive log reports. For example, an "Email Recipients" operator group.
5. In the **Hours to include** box, type or select the number of hours of log activity that should be reported. For example, if you schedule an e-mail report to be sent at 6:00 p.m. and specify eight hours of activity, the report will cover the time period between 10:00 a.m. and 6:00 p.m.
6. Close the dialog box.
7. On the **Maintenance** menu, click **Schedule**. The **Control Schedule** dialog box appears.

8. Add the schedule item **eMail Report to <groupname> group** for the time (and the day or holiday) you want to send the report.

   For more information, see Chapter 7, "Control Schedules."



9. Click **Done**.

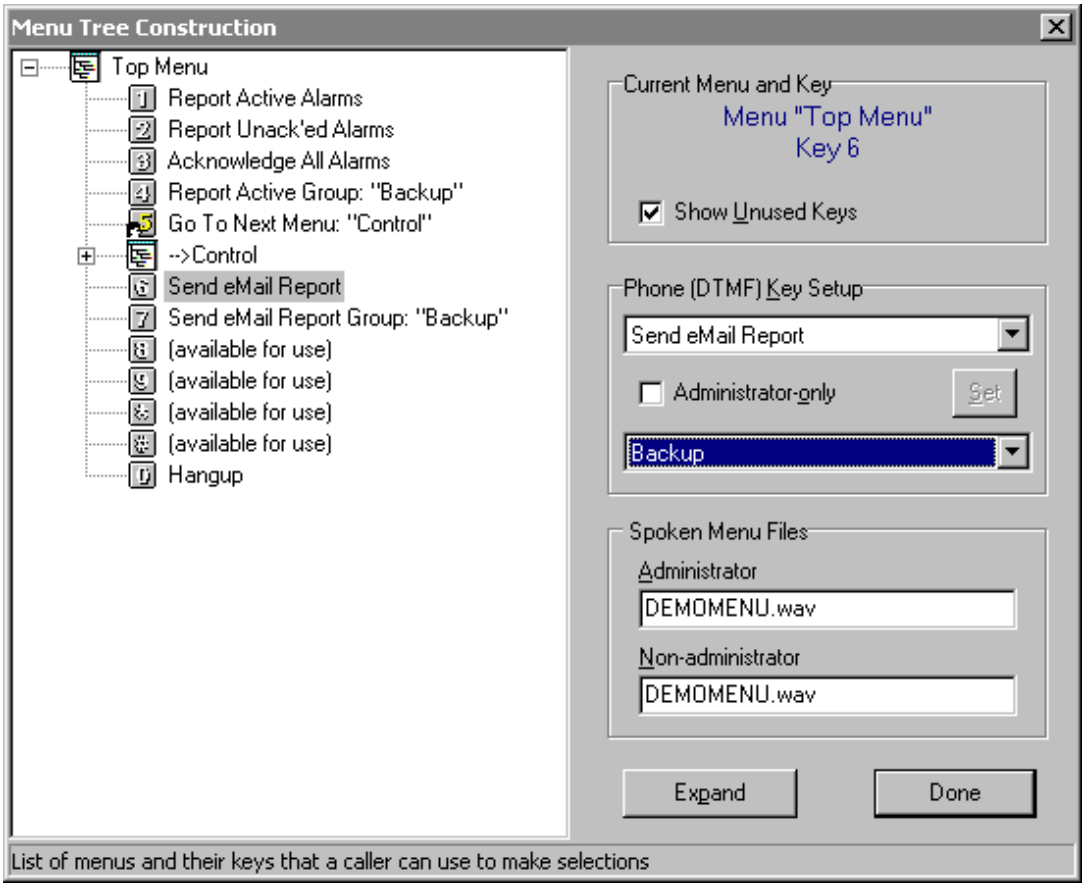
A log activity report will be sent to everyone in the group who has an e-mail address.

Adding a Log Report Request to a Menu Tree

You can configure a menu tree to include options for sending a log activity report via e-mail to the operator that has called in and/or a particular operator group.

To add a log report request to a menu tree

1. On the **Maintenance** menu, click **Menu Tree**. The **Menu Tree Construction** dialog box appears.



2. Select an unused key and then set it to one of the e-mail report options:

   Send eMail Report
   When the operator presses the key associated with this function, he/she will receive a log activity report.

   Send eMail Report Group
   When the operator presses the key associated with this function, a log activity report will be sent to the operator group that you specify.

   For either option, if the report is successfully sent, the operator will hear "The e-mail request has been processed." If the operator (or operator group) does not have an active e-mail address, the operator will hear "The eMail request has been cancelled."

3. Click **Done**.

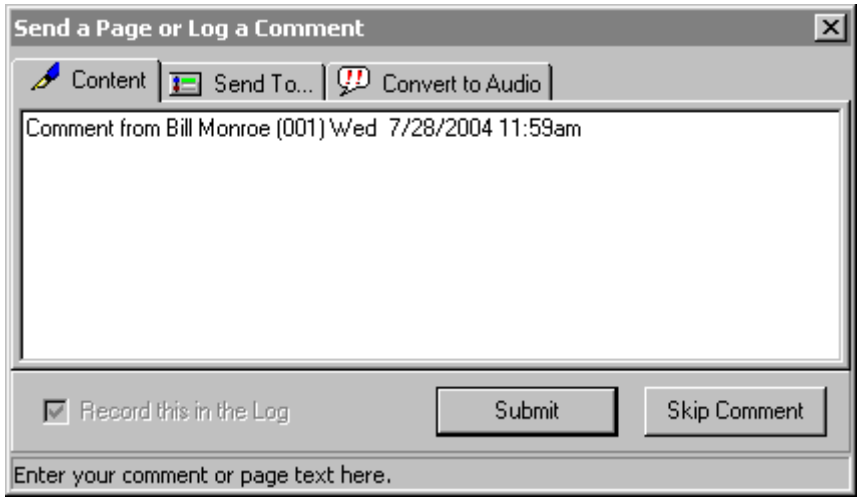
For more information on configuring menu trees, see "Telephone Menu Trees" on page 120.

Manually Entering Comments into the Log File

In order to enter comments in the log file (logfile.txt), logging must be enabled for the system. For more information, see "Enabling and Configuring Logging" on page 150.

To enter a comment into the log file

1. On the **Access** menu, select **Send Page or Log Comment**. The **Send a Page or Log a Comment** dialog box appears.



2. In the text entry box, type the comment that you want to appear in the log.
3. Click **Submit**.
4. Close the dialog box.

The following is an example of a manual entry that appears in the log file:

Tue 11-07-2000 5:32p Oper 001: Comment entered by Bill Monroe

This is a comment. All the edit features of Windows are available, including Word wrap, highlighting, and cut-and-paste. (end of comment)

Viewing Status Information

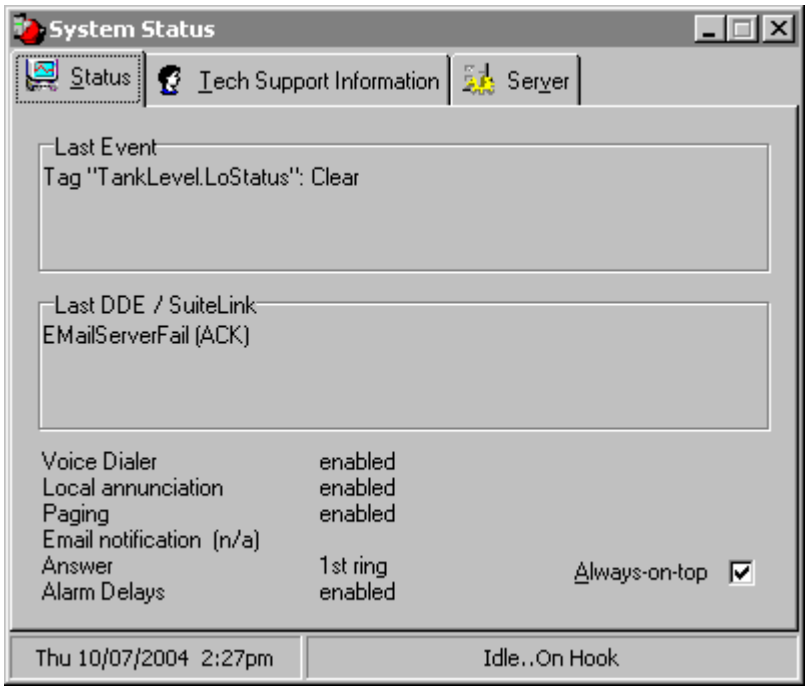
SCADAlarm provides status information that may be helpful during the configuration and troubleshooting of a SCADAlarm project.

Viewing System Status

To view system status

1. On the **Access** menu, click **System Status**. The **System Status** dialog box appears.

2. Click the **Status** tab.



3. The following system information is displayed:

Last Event
Indicates what the SCADAlarm software is *trying* to do. The **Last Event** field displays the last system event and the date and time when it occurred. Tag acknowledgement, voice dialing, paging, and local annunciation are examples of system events.

Last DDE / SuiteLink
The last message to/from the server (HMI).

Voice Dialer
Indicates whether voice dialing is currently enabled or disabled.

Local annunciation
Indicates whether local annunciation is currently enabled or disabled.

Paging
Indicates whether paging is currently enabled or disabled.

Email notification
Indicates whether e-mail is currently enabled or disabled.

Answer
The number of rings before SCADAlarm will answer an incoming telephone call.

Alarm Delays
Indicates whether alarm delays are currently enabled or disabled.

4. To re-enable SCADAlarm, click **Re-enable**.

   When SCADAlarm is disabled via the **Disable SCADAlarm from <Server>** tag (if configured), the **Re-enable** button is visible on the **System Status** window. For more information, see "Example: Disable SCADAlarm Tag" on page 91.

   Clicking the **Re-enable** button will immediately enable all SCADAlarm functions (except those disabled by the **Control Schedule**).

   The **Re-enable** button will be unavailable if nobody is logged in at the computer console.

5. Select the **Always-on-top** check box if you want the dialog box to always appear as the top-most dialog box on the computer screen.

6. Close the dialog box.

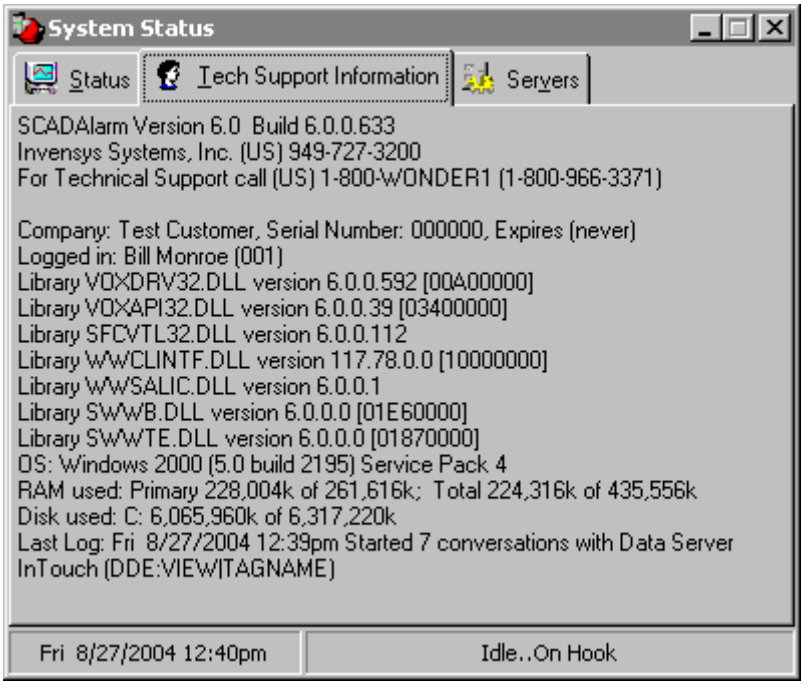
The system information can help you in troubleshooting the system. For example, if SCADAlarm is not calling out, it may be because the voice dialer is disabled. If "No dialtone" is shown for the last event, this may lead you to check your telephone line connection to the SCADAlarm modem.

Viewing Technical Support Information

To view technical support information

1. On the **Access** menu, select **System Status.** The **System Status** dialog box appears.

2. Click the **Tech Support Information** tab.



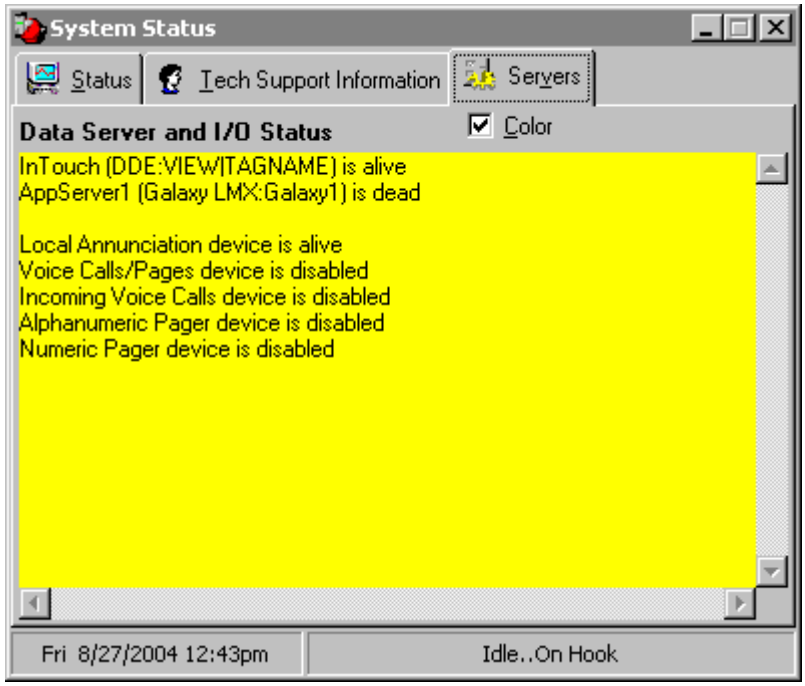
   This dialog box displays information on how to contact technical support and system information that may be helpful in diagnosing problems.

3. Close the dialog box.

Viewing Server Status

You can view the status of all servers configured for use with SCADAlarm.

1. On the **Access** menu, select **System Status.** The **System Status** dialog box appears.
2. Click the **Server** tab.



3. Select the **Color** check box to have the window background change color depending on the current status of configured servers.

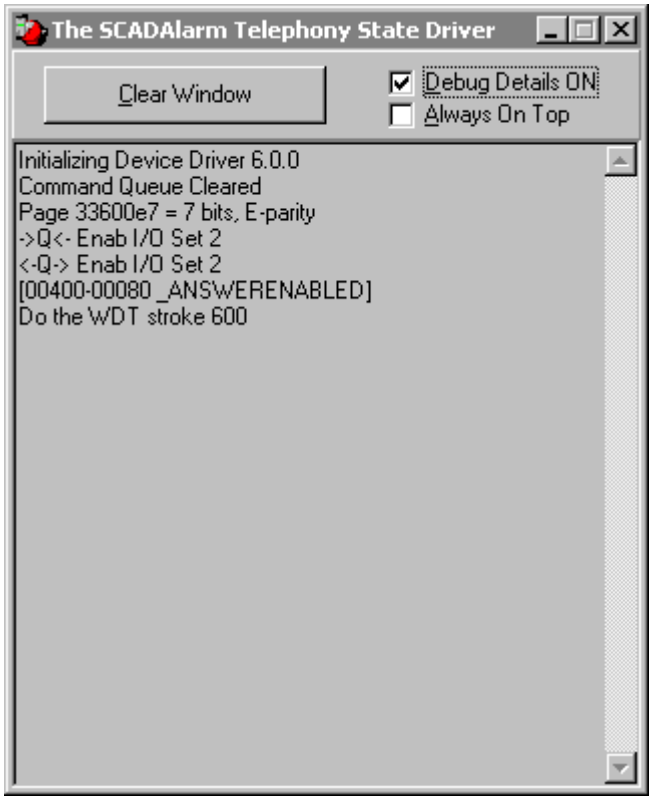
   Status colors are:

   - Green: All configured servers are working.
   - Yellow: At least one configured server has failed.
   - Red: All configured servers have failed.

4. Close the dialog box.

Debugging the Telephony State Driver

The **SCADAlarm Telephony State Driver** dialog box displays the commands being sent to the telephony hardware. You can use this dialog box as a debugging monitor. For example:



Select the **Debug Details ON** check box if you want the commands to be displayed as they are sent.

Select **Always on Top** if you want this dialog box to always appear in front of other open software applications on the computer desktop.

Click **Clear Window** to clear the window of all information.

Performing a Phone Line Test

You can configure SCADAlarm to periodically test the operation of the phone line. Used in conjunction with the Dead Phone Line system tag, a periodic phone line test may help alert you to potential problems while there is still time for corrective action. SCADAlarm tests the line by dialing its own telephone number. If it detects a busy signal, the phone line is functioning normally. If no dial tone is detected, the line is considered to have failed.

To configure a phone line test

1. Configure a Dead Phone Line system tag.

   For more information, see "Example: Dead Phone Line Tag" on page 91.

2. On the **Configuration** menu, click **Driver Configuration**. The **Telephone / Speech Driver Configuration** dialog box appears.

3. Click the **Parameters** tab.

4. In the **Test Interval** box, type the amount of time, in minutes, between phone line tests. To disable the phone line test, set this option to 0.

5. In the **Number to Dial** box, type the telephone number of the phone line connected to the SCADAlarm modem.
6. Close the dialog box.

Configuring Automatic System Testing

You can configure SCADAlarm to perform a system test automatically at a pre-determined time(s) of day. For example, if you leave work at 5:00 p.m., you may want to schedule a system test to be performed at 6:00 p.m. to your home telephone or pager. That way, you can be sure that SCADAlarm is working properly.

When SCADAlarm performs a system test, it will call all of the operators in a specified system test operator group. The first available telephone number (or e-mail address) for each operator will be called. No acknowledgement is required for a system test.

System tests are performed according to the control schedule.

If SCADAlarm calls a voice telephone, it will:

1. Announce itself
2. Speak its telephone number (optional).
3. Speak the system test group .wav file. (For example, "This is a System Test.")
4. Speak the time of day.

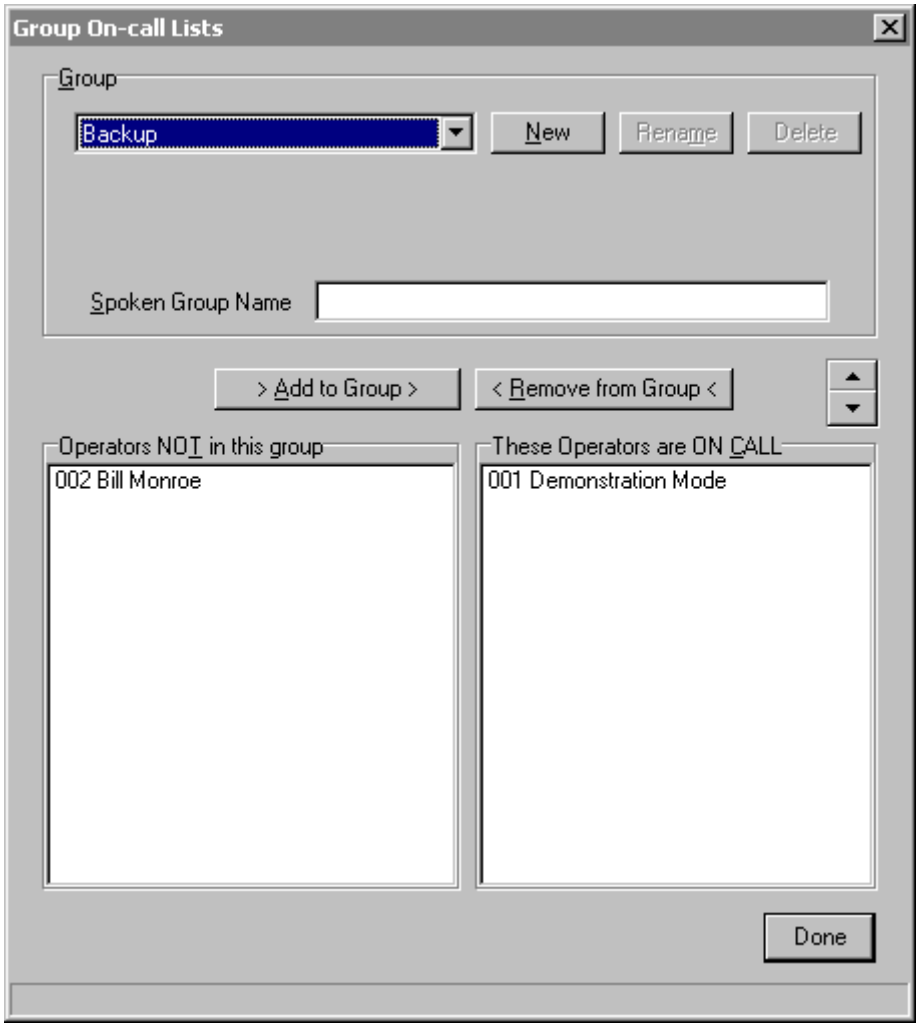
If SCADAlarm calls a numeric pager, it will leave the numeric-page test message. If SCADAlarm calls an alphanumeric pager or e-mail address, it will leave the alphanumeric-page test message.

Creating a System Test Operator Group

The system test group is the group of operators that you want SCADAlarm to call during the system test.

To create a system test group

1. On the **Maintenance** menu, click **Group On-Call Lists**. The **Group On-call Lists** dialog box appears.

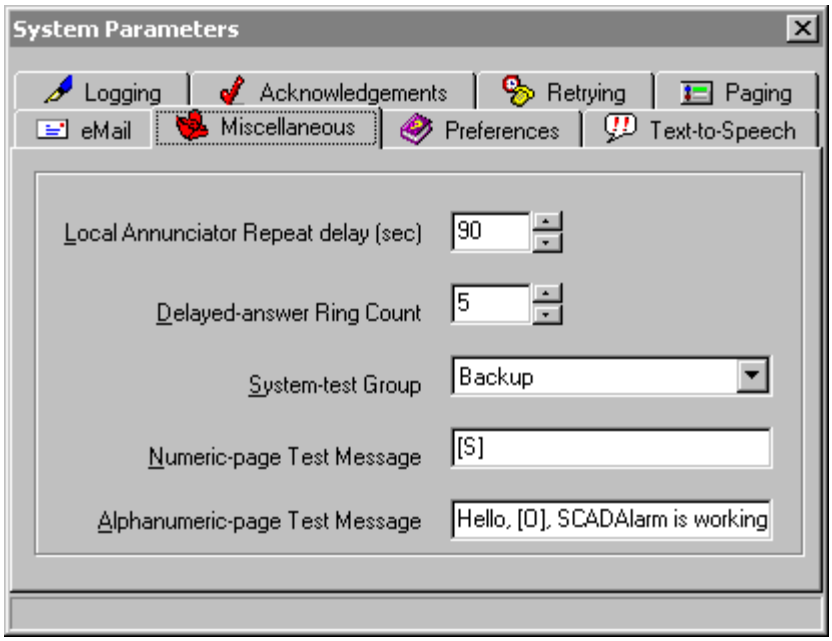


2. Click **New**.
3. In the **New Group Name** box, type a name for the new system test group. For example, "TestGroup."
4. Click **Set**.
5. Add the operators for the system test group to the **These Operators are ON CALL** window.
6. Right-click in the **Spoken Group Name** box and then click **Browse or Record New File**.
7. Record a .wav file that describes the system test. For example, "This is a System Test." For more information on recording a .wav file, see "Browsing or Recording a Voice Prompt" on page 136.
8. Click **Done** to save the newly defined group.

Specifying the System Test Operator Group

To specify the system test operator group

1. On the **Configuration** menu, click **System Parameters**. The **System Parameters** dialog box appears.
2. Click the **Miscellaneous** tab.



3. In the **System-test Group** list, click the name of the group that SCADAlarm will notify for the system test.
4. In the **Numeric-page Test Message** and **Alphanumeric-page Test Message** boxes, specify the system test message that will appear on the pager, if the test results are sent to a pager.
5. Close the dialog box.

Adding a System Test to the Control Schedule

To schedule the system test

1. On the **Maintenance** menu, click **Schedule**. The **Control Schedule** dialog box appears.
2. In the **Control time** box, type or select the time for the system test to start.
3. In the **Control Type** list, click **Test System to <groupname>**.

   The group name that you specified in the **Miscellaneous** tab of the **System Parameters** window will appear for the **<groupname>**.
4. Click **Apply**.

   A **System Test to <groupname> group** entry should appear in the schedule window.

Troubleshooting Common Problems

The following sections provide troubleshooting information for common problems.

Error: Device Not Working

If SCADAlarm cannot communicate with one of the configured devices, the **Telephone / Speech Driver Configuration** dialog box will appear and show the device highlighted in yellow in the **Devices** tab when SCADAlarm is restarted.

Troubleshoot the device according to the manufacturer's documentation. You can also select another device from the list, if another one is available. You will need to shut down or restart SCADAlarm to connect to a device.

Error: "License File Not Found"

If the following dialog box appears, click **Abort** and reinstall a valid SCADAlarm license file. To install a license file, point to the Wonderware program group, then the Common program group, and then run the **Wonderware License Utility**. If you click **Ignore**, SCADAlarm will run in demonstration mode for two hours.

Error: "Assign Fail"

The "Assign fail" error occurs when the driver is not installed properly for a modem. Check that you have the most recent driver installed.

Timing Issues with Numeric Pagers

If you have configured your SCADAlarm system to call a numeric pager and pages are not being received, it could possibly be due to timing issues between the modem and the paging service provider.

If the device does not support answer detection, when SCADAlarm dials out, there can be a slight delay (up to six seconds) before the SCADAlarm hardware detects that the telephone has been answered. Your numeric paging service provider may be "giving up" and hanging up the telephone before SCADAlarm detects that the telephone has been answered and leaves a message on the pager.

To work around this timing issue

1. Start SCADAlarm.
2. On the **Maintenance** menu, point to **Operator** and then click **Change Operator**. The **Select-an-operator** dialog box appears.
3. Select an operator that is using a numeric pager and then click **Continue**. The **Edit / Change Operator Information** dialog box appears.
4. Click the **How to Contact** tab.
5. Add two commas (,,) followed by an asterisk (*) to the end of the numeric pager telephone number. For example, if the numeric pager telephone number is 5551212, modify it as follows:

   5551212,,*
6. Click **Done**.
7. Repeat steps 3 through 6 for each operator that is using a numeric pager.

A comma (,) tells the SCADAlarm hardware to wait for two seconds. This modification has the following effect:

> Dial the pager number (5551212), wait four seconds, then press the asterisk (*) key.

This keeps the numeric paging service provider "interested" just long enough to allow SCADAlarm time to determine that the telephone has been answered and to leave its message. You may need to experiment with the number of commas required to make SCADAlarm compatible with your paging service provider.

Frequently Asked Questions

Q: I forgot my PIN number. How do I get in?

A: Get an administrator to change your PIN number to one you can easily remember. If you are the only administrator, uninstall SCADAlarm, delete the directory it was in, reinstall it, and start over again. Security is a serious issue, and there are no "back doors" into SCADAlarm.

Q: When I start SCADAlarm, I don't hear the "This is SCADAlarm" message.

A: Be sure the volume on your sound card is turned up. Windows does not support the use of the modem's internal speaker, so the multimedia hardware on your computer is used for this announcement and for local annunciation. If you want, you can add a second sound card for use only by SCADAlarm.

Q: I don't see any indication that SCADAlarm has a problem with the hardware (that is, no dialog box appears stating that there has been a failure), so why don't I hear the "This is SCADAlarm" message?

A: If you have the internal version, check that the sound blaster or speaker cable is plugged in and the speaker is turned up. If it is external and you plugged in a speaker, be sure the speaker is on and turned up.

Q: My HMI system is running. Why am I not receiving tag data values in SCADAlarm?

A: Verify your DDE/ SuiteLink server and topic definitions and verify that the server is running. For information on how to do this, see the documentation for your HMI. Be sure that the SCADAlarm tags are configured for the right server.

Q: I don't get local annunciation, or I hear local annunciation when I don't want it. What do I do?

A: Be sure the scheduler is set to enable or disable local annunciation as needed. If annunciation was left enabled yesterday, it will stay enabled until the next scheduled disable time, and vice versa.

Q: Everything is set up just fine. Why doesn't SCADAlarm call me, page me, or send me an e-mail?

A: SCADAlarm must be able to dial out. Check the following:

1. Check the call group for the alarm in question. Verify that at least one operator belongs to the call group for the alarm. For more information, see "Group On-Call Lists" on page 58.
2. The on-call operator(s) must have a least one telephone, pager number, or e-mail account scheduled. Verify this according to the operator's calling preferences. For more information, see "Calling Preferences for Operators" on page 55.
3. Voice calls and/or pager calls and/or e-mail must be enabled in the control schedule. For more information, see Chapter 7, "Control Schedules."
4. In the **Alarms / Tag Data Point Definition** dialog box, verify that the **Value when ON or in Alarm** box on the **Tag** tab is correct for the alarm tagname in question. Compare the value in this box with the value of the **Current Value** box. Remember, values for this box are case-sensitive. For more information, see "Configuring Tag Properties for an Alarm Tag" on page 68.

Q: When an alarm occurs, SCADAlarm dials the telephone. However, when I answer, I just hear the time of day, and SCADAlarm hangs up on me.

A: If you have not constructed a menu tree, or if the top menu prompt file does not exist, SCADAlarm will speak the "This is SCADAlarm" greeting, speak the time of day, then hang up. For more information on the menu tree, see "Telephone Menu Trees" on page 120.

Q: When an alarm is tripped, the SCADAlarm "Alarm" window appears, and then disappears almost instantly, or the alarm only shows momentarily in the window.

A: If you have configured e-mail, the e-mail has been sent and the **Acknowledge when Delivered** check box is selected for the alarm in question. This check box appears on the **Alarm** tab of the **Alarms / Tag Data Point Definition** dialog box. For more information, see "Configuring Alarm Properties for an Alarm Tag" on page 77.

Contacting Technical Support

Prior to contacting technical support, please first consult this documentation for a possible solution to any problem you may have with the software.

If you need to contact technical support, please have the following information available:

1. The version of software you are running.
2. The type and version of the operating system you are using.
3. The exact wording of system error messages encountered.
4. Any relevant output listing from the SCADAlarm log file, any Microsoft diagnostic utilities, or any other diagnostic applications.
5. Details of the attempts you made to solve the problem(s) and your results.
6. Details of how to recreate the problem.
7. If this is an on-going problem, the Wonderware Technical Support case number assigned to your problem (if known).

The version numbers for SCADAlarm and the operating system appear in the **Tech Support Information** tab in the **System Status** dialog box. For more information, see "Viewing Technical Support Information" on page 157.

C H A P T E R 1 0

Integration with HMI Applications

SCADAlarm can integrate with many different HMI systems. Some of the SCADAlarm configuration settings will vary, based on the HMI you are using. In general, you will need to:

- Configure the HMI application as the SCADAlarm data server.
- Create a SCADAlarm alarm tag for each HMI tag for which you want to generate an alarm. You can use the SCADAlarm tag import functionality to easily import tags from InTouch and Industrial Application Server.
- Set up how the alarm acknowledgement will be sent to the HMI.

For some HMIs, you can also configure SCADAlarm to start up when the HMI starts.

Contents

Using SCADAlarm with InTouch

For information on versions of InTouch that are supported with SCADAlarm, see the FactorySuite Compatibility Matrix that is published on the Wonderware web site (www.wonderware.com).

Configuring InTouch as the Data Server

To configure InTouch as the data server, use **VIEW** as the application name and **TAGNAME** as the topic. The InTouch DDE Server starts automatically whenever **WindowViewer** is running. For the Windows XP and 2003 operating systems, DDE is not supported; therefore, SuiteLink should be used.

If the InTouch application is running on a different computer than SCADAlarm, simply provide the name of the InTouch node.

For example:

For general information on configuring servers, see "Configuring Server Properties for an Alarm Tag" on page 70.

Importing InTouch Alarm Definitions

From within SCADAlarm, you can browse the list of tags in an InTouch database and then select any associated alarm definitions to import into the SCADAlarm database. This allows you to quickly and easily create alarm definitions in the SCADAlarm for InTouch tags.

In order for you to import tags from an InTouch application, the following requirements must be met:

- The InTouch browser components are installed.
- The specified application and topic are correct for InTouch.
- If InTouch is installed on the local computer, the local application exists.
- If InTouch is installed on a remote computer, the InTouch application directory must be shared, and the SCADAlarm administrator must have write permission to it. (You may discontinue sharing after you have imported the tags.)

For an InTouch discrete alarm, the tag importer will add one item to the SCADAlarm database. For example, DiscreteTag1.Alarm.

An InTouch numeric (analog) alarm is associated with either an integer or real (floating point) tag and is classified as either a value alarm, deviation alarm, or rate-of change alarm. The tag importer will add one item to the SCADAlarm database for each of these configured alarms, if selected. For example, AnalogTag1.HiHiStatus.

The SCADAlarm tag importer will not create an item if the alarm is not already configured in InTouch.

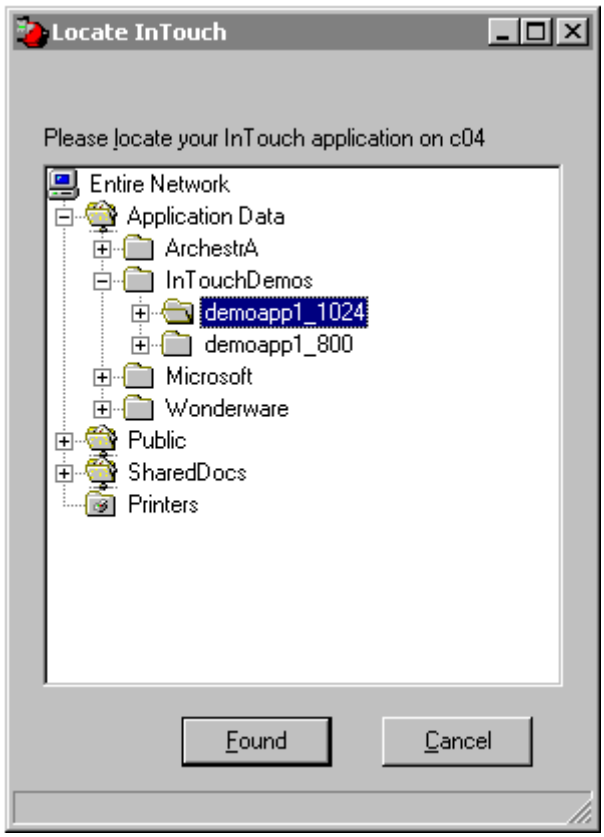
SCADAlarm will not import information for certain types of tags because they do not have associated alarm information. For example, trends and pen IDs. All discarded tags are noted in the SCADAlarm log file.

To import InTouch tags

1. Configure InTouch as the data server. For more information, see "Configuring InTouch as the Data Server" on page 168.

2. If you have previously imported tags from an InTouch application on a remote node and want to import from a different application, click **Locate Application**. Otherwise, skip to step 4.

   The **Locate InTouch** dialog box appears.

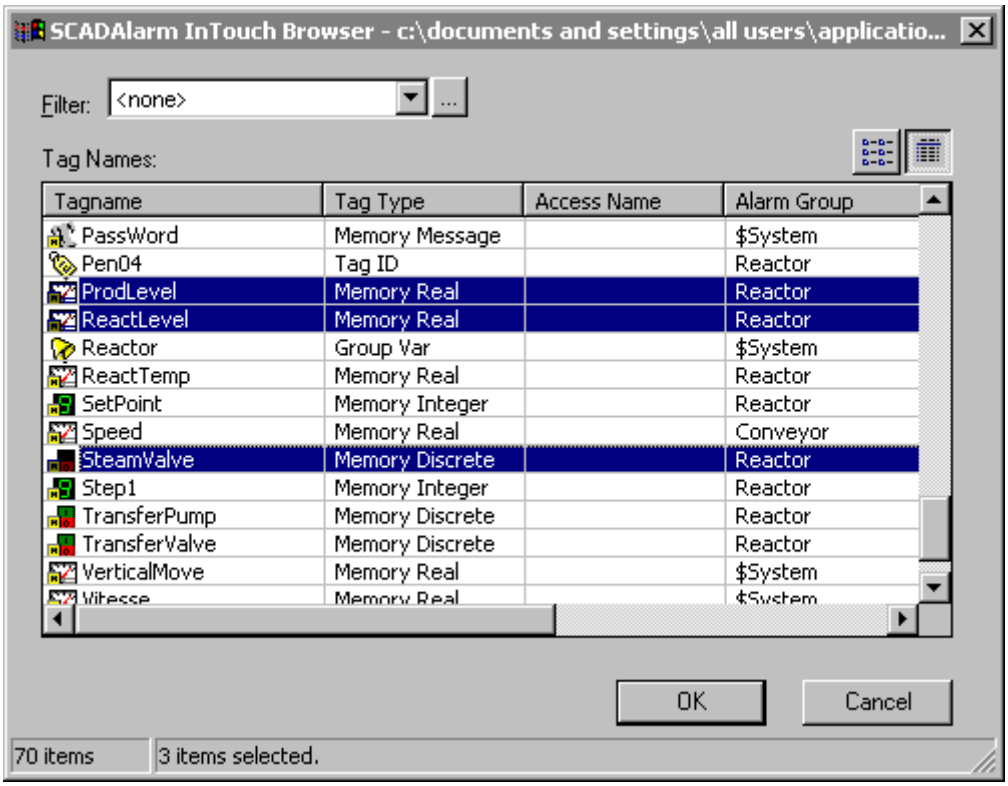


3. Browse to the directory that contains the InTouch application and then click **Found**.

4. In the **Server** tab of the **Alarm / Tag Data Point Definition** dialog box, click the **Browse** button.

   If InTouch is on a different node, and this is the first time you are importing tags, the **Locate InTouch** dialog box appears. Browse to the directory that contains the InTouch application and then click **Found**. Once you have specified the application location for a remote node, the path will be stored in SCADAlarm, and you will no longer be prompted for the path. If you need to change the application, click **Locate Application** on the **Server** tab and select the new application location.

   The **SCADAlarm InTouch Browser** dialog box appears.

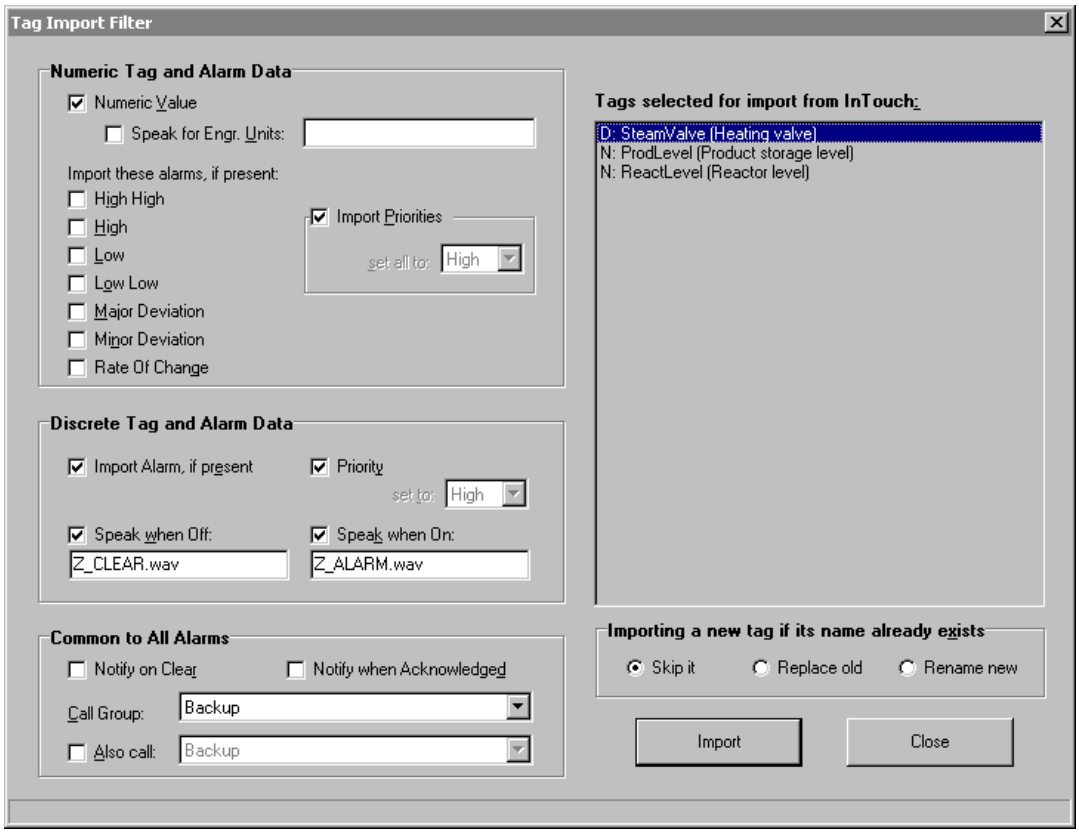


5. In the **Filter** list, select the name of the filter to apply to the list of tag names.

6. In the **Tag Names** list, select the tags to be imported into the SCADAlarm database.

   For more information on using the tag browser, see your InTouch documentation.

7. Click **OK**. The **Tag Import Filter** dialog box appears.



Using the **Tag Import Filter** dialog box, you can easily import all of the tag definitions in an entire InTouch application.

8. In the **Tags selected for import from <Server Name>** window, select the tag(s) whose definitions you want to import.

9. In the **Numeric Tag and Alarm Data** group, configure the numeric (real or integer) alarms that you want to include in the import for the selected tag(s).

   SCADAlarm can generate up to eight items for numeric alarms, depending on what is configured in InTouch. For example, if you select the **Low** and **Low Low** check boxes, and the numeric tag has low and/or low-low alarms configured in InTouch, the importer will create the alarm tags in SCADAlarm, possibly in addition to the actual numeric tag. If you select a numeric alarm check box, and the tag(s) to import were not configured to generate this type of alarm in InTouch, tags will not be generated for them.

   Numeric Value
   Select this check box to import the actual numeric tag, in addition to the alarms associated with the numeric tag.

Speak for Engr. Units
Select this check box to specify the name of the prompt (.wav or .txt) that will be spoken whenever the numeric value of the tag is used in a tag report script. For example, a Feet.wav file might say "feet." Whenever the value of a tag TankLevel is spoken in a tag report script, "feet" will be spoken after the numeric value. For example, "Thirteen point four six feet." For more information, see "Browsing or Recording a Voice Prompt" on page 136.

High High
The alarm tag will be appended with the .HiHiStatus field.

High
The alarm tag will be appended with the .HiStatus field.

Low
The alarm tag will be appended with the .LoStatus field.

Low Low
The alarm tag will be appended with the .LoLoStatus field.

Major Deviation
The alarm tag will be appended with the .MajorDevStatus field.

Minor Deviation
The alarm tag will be appended with the .MinorDevStatus field.

Rate Of Change
The alarm tag will be appended with the .AlarmROC field.

Priorities
Select this check box to import the alarm priorities for the alarm dotfields as they are configured in the server.

Set to
The alarm priority to use for all numeric alarm types instead of the priorities that were configured in the server.

10. In the **Discrete Tag and Alarm Data** group, configure the discrete alarms that you want to include in the import for the selected tag(s).

Import Alarm, if present
Select this check box to import any discrete alarms associated with the selected tags.

Priority
Select this check box to import the alarm priority for the discrete alarm as it is configured in the server. InTouch alarm priorities 200 through 999 will be mapped to SCADAlarm priority 200.

Set to
The alarm priority to use for all discrete alarms.

Speak when Off
The name of the prompt (.wav or .txt) that will be spoken by SCADAlarm to describe the "normal" state of the tag. A spoken normal state of "CLEARED" (Z_CLEAR.wav) is the default.

Double-click or right-click on the box to select or change the voice prompt file. For more information, see "Browsing or Recording a Voice Prompt" on page 136.

Speak when On
The name of the prompt (.wav or .txt) that will be spoken by SCADAlarm to describe the "alarm" state of the tag. A spoken alarm state of "IN ALARM" (Z_ALARM.wav) is the default.

11. In the **Common to All Alarms** group, configure the operator group to associate with the tag.

    Notify on Clear
    If this check box is selected, a notification will be sent to the group when the alarm condition clears or recurs.

    Notify when Acknowledged
    If this check box is selected, a notification will be sent to the group when the alarm has been acknowledged.

    Call Group
    Select this check box to specify the name of the group of operators to be called when the tag goes into alarm.

    Also call
    Select this check box to specify the name of an additional group to notify if an alarm occurs. For more information, see "Alarm Notification for an "Also Notify" Operator Group" on page 80.

12. In the **Importing a new tag if its name already exists** group, configure how you want duplicate tags handled.

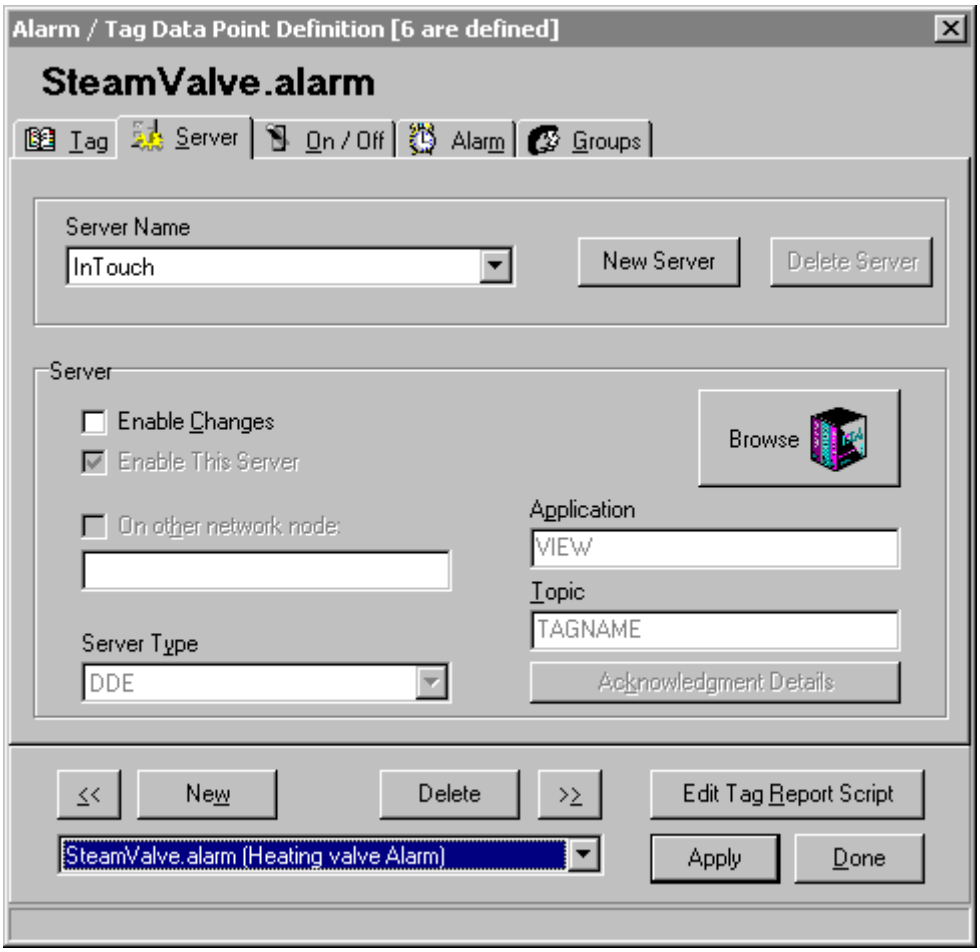
    Skip it
    If selected, the new alarm tag to import will be skipped.

    Replace old
    If selected, the existing alarm tag in the SCADAlarm database will be replaced with the new alarm tag.

    Rename new
    If selected, the new tag will be renamed if the importer encounters a naming conflict. The tooltip shows the naming convention for the renamed tag(s).

13. Click **Import** to import the alarm definitions for the selected tag(s). Each tag in the window becomes deselected as it is imported. The **Import Done** dialog box appears.

14. To remove the imported tags from the **Tags selected for import from InTouch** window, click **Yes**. Otherwise, click **No**. If you clicked **Yes**, and all of the tags listed in the window have been imported, the **Tag Import Filter** dialog box will close.
15. To import additional tags that are listed in the window, repeat steps 8 through 14.
16. To close the **Tag Import Filter**, click **Close**. The **Alarm / Tag Data Point Definition** dialog box appears. The imported tags appear in the list at the bottom of the dialog box.



17. Click **Apply**.

18. Click the **Tag** tab.

The importer automatically creates the <tagname>.ack tag for you, which is required for alarm acknowledgement.

Automatic Report Scripting for Imported InTouch Tags using Real-time Text-To-Speech

When you import a tag definition from InTouch, the tag description will be used for the tag report script if none are currently configured for the tag. This allows you to quickly set up SCADAlarm by simply importing tags. The default tag report script will contain the tagname, a description (as configured in InTouch), the alarm state, and acknowledgement instructions. For example:

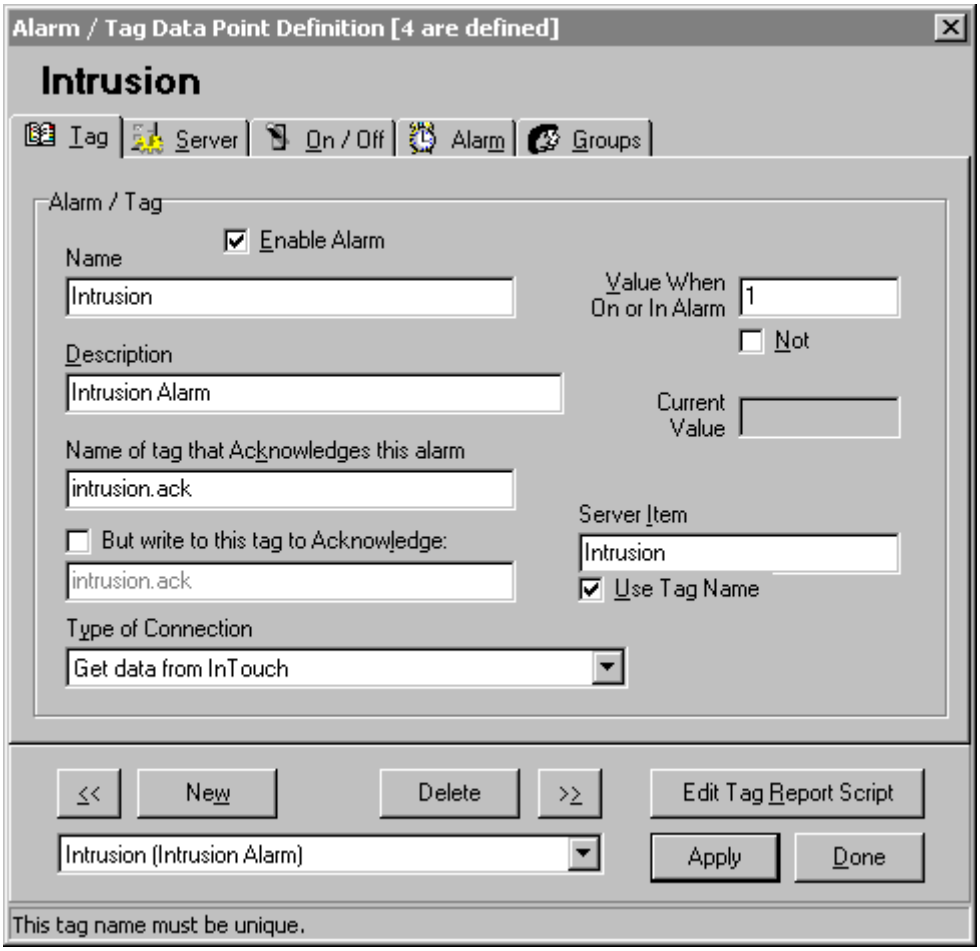
"SteamValve. Heating valve alarm. IN ALARM. To acknowledge, press 9."

Configuring Discrete Alarms for InTouch

To configure a discrete alarm

1. On the **Maintenance** menu, click **Alarms / Tag Names**. The **Alarm / Tag Data Point Definition** dialog box appears.

2. Click the **Tag** tab.



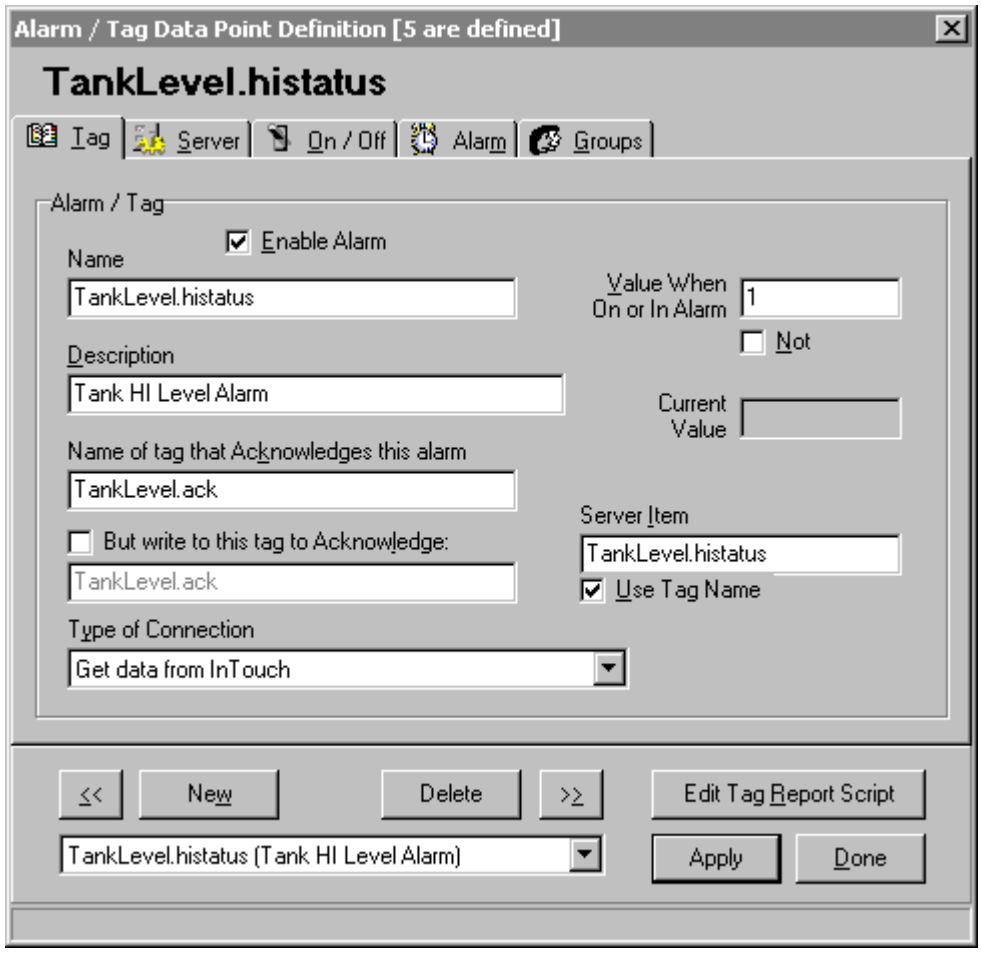
3. In the **Name** box, use the alarm tagname exactly as it appears in the InTouch tagname dictionary or use the tagname with an ".alarm" field if you want the ability to enable/disable the alarm from InTouch. For more information, see the *InTouch User's Guide*.

Configuring Analog Alarms for InTouch

To configure an analog alarm

1. On the **Maintenance** menu, click **Alarms / Tag Names**. The **Alarm / Tag Data Point Definition** dialog box appears.

2. Click the **Tag** tab.



3. In the **Name** box, use the analog base tagname with the desired field (.hihistatus, .histatus, .lostatus, or .lolostatus) appended to the end of the tagname.

When the corresponding threshold (.hihilimit, .hilimit, .lolimit, or .lololimit) is met, the value of the alarm tag will be 1. For example, if the analog base tag is TankLevel, then TankLevel.histatus will have a value of 1 whenever the value of TankLevel exceeds the value of TankLevel.hilimit. For more information, see the *InTouch User's Guide*.

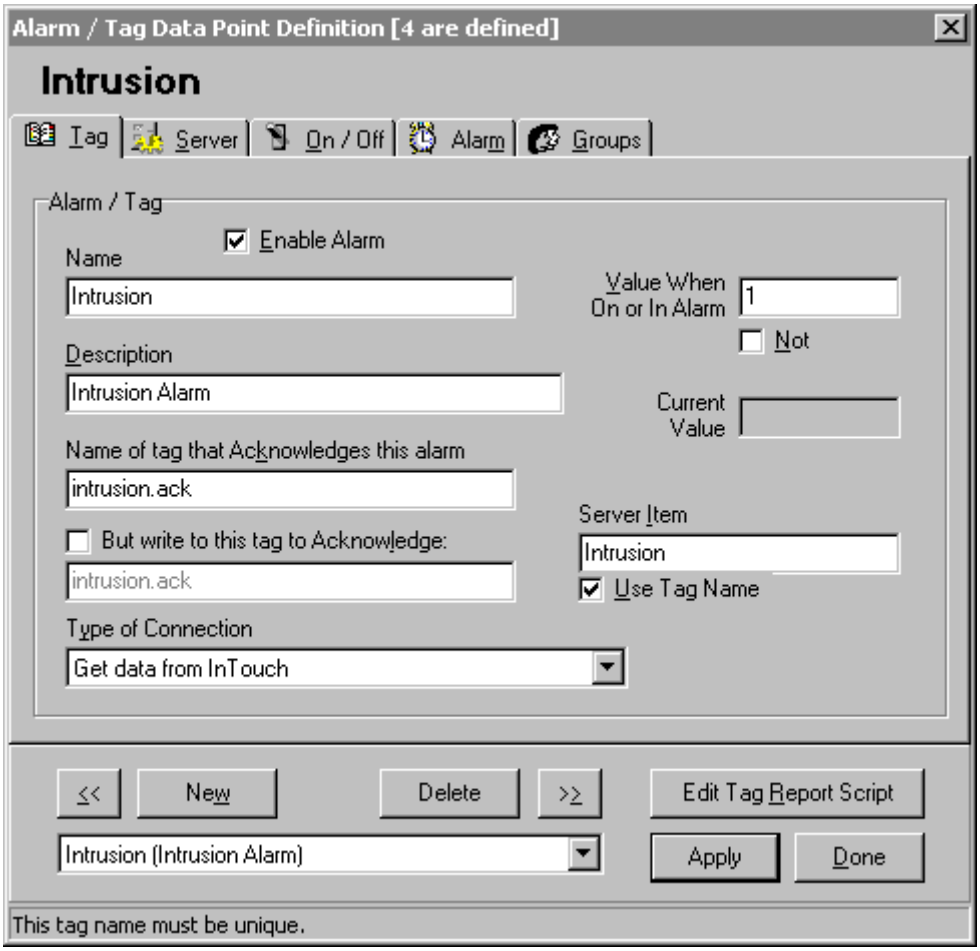
Configuring Alarm Acknowledgement for InTouch

To set up alarm acknowledgement for InTouch, append the item name with ".ack." For example, if your alarm tagname were named "hialarm," the SCADAlarm acknowledge tag would be "hialarm.ack."

To configure alarm acknowledgement

1. On the **Maintenance** menu, click **Alarms / Tag Names**. The **Alarm / Tag Data Point Definition** dialog box appears.

2. Click the **Tag** tab.

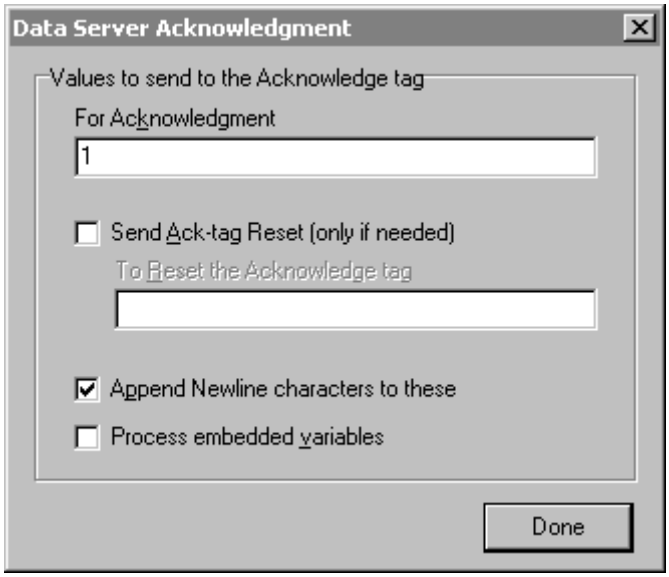


3. In the **Name of tag that Acknowledges this alarm** box, type the alarm tagname with an ".ack" appended to the end of the tagname.

   When an alarm is acknowledged from SCADAlarm (either over the telephone or from the SCADAlarm Alarm window), the value for the tag specified by the **Name of tag that Acknowledges this alarm** box is set to 1.

4. Click the **Server** tab.

5. Click **Acknowledgment Details**. The **Data Server Acknowledgment** dialog box appears.



6. In the **For Acknowledgment** box, type a `1`.
7. If you are using InTouch as the HMI, you do not need to select the **Append Newline characters to these** option. However, the behavior of InTouch will remain the same even if this option is checked.
8. Click **Done**.

Configuring SCADAlarm to Start When WindowViewer Starts

To configure SCADAlarm to start when WindowViewer starts

1. Start **WindowMaker**.
2. On the **Special** menu, point to **Scripts** and then click **Application Scripts**.
3. Select **On Startup** for the type of script.
4. Type a line of script similar to the following:

```
StartApp "(full path to scalrm.exe)";
```

For example, (using the default path on drive C:):

```
StartApp "C:\Program
   Files\Wonderware\SCADAlarm\scalrm.exe";
```

Whatever the operating system, you may want the entire SCADAlarm application to appear as the topmost application on the desktop under certain conditions. If so, add the following command to the button, script, and so on, This should cause the following action:

```
ActivateApp "SCADAlarm Advanced Telephonic Dialer";
```

Using SCADAlarm with Industrial Application Server

In order to use SCADAlarm with Industrial Application Server, you will need to have the Integrated Development Environment (IDE) and bootstrap installed on the SCADAlarm computer and a Platform deployed.

For information on versions of Industrial Application Server that are supported with SCADAlarm, see the FactorySuite Compatibility Matrix that is published on the Wonderware web site (www.wonderware.com).

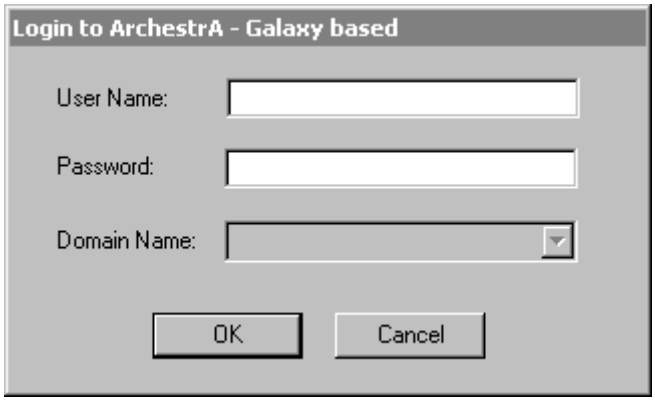
Configuring Industrial Application Server as the Data Server

For general information on configuring servers, see "Configuring Server Properties for an Alarm Tag" on page 70.

To configure Industrial Application Server as the data server

1. In the **Server Name** box, specify the server name.
2. In the **Server Type** list, click "Galaxy."
3. In the **Galaxy Name** box, specify the Galaxy name.
4. If the Industrial Application Server (Galaxy Repository) is running on a different computer than SCADAlarm, select the **Galaxy Repository node** check box and simply provide the name of the IAS node. To connect to the server, you will need to have the Integrated Development Environment (IDE) installed on the SCADAlarm computer.
5. Click **Set ArchestrA User**. The **Login to ArchestrA** dialog box appears.

Note The **Set ArchestrA User** button will not appear on **Server** tab if the ArchestrA security mode is set to **None**.



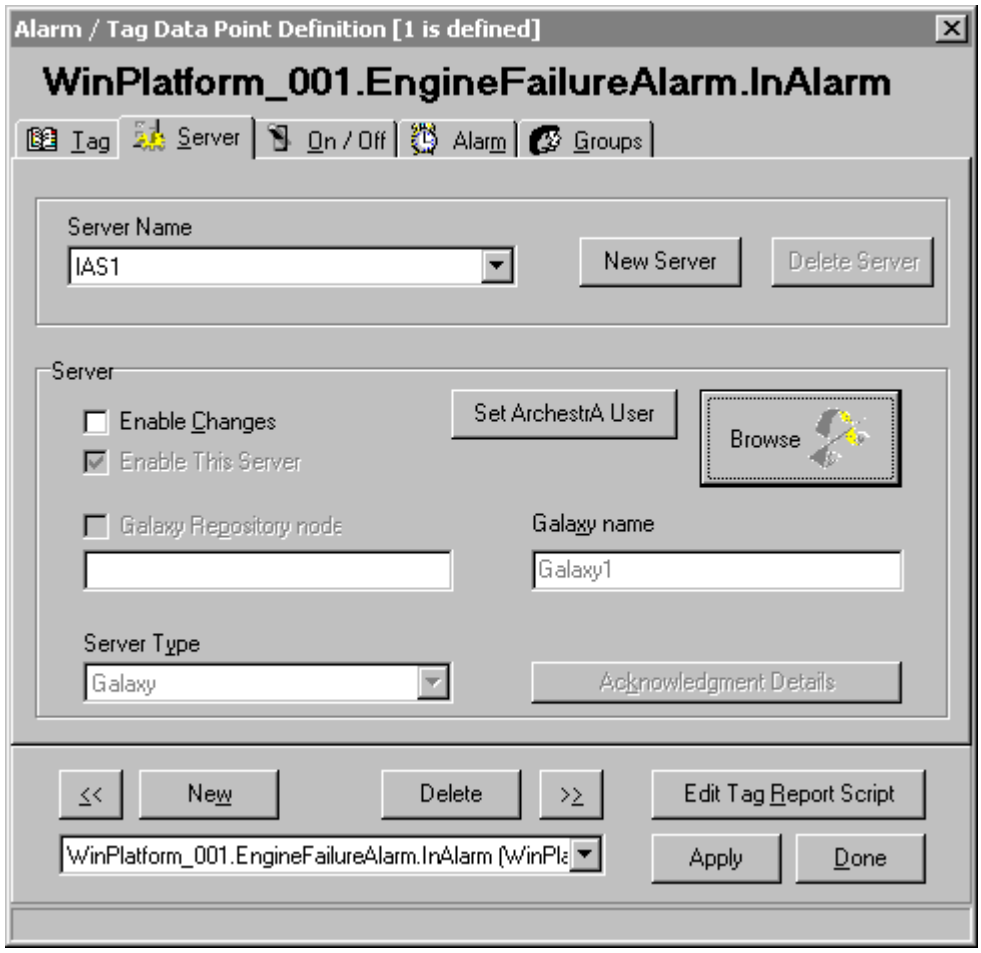
6. Specify the account name and logon parameters that will be used by SCADAlarm to connect to the Galaxy for alarm acknowledgements and data writes.

   If you provide an invalid account, an error message will appear. If authentication fails at run time, an error message will be generated in the ArchestrA Logger. If authentication succeeds, but the write fails due to the security configuration within the target Galaxy, a Logger error message will be generated.

   The account you provide is retained in the SCADAlarm application. Any change to the ArchestrA security settings or user password will require the you to re-enter the user and password in SCADAlarm.

7. Click **OK**.

For example:



Importing Tags from Industrial Application Server

You can use the SCADAlarm tag importer to browse the list of tags (attributes) in an Industrial Application Server Galaxy (database) and then create alarms in the SCADAlarm database for them. This allows you to quickly and easily create alarm definitions in the SCADAlarm for Industrial Application Server tags.

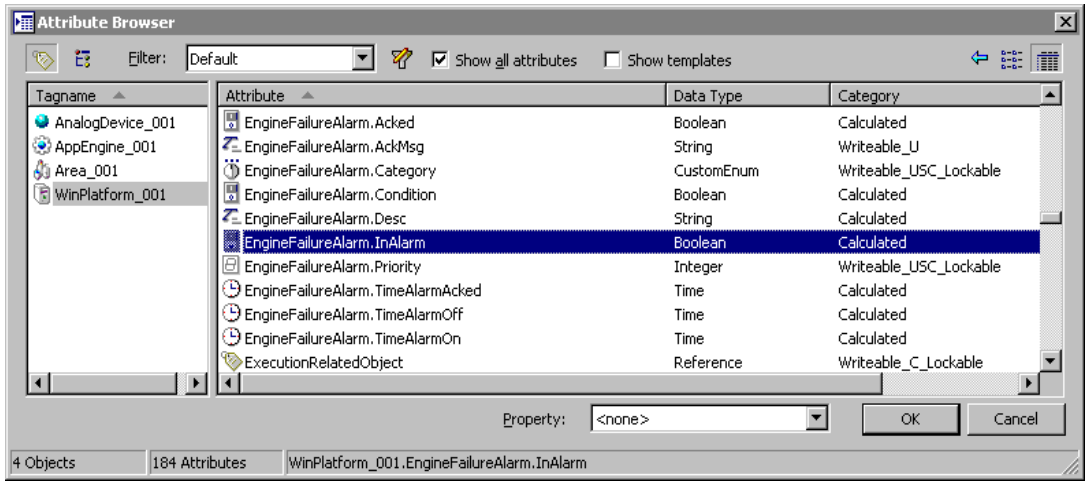
In order for you to create alarms based on tags from an Industrial Application Server Galaxy, the following requirements must be met:

- The Industrial Application Server Integrated Development Environment (IDE) is installed on the SCADAlarm computer.
- Objects are configured in the ArchestrA Galaxy.

When using the tag importer, you cannot select multiple tags.

To import Industrial Application Server tags

1. Configure Industrial Application Server as the data server. For more information, see "Configuring Industrial Application Server as the Data Server" on page 181.
2. In the **Server** tab of the **Alarm / Tag Data Point Definition** dialog box, click the **Browse** button. The **Attribute Browser** dialog box appears.

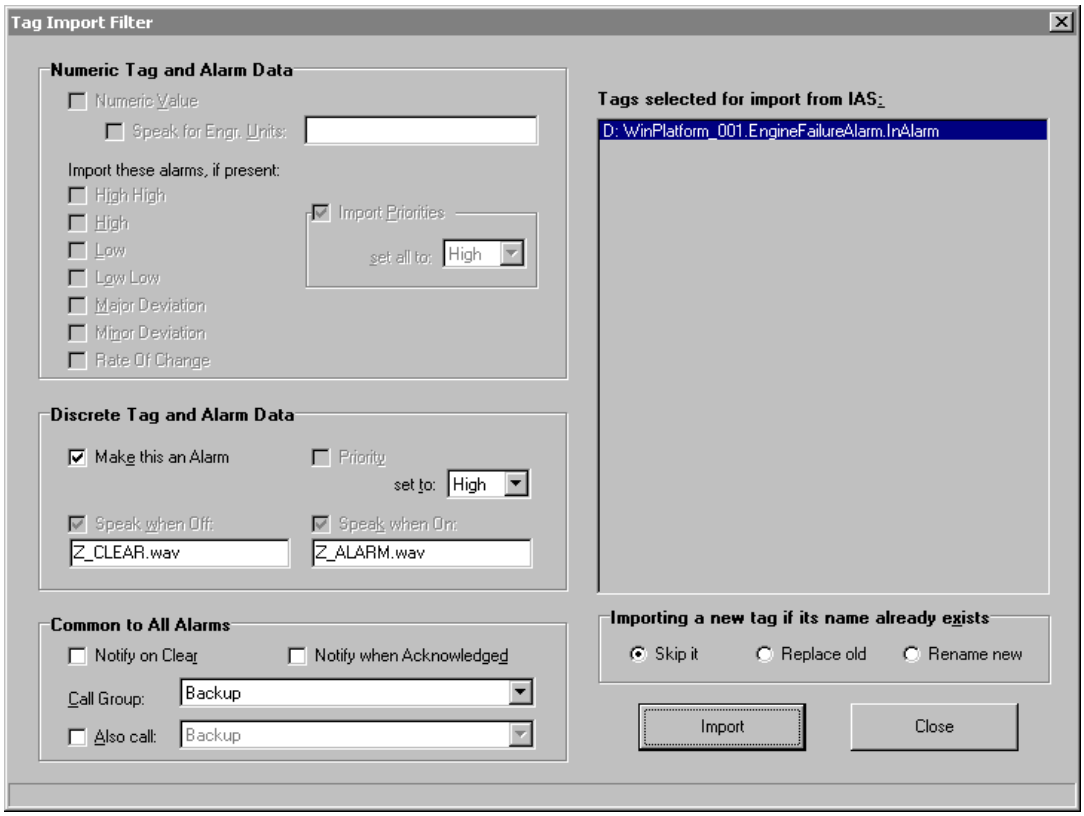


3. Select the **Show all attributes** check box.
4. Use the Attribute Browser to select a tag (attribute) to import into SCADAlarm. You can only import one tag at a time. Select the attribute that contains the ".InAlarm" field.

   The Attribute Browser will only display attribute names that are up to 80 characters in length.

   For more information on the Attribute Browser, see the Industrial Application Server documentation.

5. Click **OK**. The **Tag Import Filter** dialog box appears.



6. In the **Tags selected for import from <server name>**window, verify the Industrial Application Server tag (attribute) for which you want to create an alarm in SCADAlarm.

7. In the **Discrete Tag and Alarm Data** group, configure the discrete alarm that you want to include in the import for the selected tags.

Note All data types imported from Industrial Application Server are assumed to be discrete. (The Attribute Browser does not provide data type information, only the attribute name.) You can change the data type for a tag to numeric by editing the alarm tag definition after the import.

Make this an Alarm
Select this check box to have SCADAlarm create an alarm tag for the selected Industrial Application Server tag (attribute).

Set to
The alarm priority to use for all discrete alarms.

Speak when Off
The name of the prompt (.wav or .txt) that will be spoken by SCADAlarm to describe the "normal" state of the tag. A spoken normal state of "CLEARED" (Z_CLEAR.wav) is the default.

Double-click or right-click on the box to select or change the voice prompt file. For more information, see "Browsing or Recording a Voice Prompt" on page 136.

Speak when On
The name of the prompt (.wav or .txt) that will be spoken by SCADAlarm to describe the "alarm" state of the tag. A spoken alarm state of "IN ALARM" (Z_ALARM.wav) is the default.

8. In the **Common to All Alarms** group, configure the operator group to associate with the tag.

   Notify on Clear
   If this check box is selected, a notification will be sent to the group when the alarm condition clears or recurs.

   Notify when Acknowledged
   If this check box is selected, a notification will be sent to the group when the alarm has been acknowledged.

   Call Group
   Select this check box to specify the name of the group of operators to be called when the tag goes into alarm.

   Also call
   Select this check box to specify the name of an additional group to notify if an alarm occurs. For more information, see "Alarm Notification for an "Also Notify" Operator Group" on page 80.

9. In the **Importing a new tag if its name already exists** group, configure how you want duplicate tags handled.

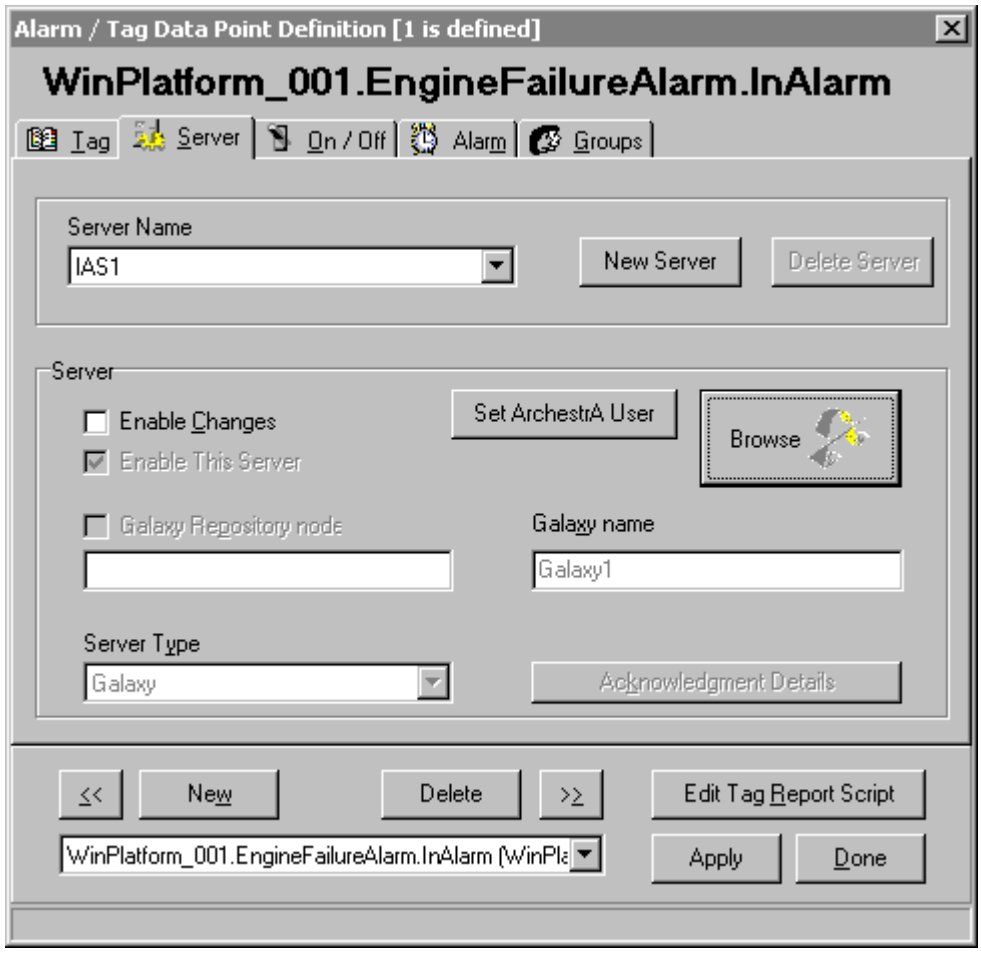
   Skip it
   If selected, the new alarm tag to import will be skipped.

   Replace old
   If selected, the existing alarm tag in the SCADAlarm database will be replaced with the new alarm tag.

   Rename new
   If selected, the new tag will be renamed if the importer encounters a naming conflict. The tooltip shows the naming convention for the renamed tag(s).

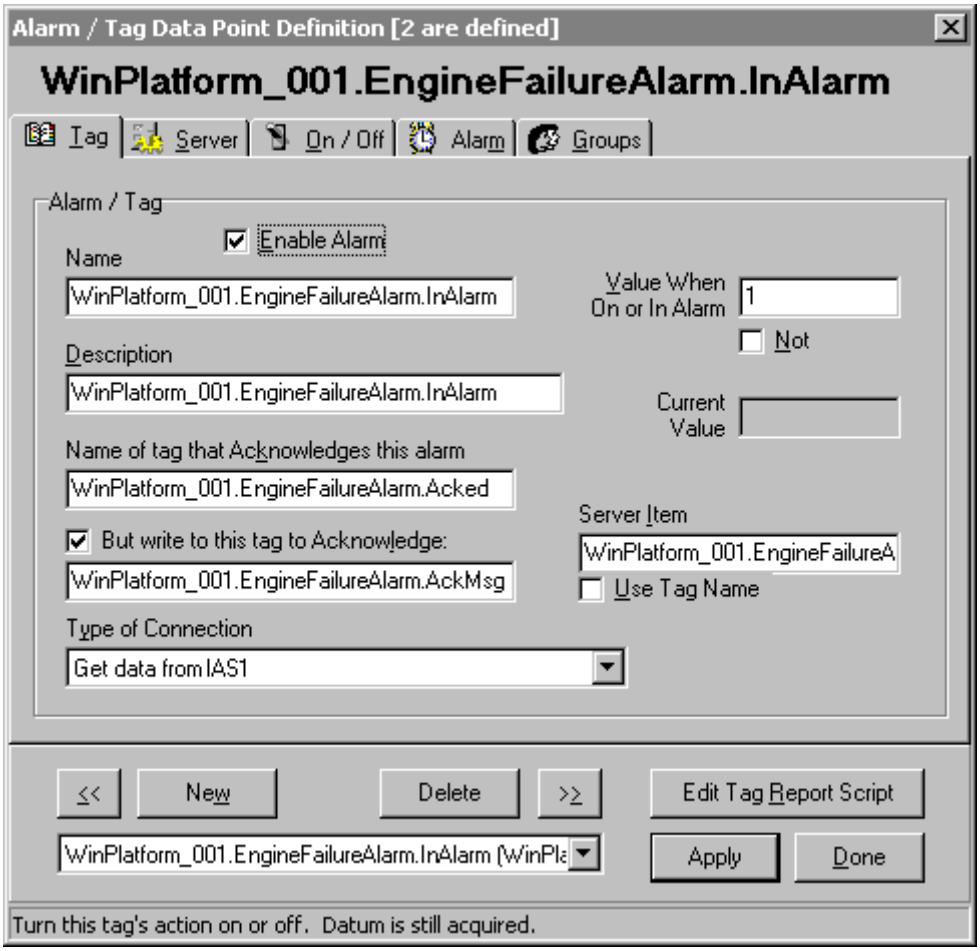
10. Click **Import** to import the alarm definitions for the selected tag. The **Import Done** dialog box appears.

11. To remove the imported tag from the **Tags selected for import from <Server Name>** window, click **Yes**. Otherwise, click **No**. The **Tag Import Filter** dialog box will close.
12. To import additional tags, repeat steps 2 through 10.
13. To close the **Tag Import Filter**, click **Close**. The **Alarm / Tag Data Point Definition** dialog box appears. The imported tags appear in the list at the bottom of the dialog box.



14. Click **Done**.

15. Click the **Tag** tab.



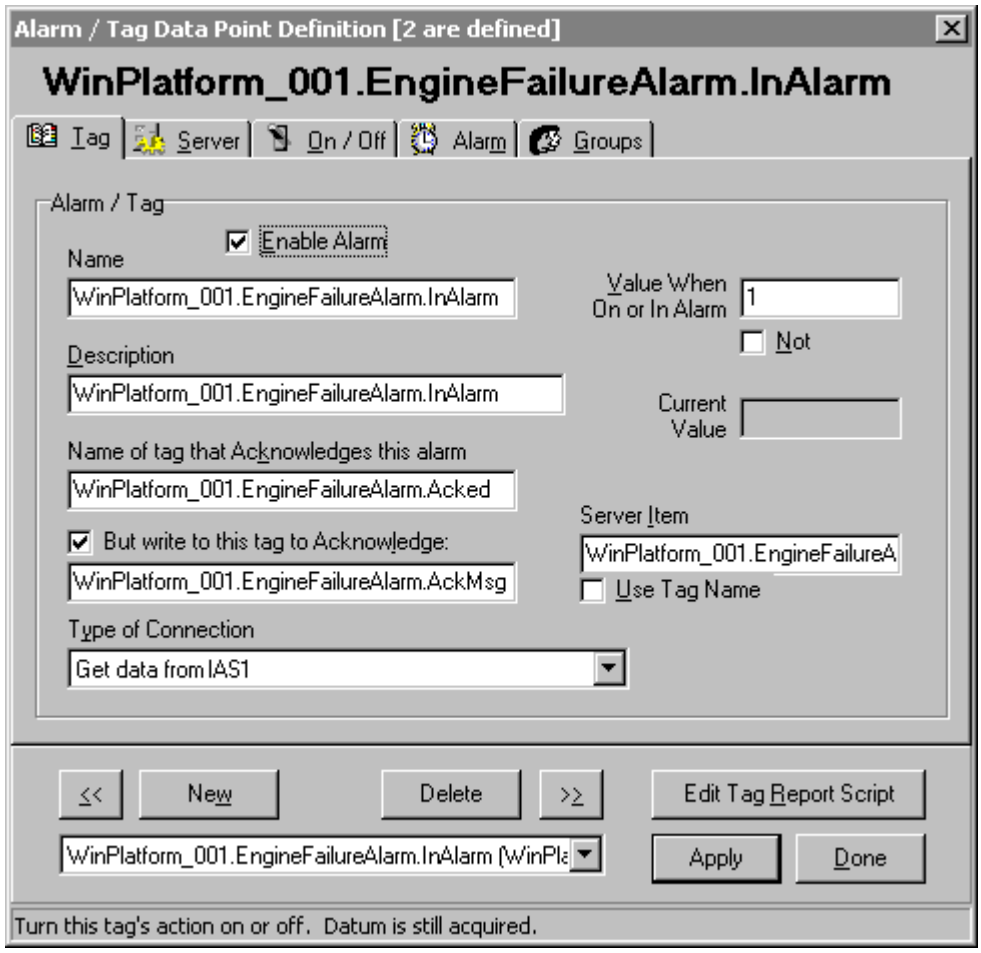
The importer automatically creates the <attribute name>.Acked and <attribute name>.AckMsg tags for you, which are required for alarm acknowledgement. For more information, see "Configuring Alarm Acknowledgement for IAS" on page 187.

Configuring Alarm Acknowledgement for IAS

To configure alarm acknowledgement

1. On the **Maintenance** menu, click **Alarms / Tag Names**. The **Alarm / Tag Data Point Definition** dialog box appears.

2. Click the **Tag** tab.



3. In the **Name of tag that Acknowledges this alarm** box, type the alarm tagname with an ".Acked" appended to the end of the tagname.

   When an alarm is acknowledged from SCADAlarm (either over the telephone or from the SCADAlarm Alarm window), the value for the tag specified by the **Name of tag that Acknowledges this alarm** box is set to true.

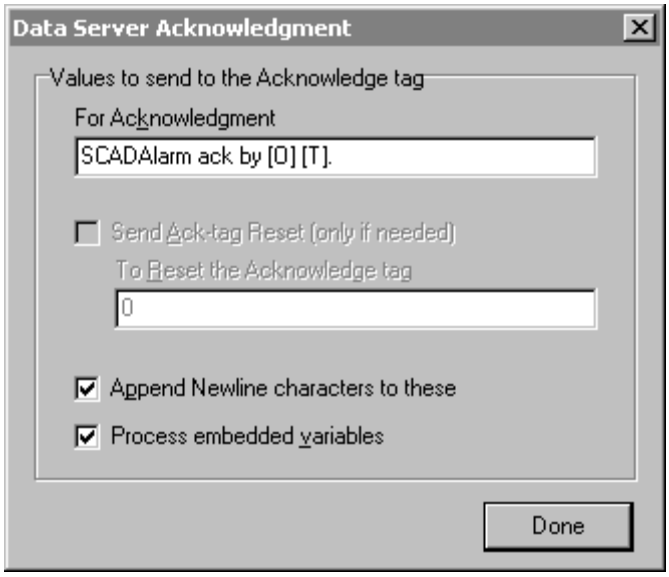
4. Select the **But write to this tag to Acknowledge** check box and in the box, type the alarm tagname with an ".AckMsg" appended to the end of the tagname.

   For Industrial Application Server, a string value that is set for the <attribute name>.AckMsg attribute will automatically set the <attribute name>.Acked to true and will thus acknowledge the alarm.

5. Click the **Server** tab.

6. Select the **Enable Changes** check box.

7. Click **Acknowledgment Details**. The **Data Server Acknowledgment** dialog box appears.



8. In the **For Acknowledgment** box, type any string message. For example, you could use the following message format, where [O] and [T] are SCADAlarm message variables.

   "SCADAlarm ack by [O] [T]."

   For more information on message variables, see "Creating a Message Format" on page 108.

9. Leave the **Append Newline characters to these** check box unchecked for Industrial Application Server.

10. Select the **Process embedded variables** check box to have the current values provided for the message variables at run time.

11. Click **Done**.

Using SCADAlarm with Ci Technologies Citect®

Information is provided on how to connect SCADAlarm to Citect. It is assumed that you have working knowledge of SCADAlarm and Citect.

Important! Testing was performed with SCADAlarm 6.0 and Citect 5.40. This information may not be valid in other versions of the HMI package. Also, results may be different with SCADAlarm patches installed.

Configuring Citect as the Data Server

For general information on configuring servers, see "Configuring Server Properties for an Alarm Tag" on page 70.

To configure Citect as the data server, use **Citect** as the application name and **Variable** as the topic.

The item name for Citect will be the tagname.

Citect DDE Server Startup

To start up the Citect DDE Server

- According to the Citect documentation, you must set the **GENERAL/TagDB** parameter to a value of **1**.

Note DDE pokes work only if you have the hardware key installed. Demo mode yields erratic results.

You can configure the HMI to start the DDE Server first and then SCADAlarm.

To start SCADAlarm after the DDE Server

1. Run the **Citect Explorer**.
2. On the **Tools** menu, click C**omputer Setup** to access the **Citect Computer Setup Wizard**.
3. Choose **Custom Setup**.
4. Click through the wizard until the **General Options Setup** window appears. Type the following in the **Startup Cicode** function box:

   ```
   exec ("<full path to SCADAlarm>\SCALRM.EXE",1);
   ```

   If you specify a value of 1, SCADAlarm will run with the default size window. If you specify a value of 3, SCADAlarm will run maximized. If you specify a value of 6, SCADAlarm will run minimized.
5. Follow the prompts to finish the setup.

Alarm Acknowledgement for Citect

The Citect documentation indicates that "alarm parameters as tags" are available (for example, .ack, .hi, and so on). The .ack field is specifically mentioned, and its described behavior mimics that of InTouch. In the simulation created for testing purposes, the IntrusionAlarm.ack tag correctly indicates the current "acknowledge state" of the IntrusionAlarm tag; however, writing to this field sometimes does not have any effect.

Within SCADAlarm, verify that the acknowledgement option is set to allow acknowledgements to be sent to and accepted from the HMI (by clicking the **Both** option). For more information, see "Configuring Alarm Acknowledgement Parameters" on page 115.

There may be an issue with alarm "categories" or "privileges" that need to be configured. You might also want to set the following SCADAlarm INI entry in the [System Parameters] section:

Use Data-type-aware POKE Flag=1

Creating a Simulation Project

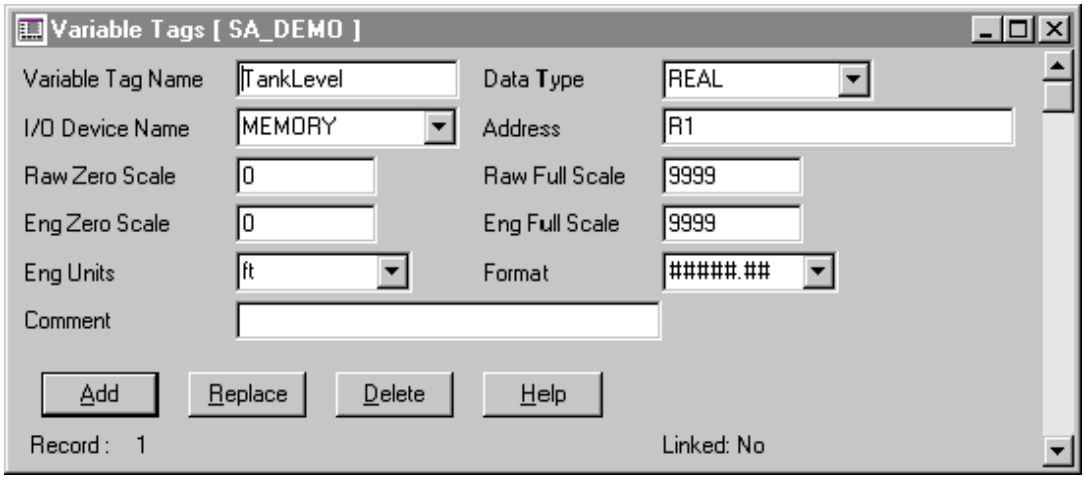
The following steps illustrate how to create a Citect project with no real I/O, for simulation purposes.

To create a simulation project

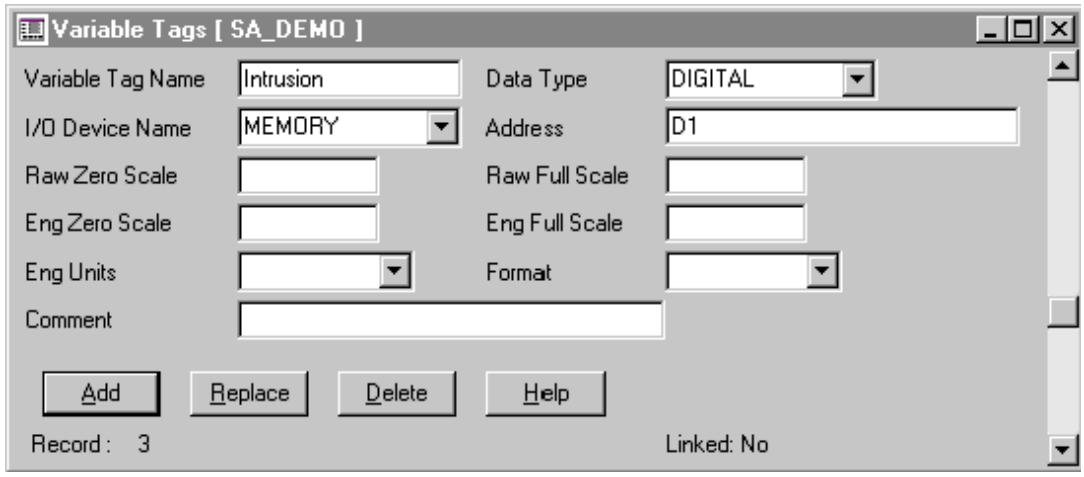
1. Start Citect Explorer:
2. Create a new project.
   A. On the **File** menu, click **New Project**.
   B. Enter the new project name and accept all defaults.
3. Add an I/O Server.
   A. From the **Project List** tree view, select the **Communications** folder.
   B. Click **I/O Servers**.
   C. Enter the server name and click **Add**.
4. Add an I/O device.
   A. From the **Project List** tree view, select the **Communications** folder.
   B. Click **I/O Devices**.
   C. Enter the device name (i.e., MEMORY_PLC).
   D. Select the **GENERIC** protocol and select **MEMORY** for the **Port Name**.
   E. Click **Add**.
5. Draw the screen.
   A. From the **Project List** tree view, select the pages folder (subfolder for Graphics folder).
   B. Click **Create a new page**.

Configuring a Variable Tag in Citect

The following graphic illustrates how a "variable tag" of type real can be defined in Citect:

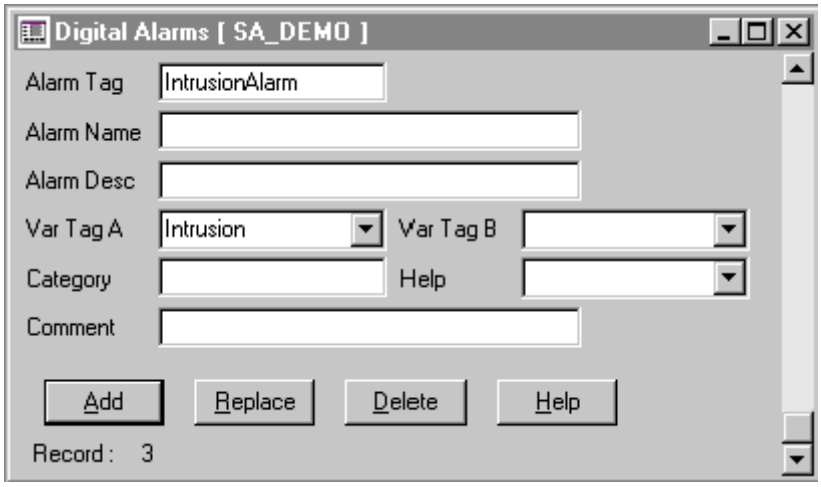


The following graphic illustrates how a "variable tag" of type digital can be defined in Citect:



Configuring an Alarm Tag in Citect

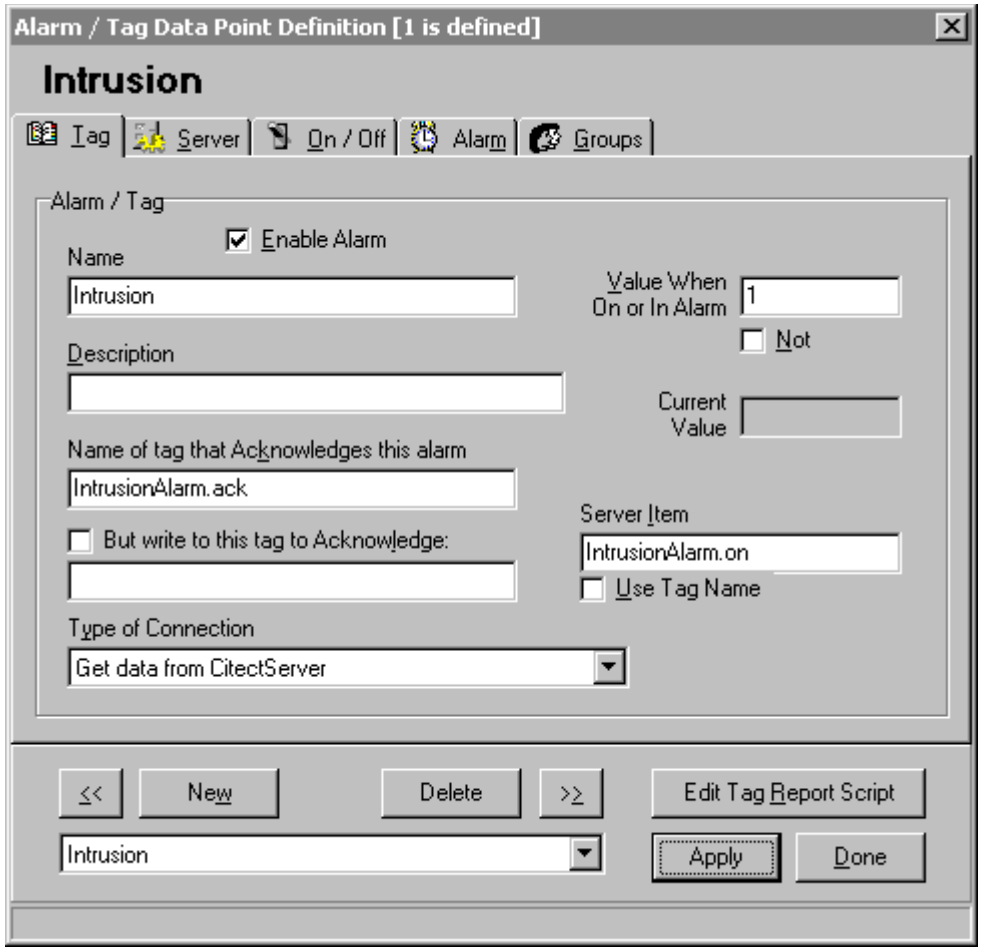
Alarm tags are added separately from the "variable tags." The following is a sample digital alarm:



This alarm, named **IntrusionAlarm**, is active when "Var Tag A" is true. In this case, "Var Tag A" is the Intrusion tag. Note that tag "Intrusion" does not appear in the alarm summary, and it has no "alarm attributes." You must add an alarm (that is, IntrusionAlarm) to use these attributes.

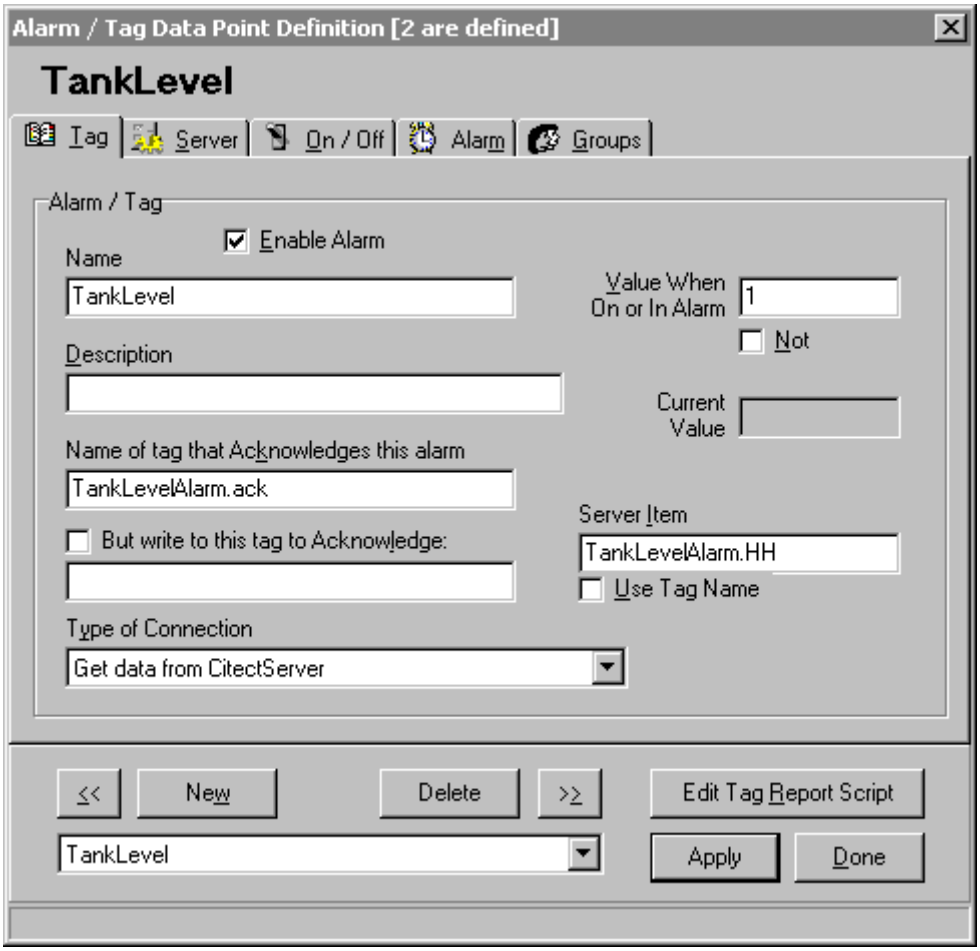
Configuring a Citect Discrete Tag in SCADAlarm

The following graphic illustrates a Citect discrete alarm tag as defined in SCADAlarm:



Configuring a Citect Analog Tag in SCADAlarm

The following graphic illustrates a Citect analog alarm tag as defined in SCADAlarm:



Using SCADAlarm with Intellution® iFIX®

Information is provided on how to connect SCADAlarm to the Intellution® iFIX® Dynamics HMI. It is assumed that you have working knowledge of SCADAlarm and iFIX.

Important! Testing was performed with SCADAlarm 6.0 and iFIX 3.5. This information may not be valid in other versions of the HMI package. Also, results may be different with SCADAlarm patches installed.

Configuring iFIX as the Data Server

For general information on configuring servers, see "Configuring Server Properties for an Alarm Tag" on page 70.

To configure iFIX as the data server, use **DMDDE** as the application name and **Data** as the topic.

The item name for iFIX will be the tagname.

iFIX Startup Options and/or Requirements

The iFIX DDE Server, which makes database values available for DDE clients, (such as SCADAlarm), must be configured to start when iFIX is started.

To configure the DDE Server to start up

1. Start the Intellution System Configuration Utility (SCU).
2. On the **Configure** menu, click **Tasks**. The Task Configuration window appears.
3. Click the "?" at the end of the **Filename** box.
4. Browse for the file DMDDE.EXE and select it.
5. Click the desired start up mode option.
6. Click **Add**.
7. Click **OK**.

Whenever iFIX is started, DMDDE.EXE (the Intellution DDE Server) will start automatically.

You can configure the HMI to start the DDE Server first and then SCADAlarm.

To configure the HMI to start SCADAlarm

1. Start the iFIX System Configuration Utility (SCU).
2. On the **Configure** menu, click **Tasks**.
3. In the **Filename** box, find DMDDE.EXE and click **Open**. You should see DMDDE.EXE in the **Filename** box.
4. Click **Add**.
5. Use the UP/DOWN arrow buttons (if necessary) to move DMDDE all the way to the top of the list.
6. Repeat steps 1 through 4 for SCALRM.EXE.
7. Use the UP/DOWN arrow buttons (if necessary) to move SCALRM.EXE all the way to the bottom of the list.

   This ensures that the DDE server (DMDDE.EXE) is started before SCADAlarm.

Alarm Acknowledgement for iFIX

If you want to acknowledge alarms at the HMI from SCADAlarm, follow these guidelines:

- When adding "blocks" (otherwise known as "tags") to your Intellution database, you must use Digital Alarm (DA) and Analog Alarm (AA) blocks. Use these instead of Digital Input (DI) and Analog Input (AI) blocks, which have no remote acknowledgement capability.
- Unlike InTouch, Intellution blocks do not have a built-in .ack field that allows for easy acknowledgement. You must create a "SIM block discrete" (similar to an InTouch memory discrete tag) for each block that you want to acknowledge remotely. This "ack tag" should be either a Digital Output (DO) or Digital Register (DR) block.
- Within SCADAlarm, verify that the acknowledgement option is set to allow acknowledgements to be sent to and accepted from the HMI (by clicking the **Both** option). For more information, see "Configuring Alarm Acknowledgement Parameters" on page 115.
- Within SCADAlarm, in the **Acknowledgement Parameters** dialog box, select the **Send Ack-tag Reset** check box. In the **To Reset the Acknowledge tag** box, type a `0`.

Configuring an Alarm Tag in iFIX

To configure an alarm in iFIX

1. Start the Intellution Dynamics Workspace.
2. Start the Database manager.
3. Create a Digital Alarm Block. Configure the options as follows:

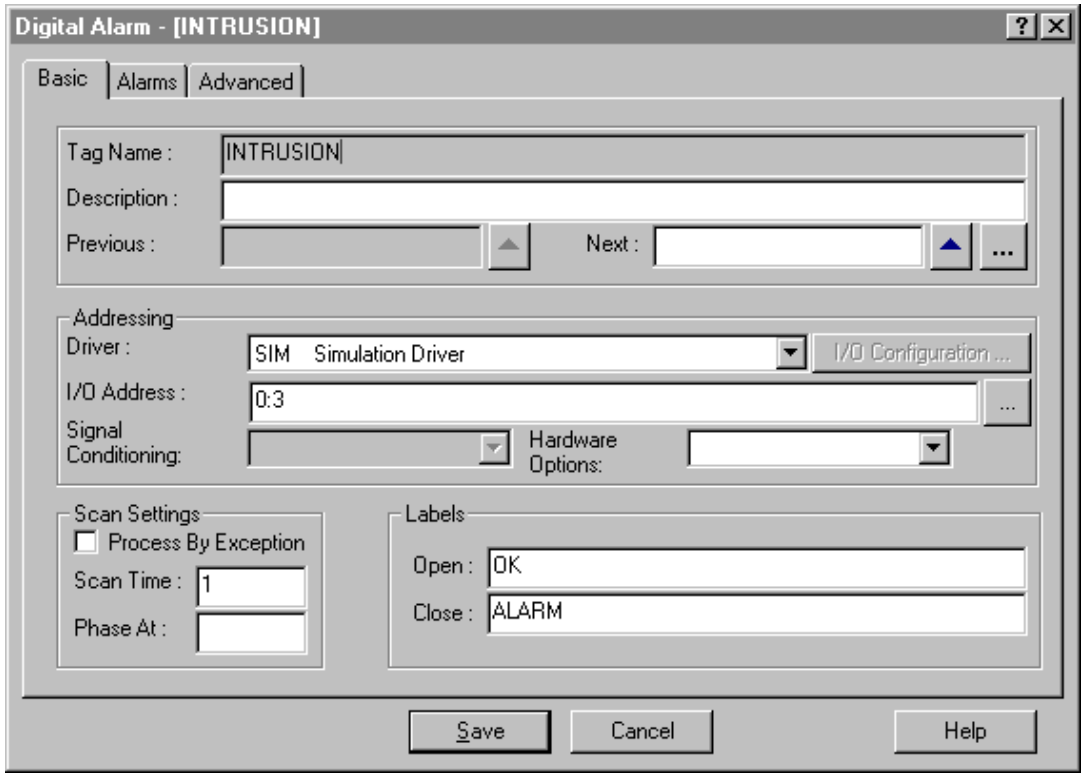
   Tagname
   For this example, call this alarm INTRUSION.

   Device
   This option is similar to the **Access Name** box in InTouch. If this alarm is a memory discrete, specify SIM as the device. (SIM is the Simulation Driver device.)

   I/O Address
   When configuring SIM blocks, you must assign a unique address for each. Discretes take the form WORD:BIT.

   Labels (Open & Close)
   The current value of a discrete block is represented by its open/close labels. The DA block will have a value of "OK" when the discrete is Open (0), and a value of "ALARM" when the discrete is Closed (1).

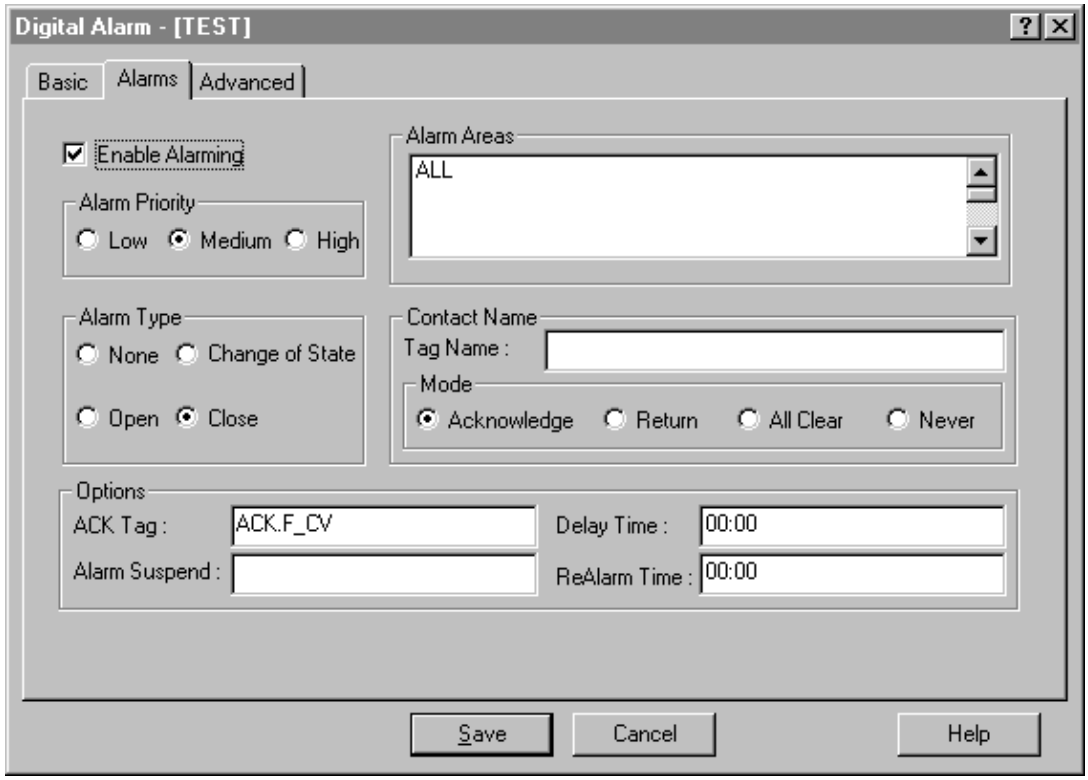
Note These are the values that are sent to SCADAlarm and they are case-sensitive.



4. Click on the **Alarms** tab and verify the following fields:

   ACK Tag
   The tag "INTRUSION" will be acknowledged if the acknowledge tag is set to 1 (either from the HMI itself or from an external application, such as SCADAlarm).

Note The acknowledge tag is typed here without the nodename and the field must be .F_CV.



Configuring an Acknowledge Tag in iFIX

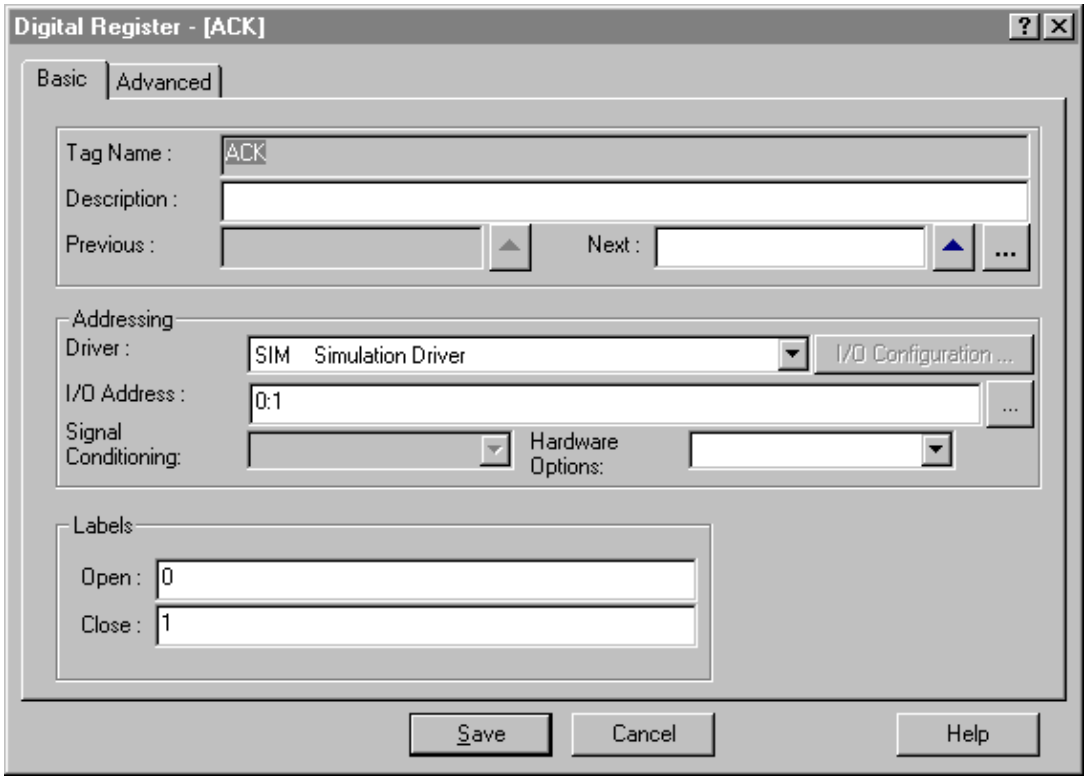
To configure the acknowledge tag

1. Create a "SIM" Digital Output Block and verify the following fields:

   Tagname
   For this example, call this acknowledge tag ACK.

Labels (Open & Close)
In order for remote acknowledgement to/from SCADAlarm, the Open and Close Labels for the acknowledge tag(s) must be set to 0 and 1, respectively.

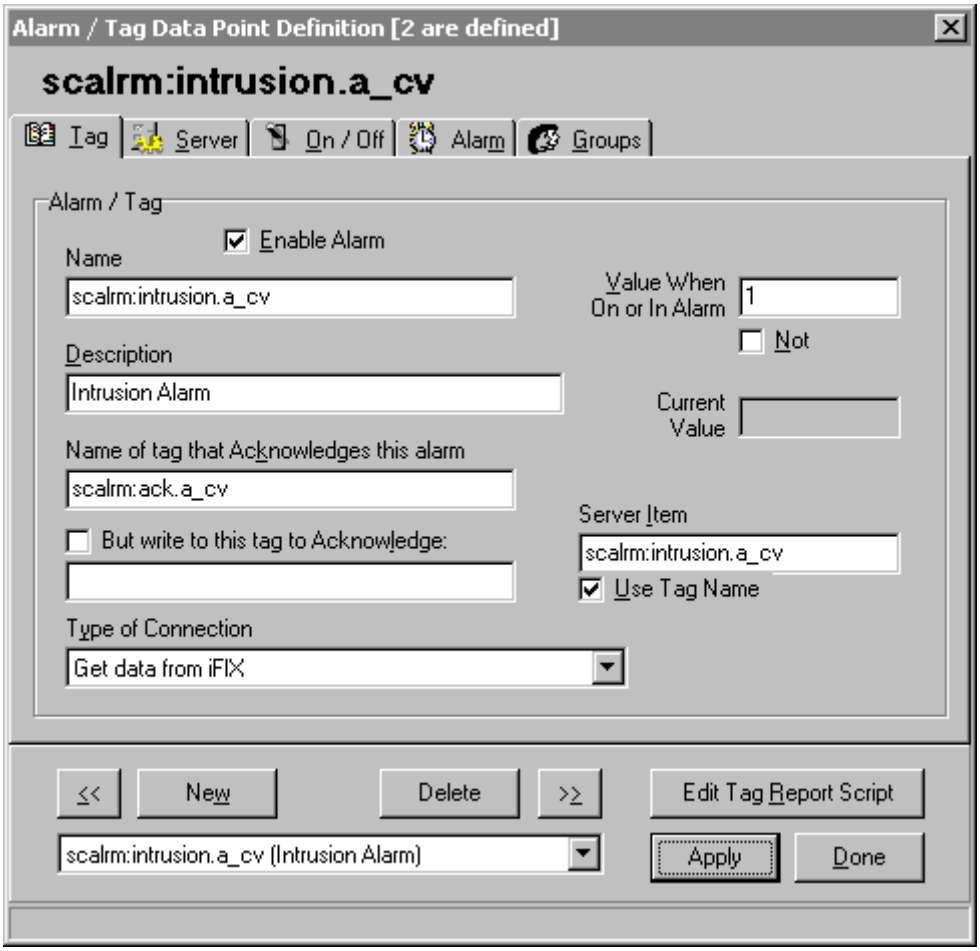
You must use an acknowledge tag for each alarm that you want to acknowledge remotely. You could create a **unique** acknowledge tag for each alarm (effectively doubling the size of your alarm database) or you could use the same acknowledge tag for each alarm in your system (similar to setting $System.Ack=1 in InTouch).



2. Click on the **Advanced** tab and verify that the **Enable Output** check box is selected.

Configuring an iFIX Alarm Tag in SCADAlarm

The following example shows the INTRUSION alarm as it should be configured in SCADAlarm:



Options are configured as follows:

Name
Intellution tags are represented in the following format:

NODENAME:TAGNAME.FIELD.

In this example, the Intellution Nodename is "SCALRM," The tagname is "INTRUSION," and the field is "A_CV." No parts of the alarm tag name are case-sensitive.

Name of tag that Acknowledges this alarm
The acknowledge tag that was configured was called ACK. The acknowledge tag field must be ".A_CV."

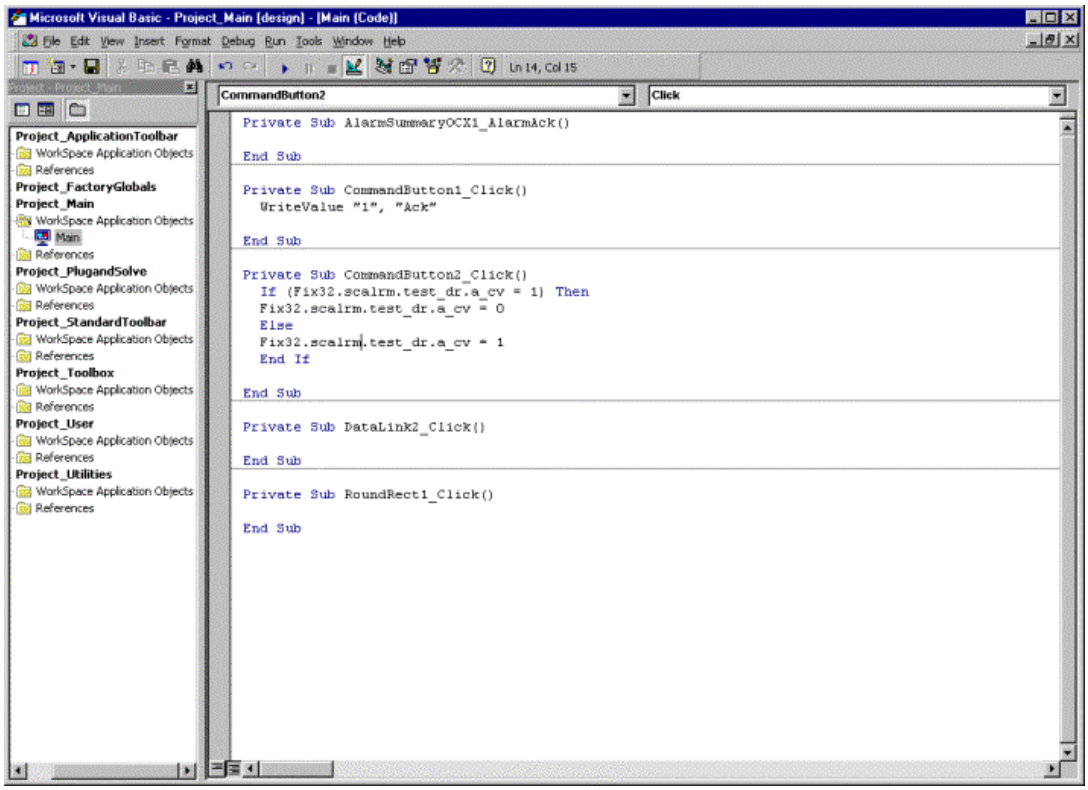
Value When On or In Alarm
For discrete alarms, this must correspond exactly to the desired "label" of the alarm tag (typically the Close label, but it could be the Open label if you choose to invert the tag).

This value is case-sensitive. Remember also that SCADAlarm does not perform "threshold checking" (for example, greater than 30.0). SCADAlarm only knows that a tag is in alarm when the value in the **Current Value** box is exactly equal to the string entered in the **Value when in alarm** box.

If a tag name is configured in SCADAlarm, but it does not exist in iFIX, "junk" characters will be returned for the current value.

iFIX VBA Samples

The following is a sample of pushbutton code:



CommandButton1_Click()

When the button is clicked, a 1 is written to scalrm:ack.a_cv.

CommandButton2_Click()

When the button is clicked, the value of tag scalrm:test.a_cv is toggled.

Using SCADAlarm with National Instruments® Lookout™

Information is provided on how to connect SCADAlarm to Lookout. It is assumed that you have working knowledge of SCADAlarm and Lookout.

Important! Testing was performed with SCADAlarm 5.0, and Lookout 4.01. This information may not be valid in other versions of the HMI package. Also, results may be different with SCADAlarm patches installed. No new testing has occurred after the release of SCADAlarm 5.0. Lookout may work with the current version of SCADAlarm, but it is not officially supported.

Configuring Lookout as the Data Server

For general information on configuring servers, see "Configuring Server Properties for an Alarm Tag" on page 70.

To configure Lookout as the data server, use **Lookout** as the application name and the process filename as the topic.

The item name for Lookout will be the tagname.

Lookout Startup Options and/or Requirements

The Lookout DDE Server is started automatically when Lookout is started.

Note New tags created in SCADAlarm do not advise unless SCADAlarm is restarted.

You can configure the HMI to start the DDE Server first and then SCADAlarm.

1. Start Lookout.
2. Go to **Edit Mode**, by performing either of the following:
   - On the **Edit** menu, click **Edit Mode**.
   - On your computer keyboard, click Ctrl+Space.
3. On the **Object** menu, click **Create**.
4. Select the **Control** object class.
5. Select a **Run** object.
6. Create a new object of the **Run** object class by configuring the following options:

   Tag
   Choose a unique tagname. For example, Run.

   Run when =
   TRUE

Command Line =
"<full path>\scalrm.exe"

(the double-quotes are necessary)

Using the default path as an example:

"c:\Program Files\Wonderware\SCADAlarm\scalrm.exe"

To automatically run the Lookout Process file

1. On the **Options** menu, click **System**.
2. In the **Startup Process File** box, specify your processfilename.lkp.

Lookout Alarm Receipt to SCADAlarm

Create an alarm object for each desired SCADAlarm alarm. The Lookout alarm is activated based on the "condition" that you specify during configuration. Lookout alarms can be grouped for acknowledgment.

Lookout alarms are represented in the following format:

TAGNAME.ACTIVE

No parts of the alarm tag name are case-sensitive.

Note Lookout seems to append ".active" to the end of alarm tags and makes the resulting tag available to DDE clients. Make sure that the tag definition in SCADAlarm includes the ".active".

Alarm Acknowledgement for Lookout

Unlike InTouch, Lookout objects do not have a built-in .ack field that allows for easy acknowledgement. If you want to acknowledge alarms at the HMI individually from SCADAlarm, you must create an alarm area for each alarm object in Lookout. If it is acceptable to acknowledge all alarms in the HMI from SCADAlarm at once, just use the default alarm area (Status).

Within SCADAlarm, verify that the acknowledgement option is set to allow acknowledgements to be sent to and accepted from the HMI (by clicking the **Both** option). For more information, see "Configuring Alarm Acknowledgement Parameters" on page 115.

Configuring a Discrete Alarm Tag in Lookout

To build an alarm in Lookout

1. Start Lookout.
2. Create an alarm object.
3. Configure the options as follows:

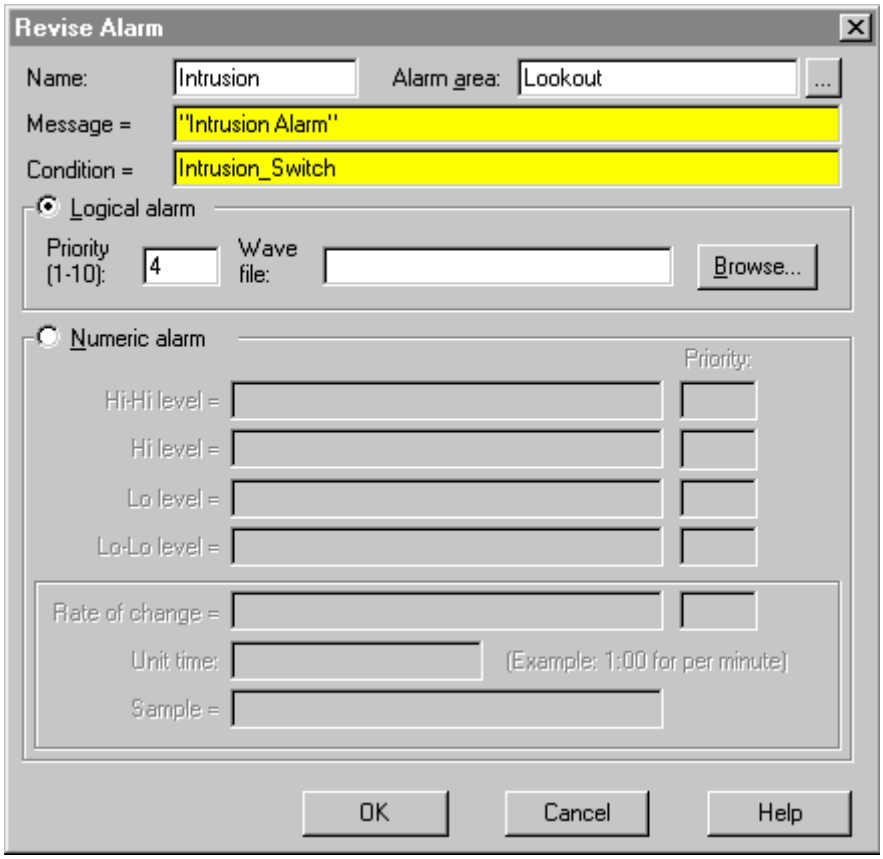
Tag
For this example, call this alarm Intrusion.

If the Switch object (named Intrusion_Switch is on, then the alarm is active. This can be an expression, if desired.)

Alarm Area
(optional) A unique area here will allow an external application (that is, SCADAlarm) to acknowledge this alarm only. If you do not need to acknowledge alarms at the HMI from SCADAlarm, or if it is acceptable to acknowledge all alarms from SCADAlarm at once, simply use the default, which is "Status."

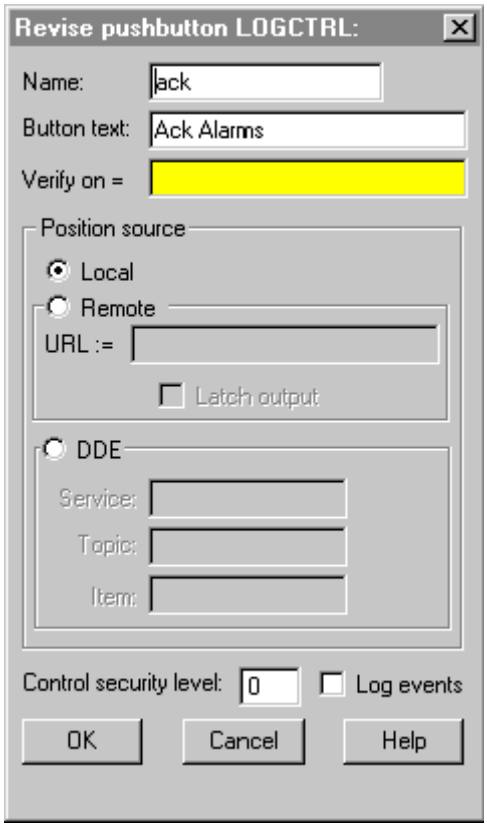
Logical Alarm
Select this option for discrete alarming.

For example, if you create an alarm area called **Lookout**, the tag **Intrusion** will be acknowledged if tag **$Alarm.Lookout.ack** is set to a 1 (either from the HMI itself or from an external application, such as SCADAlarm).



4. Create a pushbutton object that is used to acknowledge the alarm and verify the following options:

Tag
For this example, call this button ack.

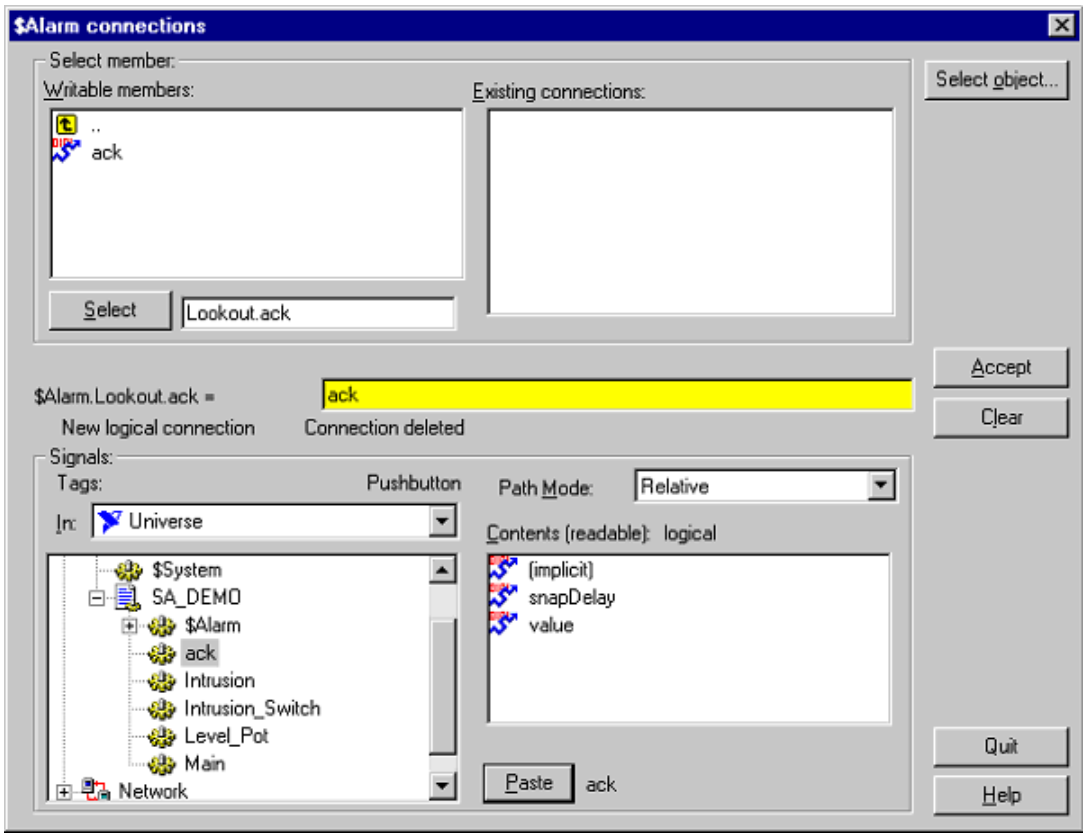


Configuring an Acknowledge Tag in Lookout

In order to acknowledge the alarm via a pushbutton (or remotely) you must create a "connection" between the pushbutton and the desired alarm method:

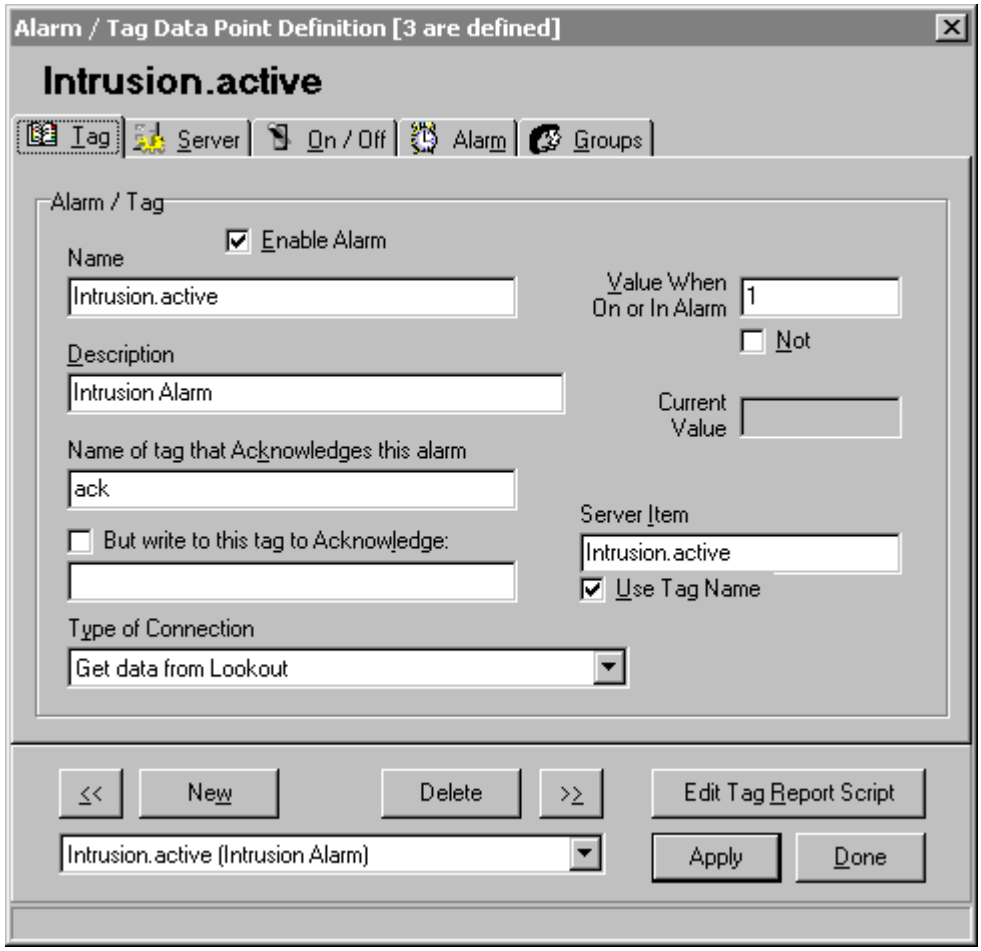
1. On the **Object** menu, click **Edit Connections**.
2. Select the $Alarm object.
3. In the **Writable member**s list, select **Lookout.ack**, then click **Select**.
4. In the **Tags** list, select **ack**, then click **Paste**.
5. Click **Accept**.

$Alarm is a global object that is available within Lookout by default. The target member for writes is Lookout.ack. Therefore, by creating the connection, clicking on the **ack** pushbutton will assert the $Alarm.Lookout.ack member.



Configuring a Lookout Discrete Alarm Tag in SCADAlarm

The following is the **Intrusion** alarm as it should be configured in SCADAlarm:



Name
Lookout alarms are represented in the following format:

TAGNAME.ACTIVE

In this example, the Lookout tagname is Intrusion. No parts of the alarm tag name are case-sensitive.

Note Lookout appears to append ".active" to the end of alarm tags and makes the resulting tag available to DDE Clients. Make sure that the tag definition in SCADAlarm includes the ".active".

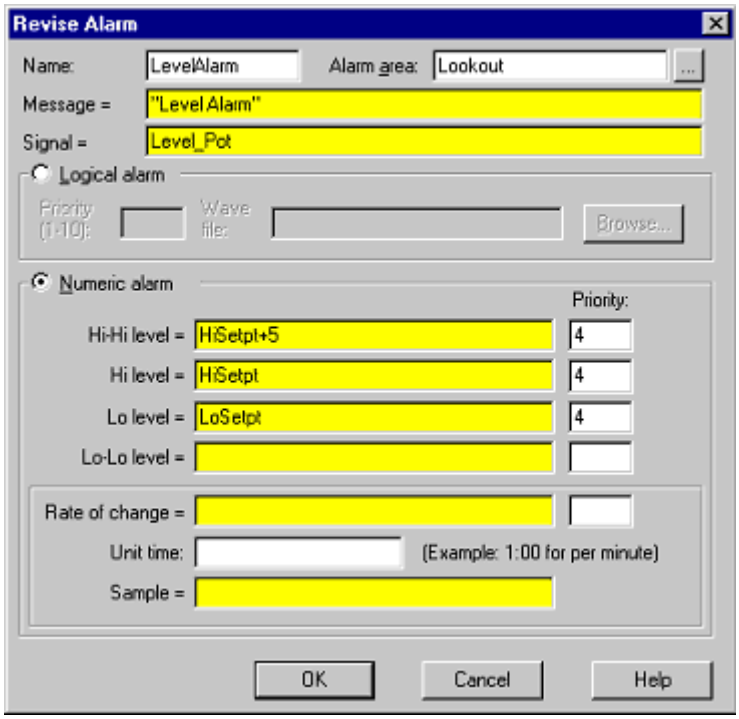
Name of the tag that Acknowledges this alarm
This is the pushbutton that was created to ack the alarm from the HMI. When SCADAlarm is acknowledged, ack is set to a 1, which is connected to $Alarm.Lookout.ack in Lookout.

Value When On or In alarm
For discrete alarms, this will be 1 (unless you choose to invert the tag).

Note This value is case-sensitive. Remember also that SCADAlarm does not perform "threshold checking" (for example, greater than 30.0). SCADAlarm only knows that a tag is in alarm when the value in the **Current Value** box is exactly equal to the string entered in the **Value when in alarm** box.

Configuring a Numeric Alarm Tag in Lookout

The following is an example of a numeric alarm as is is configured in Lookout:



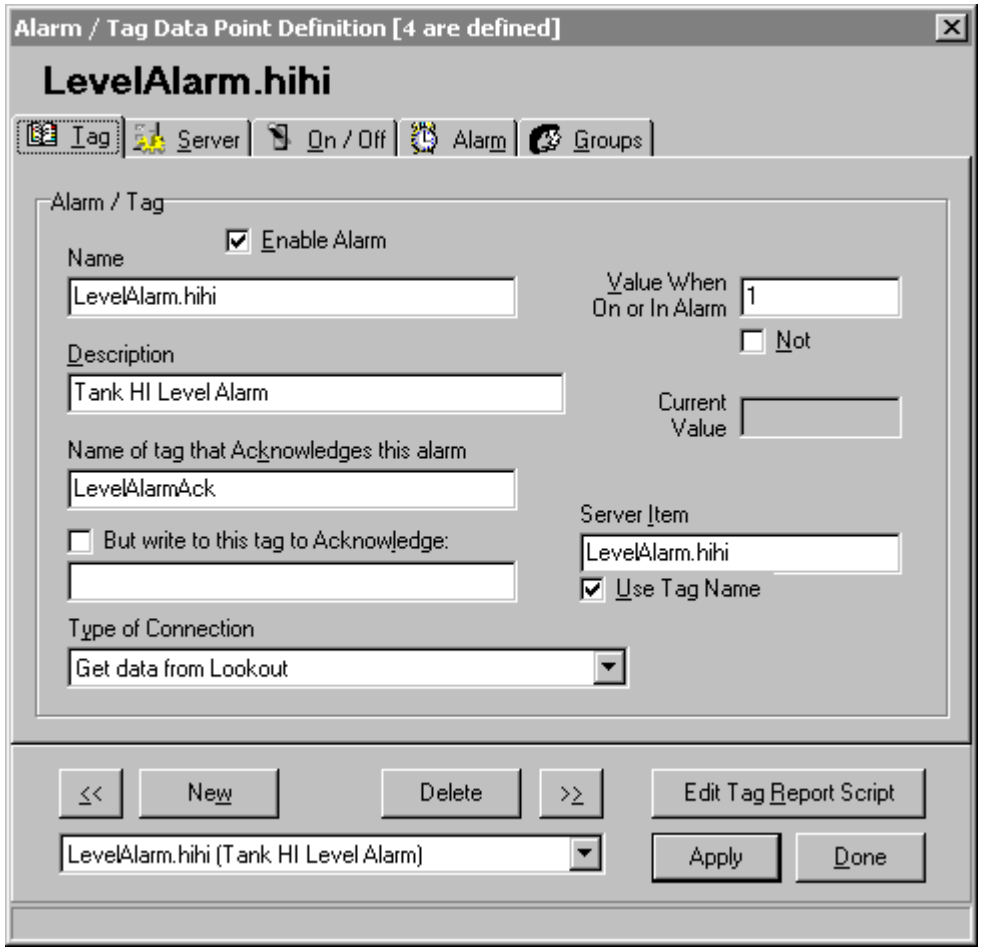
Options are configured as follows:

Signal
The input signal is the TankLevel pot.

Hi-Hi level, Hi level, and so on
These setpoints are represented by additional pots.

Configuring a Lookout Numeric Alarm Tag in SCADAlarm

The following is how the numeric alarm as is is configured in SCADAlarm:



Thresholds are represented by the .hihi, .hi, .lo, and .lolo dot fields.

Using SCADAlarm with Rockwell® Software RSView®32™

Information is provided on how to connect SCADAlarm to RSView®32™. It is assumed that you have working knowledge of SCADAlarm and RSView32.

Important! Testing was performed with SCADAlarm 6.0 and RSView32 6.3. This information may not be valid in other versions of the HMI package. Also, results may be different with SCADAlarm patches installed.

Configuring RSView32 as the Data Server

For general information on configuring servers, see "Configuring Server Properties for an Alarm Tag" on page 70.

To configure RSView32 as the data server, use **RTDATA** as the application name and the name of your project as the topic.

The item name for RSView32 will be the tagname.

RSView32 Startup Options and/or Requirements

The RSView32 DDE Server, which makes database values available for DDE clients (such as SCADAlarm), must be configured to start when RSView32 is started.

To configure startup

1. In the Project window, click the **Edit Mode** tab.
2. Select the **System** folder, then choose **Startup**.
3. Select the **OPC/DDE Server** check box.

   This is the same as setting the DDEServerON /NetDDE macro variable. If you enter this in a macro directly, you must have the /NetDDE flag if you are using this over a network.
4. In the **Project Edit** window, select the **Logic and Control** folder, then choose **Macro**.
5. Create a macro. The macro should consist of at least the following statement:

   ```
   RTDataWriteEnable
   ```

   The RTDataWriteEnable statement enables DDE pokes from external applications, such as SCADAlarm
6. Go back to the **Startup** window.
7. Select the **Startup Macro** check box and select the macro you just created.

Alarm Acknowledgement for RSView32

Unlike InTouch, RSView32 does not have a built-in .ack field that allows for easy acknowledgement.

If you want the capability to acknowledge alarms at the HMI individually from SCADAlarm, you must specify a separate tag (bit) that acknowledges the alarm.

The ack bit is a separately defined digital tag in the RSView32 tag database. Click **Auto Reset** to have the ack bit reset upon new occurrence of the alarm.

Within SCADAlarm, verify that the acknowledgement option is set to allow acknowledgements to be sent to and accepted from the HMI (by clicking the **Both** option). For more information, see "Configuring Alarm Acknowledgement Parameters" on page 115.

SCADAlarm has always poked all data types as a string type; the HMI then translates accordingly. However, RSView32 cannot handle integer, float, or binary values poked as a string. Because of this, SCADAlarm supports the inclusion of the data type as part of the DDE poke method. This feature is disabled by default, and can be activated by modifying the SCADALRM.INI file [System Parameters] section as follows:

Use Data-type-aware POKE Flag=1

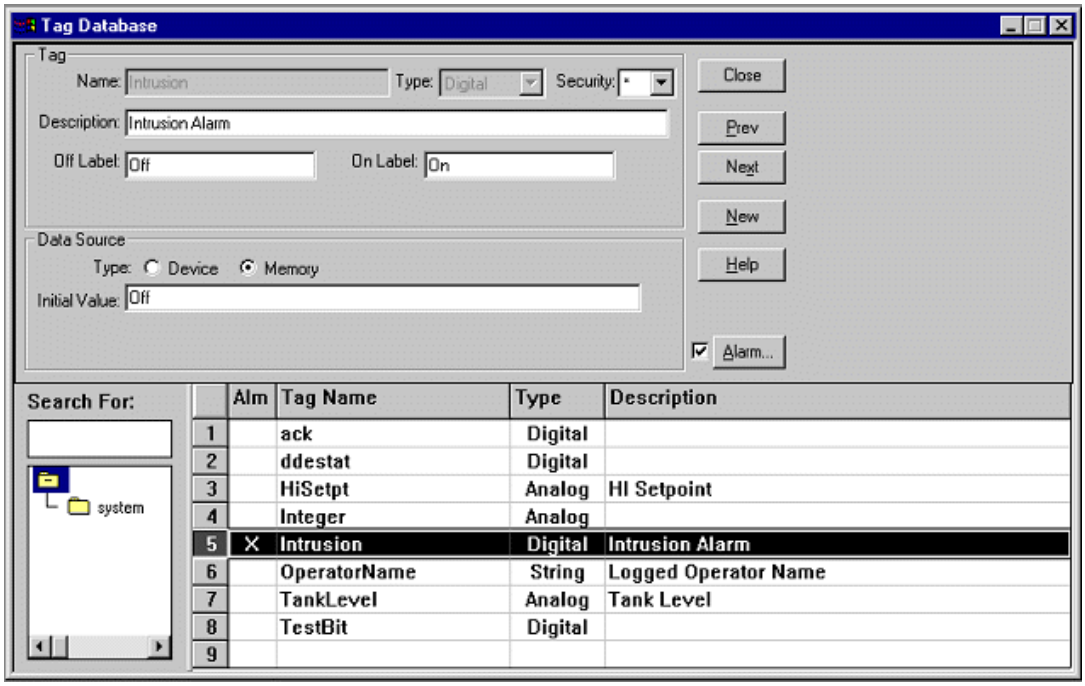
Configuring an Alarm Tag in RSView32

RSView32 supports three data types: digital, analog, and string.

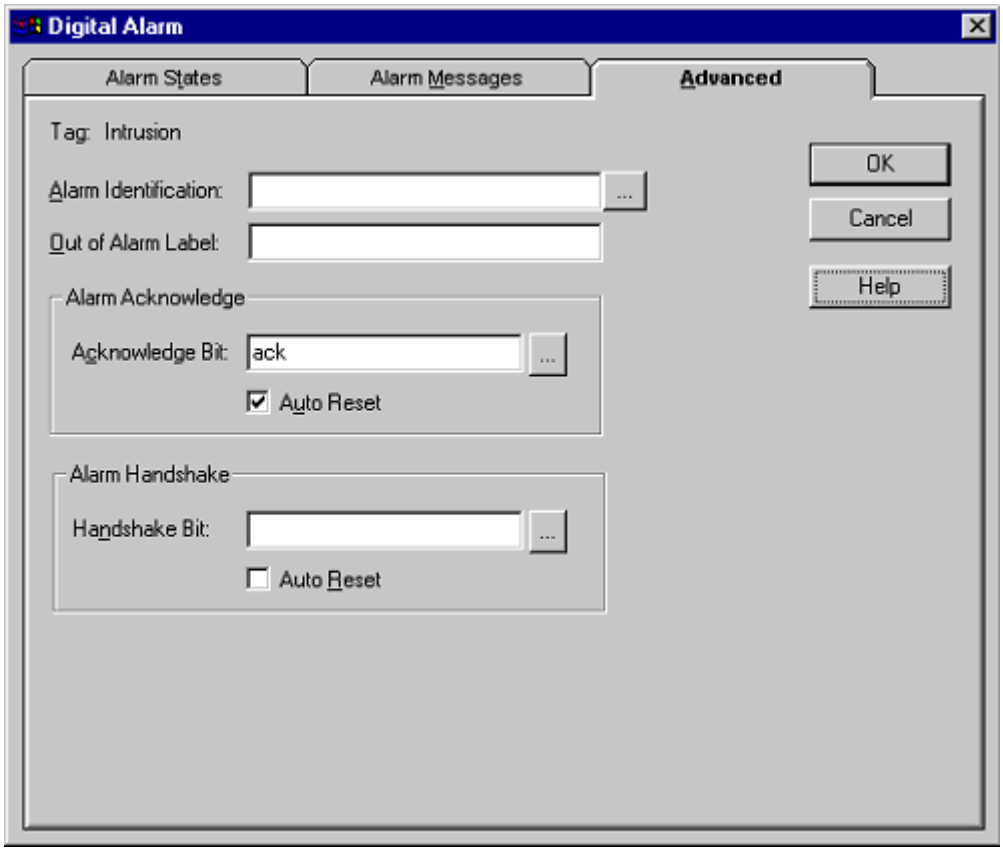
You must enable RSView32 alarming. It is not enabled by default.

1. In the **Project** window, select the **Edit Mode** tab.
2. Select the **System** folder, then choose **Startup**.
3. Select the **Alarming** check box.

The following is a sample digital alarm, called **Intrusion**:

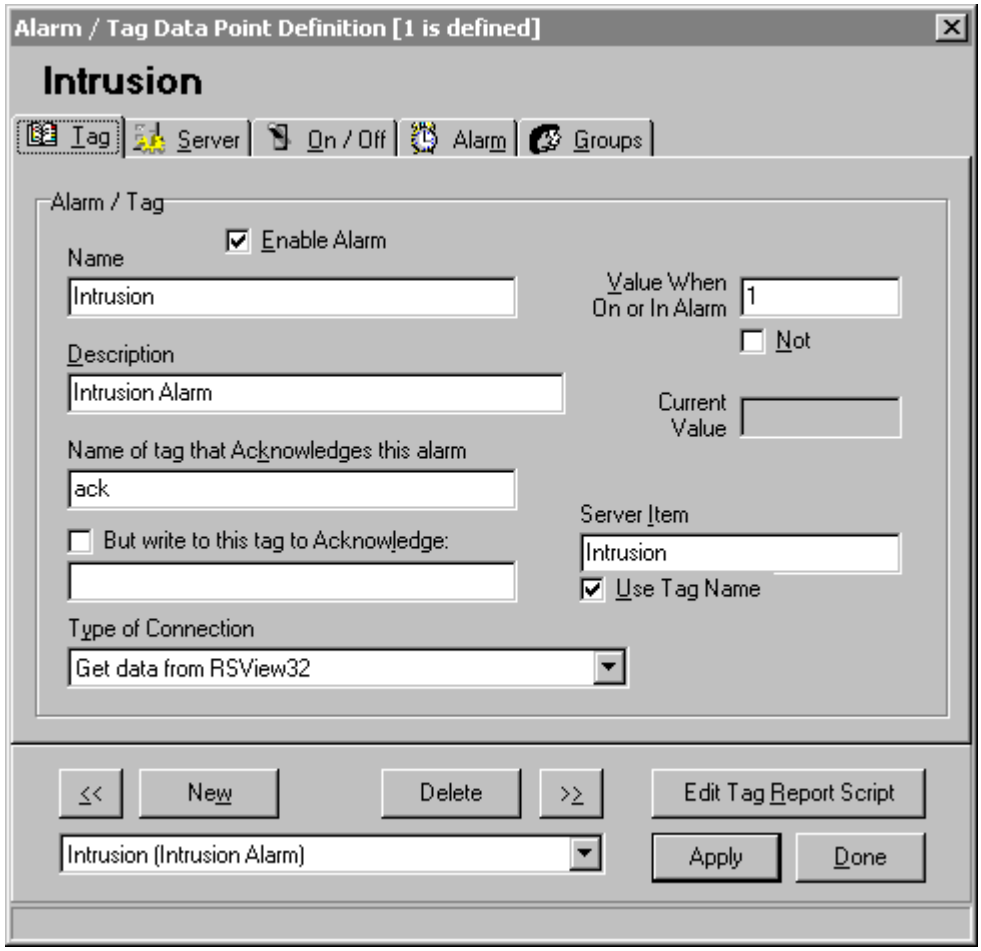


4. Click **Alarm**:



Configuring an RSView32 Discrete Alarm Tag in SCADAlarm

The following is the **Intrusion** alarm as it should be configured in SCADAlarm:



Using SCADAlarm with Siemens® SIMATIC® WinCC®

Information is provided on how to connect SCADAlarm to WinCC. It is assumed that you have working knowledge of SCADAlarm and WinCC.

Important! Testing was performed with SCADAlarm 6.0 and WinCC 6.0. This information may not be valid in other versions of the HMI package. Also, results may be different with SCADAlarm patches installed.

Note **Binary** and **discrete** are used interchangeably throughout this documentation. WinCC refers to binary for discrete.

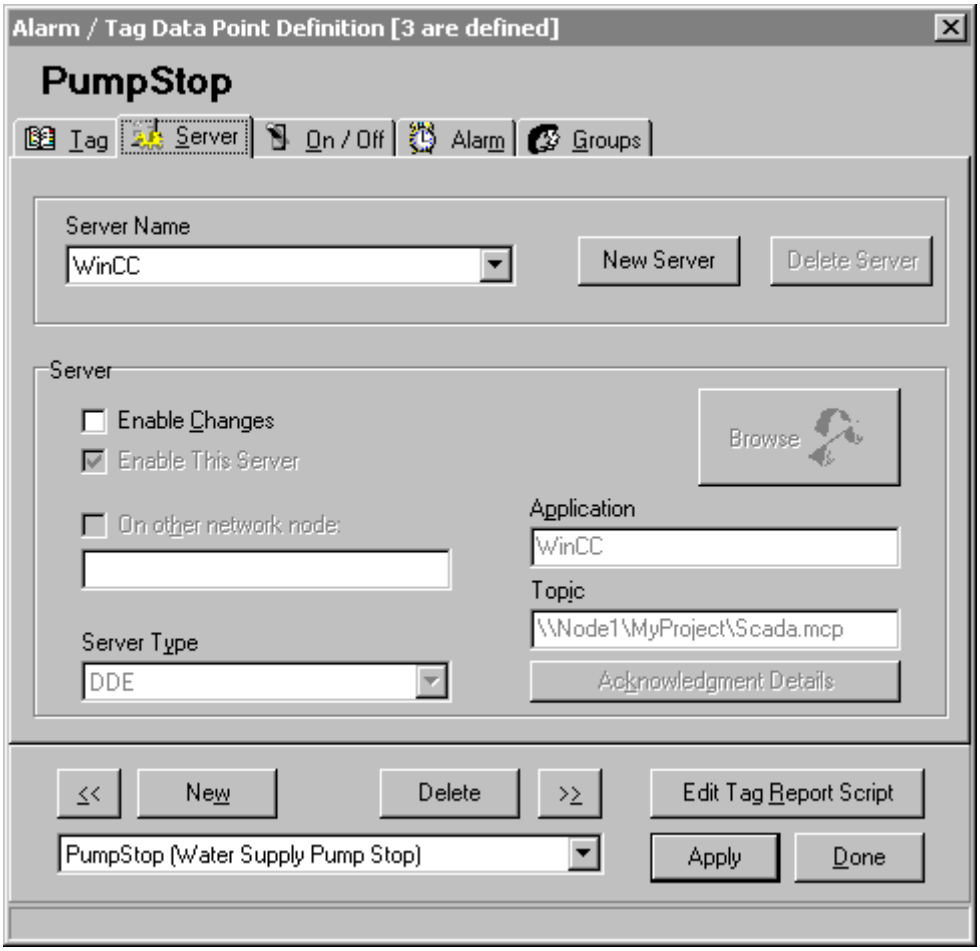
Configuring WinCC as the Data Server

For general information on configuring servers, see "Configuring Server Properties for an Alarm Tag" on page 70.

To configure WinCC as the data server, use **WinCC** as the application name and the project name (**\\NodeName\ProjectPath\Scada.MCP**) as the topic.

The item name for WinCC will be the tagname.

For example:



WinCC Startup Options and/or Requirements

You must configure WinCC to auto start the DDE Server (the DDE Server is not started by default).

For information on how to automatically start SCADAlarm using the WinCC and DDE server (WinCC) auto start feature, see the WinCC documentation.

Alarm Acknowledgement for WinCC

WinCC alarm tag types need an extra tag to use for acknowledgment. This is a binary type of tag. In the WinCC tag database, create one such tag for each alarm that needs to be acknowledged. Be sure each acknowledge tag has a unique I/O address. A single tag can be used for several or all alarm tags if acknowledging alarms by group(s) is desired.

In the SCADAlarm **Alarm / Tag Data Point Definition** dialog box, specify the acknowledge tag in the **Name of tag that Acknowledges this alarm** box.

For example, PumpStop_Ack can be a separate acknowledge tag for the PumpStop alarm tag. Level_Ack can be one group acknowledge tag for all the tanks level alarms.

When an alarm is acknowledged from SCADAlarm (either over the telephone or from the SCADAlarm Alarm window), the tag specified in the **Name of tag that Acknowledges this alarm** box is set to a 1.

Within SCADAlarm, verify that the acknowledgement option is set to allow acknowledgements to be sent to and accepted from the HMI (by clicking the **Both** option). For more information, see "Configuring Alarm Acknowledgement Parameters" on page 115.

Configuring an Alarm Tag in WinCC

For information on configuring alarms in WinCC, see the WinCC documentation.

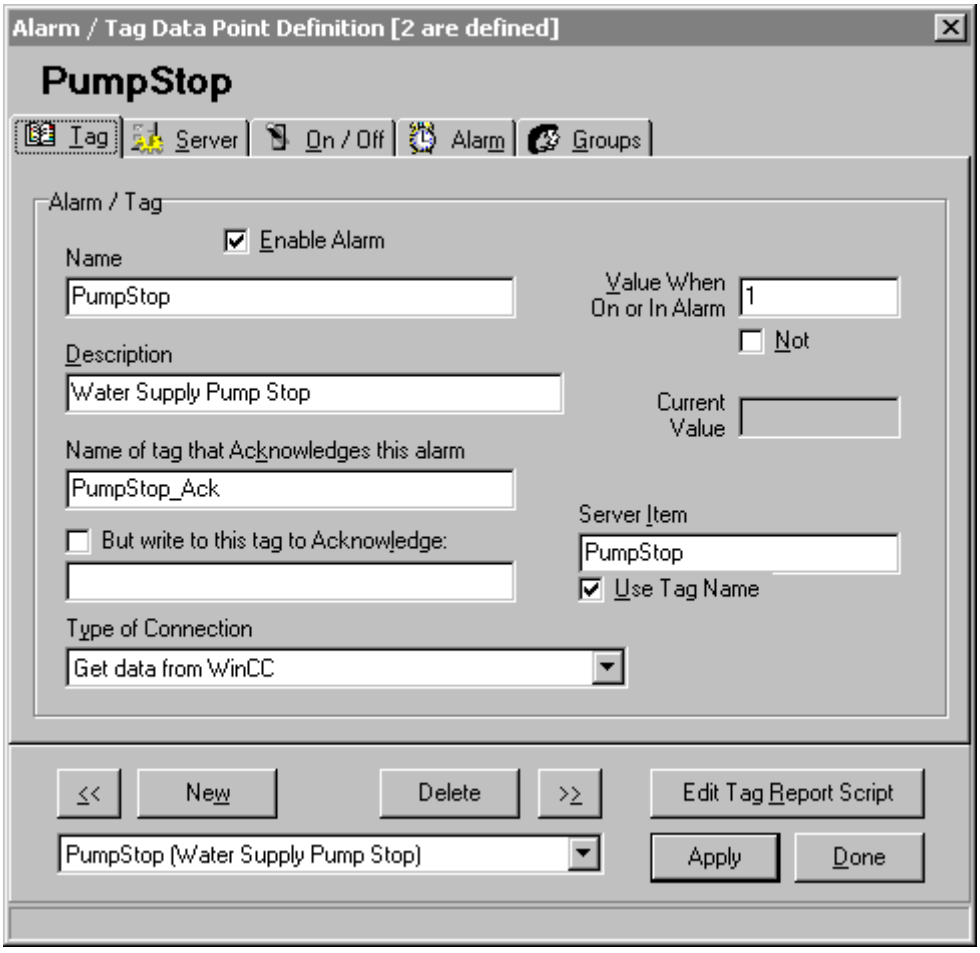
Configuring a WinCC Discrete Alarm Tag in SCADAlarm

To configure a discrete alarm

1. In the **Name** box, use the alarm tag name exactly as it appears in the WinCC Tag database.

   For example, if the discrete alarm tag is PumpStop in WinCC, enter PumpStop.

2. In the **Value When On or In Alarm** box, enter the alarm tag's state as 1 or 0, depending on the alarm condition in the WinCC Tag database.



3. If you want the SCADAlarm tag's naming convention to be different than the WinCC project tags, click to clear the the **Use Tag Name** check box and use the WinCC tagname only in the **Server Item** and **Name of the tag that Acknowledges this alarm** boxes.

If a tag name is configured in SCADAlarm, but it does not exist in WinCC, "junk" characters will be returned for the current value.

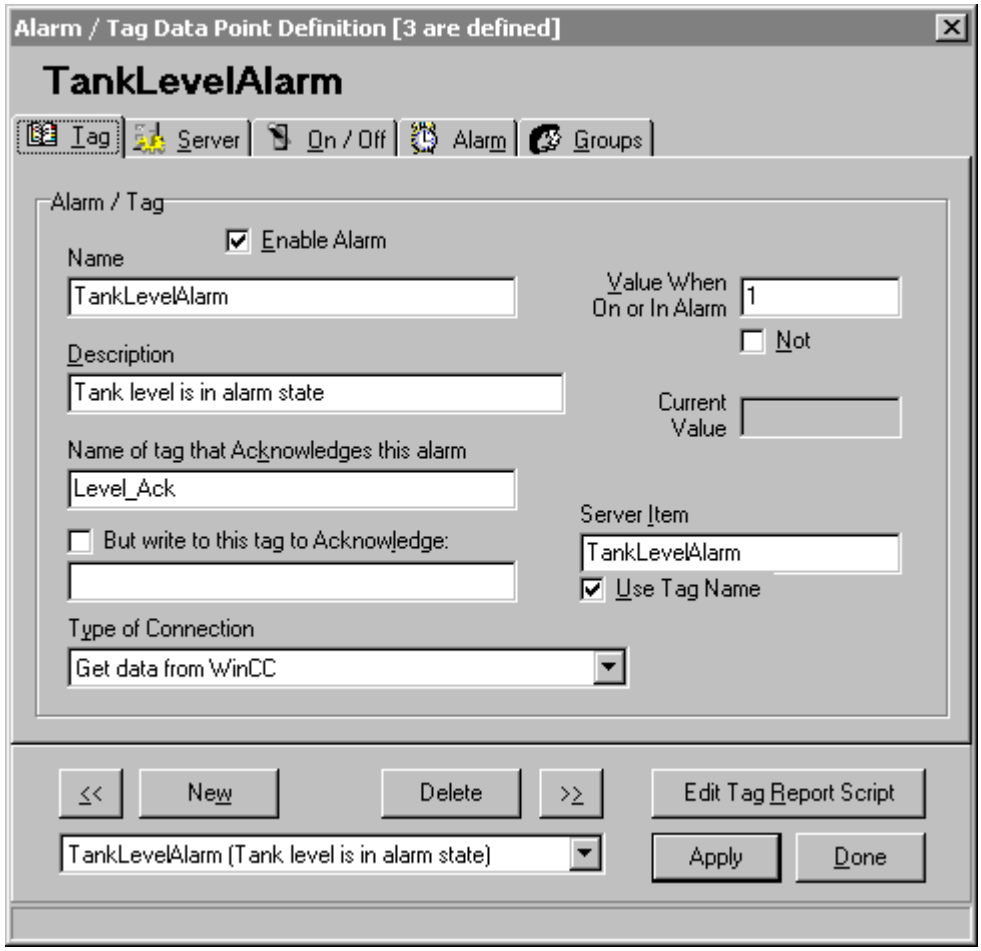
Configuring a WinCC Analog Alarm Tag in SCADAlarm

A separate binary tag is required for each analog base tag.

To create an analog alarm

1. Create a Internal Binary tag for each analog base tag in the WinCC Tag database. See the WinCC documentation for details on how to create an analog base tag and its alarm tags.
2. Start SCADAlarm.

3. In the **Name** box, use the alarm tag name (Internal Binary tag) exactly as it appears in the WinCC tag database. This tag will be set to "1" when the analog base tag threshold (HiHi, Hi, Lo, Lolo) alarm level is met. For example, if the analog base tag is TankLevel, then its alarm tag TankLevelAlarm will have a value of "1" whenever the value of TankLevel exceeds the alarm limits.



If a tag name is configured in SCADAlarm, but it does not exist in WinCC, "junk" characters will be returned for the current value.

A P P E N D I X A

Quick Reference Information

This appendix contains information for use by anyone who will be "on call" through the SCADAlarm system.

You may copy any of the information in this quick reference section.

Contents

What to Do When You are Called

To handle a call

1. Answer the telephone.

   SCADAlarm will announce itself.

2. Follow the prompts to log in, if required.

   For more information, see "Logging in over the Telephone" on page 220.

Because the hardware is detecting that the telephone has been answered, there may be a slight delay (up to six seconds). Please stay on the line.

Calling into the SCADAlarm System

To call in

1. Call the SCADAlarm telephone number.

   SCADAlarm will answer the telephone and then announce itself.

2. Follow the prompts to log in, if required.

   For more information, see "Logging in over the Telephone" on page 220.

3. Since SCADAlarm uses its modem for local annunciation, recording new files, playing files, calling another operator or pager, and so on, you may get a busy signal. Please call back after a brief delay.

Logging in over the Telephone

To log in over the telephone

1. When SCADAlarm prompts "Please enter your three-digit operator ID code," use your phone's Touch-tone® keys to enter the three-digit code you were given by the SCADAlarm system administrator.
2. When prompted to "Please enter your four-digit PIN number," enter the four-digit code you were given by the system administrator.
3. The system will either respond with a greeting or fail to recognize you and start the login process over again.
4. If the login is successful, a list of options will be spoken. These options may be proceeded by a welcome greeting such as "Accepted!" and/or "There are unacknowledged alarms." **You are allowed three chances to successfully log in.**

My Operator ID: ___ ___ ___

My PIN Number: ___ ___ ___ ___

SCADAlarm Telephone Number:

What to Expect during a Call

Whether you are calling in to SCADAlarm or being called by SCADAlarm, the sequence of the "conversation" is the same.

1. SCADAlarm will announce itself with "This is the SCADAlarm. Please enter your operator ID code."
2. Log in to the system, if required.

   For more information, see "Logging in over the Telephone."
3. When you are recognized, you will hear either "Hello, <your name>" or "Accepted!" If you were called (because of an alarm or if you happened to call while there is an unacknowledged alarm), you will hear "There are unacknowledged alarms."
4. You will hear a list of options. You will hear each option followed by the Touch-tone® key. For example, "To hear active alarms, press one."

Note Remember that the 0 key on your telephone will indicate to the system that you want to hang up if you are at the main (top) menu, or it will return to the main menu from any other menu; therefore, the 0 key will navigate out of the telephone call.

5. If you are making a change to a number (such as a set-point), remember that there are safeguards against entering an erroneous value:

   A. The current value is spoken.

   B. You enter the new value, using the star (*) key for a decimal point, and the pound (#) key to terminate the number.

   C. The number you just entered is read back to you with the usual confirmation request "If this is OK, press 9. To go back, press 6." *before* it is passed on to the SCADA system.

6. In order for SCADAlarm to consider its job complete, all alarms must be acknowledged. If the call fails or is terminated prematurely, the system will go on to the next phone number on the on-call list. If you hang up before all alarms are acknowledged, the following warning will be spoken "There are unacknowledged alarms. If this is OK, press 9. To go back, press 6." Either way, SCADAlarm will notify you of its acceptance of your hang-up request, announce the time of day, and say "Goodbye!"

7. Finish the conversation with SCADAlarm by logging out. Press 0 before you hang up.

All telephone, pager, and e-mail activity is recorded in the event log.

APPENDIX B

Voice Prompt Script Templates

Use the following script templates for your menu voice prompts.

Contents

Top Menu Voice Prompt File Script

Menu Name: Top Menu rev_____ by_____

Menu File: _____.wav

Speech:

_____ press _____1

_____ press _____2

_____ press _____3

_____ press _____4

_____ press _____5

_____ press _____6

_____ press _____7

_____ press _____8

_____ press _____9

_____ press _____*

_____ press _____#

To hang up, press 0.

Always work from a written script when recording, no matter how simple the message.

(This page may be copied)

Menu Voice Prompt File Script

Menu Name: _____ rev_____ by _____

Menu File: _____.wav

Speech:

_____ press _____1

_____ press _____2

_____ press _____3

_____ press _____4

_____ press _____5

_____ press _____6

_____ press _____7

_____ press _____8

_____ press _____9

_____ press _____*

_____ press _____#

To return to the TOP MENU, press 0.

Always work from a written script when recording, no matter how simple the message.

(This page may be copied)

Alarm, Tagname, and Miscellaneous Voice Prompt Scripts

Filename: _____.wav

Tagname: _____ by_____

Speech: _____
_____

Filename: _____.wav

Tagname: _____ by_____

Speech: _____
_____

Filename: _____.wav

Operator: _____ by_____

Speech: _____
_____

Filename: _____.wav

On-Call Group: _____ by_____

Speech: _____
_____

Always work from a written script when recording, no matter how simple the message.

(This page may be copied)

A P P E N D I X C

System Information

For your reference, information regarding SCADAlarm registry entries, parameters in the SCADAlarm.ini file, system file naming conventions, and the contents of the system voice prompt files is provided.

Contents

Registry Entries

The SCADAlarm registry key appears in the following location:

HKEY_Local_Machine\Software\Wonderware\SCADAlarm

Sub-keys are described in the following table. These values may be Boolean (0 or 1), string, integer, or "special format" (where noted). Most are set from within SCADAlarm.

Key	Data Type	Default	Comments
Application Directory	string	Set by installer.	This value is set by the SCADAlarm installation program and points to the SCADAlarm data files.
VConvert Last Dir	string	Same as the **Application Directory** key value.	VConvert.exe maintains this.

SCADALRM.ini File

The SCADAlrm.ini file is located in the directory specified by the **Application Directory** registry value. Not all of these defaults are present on first installation; some defaults are set on starting SCADAlarm for the first time.

Values may be *Boolean* (0 or 1), *string*, *integer, or "special format" (where noted)*. Most are set from within SCADAlarm.

System Parameters

The system parameters are described in the following table:

Parameter	Data Type	Default	Comments
DDE Server Name	string	VIEW	
DDE Topic Name	string	TAGNAME	
Logging Enable Flag	Boolean	1	
Log To Printer Flag	Boolean	0	
Printer Port Name	string	LPT1	
Logging Base Filename	string	SCADAlarm Logfile.txt	Prior to version 5.0, this parameter was named **Logging Filename**.
Include Date in Logging Filename Flag	Boolean	0	
Acknowledgement Window Always-on-top Flag	Boolean	0	
Never Show Acknowledgement Window Flag	Boolean	0	
Acknowledgement Window Enable Color Flag	Boolean	1	
Main Window Left Margin	integer	--	(used internally)
Main Window Top Margin	integer	--	(used internally)
Ack. Window Left Margin	integer	--	(used internally)
Ack. Window Top Margin	integer	--	(used internally)
Ack. Window Width	integer	--	(used internally)
Ack. Window Height	integer	--	(used internally)
Send Acknowledgments to SCADA Flag	Boolean	1	
Get Acknowledgments from SCADA Flag	Boolean	1	
This computer telephone number	string	Set by installer	Used in message formats for the [S] variable.
Pager Service Access Number	string	--	(used internally)
Alphanumeric Pager Service Maximum Length	integer	80	
Numeric-only Pager Service Maximum Length	integer	30	

Parameter	Data Type	Default	Comments
Maximum number of alarms in one pager session	integer	5	
Maximum number of alarms in one eMail message	integer	1000	
Maximum Log File Size (kbytes)	integer	4096	
Maximum Log File Size is Limited Flag	Boolean	0	
Delayed-Answer Ring Number	integer	5	
Local Annunciation Repeat Interval (sec)	integer	90	
Group ID (name) for System Test	string	0 (Backup)	This is a special format. The leading integer is the group's internal ID number, which is parsed by SCADAlarm, and the name in parentheses is included for readability.
Group ID (name) for email Reports	string	0 (Backup)	This is a special format. The leading integer is the group's internal ID number, which is parsed by SCADAlarm, and the name in parentheses is included for readability.
Time span of email Reports (hours)	integer(0-24)	24	
Include my-number in voice pages Flag	Boolean	1	
Numeric page format for system test	string	[S]	
Alphanumeric page format for system test	string	Hello, [O], SCADAlarm is working for you ([T])!	
eMail System Enabled Flag	Boolean	0	
eMail CC account on all outgoing Flag	Boolean	1	
eMail account login name	string	mylogin	
eMail account eMail address	string	me@proxyemail.com	
eMail SMTP server name	string	mail.proxyemail.com	
Selected Text-to-speech Voice	string	Microsoft Mike	
Enable Text-to-speech Flag	Boolean	1	

Parameter	Data Type	Default	Comments
Selected Text-to-speech Speaking Rate	Boolean	0	
Enable remote hangup (on-hook) detection (if hardware supports it) Flag	Boolean	1	
Display Tool Tips Flag	Boolean	1	
Display Tool Bar Flag	Boolean	1	
Display Status Bar Flag	Boolean	1	
Minimize on logout Flag	Boolean	0	
Minimize on startup Flag	Boolean	0	
Last Operator Edit Mode Flag	Boolean		(used internally)
Use Data-type-aware POKE Flag	Boolean	0	

The following entries may be added or edited only directly (for example, using Notepad) before starting SCADAlarm:

Parameter	Data Type	Default	Comments
eMail SMTP port	integer	25	For all practical purposes, the value must be 25, which designates the standard SMTP port.
eMail forma includes timestamp Flag	Boolean	1	Set this value to 0 if you do not want time of the alarm occurrence, clear, and acknowledgment to be included in an e-mail message.
eMail connection test interval (Sec)	integer	(not present) 10	The time, in seconds, between tests for the e-mail host.
eMail connection timeout (mS)	integer	(not present) 6000	The time, in milliseconds, to connect to the e-mail server.
Dialer delay after first alarm (seconds)	integer	5	A delay to ensure that the local annunciation is started first.
Include Tag Description in Logfile Flag	Boolean	0	When this is set to 1, SCADAlarm will place the description field in the log file wherever a tagname appears.
No. of consecutive bad logins for hacker detection	integer	10	This is used for the Bad Login data type.
Logging watchdog test interval (minutes)	integer	0	When this is a non-zero value, SCADAlarm will log a message every *N* minutes indicating that it is still running. To disable the logging, set this value to 0.

Parameter	Data Type	Default	Comments
Log All Local Annun Scripts Flag	Boolean	0	When this is set to 1, SCADAlarm will log each alarm name as it is annunciated.
Suppress audition-box Flag	Boolean	0	When this is set to 1, SCADAlarm will accept a .wav file selection without offering to play it.
DDE/SuiteLink Network Test Timeout (ms)	integer	not present	--
Disable Permanent Debug Mode	Boolean	not present	This is a flag used in debugging that has no effect on released versions.
Suppress confirmation in get-value sequence	string	not present	This enables suppression of the confirmation before sending a DTMF-entered numeric entry on to the data server. In order to work, this MUST be set to: Invensys Systems, Inc. Will NOT Be Liable Note that this mode of operation is not recommended by Wonderware and use of it may result in an operator not being aware of his or her numeric-entry error. You must update the entry if it reflects either of these settings: Fluid Solutions, Inc. Will NOT Be Liable Wonderware Corporation Will NOT Be Liable
Schedule change requires admin Flag	Boolean	0	When this is set to 1, SCADAlarm will restrict all operator on-call preference changes to administrators.
Show Driver Debug and System Status at Startup Flag	Boolean	--	
Show time in MS instead of date in logfile Flag	Boolean	--	
Pager System Access Password	string	--	

Parameter	Data Type	Default	Comments
Prefix to Alpha Page to Also-notify Groups	string	--	Used to change the "Note-only" statement at the beginning of an alphanumeric page or e-mail message to the "also notify" group.
Number of rightmost characters for CPID match	integer	--	When automatic and restricted logins are used, the CPID is delivered with the area code, which will not match a local number. Also, a long distance number will begin with "1-," which will not match the CPID information. For numbers in the United Status, use 7 for a local number match, and 10 for an area code match. Non-DTMF characters are ignored and not counted; "1---" counts as only one digit.

Telephone Driver Parameters

The telephone parameters are described in the following table:

Parameter	Data Type	Default	Comments
Telephone I/O Port Name	integer		Set by installer.
Telephone Driver Maximum Recording Time (sec)	integer	30	
Line Test Telephone Number	string		Set by installer. This is used for the telephone line test, expecting a **busy** CP signal.
Line Test Frequency (minutes; 0 to disable)	integer	0	
TAPI Local Annunciation Device ID	integer	--	Internal use only.
TAPI Outgoing IVR Device ID	integer	--	Internal use only.
TAPI Incoming IVR Device ID	integer	--	Internal use only.
TAPI Numeric Pager Device ID	integer	--	Internal use only.
TAPI Alphanumeric Pager Device ID	integer	--	Internal use only.

The following telephone driver parameters may be added or edited only directly (for example, using Notepad) before starting SCADAlarm:

Parameter	Data Type	Default	Comments
No. of NO DIALTONE for failed-phone-line detection	integer	5	
Telephone Driver Inactivity Timeout (sec)	integer	120	
Telephone File Path Name	string	\<application directory>\VoxFiles	Set by installer
Phone Interface Options Bitmap	string	00000002	
Local Speaker Volume	integer(0-255)	not present	
Pager Service Comm (RateParityBits)	string	33600e7	This is a special format. The first number is the maximum bit rate, the letter is the parity setting, and the last number is the data bits per word. Currently, acceptable values are: • 300, 1200, or 33600 bps • e, o, or n parity • 7 or 8 data bits Typical values also include 300n8 or 1200n8. Note that modems can typically autobaud to 300 bps, but the modulation style remains V.90, instead of Bell 303 (300 bps) or Bell 212A (1200 bps). Therefore, the bps settings of 1200 and 300 actually select the appropriate modulation style, and the 33600 setting allows any negotiable bit rate that can use V.90 modulation.
Line Test Timeout (sec)	integer	15	
Load Onscreen Demomode DLL Flag	Boolean	0	
TAPI Incoming IVR RIFF Format	string	8000,16,1	Set to 8000,8,1 for Dialogic cards.
TAPI Outgoing IVR RIFF Format	string	8000,16,1	Set to 8000,8,1 for Dialogic cards.

Parameter	Data Type	Default	Comments
TAPI Local Annunciation IVR RIFF Format	string	8000,16,1	Set to 8000,8,1 for Dialogic cards.
TAPI Outgoing IVR Device Phone Number	string		By default, the system phone line test number is used.
TAPI Incoming IVR Device Phone Number	string		By default, the system phone line test number is used.
TAPI Numeric Pager Device Phone Number	string		By default, the system phone line test number is used.
TAPI Alphanumeric Pager Device Phone Number	string		By default, the system phone line test number is used.
Audio Buffer Size (1024-32768 bytes)	integer	8192	If skips in audio are experienced, increase this value. If the audio takes too long to stop after pressing a DTMF key, decrease this value.
Log Driver Debug Window to File Flag	Boolean	0	Set to 1 to have the contents of the debug window written to the log file, "voxdrv.txt."

Telephone Parameters

The telephone parameters are described in the following table:

Parameter	Data Type	Default	Comments
Retry Delay (sec)	integer	30	
Retry Limit	integer	2	
Max No. of unanswered prompt repeats	integer	3	
Pager Acknowledgment Delay (minutes)	integer	15	
eMail Acknowledgment Delay (minutes)	integer	15	

Parameter	Data Type	Default	Comments
Allow Asterisk In Numeric Pages Flag	Boolean	1	
Alphanumeric Pager Protocol	string	0 (TAP Protocol)	This is a special format. The leading integer is the format number, which is parsed by SCADAlarm, and the name in parentheses is included for readability. Currently, acceptable values are: • 0 (TAP Protocol) • 1 (UCP Protocol)

The following telephone parameters may be added or edited only directly (for example, using Notepad) before starting SCADAlarm:

Parameter	Data Type	Default	Comments
Phone Login Attempts Allowed	integer	3	

System File Naming Conventions

SCADAlarm uses the following file name conventions.

File Name	File Function
SCALRM.EXE	This is SCADAlarm
VOXDRV32.DLL	Hardware function state machinery
VOXAPI32.DLL	Low-level driver support
SFCVTL32.DLL	File format conversion
SWWB.DLL	Wonderware Attribute Browser support
SWWTE.DLL	Text-to-speech support
WWSALIC.DLL	Wonderware license support wrapper
SCADALRM.INI	Parameter file
*.wav	Recorded voice (prompt) files
A_*.wav, B_*.wav, C_*.wav	Menu prompts for administrator-only, non-administrator, and both (common)
O_*.wav	Operator greeting
T_*.wav	Tagname and units. For example, "The tank level is …"
Z_*.wav	System prompt files
VOXFILES\$S!A??????.wav, VOXFILES\$S!A??????.txt	Temporary files used by text-to-speech. These files may be deleted at any time. They are normally deleted automatically.

File Name	File Function
*.CAR	System files (operator, tag database, tag report scripts, servers, menu tree, operator schedules)
*.CSK	Control schedule files

System Prompt File Contents

These files are required for SCADAlarm to function properly. Changing their contents may result in improper operation.

Filename	Contents
Z_TOP1.wav	Top Menu: To hear active alarms, press 1; to hear unacknowledged alarms, press 2; to acknowledge all alarms, press 3; to hang up, press 0.
Z_ACCPT.wav	Accepted.
Z_ACKED.wav	Alarm has been acknowledged.
Z_ACKQ.wav	To acknowledge, press nine. To continue without acknowledging, press six.
Z_ACKQ0.wav	To acknowledge, press nine. To continue, press six.
Z_ALARM.wav	In alarm.
Z_BYE.wav	Goodbye.
Z_BYE1.wav	Goodbye.
Z_CANCL.wav	Cancelled.
Z_CLEAR.wav	Cleared.
Z_EMPTY.wav	This list is empty.
Z_ISOKQ.wav	If this is OK, press nine. To go back, press six.
Z_NUVAL.wav	Enter a new value. For the decimal point, press the star (*) key. To terminate your entry, press the pound (#) key. To cancel this function, press the pound key only.
Z_NVVER.wav	The new value has been sent to the system. Please verify that the new value you have entered has been accepted correctly.
Z_OP_AC.wav	Please enter your 4-digit PIN number.
Z_OP_AC0.wav	Please enter your PIN number.
Z_OP_ID.wav	Please enter your 3-digit operator ID code.
Z_OP_ID0.wav	Please enter your operator ID code.
Z_SYS_ID.wav	This is SCADAlarm.
Z_EMARQ.wav	The e-mail request has been processed.
Z_EMACAN.wav	The e-mail request has been cancelled.

Filename	Contents
Z_ONCALL.wav	You are now on-call.
Z_THX.wav	Thank you.
Z_THX1.wav	Thank you.
Z_UNACK.wav	There are unacknowledged alarms.
Z_AM.wav	A.M.
Z_PM.wav	P.M.
Z_JAN.wav	January
Z_FEB.wav	February
Z_MAR.wav	March
Z_APR.wav	April
Z_MAY.wav	May
Z_JUN.wav	June
Z_JUL.wav	July
Z_AUG.wav	August
Z_SEP.wav	September
Z_OCT.wav	October
Z_NOV.wav	November
Z_DEC.wav	December
Z_SUN.wav	Sunday
Z_MON.wav	Monday
Z_TUE.wav	Tuesday
Z_WED.wav	Wednesday
Z_THU.wav	Thursday
Z_FRI.wav	Friday
Z_SAT.wav	Saturday
Z_0.wav	Zero
Z_1.wav	One
Z_2.wav	Two
Z_3.wav	Three
Z_4.wav	Four
Z_5.wav	Five
Z_6.wav	Six
Z_7.wav	Seven
Z_8.wav	Eight
Z_9.wav	Nine
Z_10.wav	Ten
Z_11.wav	Eleven
Z_12.wav	Twelve
Z_13.wav	Thirteen

Filename	Contents
Z_14.wav	Fourteen
Z_15.wav	Fifteen
Z_16.wav	Sixteen
Z_17.wav	Seventeen
Z_18.wav	Eighteen
Z_19.wav	Nineteen
Z_20.wav	Twenty
Z_30.wav	Thirty
Z_40.wav	Forty
Z_50.wav	Fifty
Z_60.wav	Sixty
Z_70.wav	Seventy
Z_80.wav	Eighty
Z_90.wav	Ninety
Z_100.wav	Hundred
Z_1E3.wav	Thousand
Z_1E6.wav	Million
Z_1E9.wav	Billion
Z_1E12.wav	Trillion
Z_POINT.wav	Point
Z_MINUS.wav	Minus
Z_NUMOV.wav	This number is too large to say.
Z_OCLCK.wav	O'clock
Z_PAUSE.wav	[500 milliseconds of silence]

Glossary

access number

The telephone number that SCADAlarm calls to access the alphanumeric paging service modem.

acknowledgement

The action of recording the fact that the computer has notified a person about an issue, and that person is now responsible for dealing with the issue.

acknowledged alarm

An alarm whose "condition" has been acknowledged, either from the SCADAlarm software, over the telephone, or from the HMI system. Once an alarm has been acknowledged, SCADAlarm will no longer attempt to notify an operator about the alarm. An alarm's acknowledge state is independent of its active state.

active alarm

An alarm whose alarm "condition" is currently active. For example, if a tank level is currently above its high level set-point, the HIGH ALARM is active. An alarm's active state is independent of its acknowledge state.

alphanumeric

A pager capable of displaying both alphabetic and numeric characters. Cellular phones, especially GSM and PCI phones, usually have this capability.

also-notify group

The group of operators that will receive a one-time "notification" in the event of an alarm. SCADAlarm will call the first available phone number for each operator in the group. No acknowledgements are required.

call group

The group of operators that are called in the event of an alarm. SCADAlarm will call operators in the order they appear in the list (and based upon operator availability) until the alarm is acknowledged.

Call Progress (CP)

These signals are provided by the telephone company to give an indication to the caller of the success or failure of various phases of a telephone call. Examples include dial tone, ringback, and busy signals.

Calling Party Identification (CPID)

The process by which the identity of the call origination station is made known to SCADAlarm by the telephone company equipment. Also known as "caller ID."

Coder-decoder (Codec)

A bi-directional data-stream translator subroutine that typically runs on demand in real time; usually used in audio and video applications. This type of functionality is vital to a modem's successful voice operation with TAPI and SCADAlarm.

contact method

The device or "method" that SCADAlarm uses to contact an operator. SCADAlarm supports the following devices as contact methods: voice telephones, numeric pagers, alphanumeric pagers, voice pagers, and e-mail. Each operator may have up to four configured contact methods.

control schedule

The system-wide functionality schedule for SCADAlarm. The schedule can be configured to enable/disable calling methods, local annunciation, system tests, and alarm delays based upon time of day and day of week.

Dynamic Data Exchange (DDE)

The mechanism built into the Windows operating system that is used by SCADAlarm to query the HMI/SCADA system for data. Its addressing scheme consists of three components: application, topic, and item.

DDE Server

The application that provides DDE data to the DDE Client.

DDE Client

The application that requests DDE data from the server.

Dual Tone Multi Frequency (DTMF)

A system of signaling using two out of eight audio frequencies to represent sixteen different numerals, letters and symbols (0-9, A-D, *, #). Commonly known by the trade name Touch Tone®.

Global System for Mobile Communications (GSM)

1. The European cell phone and paging standard in use since 1981. In the United States, PCS is an adaptation of this standard. 2. A form of sound data compression (typically GSM 7.21) used in some voice modems and cell phones.

Graphical User Interface (GUI)

The SCADAlarm program used at the computer console for configuration and status monitoring. See also TUI.

Human-Machine Interface (HMI)

The software and hardware system that provides an interface to a machine system. See also SCADA.

ID code

A unique three-digit ID number that identifies each operator in the SCADAlarm system. This number is automatically assigned when the operator profile is added to the system. The operator provides the ID code during the login process over the telephone or when using the SCADAlarm application.

Interactive Voice Response (IVR)

A telephony technology that enables a system, such as SCADAlarm to accept user input in response to audible prompts.

item

The third component of the name of a DDE conversation. Used to specify the name of a specific datum supported by the server.

line

The TAPI term for a communications channel.

Message Exchange (MX)

A protocol used by Industrial Application Server for communication between platforms.

operator

A person that SCADAlarm will attempt to notify if an alarm condition occurs.

pager ID

The ID that uniquely identifies an alphanumeric pager. After connecting with the alphanumeric paging service (via the pager access number), SCADAlarm sends this code to identify the recipient of the pager message.

Personal Identification Number (PIN)

A four-digit number used in conjunction with the operator ID code during the login process at the computer console or over the telephone.

prompt

A signal from a computer to a human that it is ready for input. See also voice prompt.

Private Automatic Branch eXchange (PABX)

On-site equipment that mimics the telephone company's operation within an organization by providing inbound call routing and internal signaling. Many models have TAPI implementations.

Pulse Code Modulation (PCM)

A data format whereby the input is coded into discrete linear numeric representations of the instantaneous signal amplitude. This is the standard uncompressed format used in Windows .wav files. See also sampling.

RJ-11

A wiring designation with 4- or 6-wire modular connectors; commonly used for standard telephone lines.

Resource Interchange File Format (RIFF)

The general class of sound and video files, of which the Windows .wav sound format is an example.

Supervisory Control and Data Acquisition (SCADA)

A variant on human-machine interface software and its supporting network.

Short Message Peer to Peer Protocol (SMPP)

An input protocol to GSM paging systems, using TCP/IP or X.25 networks instead of serial lines; comparable in function to TAP and UCP.

Short Messaging System (SMS)

A standard format used to send short text messages to mobile devices. SCADAlarm complies with ETSI document GSM 03.39, version 6.0 and supports Message Type 30 (the SMS message transfer operation).

Speech Application Programming Interface (SAPI)

The set of operating system function calls that present a standard programming methodology to implement text-to-speech and speech recognition functions.

SuiteLink

A Wonderware protocol based on TCP/IP. SuiteLink is designed specifically to meet industrial needs, such as data integrity, high-throughput, and easier diagnostics.This protocol standard is only supported on Microsoft Windows NT 4.0 or higher.

tagname

A unique name that identifies each data point in the system. Typically the same as the item name, but can be different, if desired.

Telco

An abbreviation for telephone company.

Telephony Application Programming Interface (TAPI)

The set of operating system function calls that present a standard programming methodology to implement an IVR application. Several current implementations coexist in various versions of the Windows operating system.

Telephony Service Provider (TSP)

This is the "driver" that the TAPI system uses for a particular piece of hardware, usually provided by the manufacturer. See also Unimodem V.

Telephony User Interface (TUI)

The audible user interface presented by an IVR system. See also GUI.

Telocator Alphanumeric Protocol (TAP)

A standard interface protocol used to authorize and identify the recipient and contents of an alphanumeric pager message to the service provider's paging terminal. TAP is usually associated with FLEX® and Post Office Code Standardization Advisory Group (POCSAG) pager systems, but there are some GSM implementations that use this input protocol as well. SCADAlarm implements the TAP Committee specification TAP version 1.8 February 4, 1997. TAP is one of the two major pager system access protocols in use worldwide. Sometimes referred to as the IXO protocol. Not to be confused with TAPI. See also UCP.

text-to-speech (TTS)

A set of techniques to translate typed text into phonemes that can be understood by a human listener. Also referred to as speech synthesis.

topic

The second component of the name of the DDE conversation; usually specifies a grouping of similar types of items supported by the server.

Universal Computer Protocol (UCP)

A standard interface protocol used to authorize and identify the recipient and contents of an alphanumeric pager message to the service provider's paging terminal. UCP is one of the two primary pager protocols and is usually used for access to the GSM paging networks used primarily in Europe. SCADAlarm implements European Technical Standard TR 101 632 V6.0.0 (1999-04), GSM 03.39 version 6.0.0 Release 1997. See also TAP.

Unimodem V

The generic voice modem TSP provided by Microsoft. Voice modems may be shipped with a modems.inf file that describes specific commands and expected results for each function Unimodem supports. It is not available on all Windows operating systems.

voice prompt

A file used by SCADAlarm, containing speech, to convey status information and request input (menus, acknowledgements, and set-point changes) from a caller.

Voice over Internet Protocol (VoIP)

A protocol used to establish and maintain real-time full-duplex audio streams over a network; frequently implemented as a TSP.

Index

Symbols

A

B

N

O

P

Q

R

S

T

U

V

W