

Your comments and suggestions on the operation of this software are welcome. Please address them to:

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Introduction 1

1.1 Introduction to AlarmWorX32 Multimedia

Welcome to ICONICS AlarmWorX™32 Multimedia, a new generation of modular automation for advanced OPC-based HMI and Visualization by ICONICS. The AlarmWorX32 Multimedia Configurator is a standalone product that allows you to configure alarms using several different media to notify anyone, anywhere, of an occurring alarm.

AlarmWorX32 Multimedia is an option of AlarmWorX32 that provides OPC-compliant multimedia technology for remote alarm notification. Various multimedia "agents" are provided, including:

- Paging (including SMS/TAP support)
- Two-way paging
- Phone with call-in and call-out support
- E-mail
- Fax
- Voice annunciation of alarms via text-to-speech
- Voice annunciation of alarms via recorded .wav files
- Video
- Pop-up windows
- Computer screen marquee
- Instant messaging
- PA

For examples of multimedia alarming agents, open the "MMXDemo.gdf" file in the "ICONICS/GENESIS32/Examples/Multimedia Demo" directory. You must have ICONICS GraphWorX™32 installed to run this demonstration.

1.1.1 AlarmWorX32 Multimedia Overview

Figure 1.1 provides an overview of how AlarmWorX32 Multimedia enables you to send and receive alarms using various multimedia agents. The ICONICS AlarmWorX32 Multimedia Configurator is a database with a user interface that allows you to configure alarms, alarm action sets, multimedia agents, and alarm acknowledgement codes. You can also use the Multimedia Configurator to create subscriptions to OPC Alarm and Event (AE) servers. In addition, you can configure schedules and destinations for alarm notification messages.

When your database configuration is completed and you start the Multimedia Server, the following occurs:

1. When the Multimedia Server enters runtime mode, it reads all the alarm configurations in the multimedia configuration database.
2. The Multimedia Server then subscribes to OPC AE servers based on the subscriptions that you created in the configuration database.

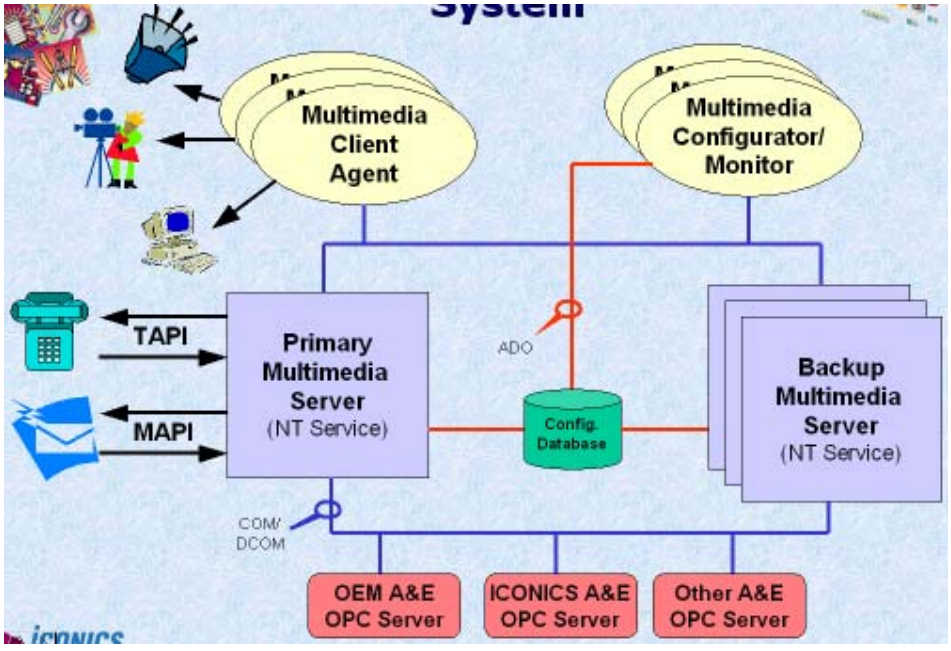


Figure 1.1. Overview of AlarmWorX32 Multimedia

3. In turn, the OPC AE servers generate alarms back to the Multimedia Server.
4. When the Multimedia Server receives alarms, it responds to those alarms according to the settings and alarm action sets that you configured in your database.
5. Based on these action sets, the notification messages are then sent to a recipient (an operator or a group) via the configured multimedia agent, such as a telephone call or a fax.
6. The recipient of the alarm message can then acknowledge the alarms using the configured multimedia device, such as a telephone or fax machine keypad.

Note: Redundant (backup) Multimedia Servers are currently not available.

1.2 Installing AlarmWorX32 Multimedia

This section describes the steps for installing ICONICS AlarmWorX32 Multimedia. Be sure to close any other applications before installing AlarmWorX32 Multimedia. For general guidelines and requirements for GENESIS32™ installation, please refer to the ICONICS *Getting Started* user's guide.

1.2.1 System Requirements

To use this software, you must have the following *minimum* system requirements:

- 8X speed CD-ROM.
- 125 MB of disk space. (**Note:** This is the recommended amount of disk space for the Multimedia installation only. This does not include hardware drivers. Also, as the size of the databases increases over time, additional space may be needed.)
- VGA video card; 256 or more colors for best results.
- Sound card.
- Microsoft® Internet Explorer 5.5 or above.
- Microsoft Windows 98 SE, Windows 2000 with Service Pack 3, Windows Millennium (ME), or Windows XP with Service Pack 1, or Windows NT® 4.0 with Service Pack 6a.

  Note: Windows 98 SE is supported only by the non-Unicode version of GENESIS32.

- Microsoft® SQL Server® 2000 or MSDE 2000 (with the latest service packs) or higher. To download and install the latest service packs, go to www.microsoft.com.

IMPORTANT NOTE: You must have a telephony card installed on the computer on which you are running the Telephony Agents (both Call-in and Call-out) and the PA Agent. AlarmWorX32 Multimedia supports Intel® Dialogic® boards. **Dialogic boards do not work for Windows 98, so neither the Call-in Agent nor the Call-out Agent will work on Windows 98.** You also need to have an analog phone line connected to the board. (**Note:** Digital lines are not supported.) Only Dialogic boards are supported for the current version of AlarmWorX32 Multimedia. Please see **Appendix B** for information about installing and configuring Intel Dialogic boards. For more information about purchasing and installing Intel Dialogic boards, please visit the Intel Web site at www.intel.com/network/csp/products/index_vp.htm.

CPU and RAM

Minimum computer CPU and RAM requirements depend on the application and operating system, as shown below:

Application Size	Processor	RAM
Small Windows 98 SE/NT Client/ME, 2000, XP	233 MHz 400 MHz	64 MB 128 MB
Medium Windows 98 SE/NT/ME, 2000, XP	400 MHz 650 MHz	128 MB 256 MB
Large All Operating Systems	1.8 GHz	512 MB - 1GB

The actual amount of RAM and/or processor speed will vary depending upon the I/O counts, networking, logging and alarming requirements, etc. To determine which type of computer best fits your application, set up a test application station.

Note: The processor and memory requirements of your existing project may be greater in this version of GENESIS32 than in previous versions due to additional and enhanced features in the product.

1.2.2 Installation Procedure

To install ICONICS AlarmWorX32 Multimedia use the following procedure:

Note: If your operating system (e.g., Windows NT) requires a login name, you must log in with administrator capability before installing the software.

1. Before installing ICONICS software be sure that all other applications, such as Microsoft Office or any antivirus software, are closed and/or disabled.
2. Insert the GENESIS32 product CD into your CD-ROM drive. If "Autorun" is enabled on your system, the CD introduction starts automatically. Otherwise, browse to your CD-ROM drive and run the "RunMe.bat" file.
3. You will see the CD introduction and the main menu. From here you can click on a link to the ICONICS Web site, go to the Documentation Center, view CD-based Web pages containing miscellaneous Information, and install software.
4. Click **Multimedia** on the software installation menu. The **Setup** screen briefly appears, followed by the **Welcome Message** screen, as shown in **Figure 1.2.** Click the **Next** button to continue.

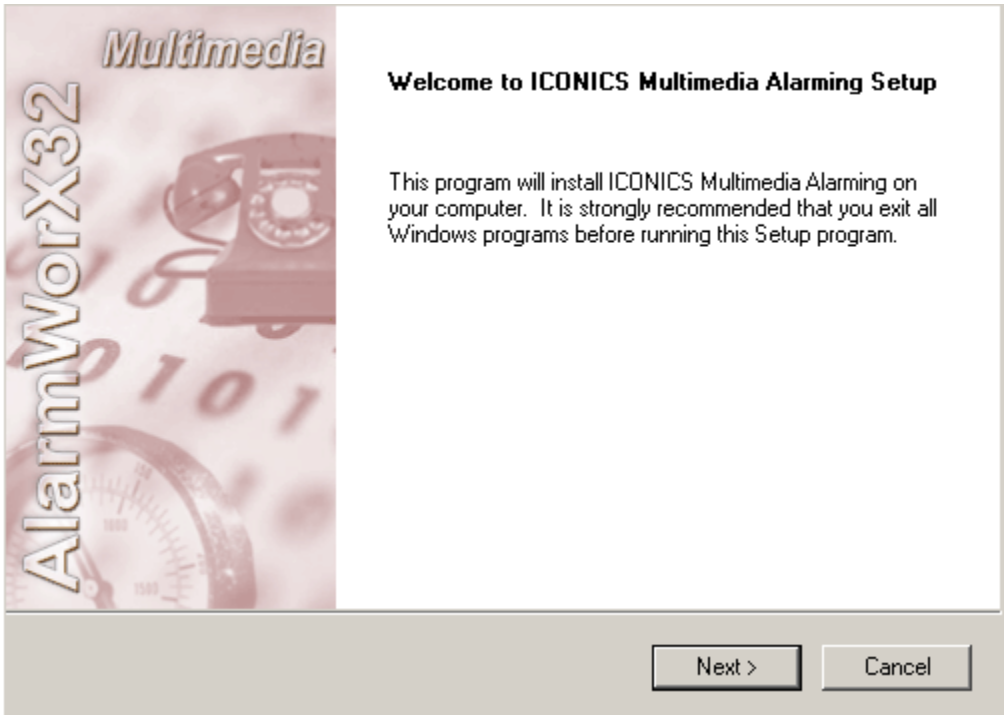


Figure 1.2. Welcome Screen

5. The Multimedia installation wizard will then check to see if Microsoft Data Access Components (MDAC) is installed on your system. If MDAC is installed, the setup will proceed to the next step. If it is not installed, you will be prompted to install MDAC. If the system prompts you to install MDAC, follow the instructions on the subsequent dialog boxes.

6. The **Software License Agreement** dialog box appears, as shown in **Figure 1.3.** Read the License Agreement. Click **Yes** if you accept the terms of the agreement.

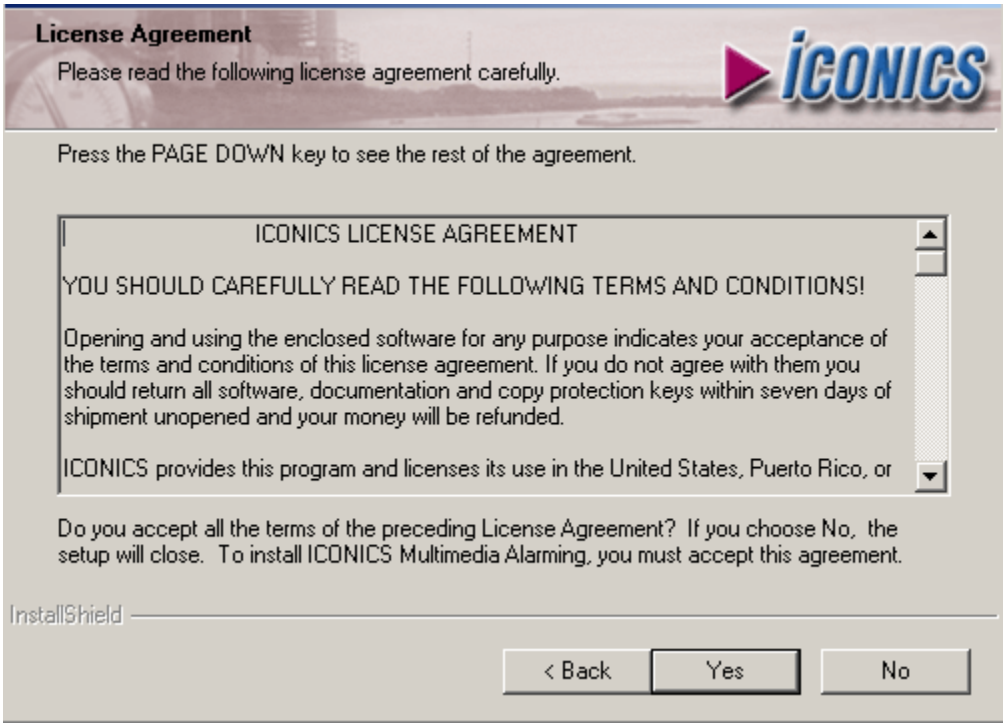


Figure 1.3. ICONICS License Agreement

7. The **User Information** dialog box appears, as shown in **Figure 1.4.** Type your (the user's) name in the **Name** field; your company's name in the **Company** field; and your product serial number in the **Serial** field. Click the **Next** button to continue.

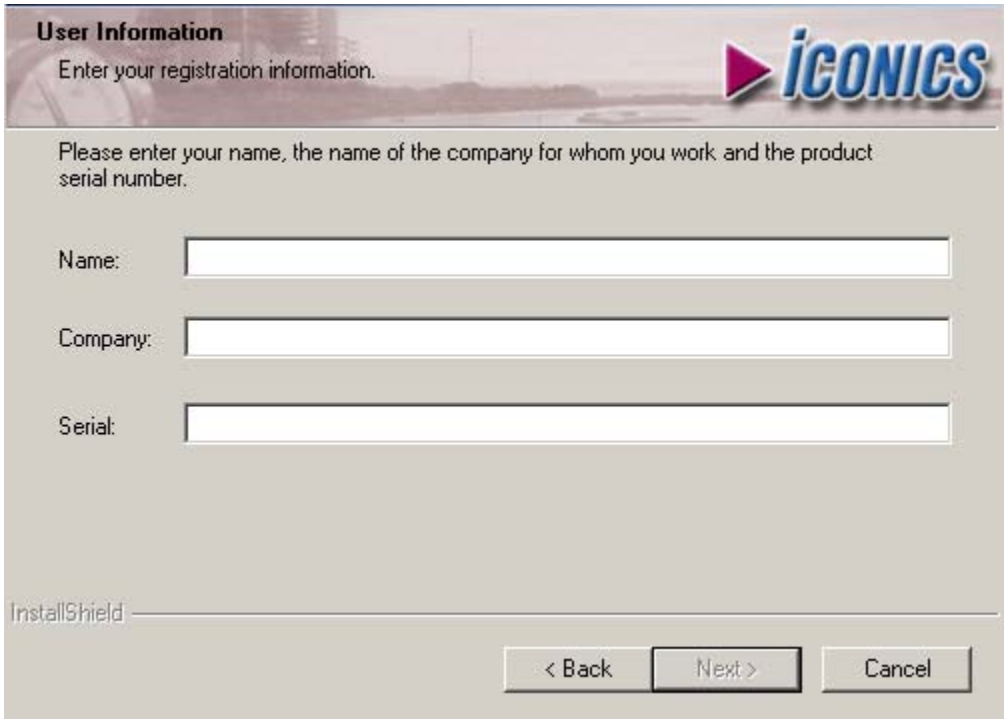


Figure 1.4. User Information Dialog Box

8. The **Choose Installation Destination** dialog box appears, as shown in **Figure 1.5.** The default location is "C:\Program Files\ICONICS\GENESIS32." If you wish to specify a different directory for installation, click the **Browse** button and choose the appropriate installation folder. After you have chosen a location, click the **Next** button to continue the installation.

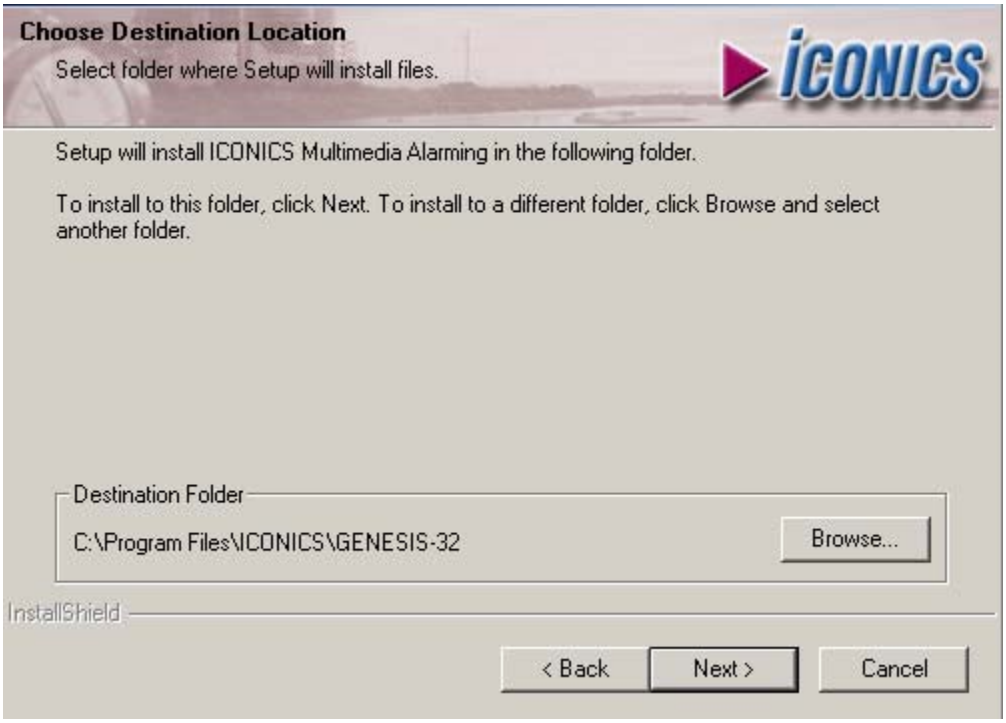


Figure 1.5. Choosing Your Installation Location

9. The **Select Components** dialog box appears, as shown in **Figure 1.6.** As you can see, AlarmWorX32 Multimedia contains many multimedia "agents" for alarm notification, such as video, paging, and e-mail. Here you can customize your installation by selecting which agents to install. This is helpful if you have limited space on your hard drive or if you do not expect to use one or more multimedia agents. Click on the appropriate boxes to select the agents that you wish to install. The space required on your installation directory (as well as the space available on the directory) is displayed at the bottom of the dialog box. Once you have made your selections, click the **Next** button to continue.

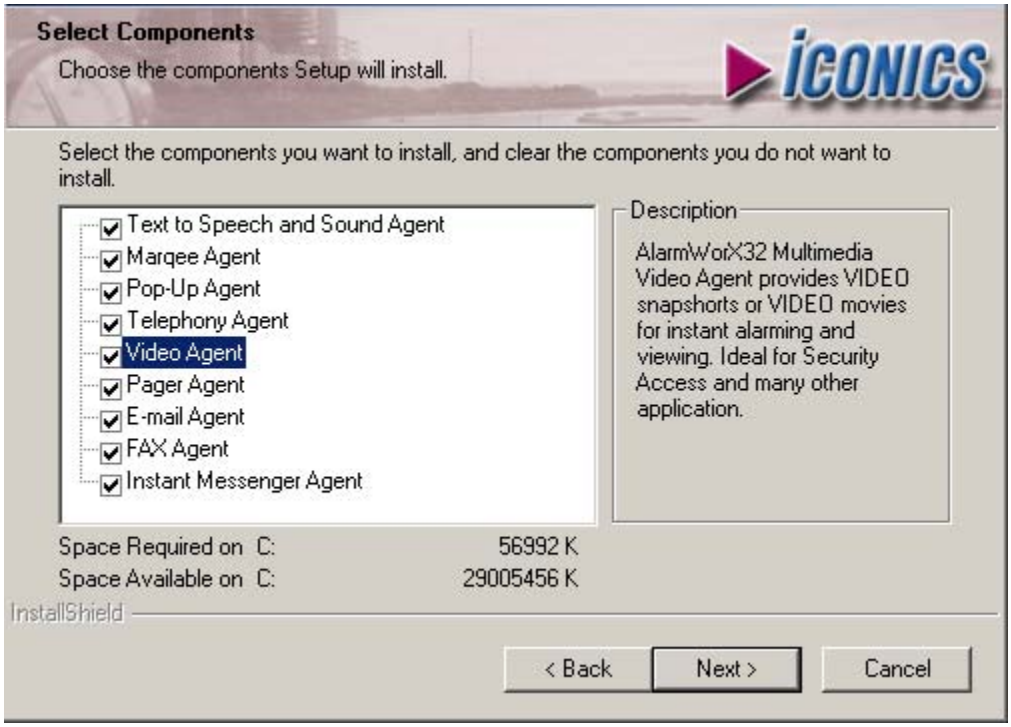


Figure 1.6. Select Components Dialog Box

10. The **Microsoft Agent License Agreement** appears, as shown in **Figure 1.7.** Read the agreement carefully. If you agree with the terms and conditions, click the **Yes** button to continue.

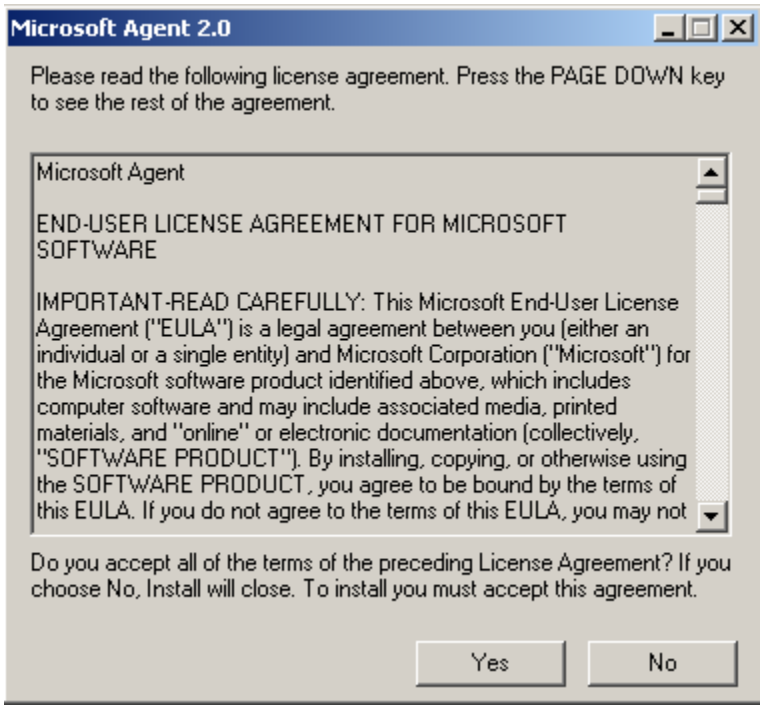


Figure 1.7. Microsoft Agent License Agreement

11. The **Microsoft Text-to-Speech Engine License Agreement** appears (if you chose to install the Text-to-Speech agent), as shown in **Figure 1.8.** Read the agreement carefully. If you agree with the terms and conditions, click the **Yes** button to continue.

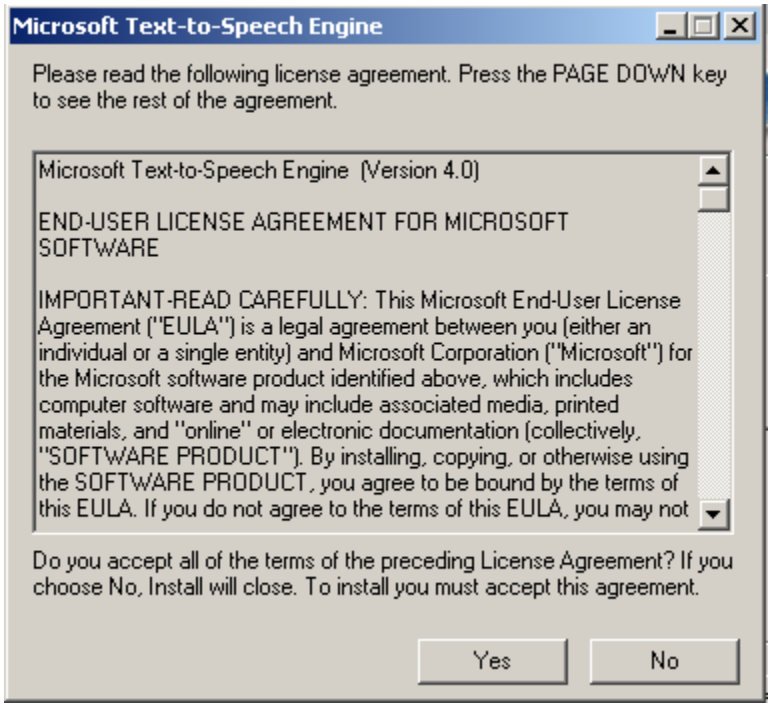


Figure 1.8. Microsoft Text-to-Speech Engine License Agreement

12. The **Setup Status** window appears. While the system files are being automatically copied, the percentage of the files already copied appears in the window's progress bar, as shown in **Figure 1.9.**

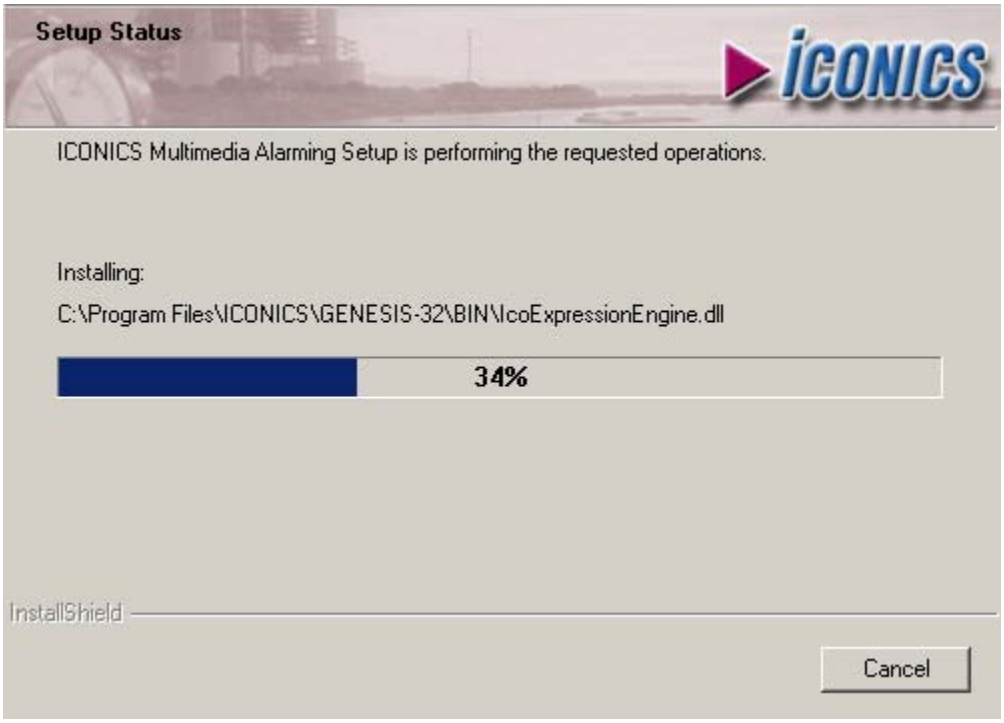


Figure 1.9. Setup Status Window

13. The **Fonts** window, shown in **Figure 1.10,** is open during the process of installation, but it will not stop the installation. The installation opens this window to configure Marquee Agent dotted fonts. You can ignore this window and close it at any time.

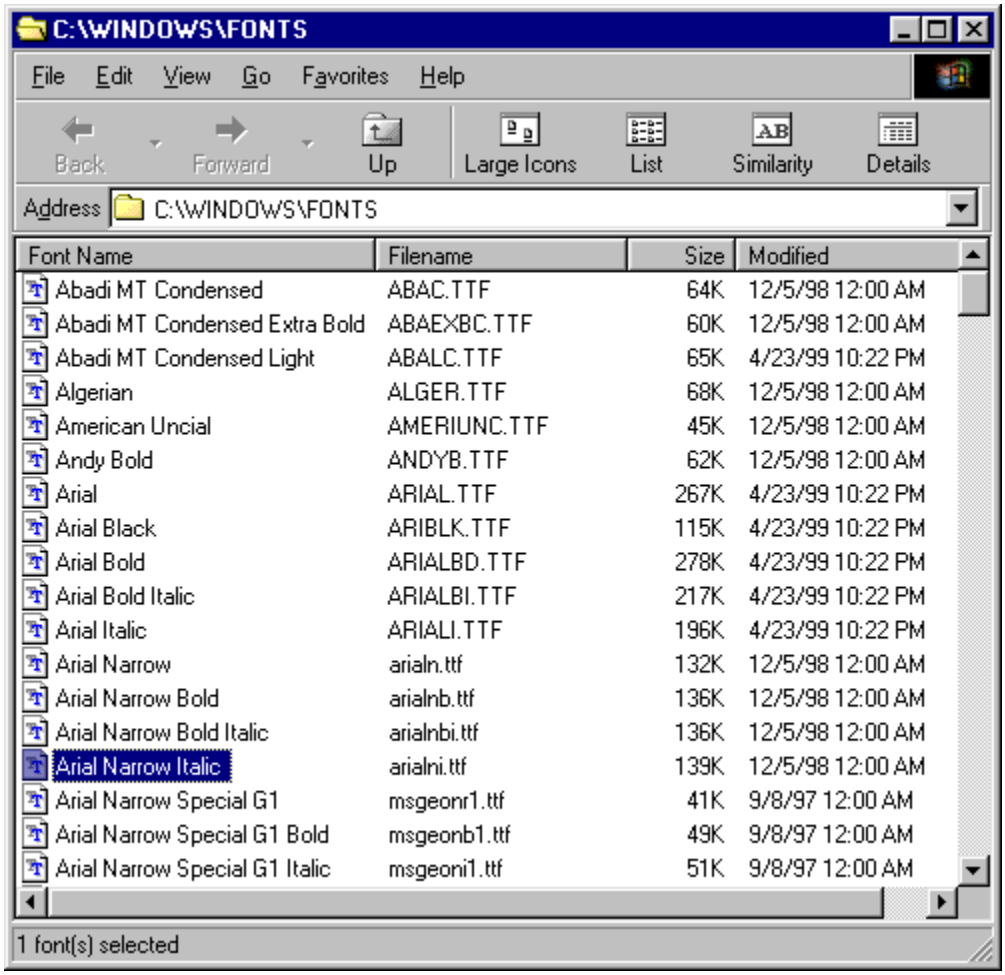


Figure 1.10. Fonts Window

14. The Multimedia installation includes a Pager Agent that connects to a wide variety of pager services and supports the most popular paging protocols:

- Tele Alphanumeric Protocol (TAP)
- Simple Messaging Service (SMS)

During the installation of Multimedia, after checking the box for including the Pager Agent, you can select which paging services to include with the installation. There are two separate lists: one for the **Modem/ISDN (TAP)** pagers, as shown in **Figure 1.11,** and one for **GSM/PCS (SMS)** pagers, as shown in **Figure 1.12.** It is recommended that you select all carriers in each

list so that they will be available in the Multimedia configuration. Click **OK.**

Note: Please see **Appendix A** for information about SMS and TAP pager services configuration.

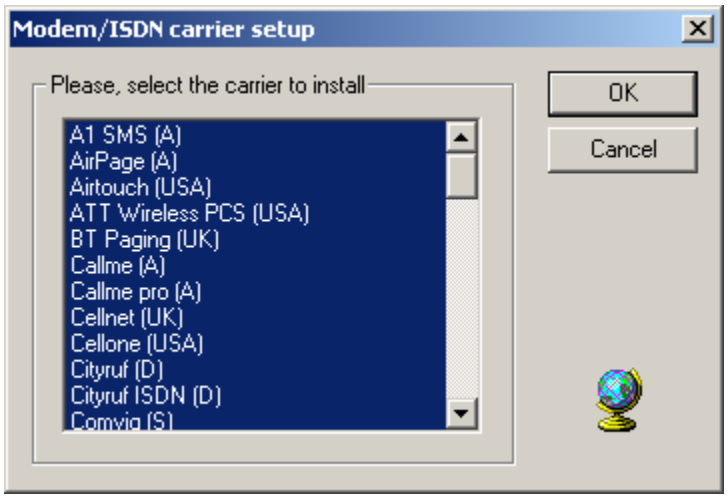


Figure 1.11. Modem/ISDN Carrier Setup

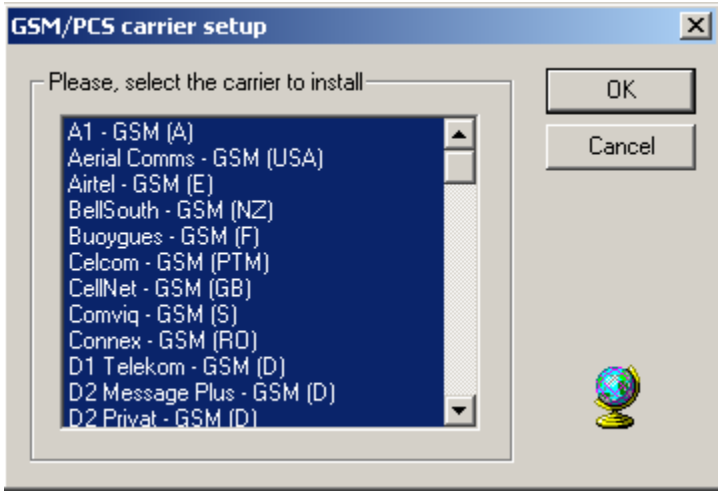


Figure 1.12. GSM/PCS Carrier Setup

15. The **Setup Complete** dialog box appears, as shown in **Figure 1.13.** Click the **Finish** button to complete the installation. When you have finished installing Multimedia, restart your computer.

Note: Depending on the multimedia agents you have chosen to install, you may encounter additional dialog boxes containing additional installation steps. Follow the instructions provided in these dialog boxes. For information about multimedia agent configuration, please see **Chapter 4.**

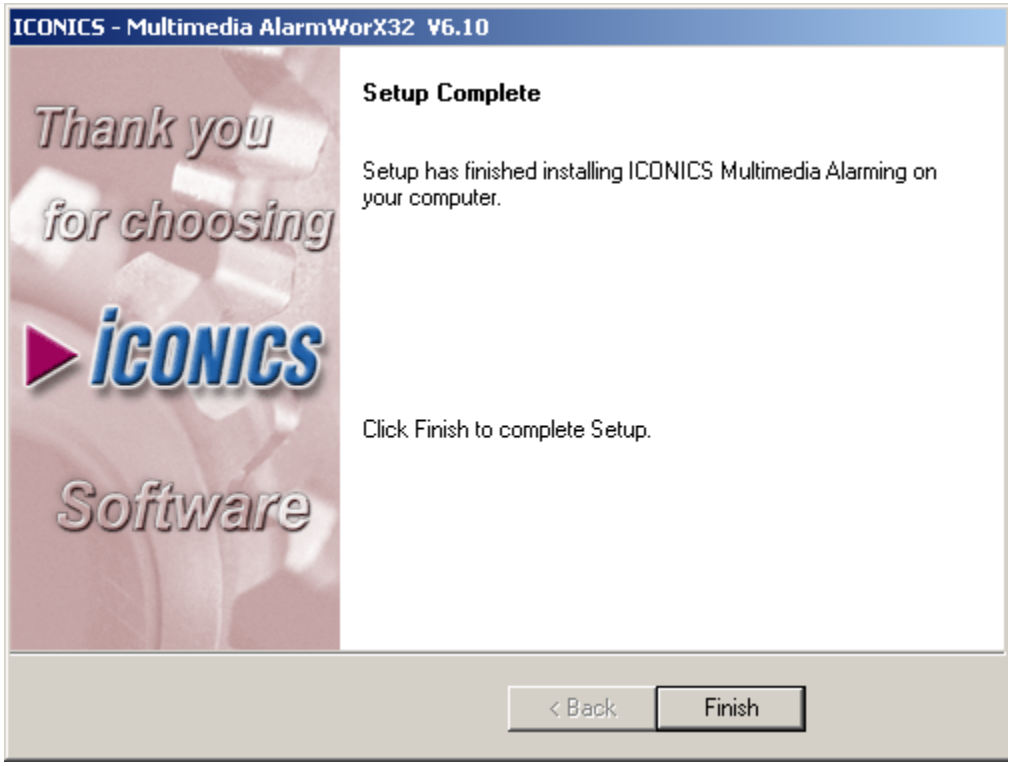


Figure 1.13. Setup Complete Dialog Box

1.3 Creating a New Configuration Database

The Multimedia Configurator is the user interface that allows you to configure alarms and multimedia agents for the Multimedia Server. Before you can configure your multimedia settings, you must first create a database in which your configuration can be stored:

IMPORTANT NOTE: You must have Microsoft SQL Server installed on your computer in order to create a new configuration database. Installation of Microsoft SQL Server Data Engine (MSDE) occurs during the AlarmWorX32 Multimedia installation. If you are using Microsoft Windows NT, Windows 2000,

Windows XP, or .NET Server, you must log in with administrator capability in order to run the Configuration Database Wizard.

1. Launch the Multimedia Configurator from the Windows **Start** menu by selecting **Programs > ICONICS > GENESIS32 > AlarmWorX32 > Multimedia Configurator.** You can also run the Multimedia Demo from this menu.

2. The first time you open the Configurator, the **Configuration Database Wizard** helps you create a new configuration database, as shown in **Figure 1.14.** Click the **Next** button to continue.



Figure 1.14. Introduction to Multimedia Configuration Database Wizard

3. You have two options for creating your new database, as shown in **Figure 1.15.** You can either create a new Microsoft SQL Server database, or you can add the configuration database structure to an existing Microsoft SQL Server database. Here we will assume that you will choose the first option (to create a new database). Select **I want to create a new Microsoft SQL Server database on local node,** and then click the **Next** button to continue.

Note: For information about how you can add the configuration database structure to an existing Microsoft SQL Server database, see the "Adding the Multimedia Configuration to an Existing Database" section below.

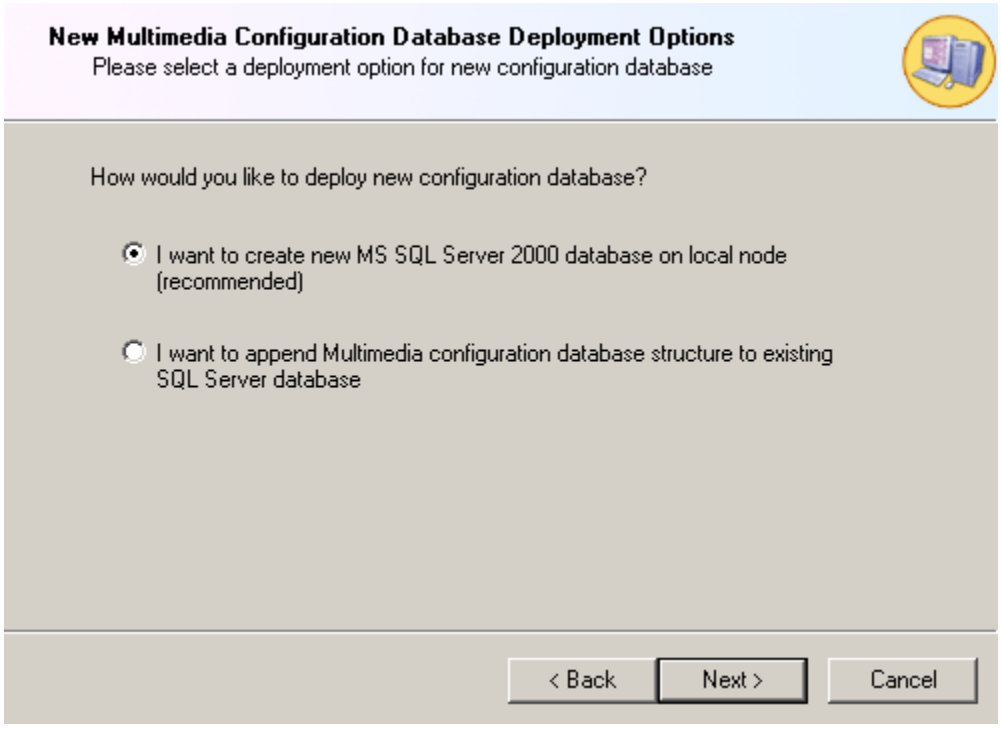


Figure 1.15. Creating a New Microsoft SQL Server Database

4. Choose the settings for the SQL Server database parameters, as shown in **Figure 1.16.** In the **SQL Server** field, select the local SQL Server on which to create a new database. Type a name for the database in the **Database Name** field. In the **Database Path** field, choose a directory path for the new database. You can browse for a directory by clicking the **…** button to the right of this field.

Note: Usually you have only one instance of SQL Server running on the local node (in this case the **SQL Server** field has only one option: "(local)". However, it is possible to run multiple SQL Server instances on the local node, in which case the **SQL Server** field lists all those SQL Server instances: "(local)" for the default instance and "node_name/instance_name" for all others. Again, all those are local SQL Servers.

Under the **Database Properties** section, specify an initial size for the database, which should be as large as possible. You can also specify a **Database Growth** option (in megabytes) or as a percentage of the total size. MSDE servers are capable of growing the database on the fly to store more data. However, if this operation is performed frequently, the overall system performance may decrease. Choosing an initially large database size and a corresponding database growth option can drastically improve system performance. To shrink the size of the new database, check the **Auto Shrink** check box.

Under the **Log File Properties** section, you can also modify the settings for the database transaction log file. Specify a **Log File Growth** option (in megabytes) or as a percentage of the total size. Again, a sufficient initial size setting can greatly improve performance. The default options should be adequate for most applications with a small to medium size load.

Click the **Next** button to create the new SQL Server database.

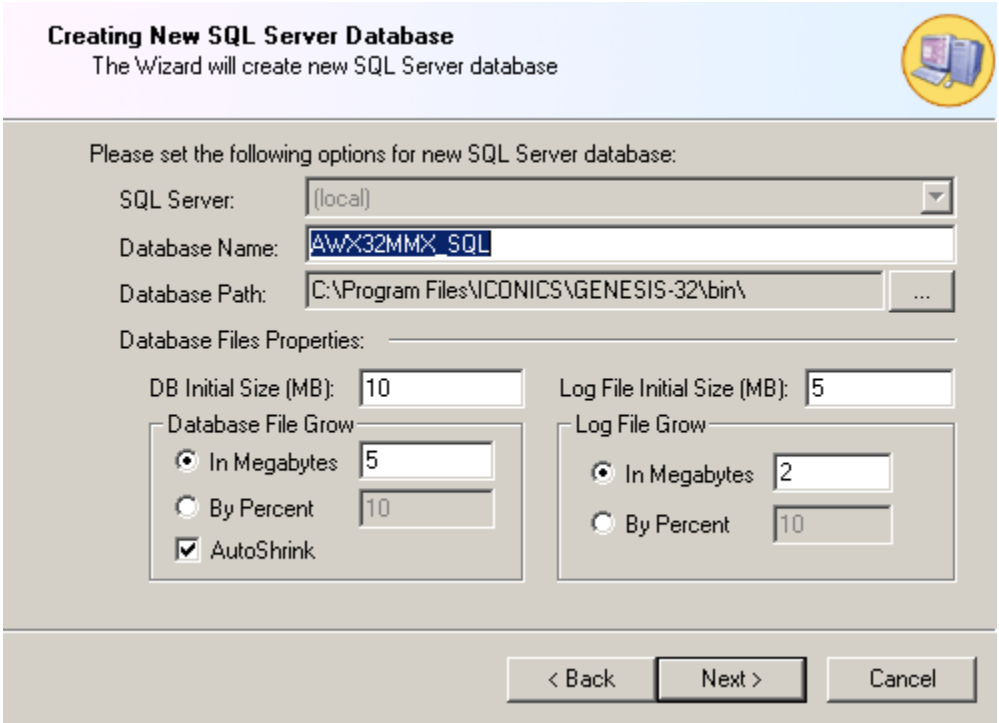


Figure 1.16. Specifying the Database Location and Properties

5. The Wizard creates the new SQL Server database, as shown in **Figure 1.17.** Click the **Next** button to continue, when it becomes available.

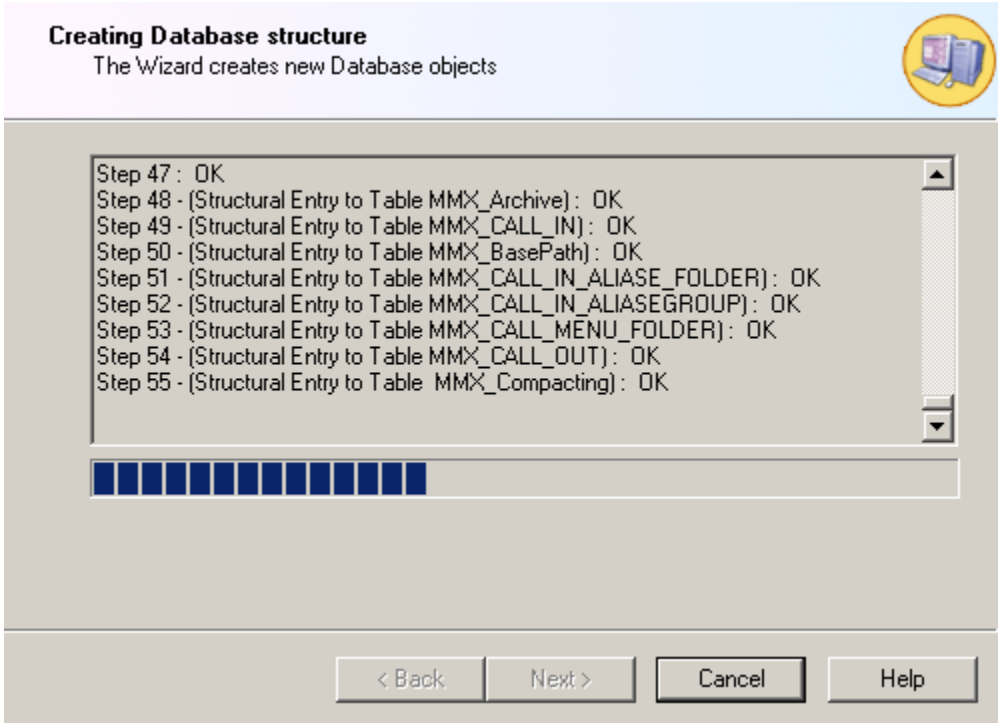


Figure 1.17. Creating Database Structure

6. The Configurator uses Universal Data Link (.udl) files to connect to the Microsoft SQL Server database. These .udl files contain OLE database connection information that allows the Configurator to create and manage connections to OLE databases. Enter a name and directory path for the new .udl file in the **Data Link File Name** field, as shown in **Figure 1.18.** You can browse for a directory by clicking the **…** button to the right of this field. Click the **Next** button to continue.

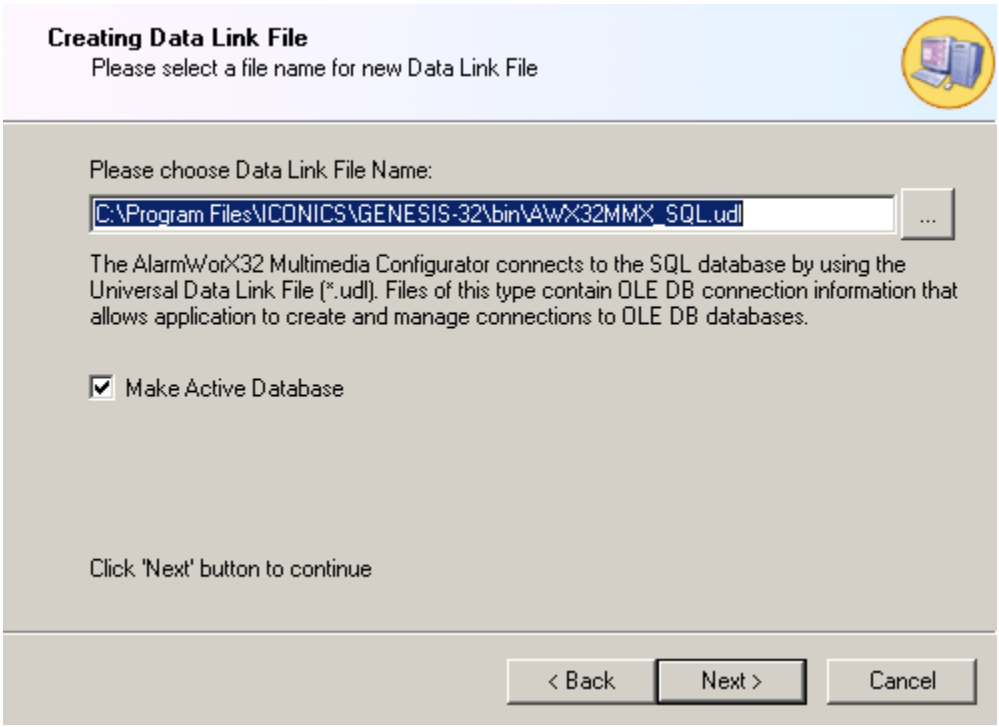


Figure 1.18. Creating a Universal Data Link File

7. Once the Universal Data Link has been created, a summary appears, as shown in **Figure 1.19.** the **Finish** button to complete the database creation.

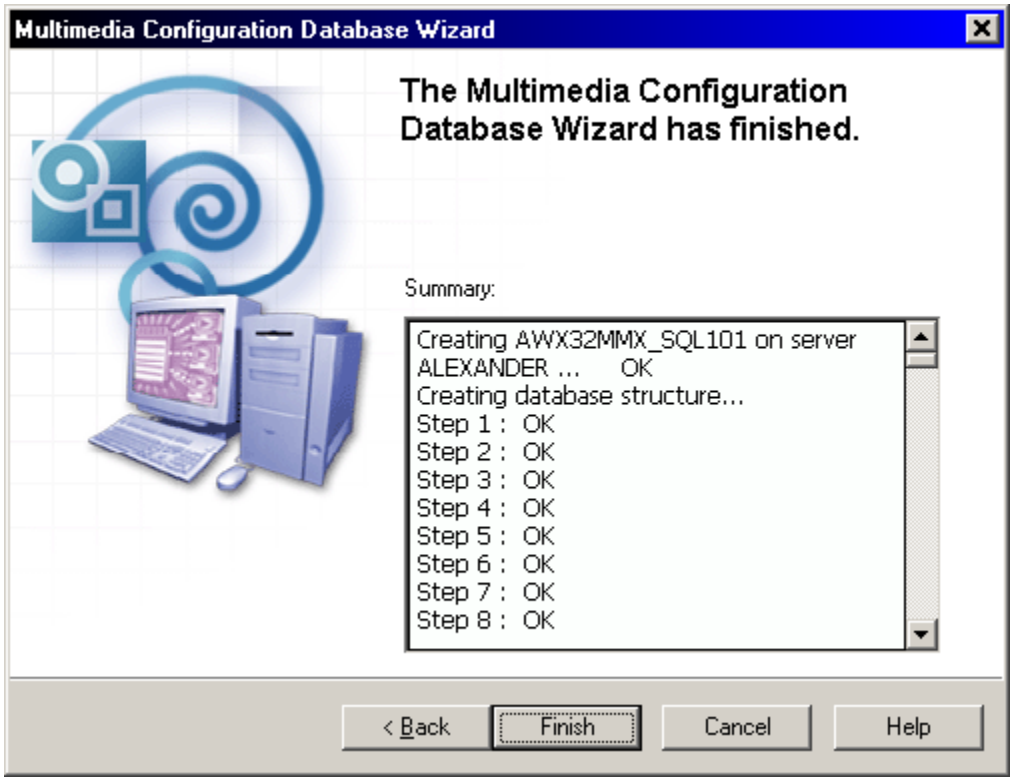


Figure 1.19. Database Creation Complete

1.4 Adding the Multimedia Configuration to an Existing Database

As mentioned above, the Configuration Database Wizard also gives you the option to add the Multimedia configuration database structure to an existing Microsoft SQL Server database.

1. If you decide to use this option, select **I want to append the Multimedia Configuration Database structure to existing SQL Server database**, as shown in **Figure 1.20.** Click the **Next** button to continue.

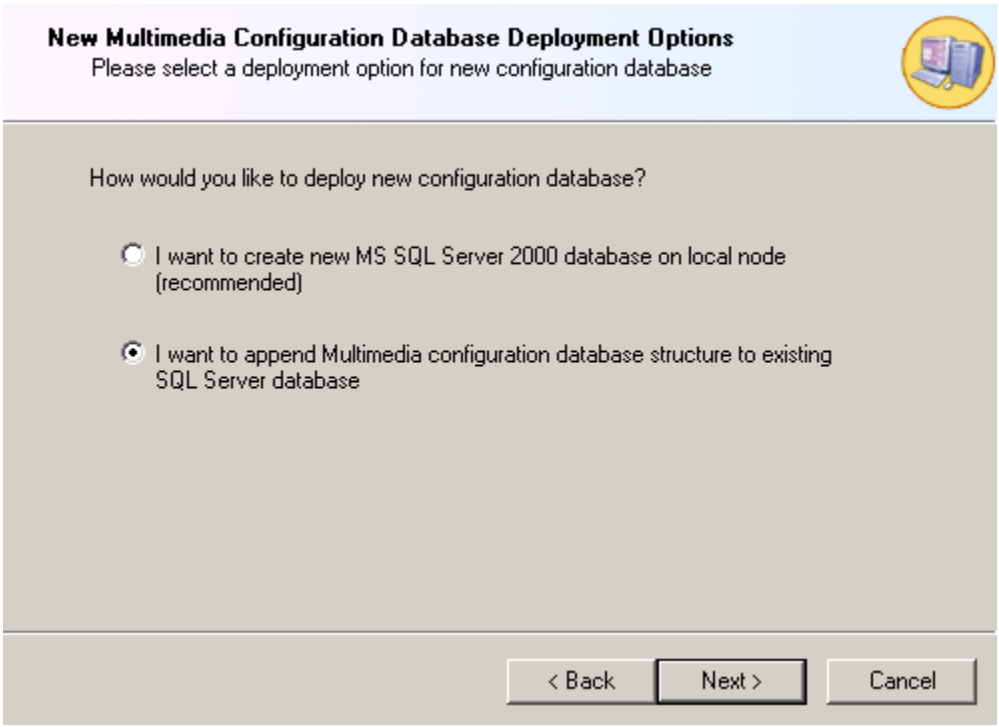


Figure 1.20. Adding the Configuration to an Existing Database

2. You are now prompted to connect to the existing SQL Server database. Click the **Log On SQL Server** button, as shown in **Figure 1.21.**

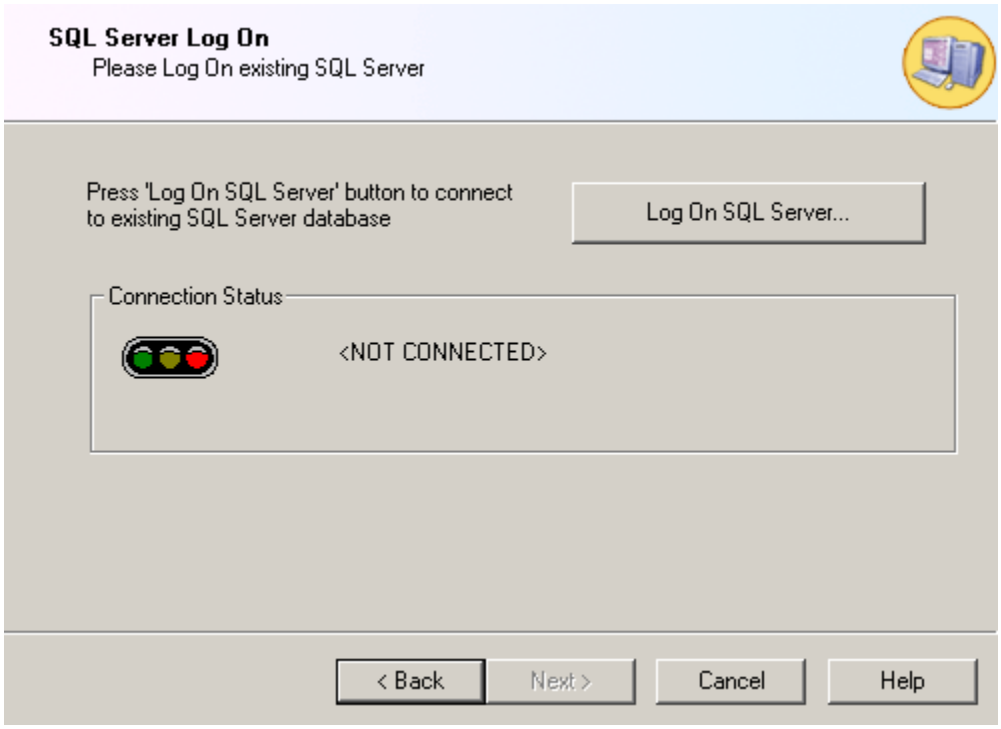


Figure 1.21. Connecting to an Existing SQL Server Database

3. You are now prompted to connect to the existing SQL Server database. Click the **Log On SQL Server** button, as shown in **Figure 1.22.**

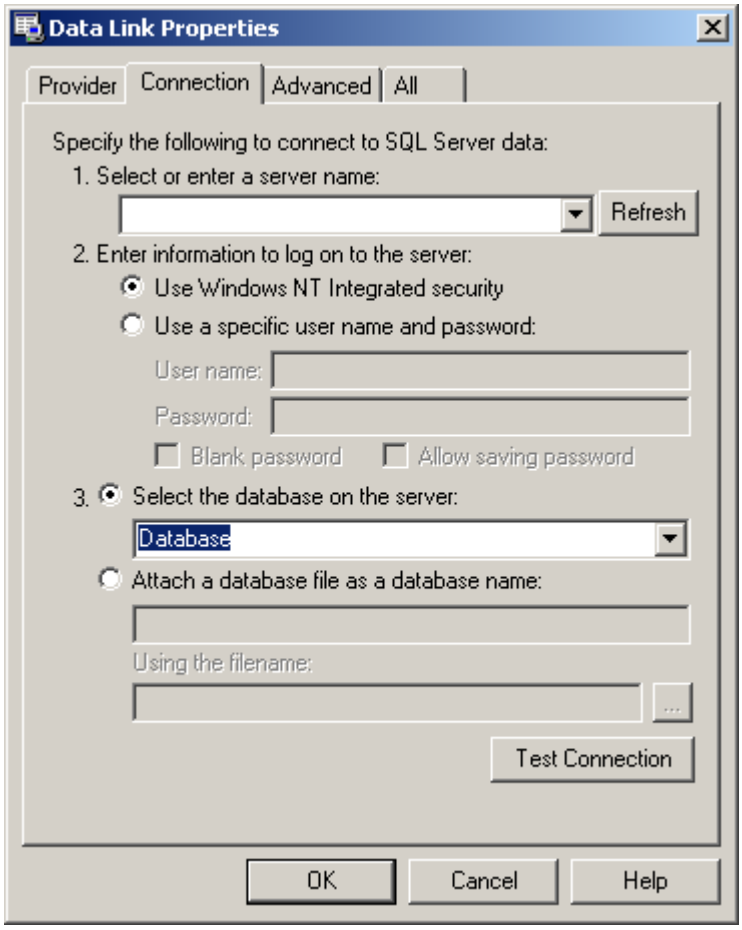


Figure 1.22. Logging on to the SQL Server Database from the Data Link Properties

4. Click the **Test Connection** button. If the test is successful, a message box appears, as shown in **Figure 1.23.** Click **OK.** Then click the **OK** button on the **Data Link Properties** dialog box.

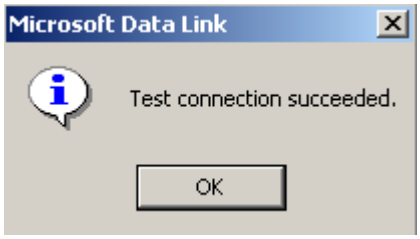


Figure 1.23. Successful SQL Server Test Connection

5. When a connection to the SQL Server database is established, the traffic light icon turns green, and the **Next** button becomes enabled, as shown in **Figure 1.24.** Click the **Next** button to continue.

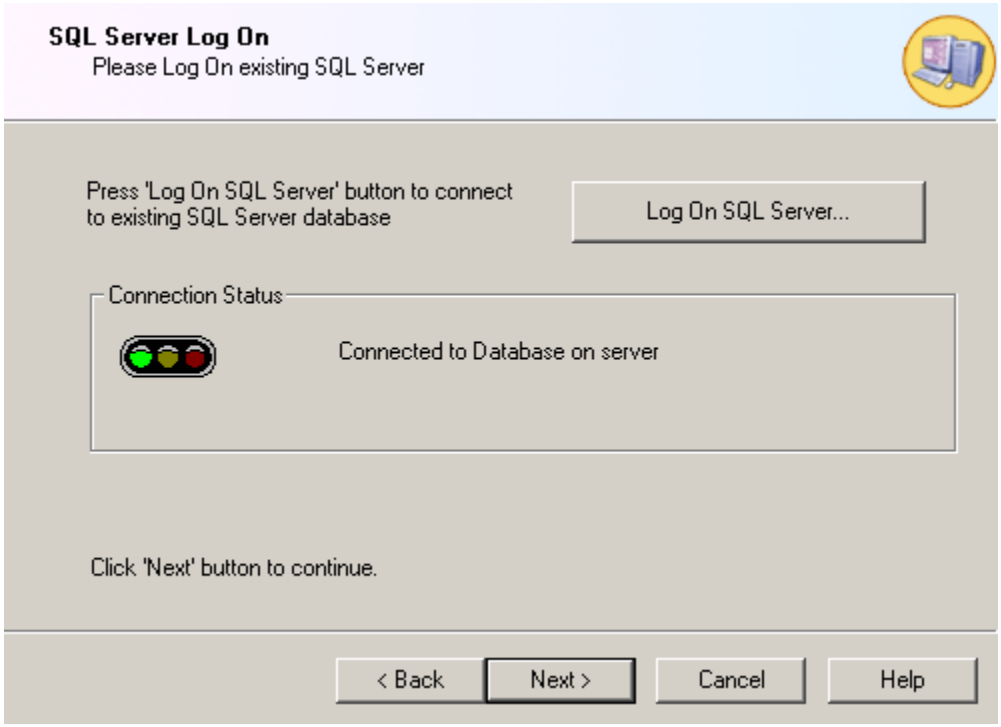


Figure 1.24. Connection to SQL Server Database Established

6. The Wizard inserts Multimedia tables into the selected SQL Server database, as shown in **Figure 1.25.** Click the **Next** button to continue.

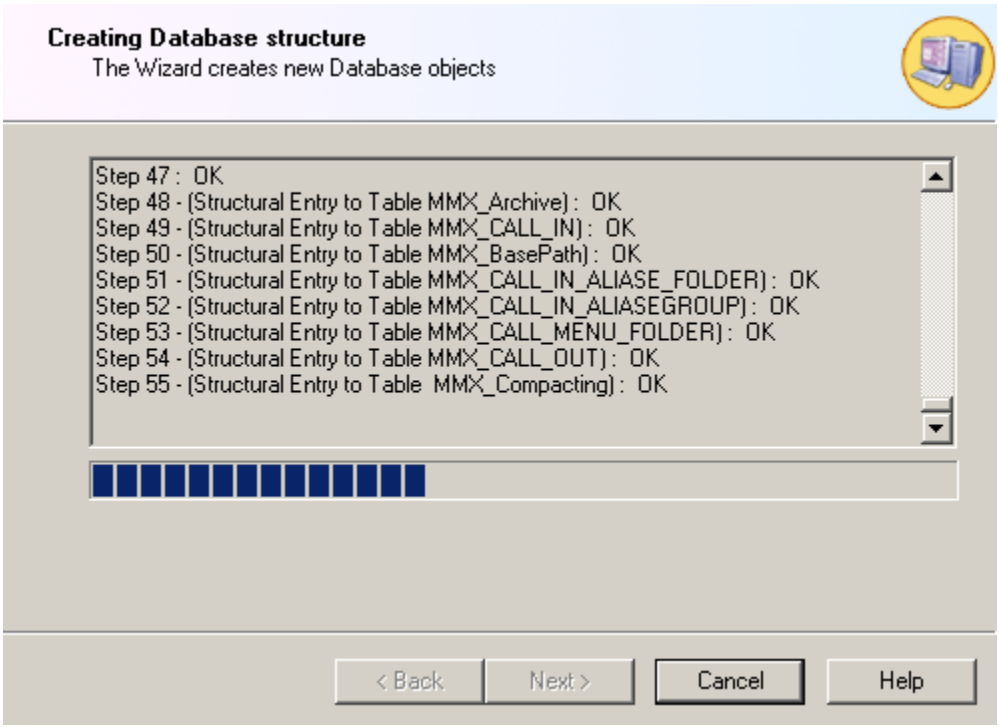


Figure 1.25. Creating Database Structure

7. Enter a name and directory path for the new .udl file in the **Data Link File Name** field, as shown in **Figure 1.26.** You can browse for a directory by clicking the **…** button to the right of this field. Click the **Next** button to save OLE DB connection information in the .udl file.

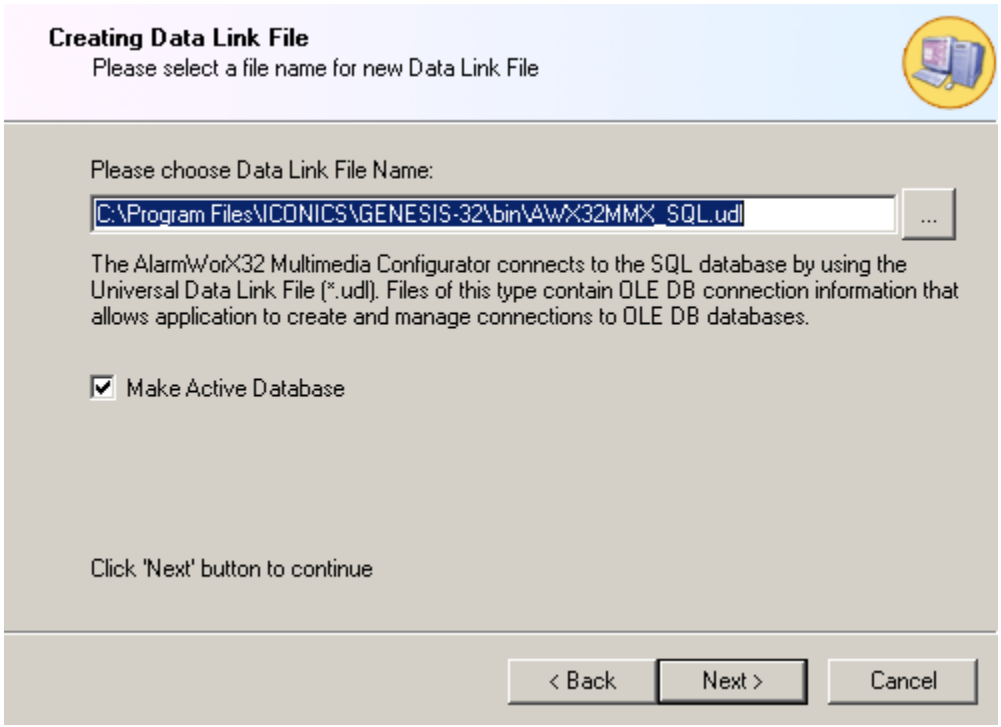


Figure 1.26. Selecting a Directory and File Name for Universal Data Link (.udl) File

8. Once the Universal Data Link has been created, a summary appears, as shown in **Figure 1.27.** Click the **Finish** button to complete the database creation.

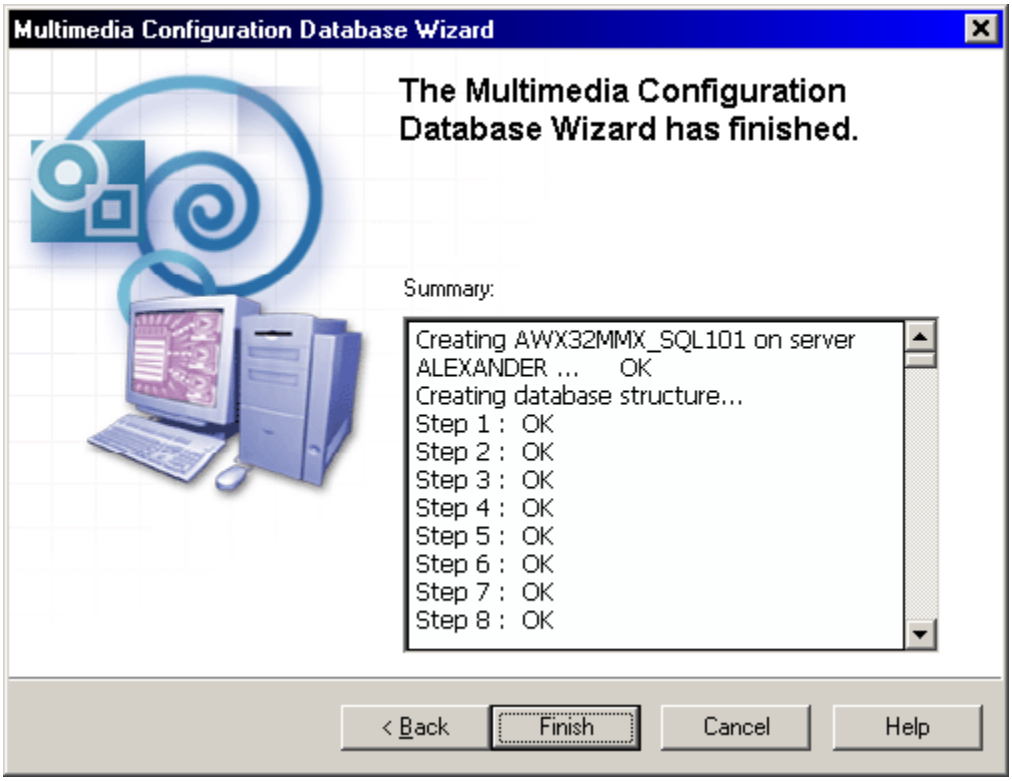


Figure 1.27. Database Creation Complete

1.5 Upgrading Microsoft Access Databases

If you have existing AlarmWorX32 Multimedia Version 6.1 configuration databases that were created using Microsoft Access, you can still use those databases in Version 7.0, but you must first upgrade those databases to Microsoft SQL Server by doing the following:

1. In the Multimedia Configurator, select **Open** from the **File** menu, as shown in **Figure 1.28.**

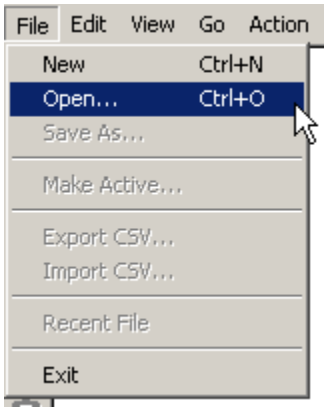


Figure 1.28. Opening the Existing Microsoft Access Database

2. Selecting a Microsoft Access database and then click **Open,** as shown in **Figure 1.29.**

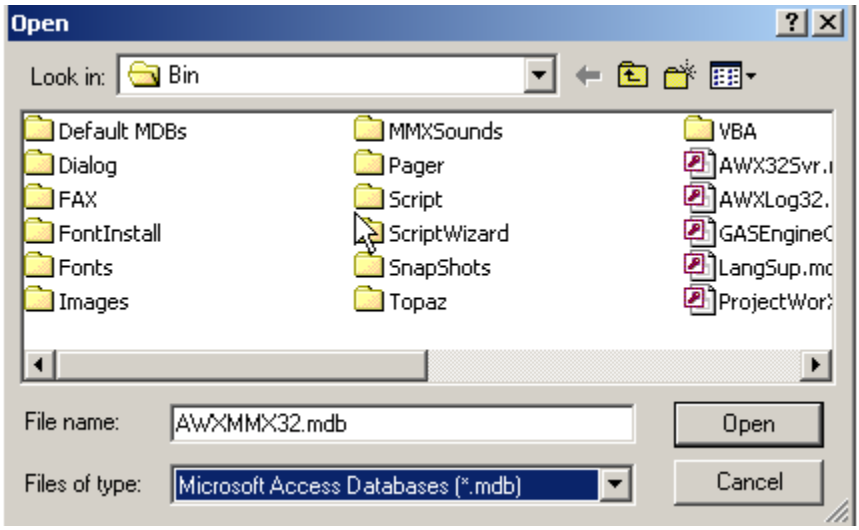


Figure 1.29. Selecting a Microsoft Access Database

3. Click **Yes** to continue, as shown in **Figure 1.30.**

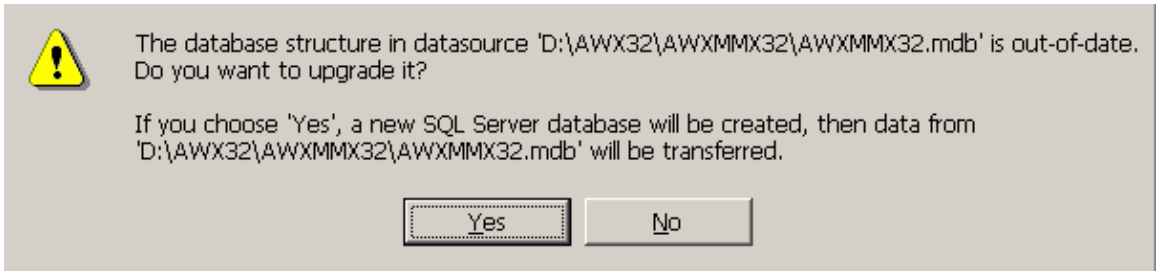


Figure 1.30. Upgrade Notice

4. This opens the Configuration Database Wizard (refer to the section above). Run the Wizard to create a new SQL Server database. Select **I want to create a new Microsoft SQL Server database on local node,** as shown in **Figure 1.31,** and then click the **Next** button to continue.

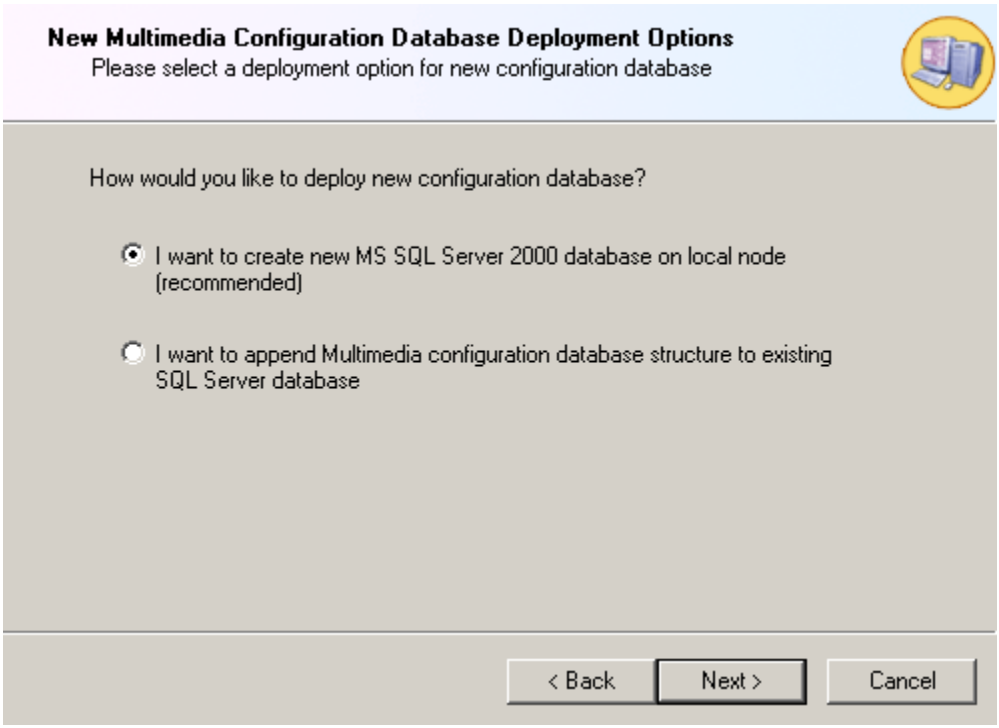


Figure 1.31. Creating a New Microsoft SQL Server Database

5. When you have finished creating the new SQL Server database, the Database Upgrade Summary appears, as shown in **Figure 1.32,** and the database opens the in the AlarmWorX32 Multimedia Configurator.

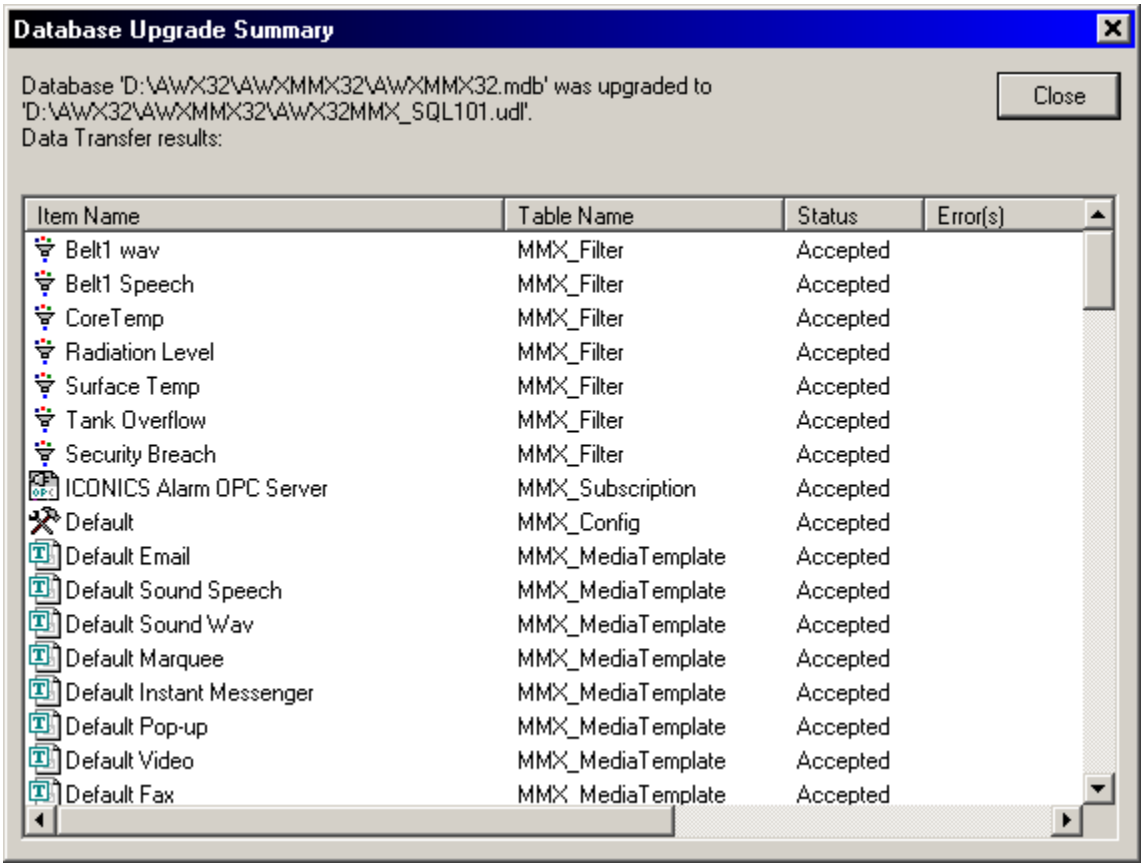


Figure 1.32. Database Upgrade Summary

1.6 Starting the Multimedia Configurator

Once you have finished creating a new configuration database using the Configuration Database Wizard, the Multimedia Configurator screen opens, as shown in **Figure 1.33.** The screen consists of a split window with a tree control view in the left-hand pane and a configuration view in the right-hand pane. The name of the .udl file that you created appears in the title bar of the window. The Configurator provides a standard format for the configuration database, as well as a sample (default) configuration project. The Configurator also includes a

toolbar and menus with many command functions. For a description of the toolbar and menu functions, please see the sections below.

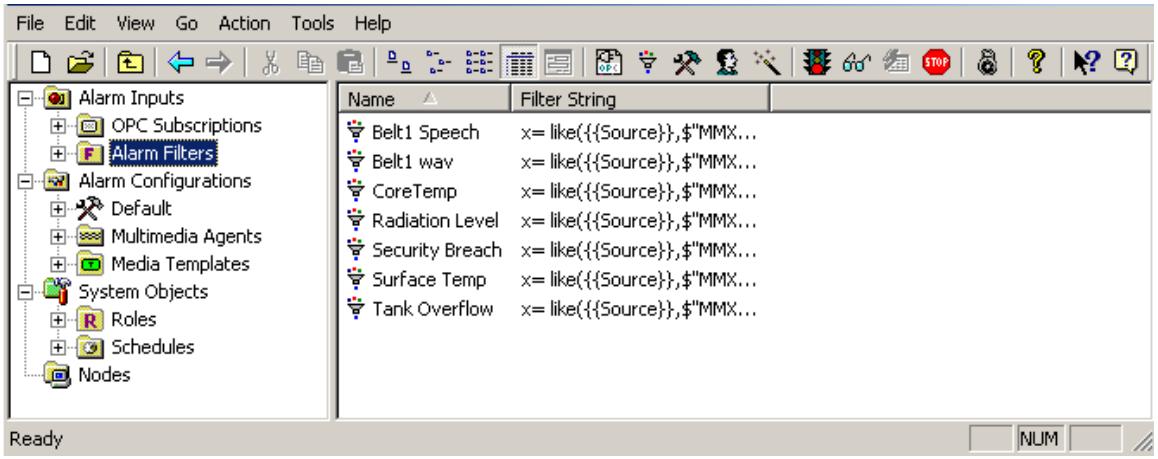


Figure 1.33. AlarmWorX32 Multimedia Configurator Screen

1.7 Toolbar

The Multimedia Configurator toolbar, shown below, contains the following command buttons. To show or hide the toolbar, select **Toolbars > Standard Buttons** from the **View** menu. For more information on menu functions, please refer to the "Menus" section below.



New: Creates a new database.

Open: Opens an existing database.

Up One Level: Moves up one level in the tree view.

Navigate Back: Jumps to the last screen viewed.

Navigate Forward: Jumps to the next screen viewed.

Cut: Deletes current selection, sending it to the clipboard.

Copy: Copies the current selection to the clipboard.

Paste: Pastes the current contents of the clipboard.

Large Icons: View items as large icons.

Small Icons: View items as small icons.

List: View items as a list.

Details: View items as a list with details.

Dialog View: View additional configuration options.

Insert New Subscription: Configure a new subscription to an OPC server.

Insert New Filter: Configure a new alarm filter.

Insert New Configuration: Set up a new alarm configuration.

Multimedia Assistant: Starts/stops the Icon-Nick Multimedia Assistant.

Multimedia Configuration Wizard: Launches the Multimedia Configuration Wizard.

Start/Stop Multimedia Server: Starts/stops the Multimedia Server.

Monitor View: Adds a window to show alarms.

Update Server Data: Updates the Multimedia Server of any changes while running.

Clear Queues: Cancels all multimedia agent queues to the Multimedia Server.

Security Administration: Configures Security Server settings for the Call-in Agent.

About: Displays information about the application.

Help: Displays context-sensitive help.

Help Topics: Launches online help for the application.

1.8 Menus

The menu bar of the AlarmWorX32 Multimedia Configurator contains the following menus:

- File
- Edit
- View
- Go
- Action
- Tools
- Help

1.8.1 File Menu

The **File** menu commands are listed in **Table 1.1.**

Table 1.1. File Menu Commands

Command	Shortcut Keys	Function
New	CTRL+N	Creates a new Microsoft Data Link (.udl) file through the Configuration Database Wizard.
Open	CTRL+O	Opens a Microsoft Data Access (.mdb) or Microsoft Data Link (.udl) file, which allows you to connect to any OLE database source, such as a SQL database.
Save As		Saves the current database.
Make Active		Makes the current database active. If this command is not available, then the current database is already the active database.
Export CSV		Exports configuration data from your database to a text file. You can specify the delimiters and what to export.
Import CSV		Imports data into your database from

		a text file. You can then specify the delimiters and choose from the following import settings:
Exit		Closes the application.

Exporting Configuration Data

The Configurator offers the flexibility of exporting data from your configuration database to a text (.txt) file or a Microsoft Excel (.csv) file. To export data, select **Export CSV** from the **File** menu. This opens the **Export Configuration Data to File** dialog box, as shown in **Figure 1.34.** You can then specify the delimiters for exporting the data. Unless you specify delimiters in the **Export Configuration Data to File** dialog box, the file will use **Commas** as delimiters by default. Each group contains headings and columns that provide information about each item, such as descriptions and associated translations and expressions. It also provides the "tree" pathway for each item. Choose the directory to which you want to export the data from your database. In the **Save As Type** field, choose the file type (.txt or .csv) that you would like to save.

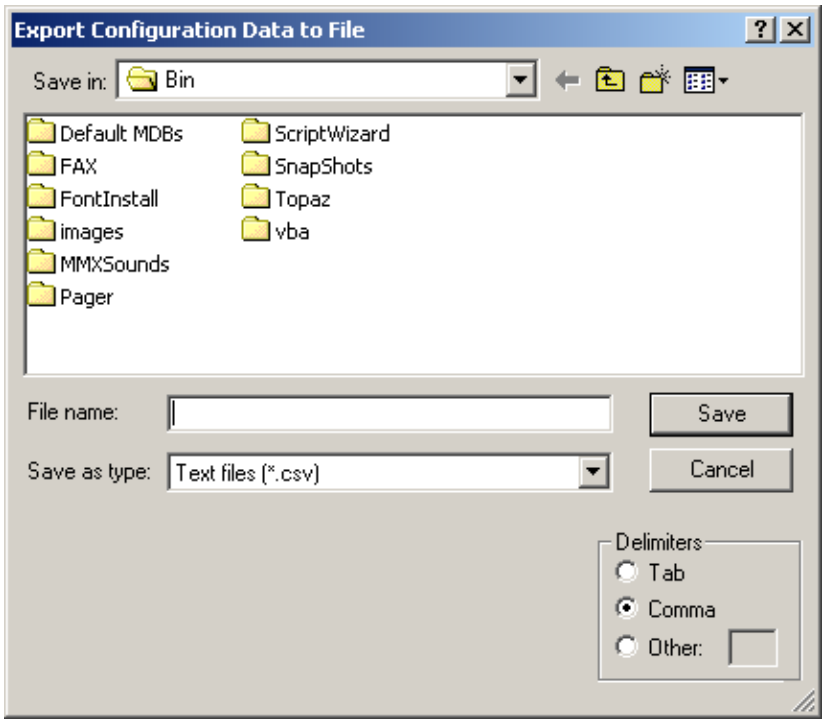


Figure 1.34. Exporting Configuration Data

Importing Configuration Data

The Configurator offers the flexibility of importing data from a text (.txt) file or a Microsoft Excel (.csv) file to your configuration database. To import data, select **Import CSV** from the **File** menu. This opens the **Import Configuration Data From File** dialog box, as shown in **Figure 1.35.** You can then specify the delimiters and choose from the following import settings:

- **Create new items.** When the import file contains items that are not yet in the configuration database, then it will create them. Otherwise it will skip these items.
- **Update existing items.** When the import file contains items that are in the configuration database, then it will update them using data from the import file. Otherwise it will skip these items.

  Note: Either **Create new items** or **Update existing items** must be selected. Otherwise there is nothing to import.

- **Display errors.** When this item is checked, the Configurator will show a dialog box if an error occurs, and then will ask you if you want to proceed with the import. When it is not checked, it will skip all items where an error occurred.

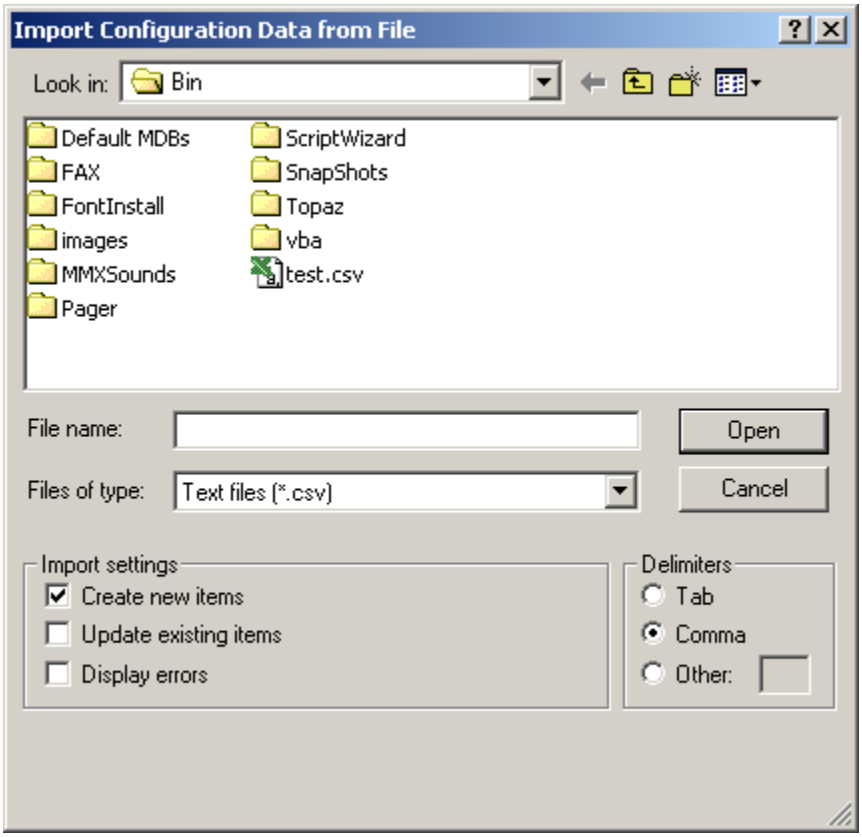


Figure 1.35. Importing Configuration Data

When you have selected a file to import, click **Open.** When the import is completed, the **File Import Results** dialog box will open, as shown in **Figure 1.36.** This shows the import settings, including the input file name. It also provides a summary of the import, including how many items were inserted, updated, or rejected, and shows how many errors occurred.

Click the **...** button to the right of each field to get the details view of the import results, as shown below. This view shows the specific items that were inserted, updated, or rejected, as well as a description of any errors that occurred.

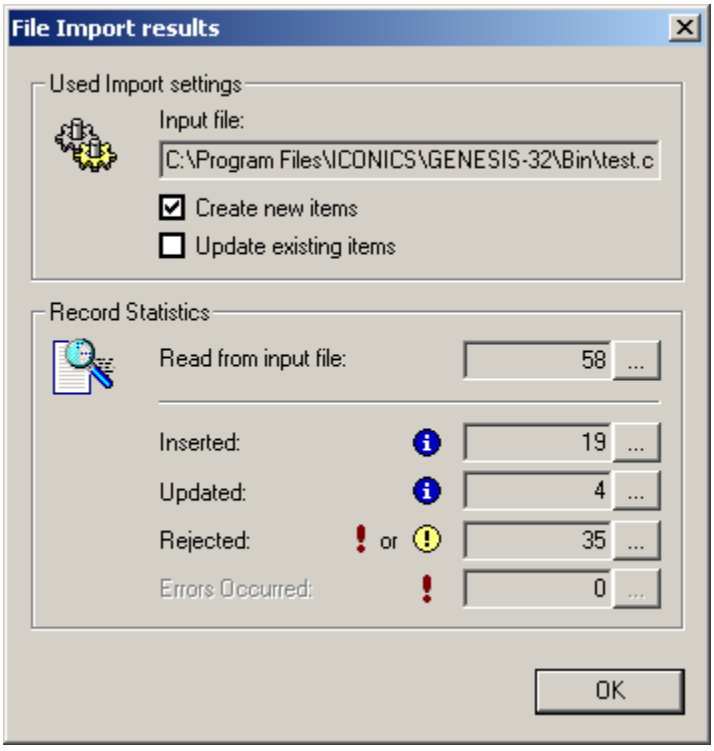


Figure 1.36. File Import Results Dialog Box

1.8.2 Edit Menu

The **Edit** menu commands are listed in **Table 1.2.**

Table 1.2. Edit Menu Commands

Command	Shortcut Keys	Function
New		Creates a new item depending on what is selected in the tree view.
Rename	CTRL+R	Renames the selected object.
Multiply	CTRL+M	Multiplies the selected object or item.
Delete	CTRL+DEL	Deletes the selected object.
Cut	CTRL+X	Cuts the selected object from the view and places it on the clipboard.

Copy	CTRL+C	Copies the selected object to the clipboard.
Paste	CTRL+V	Pastes the last object placed on the clipboard.
Select All	CTRL+A	Selects all objects in a list. The selection is shown in the upper-right-hand section of the viewer.
Invert Selection		Unselects all selected items and selects all unselected items in a list in the upper-right-hand section of the viewer.

1.8.3 View Menu

The **View** menu commands are listed in **Table 1.3.**

Table 1.3. View Menu Commands

Command	Shortcut Keys	Function
Toolbar		Displays the toolbar.
Status Bar		Toggles the status bar.
Large Icons	F7	Displays the items in the list as small icons.
Small Icons	F8	Displays the items in the list as small icons.
List	F9	Displays the items in a list.
Details	F10	Displays the items along with detailed information about the configuration of each item.
Dialog View	F11	Toggles the configuration window (right-hand pane).
Monitor View	F12	Shows/hides the Multimedia Server runtime monitor. (See **Chapter 8.**)
Sort By		Displays a list of options for sorting the columns in the right-hand pane of the screen. The options listed depend on the level within the view.

Show/Hide Columns		Displays a list of options that you can choose to show or hide in the view.
Select Language		Allows you to select the language to be used in the Configurator from the **Select Language** dialog box. Select the language you wish to use for your system and click **OK.** For navigation purposes, use the buttons and check boxes in the **List** section.
Global Refresh	F5	Refreshes the data for the entire Configurator screen.
Subtree Refresh	CTRL+F5	Refreshes only the data contained in the currently selected subtree.

Selecting Languages

The **Select Language** function on the **View** menu allows you to choose which language to use in your display. Choosing **Select Language** from the **View** menu opens the Select Language dialog box, shown in **Figure 1.37.**

Note: A language resource .dll must be installed for language switching to work.

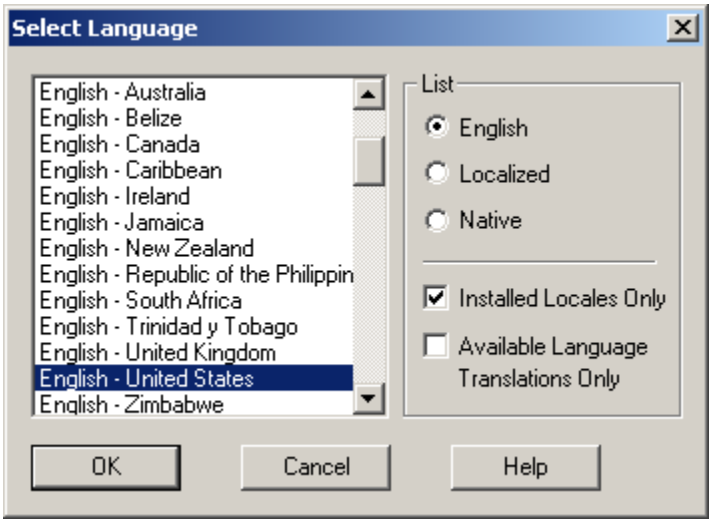


Figure 1.37. Select Language Dialog Box

Define the parameters listed in the table below. Then click **OK** to return to the work area.

Select Language Parameters

Parameter	Description
List	Lists available languages. Depending on which item you have selected, the view on the left will change. If **English** is checked, the languages will appear as their English name. If **Localized** is checked, the languages will appear with the native country in parentheses (for languages with several dialects only). When **Native** is checked, the languages are displayed the way they would be written in that language.
Installed Locales Only	If this is checked, local languages appear in the box.
Available Language Translations Only	Checking this box allows you to choose from available language translations only.

1.8.4 Go Menu

The **Go** menu commands are listed in **Table 1.4.**

Table 1.4. Go Menu Commands

Command	Shortcut Keys	Function
Up One Level		Moves the cursor up one level.
Item Above	ALT+Up Arrow	Moves the cursor to the next item up in the tree view.
Item Below	ALT+Down Arrow	Moves the cursor to the next item down in the tree view.
Previous Item		Moves the cursor back to the last item selected.
Next Item		Opens the next item in the tree view.
Expand Item	ALT+Left Arrow	Expands an item that contains a submenu.
Collapse Item	ALT+Right Arrow	Collapses an item that contains a submenu.
Page Up	ALT+PgUp	Moves the cursor up to the first item in the tree.

Page Down	ALT+PgDown	Moves the cursor down to the last visible item in the tree.
Home	ALT+Home	Moves the cursor up to the first item in the tree.
End	ALT+End	Moves the cursor down to the last visible item in the tree.
Next Pane	F6	Moves the cursor to the next pane.
Previous Pane	SHIFT+F6	Moves the cursor to the last pane used.

1.8.5 Action Menu

The **Action** menu commands are listed in **Table 1.5.**

Table 1.5. Action Menu Commands

Command	Function
Start Multimedia Server	Enters the Multimedia Server into runtime mode. For information on runtime operations, please see **Chapter 8.**
Stop Multimedia Server	Stops the Multimedia Server and exits runtime mode.

1.8.6 Tools Menu

The **Tools** menu commands are listed in **Table 1.6.**

Table 1.6. Tools Menu Commands

Command	Function
Options	Launches the **Options** dialog box. For more information about the **Options** dialog box, please see **Chapter 7.**
Multimedia Configuration Wizard	Launches the **Alarm Configuration Wizard,** which guides you through the steps for alarm configuration. (See **Chapter 3** for details.)

1.8.7 Help Menu

The **Help** menu commands are listed in **Table 1.7.**

Table 1.7. Help Menu Commands

Command	Shortcut Keys	Function
Help Topics	F1	Launches the online Help for the ICONICS Multimedia Configurator.
What's This?	SHIFT+F1	Displays context-sensitive help.
Multimedia Assistant		Starts the Icon-Nick Multimedia Assistant, which provides interactive, text-to-speech help.
About Application		Launches the **About Box,** which contains information about the product version number, copyright, and available disk space. It also contains information about how to contact ICONICS.

1.9 Adding, Reinstalling, and Uninstalling Components

The following procedure explains how you can update your AlarmWorX32 Multimedia installation at any time.

1. Select **Settings > Control Panel** from the Windows **Start** menu.
2. In the Control Panel, select **Add/Remove Programs.**
3. This opens the Windows **Add/Remove Programs** dialog box, as shown in **Figure 1.38.** To make changes to the Multimedia installation, select **Multimedia Alarming** and click the **Change/Remove** button.

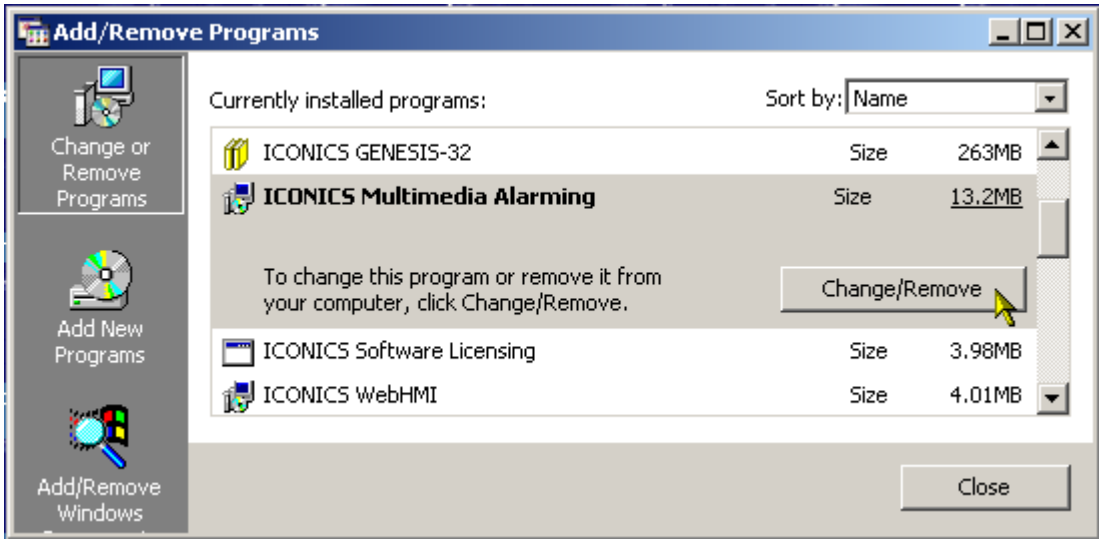


Figure 1.38. Windows Add/Remove Programs Dialog Box

4. This opens a **Setup** dialog box that allows you to select whether to modify, repair, or remove AlarmWorX32 Multimedia, as shown in **Figure 1.39.**

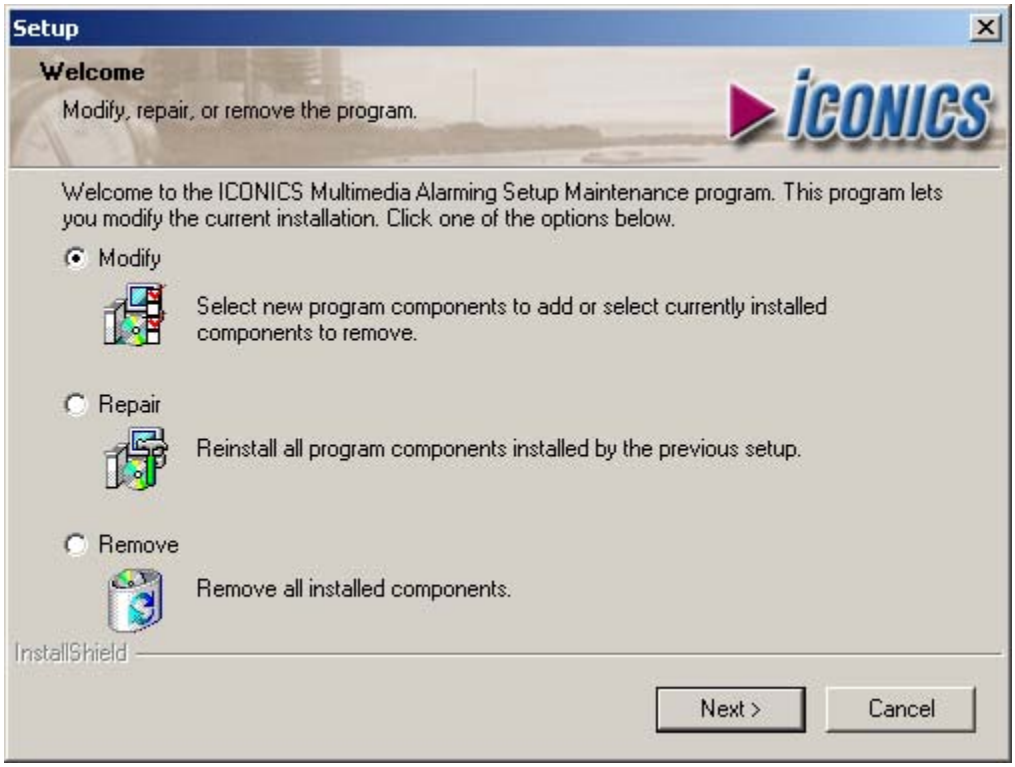


Figure 1.39. Multimedia Setup Options

5. To add or remove specific program components, select **Modify** and then click the **Next** button. This opens the **Select Components** dialog box, where you can select which agents to add to or remove from the installation.

6. To repair a corrupted installation, select **Repair** from the **Setup** dialog box. Then click **Next** to reinstall all program components.

7. To uninstall all program components, select **Remove** from the **Setup** dialog box. Then click the **Next** button. A dialog box then asks you if you wish to uninstall AlarmWorX32 Multimedia. Click **OK** to uninstall the application.

8. When you have finished modifying, repairing, or uninstalling components, the **Maintenance Complete** dialog box appears.

1.10 Multimedia Demo

Examples of multimedia alarming agents are provided in the **Multimedia Demo.** You must have ICONICS GraphWorX32 installed to run this demonstration. To view these examples, open the "MMXDemo.gdf" file in the "ICONICS/GENESIS32/Examples/Multimedia Demo" directory. You can also open the Multimedia Demo from the Windows **Programs** menu by selecting **ICONICS > GENESIS32 > AlarmWorX32 > Multimedia Demo.**

Creating Alarm Configurations 2

2.1 Basic Steps for Creating an Alarm Configuration

This chapter provides a quick walk-through of how to create a basic alarm configuration. The following are suggested procedures for quickly and easily using the alarm Configurator's power and flexibility to develop a new alarm configuration. This chapter covers the following steps. More advanced options, such as templates and roles with scheduling, are discussed in later chapters.

Step 1. Create a subscription to an OPC Alarm and Event server.

Step 2. Create an alarm filter.

Step 3. Create a multimedia agent.

Step 4. Create an alarm configuration.

Step 5. Create an action set.

Step 6. Make the database active.

Step 7: Start the Multimedia Server.

For additional help on any of these steps, select **Multimedia Assistant** from the **Help** menu. Follow the instructions provided by the Multimedia Assistant.

As an alternative, the Multimedia Configuration Wizard provides a simple walk-through that guides you through the steps above in a condensed, user-friendly fashion. Using the Multimedia Configuration Wizard simplifies the above process down to two steps:

Step 1. Use the Multimedia Configuration Wizard to create an alarm configuration. (See **Chapter 3.**)

Step 2. Make the database active.

Step 3: Start the Multimedia Server.

Note: In order to allow intranet/Internet-based alarm subscriptions or alarm notification, you will need to configure either DCOM or TCP/IP communications.

For more information, please refer to the GenBroker or WebHMI help documentation.

2.2 Creating a Subscription

The first step in creating an alarm configuration is to create a subscription, which defines a connection to an alarm server. A subscription specifically describes alarms in which the Multimedia component is interested. To create a subscription to one or several OPC Alarm and Event servers, do the following:

1. Click the **Insert New Subscription** button on the Configurator toolbar, or right-click the **OPC Subscriptions** folder (found under the **Alarm Inputs** folder on the tree control) and select **New > OPC Subscription** from the pop-up menu, as shown in **Figure 2.1.**

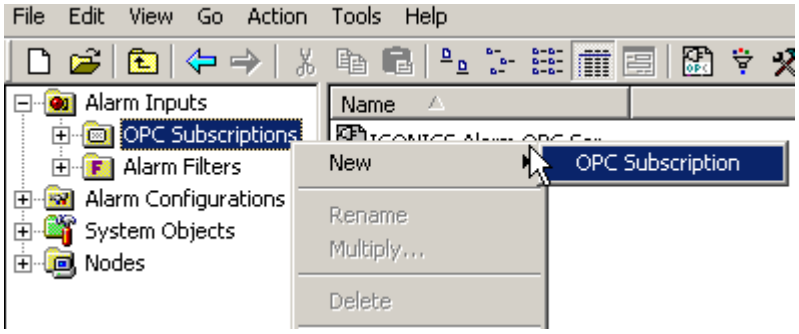


Figure 2.1. Creating a New Subscription

2. Type in the new subscription name, as shown in **Figure 2.2.**
3. Click the **Subscribe/Edit** button to open the **Subscription Properties** dialog box.
4. When you have finished configuring the subscription properties, click **OK.**
5. Click **Apply.**



Figure 2.2. Naming the New Subscription

2.2.1 Subscription Properties

Clicking the **Subscribe/Edit** button in the subscription field opens the **Subscription Properties** dialog box, shown in **Figure 2.3.** The **Subscription** tab determines what type of OPC connection will be made. It allows you to add, rename, delete, or edit a subscription to a particular OPC Alarm and Event Server. To add a new subscription, click the **Add** button.

The subscription named "New Subscription" appears, as shown in Figure 2.3. This subscription does not contain any data, so it is necessary to immediately edit the new subscription. To do so, click the **Edit** button to open the **Event Subscription** dialog box, shown in **Figure 2.3.** It is only possible to add or edit subscriptions that are connected to active OPC Alarm and Event servers.

Note: It is possible for a server to have more than one subscription. In fact, it is a very effective way to achieve filtering.

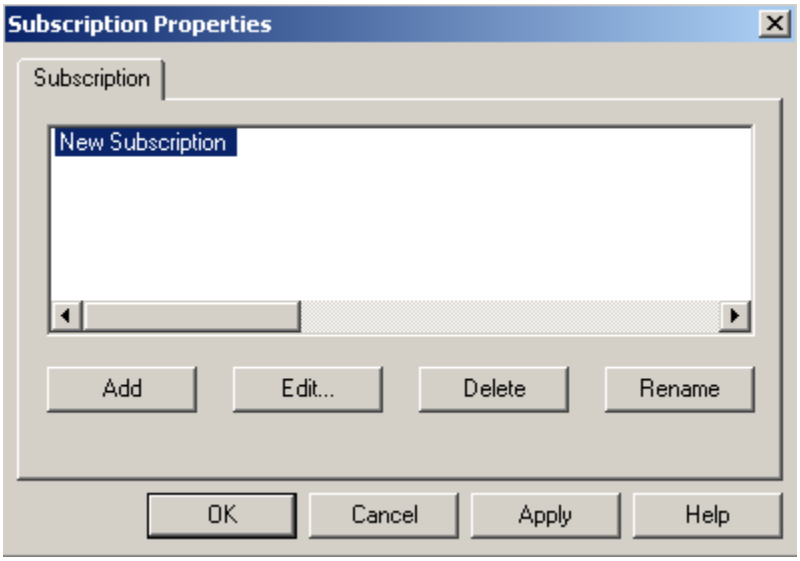


Figure 2.3. Subscription Properties Dialog Box

Server Tab

The **Server** tab of the **Event Subscription** dialog box, shown in **Figure 2.4,** allows you to select an **Event Server** and **Node** for each subscription. To select the event server, click the **Browse** button.

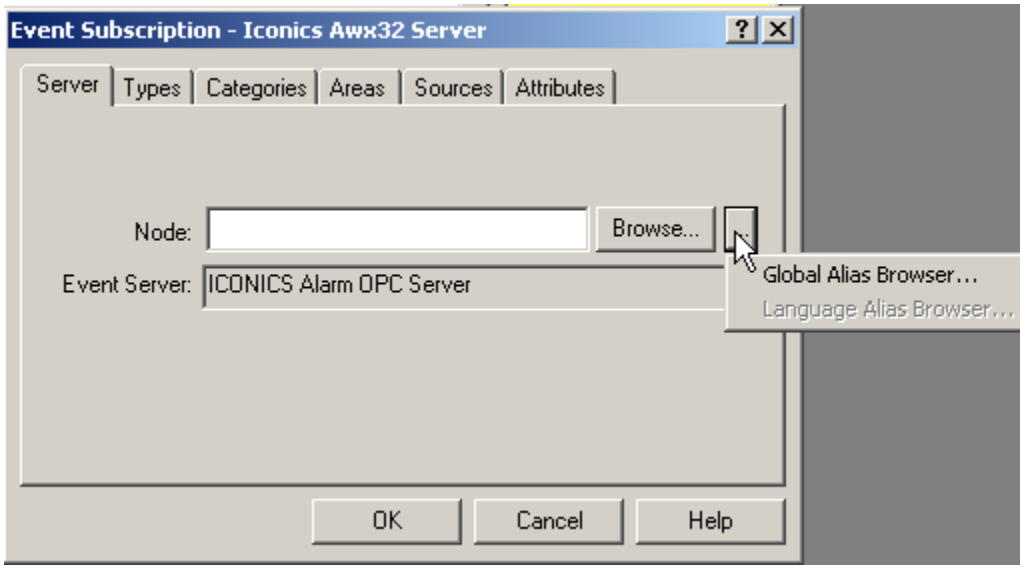


Figure 2.4. Event Subscription Dialog Box: Server Tab

This opens the **OPC Universal Tag Browser,** shown in **Figure 2.5,** which lists all available Alarm and Event OPC servers. Select the desired server, and click **OK.** For local servers, it is not necessary to fill in the **Node** field.

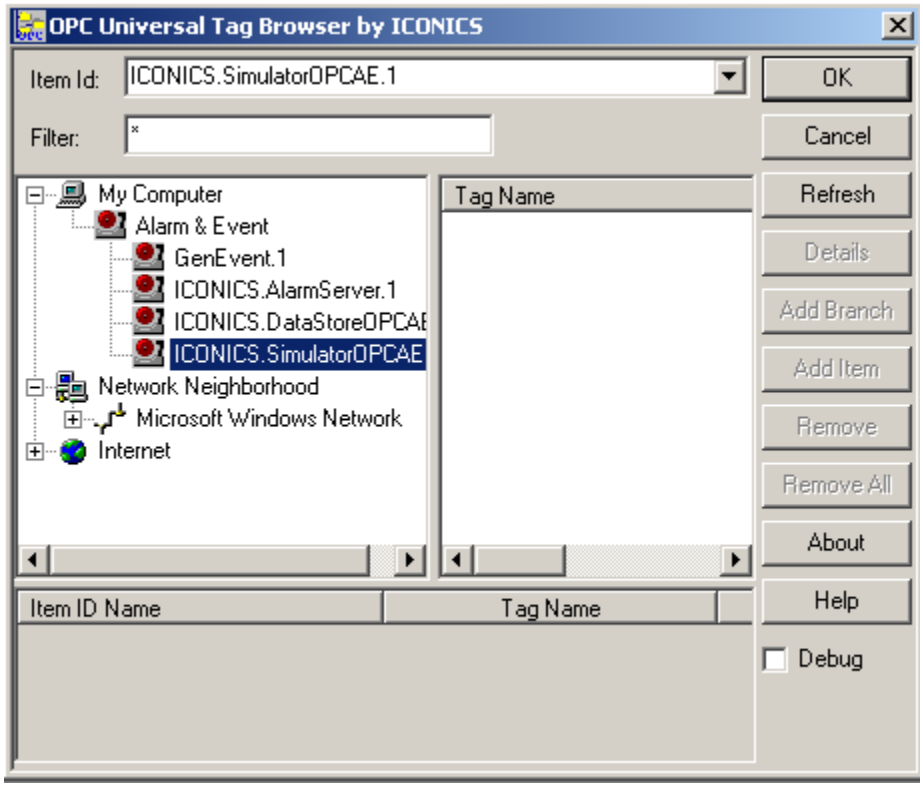


Figure 2.5. Selecting an Alarm and Events Server From the Tag Browser

You can also select global aliases to use in the **Node** field. Clicking the **...** button and selecting **Global Alias Browser** from the pop-up menu opens the Global Alias Browser, as shown in **Figure 2.6.** Select a global alias from the Global Alias Browser, which includes all global aliases in the global alias database. This eliminates the need to manually type in the alias name. All global aliases that are configured in the Global Alias Engine Configurator are conveniently available to choose from inside the browser. The tree control of the Global Alias Engine Configurator is mimicked in the tree control of the Global Alias Browser. Select a global alias by double-clicking the alias name (e.g. "Floor" in the figure below). The alias name appears at the top of the browser, which automatically adds the <# and #> delimiters to the alias name. Click the **OK** button.

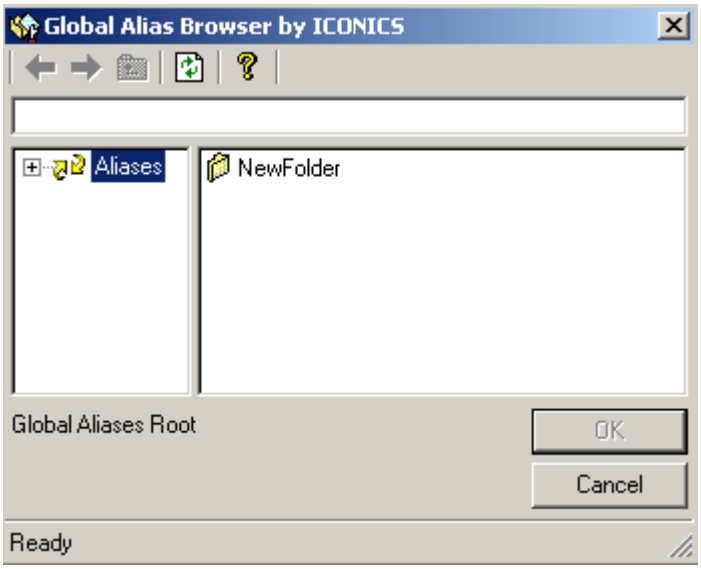


Figure 2.6. Selecting an Alias From the Global Alias Browser

Types Tab

The **Types** tab of the **Event Subscription** dialog box, shown in **Figure 2.7,** allows you to configure which OPC-defined event types each subscription should have, as well as to set the ranges for severity (priority). A value of "0" represents the low severity value, and "1000" represents the high severity value. Please note that OPC Alarm and Event (AE) servers are required to scale severity values to the OPC ranges (i.e. an AE server that contained two severity ranges would convert these to "0" and "1000").

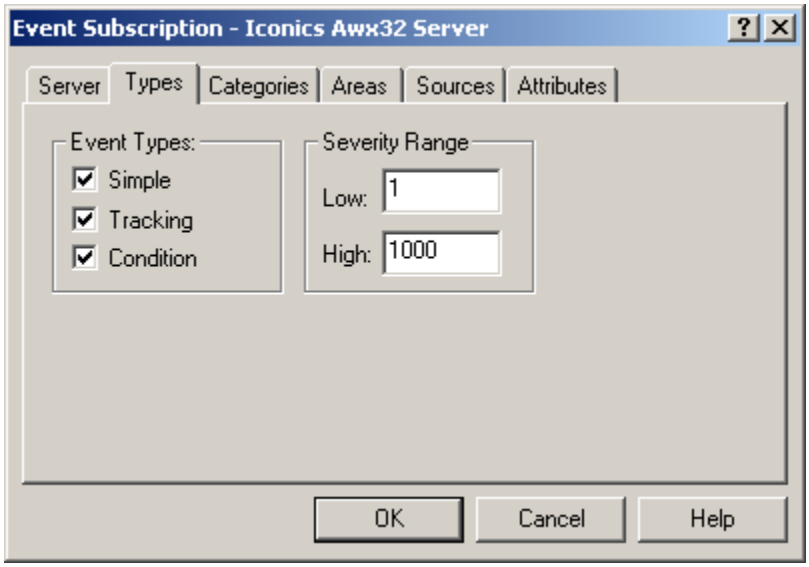


Figure 2.7. Event Subscription Dialog Box: Types Tab

Simple: These messages state information but do not have alarm status, nor do they contain information on what initiated the message. This includes the following information: Source, Time, Type, EventCategory, Severity, Message, Cookie, and server-specific items.

Example: "FIC101, 12:0:0 1/1/99, Simple, Category1, 100, 'Shift Change', 1"

Simple messages would be similar to an event.

Tracking: These messages contain the additional information of the client that initiated the event. This includes the following information: Source, Time, Type, EventCategory, Severity, Message, Cookie, ActorID, and server-specific items.

Example: "FIC101, 12:0:1 1/1/99, Tracking, Category1, 300, 'Pump pressure Set to 10 psi', 1, Station 12"

Tracking messages are similar to event messages in that the cause of the event is important. An example would be an operator changing a setpoint value. This type of message does not include acknowledge capability.

Note: Simple and tracking messages are removed from the alarm viewer via the acknowledge mechanism.

Condition: These messages contain all of the above information but also include an acknowledgement portion. This includes the following information: Source, Time, Type, EventCategory, Severity, Message, Cookie, ConditionName,

SubConditionName, ChangeMask, NewState, ConditionQuality, AckRequired, ActiveTime, ActorID and server-specific items.

Example: "FIC101, 12:0:3 1/1/99, Condition, Category1, 700, 'Pump pressure to high', 1, Limit, HiHi, 1,Active Enabled, Good, TRUE, 12:0:2 1/1/99"

Condition messages would be considered a "typical" alarm message with acknowledge capability.

For further details on any of the included information, please refer to the OPC Alarm and Events specification.

Categories Tab

The **Categories** tab of the **Event Subscription** dialog, shown in **Figure 2.8,** allows you to select the categories for a subscription. Select the category from the list of available categories, and then click the **Add ->** button. The category will appear in the **Subscribed** list. To remove a category from this list, select it in the **Subscribed** list and click the **<- Remove** button. If no categories are listed in the **Subscribed** list, then all categories are selected by default. However, adding "Digital" and "Rate of Change," for example, to the list tells the OPC Alarm and Events Server to deliver only those alarm messages to the Multimedia Server. This is a “first-pass” filter on the server side.

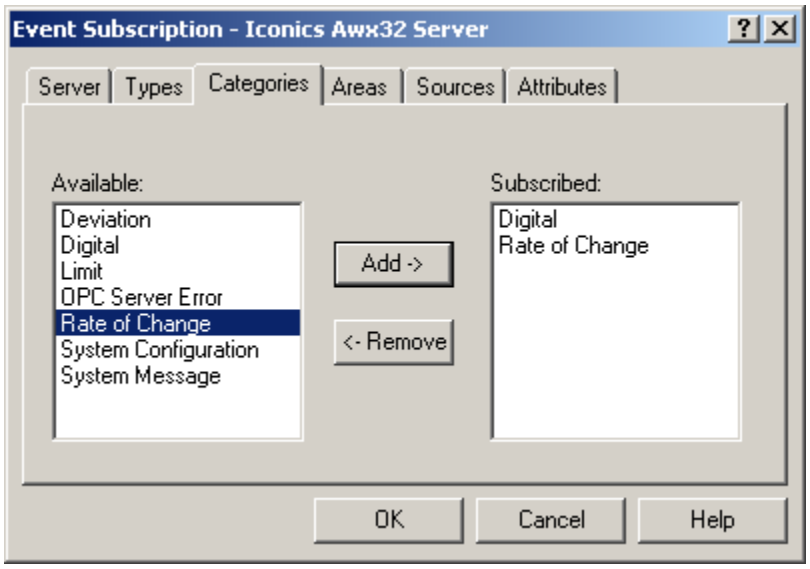


Figure 2.8. Event Subscription Dialog Box: Categories Tab

Event Types and Categories

All events generated are of the OPC defined Event Type **Condition.** The AlarmWorX32 Server defines the following **Event Categories** and uses the identical names for the **Condition Names:**

- Deviation
- Digital
- Limit
- Rate of Change

The **Limit** and **Deviation** conditions have the following Sub-conditions:

- HiHi
- Hi
- Lo
- LoLo

Note: The following categories are not used in the ICONICS Alarm Server:

- OPC Server Error
- System Configuration
- System Message

Areas Tab

Use the **Areas** tab of the **Event Subscription** dialog box, shown in **Figure 2.9,** to select an area or a group of areas for filtering in a subscription. An **area** is used to group OPC alarm tags. This information can be used by clients for filtering purposes. A tag can exist under multiple areas, and an area can have a multiple levels. An area is defined by its name and the name of its parent branches. For example, a branch called Area 1 under plant Area A is different from Area 1 under plant Area B. Areas can be configured in the AlarmWorX32 Server Configurator.

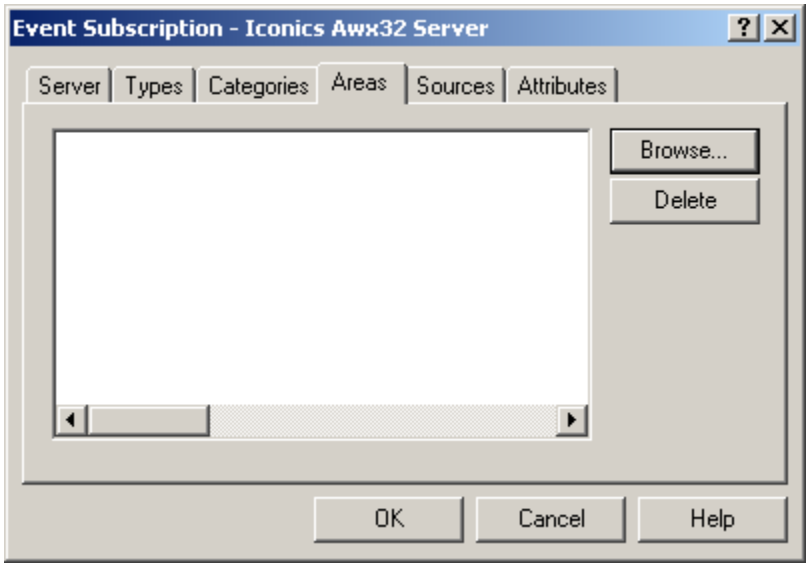


Figure 2.9. Event Subscription Dialog Box: Areas Tab

Clicking the **Browse** button opens the **OPC Event Server Area / Source Browser,** shown in **Figure 2.10,** which lists all available areas for your event server. Area subscription supports wildcards, which subscribe to the format of the Microsoft Visual Basic 'like" command. For example, "Area1*" will subscribe to all alarm areas that contain strings beginning with "Area1". "Area1*" will subscribe to the root area and its "child" areas. A detailed explanation of the wildcard support can be found in the OPC Alarm and Events documentation. It is recommended that you thoroughly read the wildcard documentation before attempting to use complicated expressions.

Note: For the like operator: "string" equals the string to search in; "pattern" equals the string to search for (can include wildcards); nonzero for case-sensitive search; zero for case-insensitive search. String syntax is $"string"$.

You can use these special characters in pattern matches in string:

- ? Any single character.
- Zero or more characters.
- # Any single digit (0-9).
- [charlist] Any single character in charlist.
- [!charlist] Any single character not in charlist.

It is also possible to delete an area from the **Areas** tab. To delete an area, select it from the list of areas for this particular subscription, and then click the **Delete**

button. Not all OPC Alarm and Event servers support area filtering as part of the subscription.

Note: If no areas are listed, then all areas are selected by default.

Note: It is recommended that you have an area in the alarm server to which you subscribe; this ensures that the relevant multimedia alarms are received. Any available areas listed in the active Alarm Server configuration database are available to choose from in the Area/Source Browser.

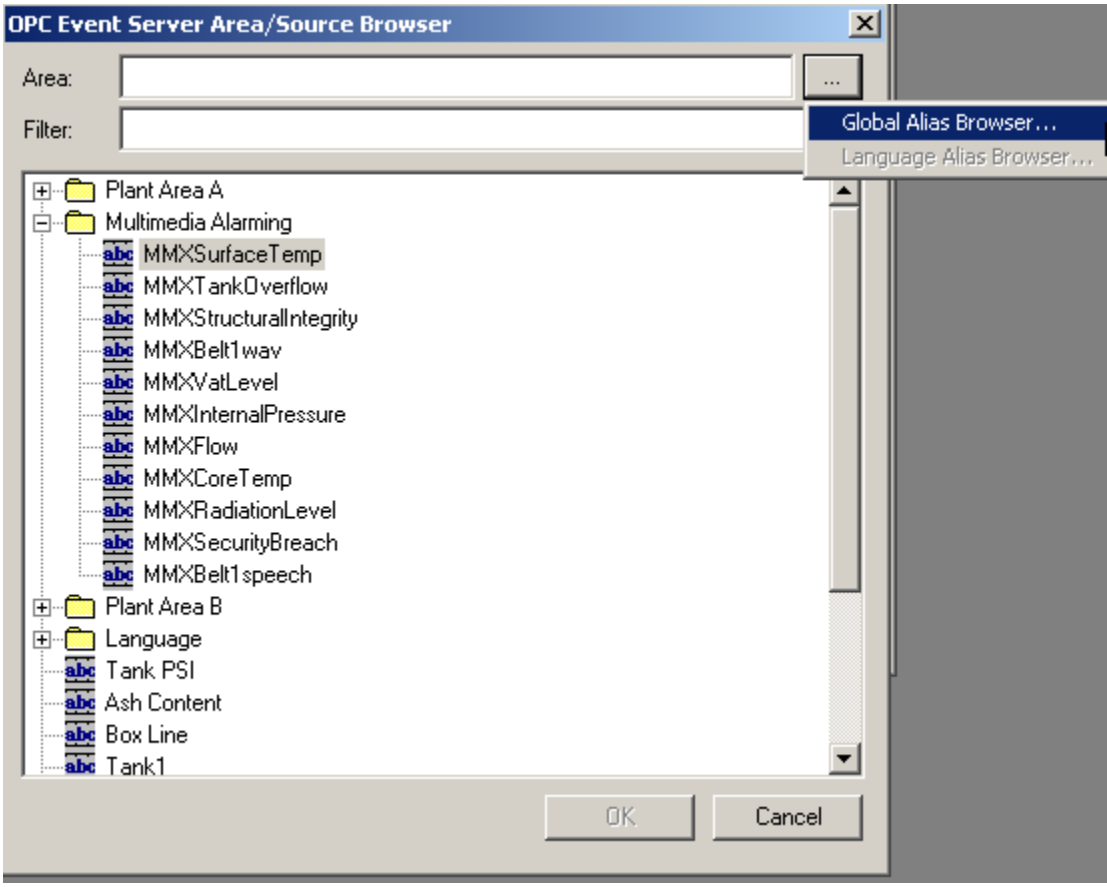


Figure 2.10. OPC Event Server Area/Source Browser

You can also select global aliases to use in the **Area** field. Clicking the **...** button and selecting **Global Alias Browser** from the pop-up menu opens the Global Alias Browser, as shown in **Figure 2.11.** Select a global alias from the Global Alias Browser, which includes all global aliases in the global alias database. This eliminates the need to manually type in the alias name. All global aliases that are

configured in the Global Alias Engine Configurator are conveniently available to choose from inside the browser. The tree control of the Global Alias Engine Configurator is mimicked in the tree control of the Global Alias Browser. Select a global alias by double-clicking the alias name (e.g. "Floor" in the figure below). The alias name appears at the top of the browser, which automatically adds the <# and #> delimiters to the alias name. Click the **OK** button.

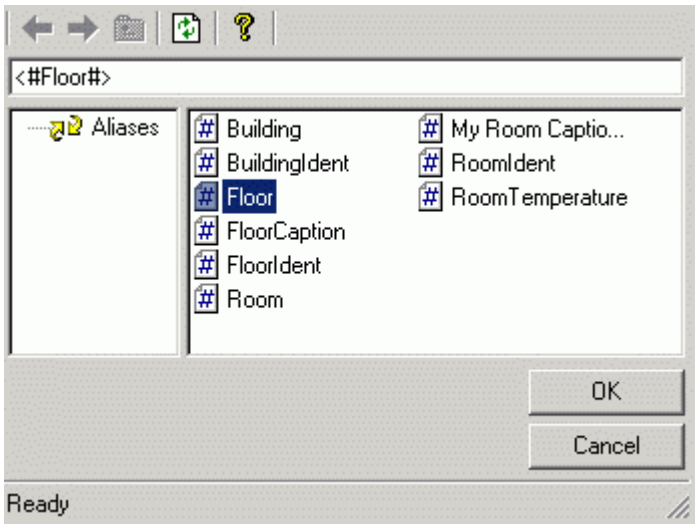


Figure 2.11. Selecting an Alias From the Global Alias Browser

Clicking the **...** button and selecting **Language Alias Browser** from the pop-up menu opens the Language Alias Browser, as shown in **Figure 2.12.** The browser includes all languages aliases in the language database. All language aliases that are configured in the Language Configurator are conveniently available to choose from inside the browser. The tree control of the Language Configurator is mimicked in the tree control of the Language Alias Browser. Select a language alias by double-clicking the alias name. The alias name appears at the top of the browser, which automatically adds the /+ and +/ delimiters to the alias name. Click the **OK** button.

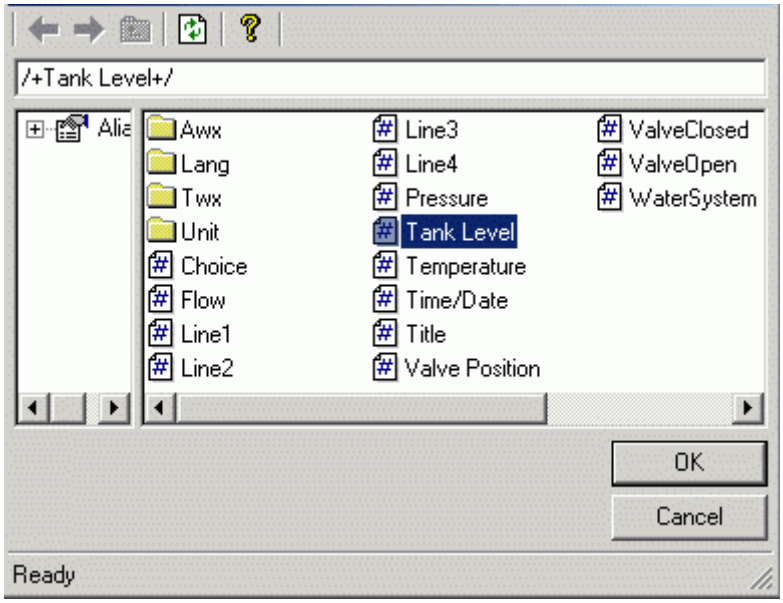


Figure 2.12. Selecting an Alias From the Language Alias Browser

Sources Tab

The **Sources** tab of the **Event Subscription** dialog box, shown in **Figure 2.13,** allows you to filter on a source or group of sources for a particular subscription. A **source** is an OPC alarm tag in an alarm configuration. In the AlarmWorX32 Server Configurator, a source can be associated with a particular area (group of alarm tags). It is also possible to delete a source for a particular subscription. To delete a source, select it from the list of sources for this particular subscription and click the **Delete** button. Not all OPC Alarm and Event servers support source filtering as part of the subscription.

Note: If no sources are listed, then all sources are selected by default. Any available sources listed in the active Alarm Server configuration database are available to choose from in the Area/Source Browser, as shown in the figure below.

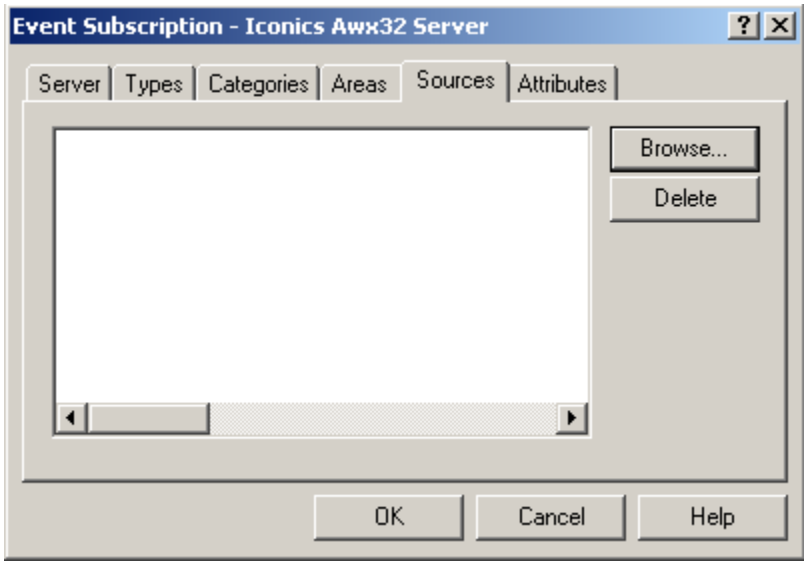


Figure 2.13. Event Subscription Dialog Box: Sources Tab

To select a source, click the **Browse** button and select one from the **OPC Event Server Area / Source Browser,** shown in **Figure 2.14.** Source subscription provides the wildcard support found in the area subscription.

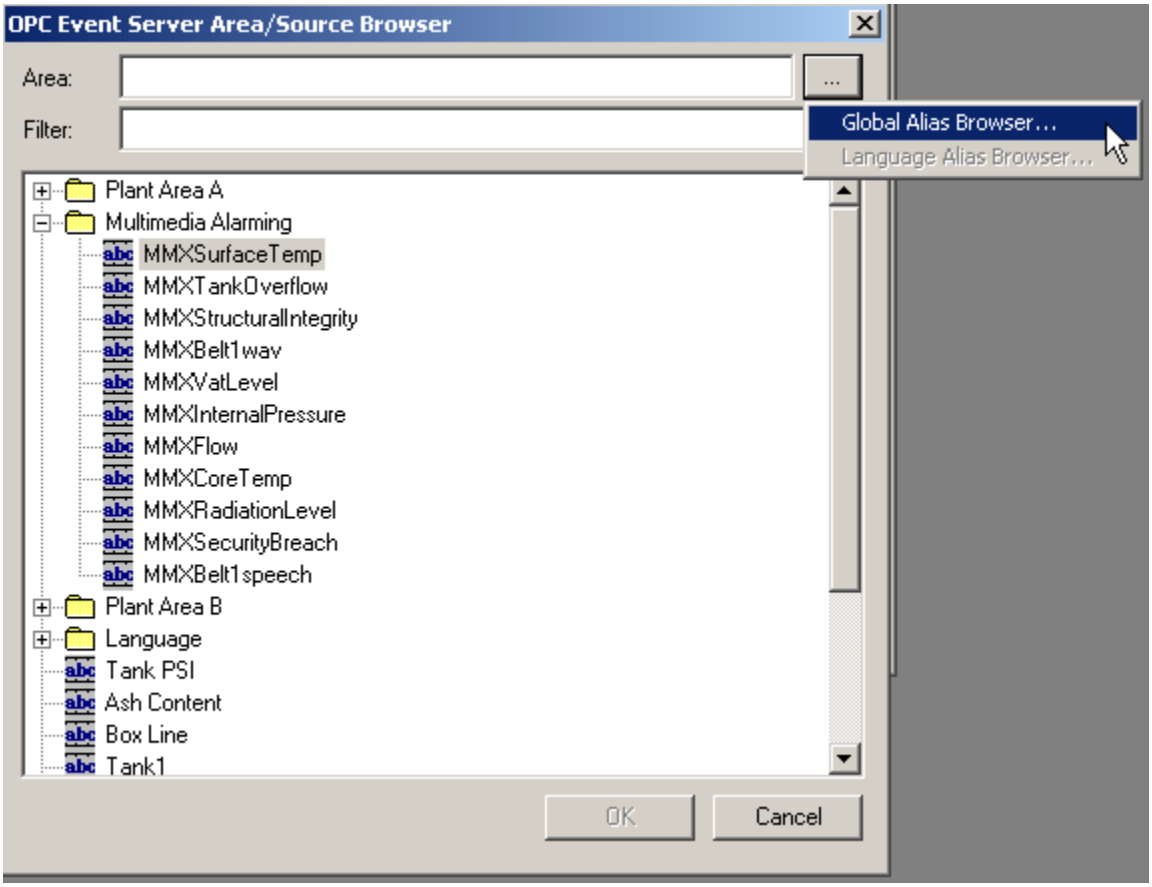


Figure 2.14. OPC Event Server Area/Source Browser

Attributes Tab

The **Attributes** tab of the **Event Subscription** dialog box, shown in **Figure 2.15,** allows you to add extra attributes to a particular event category within a subscription. Select the event category from the corresponding drop-down list. Choose the desired items from the available attributes list, and click the **Add** button. To remove an attribute from the subscribed list, select that particular attribute and click **Remove.**

Note: The following categories are not used in the ICONICS Alarm Server:

- OPC Server Error
- System Configuration

- System Message

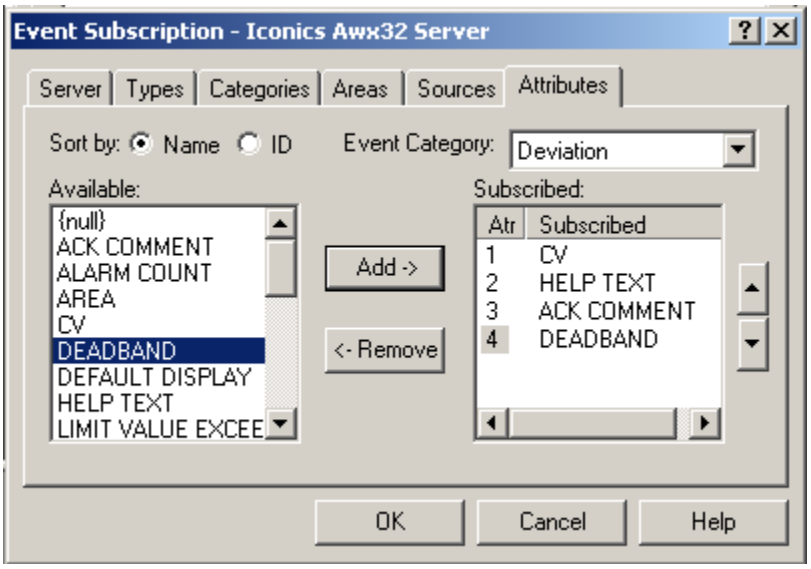


Figure 2.15. Event Subscription Dialog Box: Attributes Tab

It is important to note that the order of the subscribed attributes does matter. The order of the attributes determines the order they will be selected from the alarm server, and also determines with which viewer attribute column they are associated. To change the order of the attributes in the subscribed field, simply select an attribute and click the "up" and "down" arrow buttons. Server-specific information will be displayed in the Attributes1-n columns. The attributes columns are added in the **Column** tab of the **Alarm Viewer ActiveX Properties** dialog box.

Note: To receive extra attributes, you must request them per event category.

Event Attributes

The following event attributes are made available to subscribing clients:

Attribute	Deviation	Digital	Limit	Rate of Change	Type	Comment
ACK COMMENT	✔	✔	✔	✔	VT_BSTR	Comment entered when ala last acknowledged.
ALARM COUNT	✔	✔	✔	✔	VT_I4	Number of alarm transitions acknowledge.
AREA	✔	✔	✔	✔	VT_ARRAY | VT_BSTR	Array of areas
CV	✔	✔	✔	✔	VT_R8 VT_BOOL	Current Value (OPC Input 1
DEADBAND	✔		✔	✔	VT_R8	Alarm detection Deadband.
DEFAULT DISPLAY	✔	✔	✔	✔	VT_BSTR	A text string, usually a file n that when launched provide related information.
HELP TEXT	✔	✔	✔	✔	VT_BSTR	Help information
LIMIT VALUE EXCEEDED	✔		✔	✔	VT_R8	The Current Value at the tir limit was exceeded.
LOOP DESC	✔	✔	✔	✔	VT_BSTR	A description of the Source
NEXT_LIM	✔		✔		VT_R8	The value of the next limit.
NORMAL STATE		✔			VT_BOOL	Value of the normal state (T or FALSE).
PREV LIM	✔		✔		VT_R8	Value of the previous limit reached.
RELATED VALUE 01-10	✔	✔	✔	✔		Associates up to 10 OPC tag expressions with each alarm “supplemental” information to alarm.
SP	✔				VT_SP	Setpoint (OPC Input 2)

2.3 Creating an Alarm Filter

Once you have configured your subscriptions, the Multimedia Server will receive all alarms subscribed to in the configuration database. Alarm filters allow you to filter an alarm subset. You can make filters that only filter a specific alarm tag or filters that filter a group of alarms. The Multimedia Server uses alarm filters to specify which subset of alarms will be used to initiate a multimedia action.

The default configuration database provided in the installation contains many configured alarm filters. To view these filters, expand the Alarm Inputs folder in the tree control, and then expand the **Alarm Filters** folder. This shows all of the filters already defined in your system.

To set up an alarm filter:

1. Click the **Insert New Filter** button on the Configurator toolbar, or right-click on the **Alarm Filters** folder (found under the **Alarm Inputs** folder on the tree control) and select **New > Alarm Filter** from the pop-up menu, as shown in **Figure 2.16.**

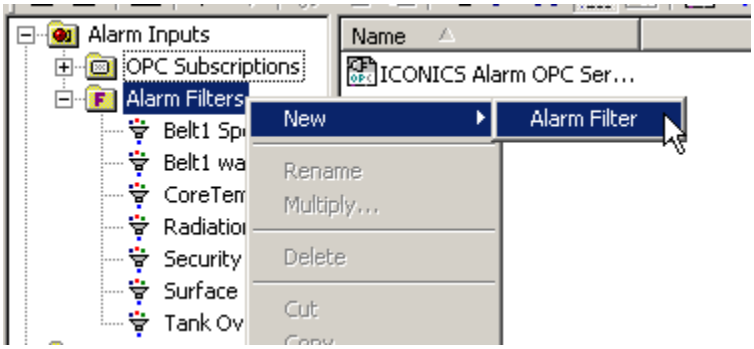


Figure 2.16. Creating a New Alarm Filter

2. Type in the new filter name, as shown in **Figure 2.17.**

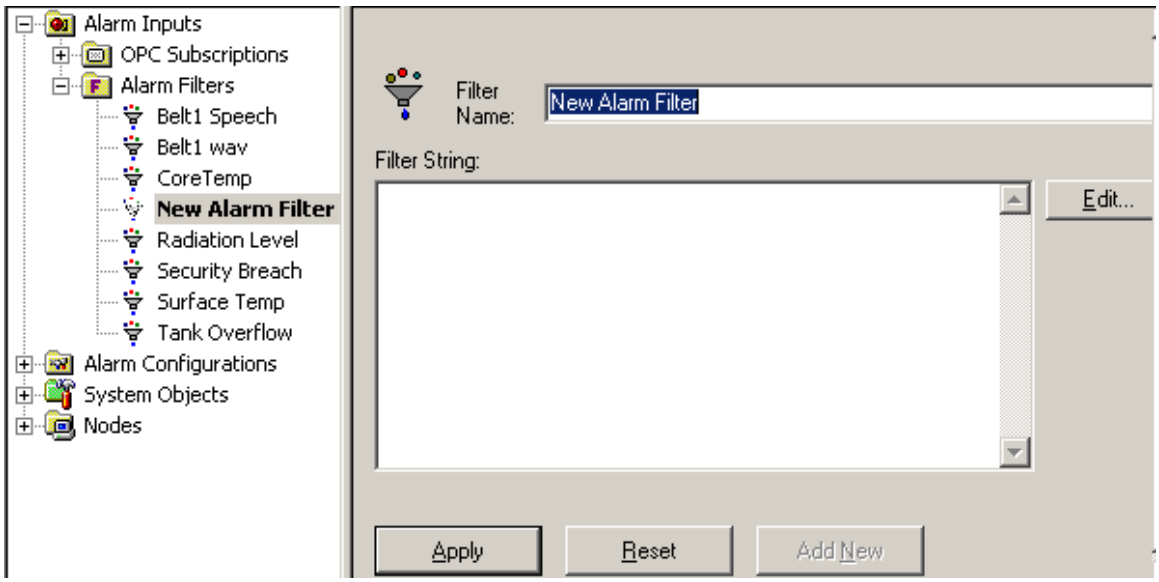


Figure 2.17. Naming the New Alarm Filter

3. Click the **Edit** button to open the **Edit Expression** dialog box (described in the section below). This is where you will configure your filter.
4. Click **Apply.**

Deleting a Filter

To delete an alarm filter, right-click the filter in the tree control and select **Delete** from the pop-up menu. Your system will ask if you really want to delete the filter. Click **Yes** to delete the filter.

Renaming a Filter

To rename a filter, right-click the filter in the tree view and select **Rename** from the pop-up menu. It is necessary to change the filter name if you are going to add more than one filter. Try to give the filter a name that describes what it does or the values it considers when filtering.

Note: Depending on the security level of the user, the user may or may not be able to create or activate filters during runtime mode.

2.3.1 Expression Editor

You can use the Edit Expression dialog box, shown in **Figure 2.18,** to set up your alarm filtering. The following options are available:

- Arithmetic
- Relational
- Logical
- Bitwise
- Functions
- Tags

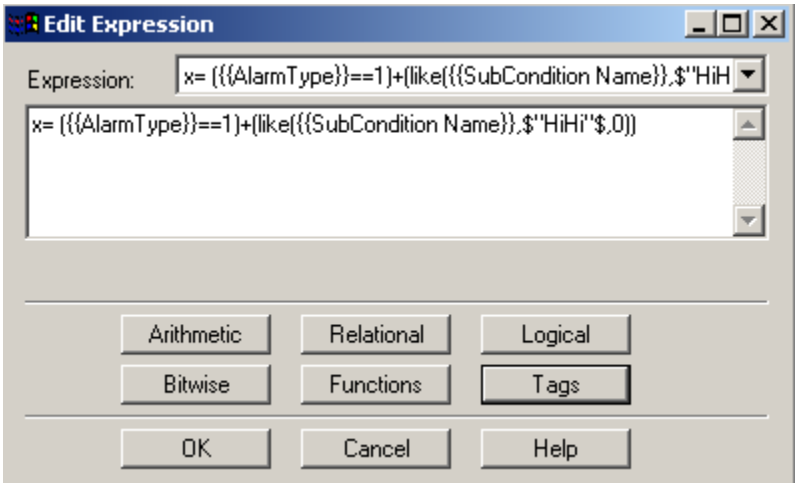


Figure 2.18. Edit Expression Dialog Box

Arithmetic

The symbols '+', '-', '*', '/' and '%' use the following format:

expression :: parameter **symbol** parameter

Where

Parameter	A local variable, an OPC tag, a constant, or another expression
Symbol	+ or - or * or / or %

Result

The expression results in a number of any type (float, long, etc.).

Examples

Symbol	Description	Example	Result
+	Addition	~~var1~~ + ~~var2~~	8+3 = 11
-	Subtraction	~~var1~~ - ~~var2~~	8-3 = 5
*	Multiplication	~~var1~~ * ~~var2~~	8*3 = 24
/	Division	~~var1~~ / ~~var2~~	8/3 = 2.66667
%	Calculates the	~~var1~~ % ~~var2~~	8%3 = 2

Symbol	Description	Example	Result
	remainder after division		
(and)	Gives precedence to parts of the calculation	~~var1~~ / (~~var2~~ + ~~var3~~)	8/(3+2) = 1.6

Relational

The symbols '<', '>', '<=', '>=', '==' and '!=' use the following format:

expression :: parameter **symbol** parameter

Where

Parameter	A local variable, an OPC tag, a constant, or another expression
Symbol	< or > or <= or >= or == or !=

Result

The expression results in a Boolean value (0 or 1).

Examples

Symbol	Description	Example	Result
<	Less than	~~var1~~ < ~~var2~~	8<3 = 0
>	Greater than	~~var1~~ > ~~var2~~	8>3 = 1
<=	Less than or equal to	~~var1~~ <= ~~var2~~	8<=3 = 0
>=	Greater than or equal to	~~var1~~ >= ~~var2~~	8>=3 = 1
==	Equal to	~~var1~~ == ~~var2~~	8==3 = 0
!=	Not equal to	~~var1~~ != ~~var2~~	8!=3 = 1

Logical

The symbols '&&' and '||' use the following format:

expression :: parameter **symbol** parameter

The symbol '!' uses the following format:

expression :: **symbol** parameter

Where

Parameter	A local variable, an OPC tag, a constant, or another expression
Symbol	&& or || or !

Result

The expression results in a Boolean value (0 or 1).

Truth table

~~var1~~	0		not 0	
~~var2~~	0	not 0	0	not 0
~~var1~~ && ~~var2~~	0	0	0	1
~~var1~~ || ~~var2~~	0	1	1	1
!~~var1~~	1	1	0	0

Examples

Symbol	Description	Example	Result
&&	And	~~var1~~ && ~~var2~~	8 && 3 = 1
||	Or	~~var1~~ || ~~var2~~	8 || 3 = 1
!	Not	!~~var1~~	!8 = 0

Bitwise

The symbols '&', '|', and '^' of the bitwise group use the following format:

expression :: parameter **symbol** parameter

The symbol '~' of the logical group uses the following format:

expression :: **symbol** parameter

The symbols 'shl' and 'shr' of the bitwise group use the following format:

expression :: **symbol** (value, shift by)

Where

Parameter	A local variable, an OPC tag, a constant, or another expression
Symbol	&& or || or ^ or shl or shr or ~

Result

The expression results in a number when the parameters used contain numbers.

Bit Table

	Binary (Decimal)	Binary (Decimal)
~~var1~~	0000.0000.0000.1000 (8)	0000.0000.0110.0000 (96)
~~var2~~	0000.0000.0000.1010 (10)	0000.0000.0000.1000 (8)
~~var1~~ & ~~var2~~	0000.0000.0000.1000 (8)	0000.0000.0000.0000 (0)
~~var1~~ | ~~var2~~	0000.0000.0000.1010 (10)	0000.0000.0110.1000 (104)
~~var1~~ ^ ~~var2~~	0000.0000.0000.0010 (2)	0000.0000.0110.1000 (104)
shl (~~var1~~,3)	0000.0000.0100.0000 (64)	0000.0011.0000.0000 (768)
shr (~~var1~~,3)	0000.0000.0000.0001 (1)	0000.0000.0000.1100 (12)
~(~~var1~~)	1111.1111.1111.0111 (-9)	1111.1100.1111.1111 (-97)
bittest(~~var1~~,3)	0000.0000.0000.0001 (1)	0000.0000.0000.0000 (0)

Examples

Symbol	Description	Example	Result
&	Bit And	~~var1~~ & ~~var2~~	8 && 3 = 0
|	Bit Or	~~var1~~ | ~~var2~~	8 || 3 = 11
^	Bit eXclusive Or	~~var1~~ ^ ~~var2~~	8^3=11
shl	Bit shift left	shl(~~var1~~,3)	8<<3=64

Symbol	Description	Example	Result
shr	Bit shift right	shr(~~var1~~,3)	8>>3=1
~	Not (two's complement)	~(~~var1~~)	!8 = -9
bittest	Bit Test	bittest (5 , 0)	1

Note: The bittest function requires you to specify the position of the bit to be tested. You must indicate that it starts from 0. In other words, a bit position of "0" indicates the "less significant" bit.

Functions

The symbols 'sin', 'asin', 'cos', 'acos', 'tan', 'atan', 'log', 'ln', 'exp', 'sqrt', 'abs', 'ceil', and 'floor' use the following format:

expression :: **symbol** (parameter)

The symbols 'pow', 'min', and 'max' use the following format:

expression :: **symbol** (parameter,parameter)

The symbol 'if' uses the following format:

expression :: **symbol** (parameter,parameter,parameter)

Where

Parameter	A local variable, an OPC tag, a constant, or another expression
Symbol	sin, asin, cos, acos, tan, atan, log, ln, exp, sqrt, abs, ceil, floor, min, max, pow, or if

Result

The expression results in a number.

Examples

Symbol	Description	Example	Result
sin	sine of an angle in	sin(~~var1~~)	sin(0.785)=0.71

Symbol	Description	Example	Result
	radians		
cos	cosine of an angle in radians	cos(~~var1~~)	cos(0.785)=0.71
tan	tangent of an angle in radians	tan(~~var1~~)	tan(0.785)=1.0
asin	arc sine returns an angle in radians	asin(~~var1~~)	asin(0.5)=0.52
acos	arc cosine returns an angle in radians	acos(~~var1~~)	acos(0.5)=1.05
atan	arc tangent returns an angle in radians	atan(~~var1~~)	atan(1)=0.785
sqrt	Returns the square root	sqrt(~~var1~~)	sqrt(100)=10
pow	Returns value 1 raised to the power value 2	pow(~~var1~~,~~var2~~)	pow(100,1.5)=1000
log	10 based logarithm	log(~~var1~~)	log(100)=2
ln	*e* based logarithm	ln(~~var1~~)	ln(7.389)=2
exp	Exponential	exp(~~var1~~)	exp(2)=7.389
abs	Absolute value	abs(~~var1~~)	abs(-1)=1
ceil	Integer ceiling	ceil(~~var1~~)	ceil(7.39)=8
floor	Integer floor	floor(~~var1~~)	floor(7.39)=7
min	Lowest value of two	min(~~var1~~,~~var2~~)	min(10,5)=5
max	Highest value of two	max(~~var1~~,~~var2~~)	min(10,5)=10
if	Conditional statement	if(~~var1~~<~~var2~~, ~~var1~~,~~var2~~)	if(5<8,5,8)=5
like	Wildcard string compare	Like(string, pattern, casesensitive')	
quality	Quality of tag or expression	See below.	See below.
tostring	Type conversion	See below.	See below.

Symbol	Description	Example	Result
`0x`	Hexadecimal constant	`x=0x11`	`17`
`0t`	Octal constant	`x=0t11`	`9`
`0b`	Binary constant	`x=0b11`	`3`

Note: For the like operator: "string" equals the string to search in; "pattern" equals the string to search for (can include wildcards); nonzero for case-sensitive search; zero for case-insensitive search. String syntax is $"string"$.

You can use these special characters in pattern matches in string:

- ? Any single character.
- Zero or more characters.
- # Any single digit (0-9).
- [charlist] Any single character in charlist.
- [!charlist] Any single character not in charlist.

Quality

The **quality** option on the **Functions** menu of the **Expression Editor** is used to evaluate the quality of an OPC tag or an expression.

The following general syntax is used for quality expressions:

x=quality(expression)

Note: The "(expression)" can also be a simple expression composed of a single tag.

The **quality** function returns the OPC quality of the string between parentheses as one of the following results:

- 192: quality is GOOD
- 64: quality UNCERTAIN
- 0: quality BAD

Note: The OPC Foundation establishes the value ranges for quality. There are actually varying degrees of quality:

- GOOD: 192-252
- UNCERTAIN: 64-191
- BAD: 0-63

For more information, refer to the *OPC Data Access Custom Interface Standard* available for download at the OPC Foundation's Web site, www.opcfoundation.org/.

Example Quality Expression

Expression	Result
x=quality({{ICONICS.Simulator.1\SimulatePLC.PumpStatus}})	192 (Quality GOOD)

The quality of an expression is determined through the evaluation of each single tag in the expression. Thus, if you have multiple tags in an expression (and each tag has a different quality), the result of the expression (i.e. 192 [GOOD], 64 [BAD], or 0 [UNCERTAIN]) corresponds to the quality of the tag with the lowest quality. If an expression contains a conditional statement (e.g. if, then, or else), then the result of the expression is affected only by the quality of the branch being executed.

Consider the following sample expression:

x= if (quality({{Tag1}}) == 192, {{Tag1}}, {{Tag2}})

This expression can be read as follows:

"If the quality of Tag1 is GOOD (i.e. 192), then the expression result (x) is the value of Tag1. In all other cases (i.e. the quality of Tag1 is UNCERTAIN or BAD), the expression result (x) is the value of Tag2."

We can calculate the results for this expression using different qualities for Tag1 and Tag2, as shown in the table below.

Case	Tag1 quality	Tag2 quality	Result	Result quality
1	GOOD	GOOD	Tag1	192 (GOOD)
2	GOOD	UNCERTAIN	Tag1	192 (GOOD)
3	GOOD	BAD	Tag1	192 (GOOD)
4	UNCERTAIN	GOOD	Tag2	192 (GOOD)
5	UNCERTAIN	UNCERTAIN	Tag2	64

				(UNCERTAIN)
6	UNCERTAIN	BAD	Tag2	0 (BAD)
7	BAD	GOOD	Tag2	192 (GOOD)
8	BAD	UNCERTAIN	Tag2	64 (UNCERTAIN)
9	BAD	BAD	Tag2	0 (BAD)

In cases 1-3 above, the quality of Tag1 is GOOD, and therefore the result of the expression is GOOD. Thus, the result of the expression is not affected by the quality of Tag2 (the “else” branch of the expression), which is ignored.

In cases 4-6, the quality of Tag1 is UNCERTAIN, and therefore the result of the expression is the quality of Tag2.

In cases 7-9, the quality of Tag1 is BAD, and therefore the result of the expression is the quality of Tag2.

Note: The “quality()” function returns a value that represents the quality of the expression within the parentheses but is always GOOD_QUALITY. For example, if Tag1 is BAD_QUALITY then the expression “x=quality({{Tag1}})" will return 0 with GOOD_QUALITY.

The result of an expression is the minimum quality of the evaluated tag in the expression and is affected only by the quality of the conditional (if, then, or else) branch that is executed.

Consider the following sample expression:

x= if ({{TAG_01}}>0,{{TAG_02}},{{TAG_03}})

This expression can be read as follows:

"If the value of TAG_01 is greater than 0, then the expression result (x) is TAG_02. If the value of TAG_01 is less than or equal to 0, then the expression result (x) is TAG_03."

Let's assume that the following values and qualities for these tags:

TAG_01=5 with quality GOOD

TAG_02=6 with quality UNCERTAIN

TAG_03=7 with quality BAD

Because the value of TAG_01 is 5 (greater than 0), the expression result is TAG_02. Thus, the final expression result is 6, and the final expression quality is UNCERTAIN.

Type Conversion

The **tostring** option on the **Functions** menu of the **Expression Editor** takes the value of whatever item is in parentheses and converts it into a string as follows:

The value is +(value)+unit

It can be used to convert from number to string, and it can be very useful for string concatenation.

The proper syntax for the **tostring** option is:

x=$"The value is "$ + tostring(value) + $" unit"$

Note: In the expression above, the word "unit" is placeholder text for a user-specified unit of measurement or variable (e.g. Watt, inches, meters, etc.).

Example Expressions Type Conversion

Expression	Result
x=$"The value is "$ + tostring({{gfwsim.ramp.float}}) + $" Watt"$	“The value is 543.2345152 Watt”

Constants

The **Functions** menu of the **Expression Editor** supports constant values, including hexadecimal, octal, and binary formats.

Example Expressions Using Constants

Expression	Result
x=0x11	17
x=0t11	9
x=0b11	3

The **Expression Editor** conveniently inserts the 0x and 0t and 0b prefixes for you so do not have to recall them.

Interpreting and Translating Constants

The examples below show how values are calculated for each type of constant.

- **Hexadecimal:** 0x20A = 2 * (16^2) + 0 * (16^1) + 10 * (16^0) = 2*256 + 0*16 + 10 * 1 = 512 + 0 + 10 = 522

- **Octal:** 0t36= 3 * (7^1) + 6 *(7^0) = 3* 7 + 6* 1= 21 + 6 = 27
- **Binary:** 0b110 = 1 * (2^2) + 1 * (2^1) + 0 * (2^ 0) = 1 * 4 + 1 * 2 + 0 * 1 = 4+2+0 = 6

Tags

The menu options available under the **Tags** button of the Expression Editor are shown in **Figure 2.19.** The **Expression Editor** dialog box can also be used to create and edit alarm filters. The Expression Editor provides a **Filter Wizard** and an **Alarm Tag** list to help you create simple alarm filters. If you want to customize your alarm filters, you can use the other functions in the Expression Editor to set up your alarm filters manually.

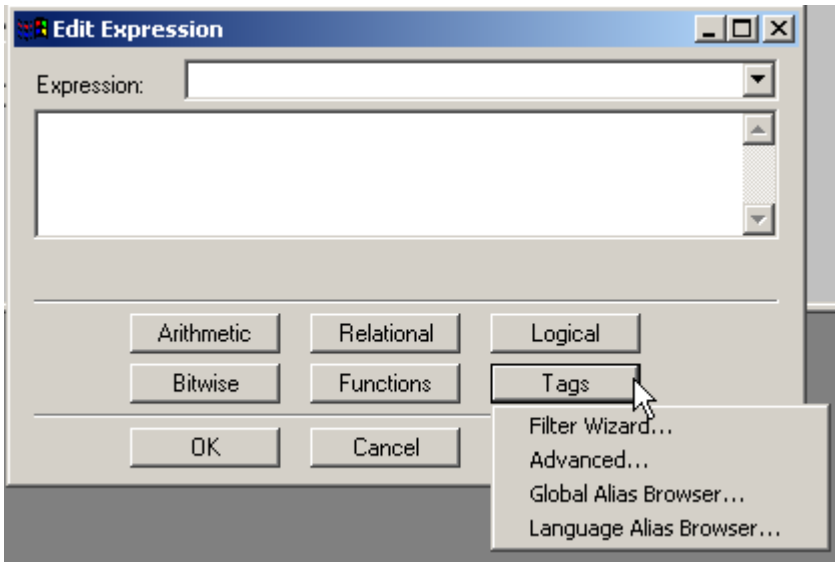


Figure 2.19. Creating Alarm Filters Using the Expression Editor

Filter Wizard

The **Filter Wizard,** shown in **Figure 2.20,** allows you to choose from the following to items enter in your expression. Select one or more items, and then click **OK.** The filter string is automatically inserted into the **Edit Expression** dialog box.

- **Alarm Types:** Alarm, Acknowledgement, Unacknowledgement, Tracking, and Operator

- **Sub Conditions:** LoLo, Lo, Hi, HiHi, Rate of Change, and Digital

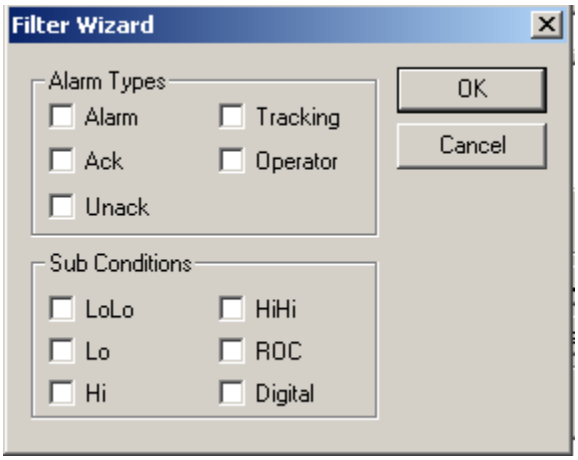


Figure 2.20. Filter Wizard

Selecting Alarm Attributes

Clicking **Advanced** (see Figure 2.19) opens the **Alarm Tag** list, shown in **Figure 2.21,** which allows you to choose alarm attributes for your alarm filter. Select the attribute that you want to include in the filter expression and click **OK.**

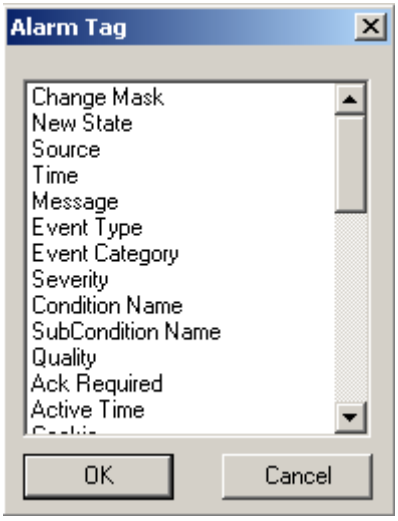


Figure 2.21. Alarm Tag List

There are two additional attributes available for use in filtering: **Alarm Type** and **Current Time.** The Alarm Type attribute allows you to filter alarms according to ALARM 1, ACK 2, UNACK 3, OPER 4, TRACK 5 or NORM 6. For example, you can set up a filter with the condition:

X = {{AlarmType}}

If the **Alarm Type** is true, then the alarms are displayed. If it is false, then they are not displayed.

The **Current Time** attribute allows you to filter according to the current time. Only alarms occurring around the current time will be displayed.

Example Alarm Filters

Expression	Result
X = {{Severity}} > 500.	Only alarm messages with a severity greater than 500 will be visible.
X = Like({{Source}}, $"Tag"$,0)	Only messages with the tag in the source name will be displayed.
X = 1.	Filter displays all messages.
X = 0.	Filter does not display any messages.

All filters resolve to TRUE or FALSE. All nonzero values resolve to TRUE.

Global Aliases

For global aliases within the expression, use the following syntax:

<#global_alias_name**#>**

Example:

x=<#RoomTemperature#>

Selecting **Global Alias Browser** opens the Global Alias Browser, as shown in **Figure 2.22.** Select a global alias from the Global Alias Browser, which includes all global aliases in the global alias database. This eliminates the need to manually type in the alias name. All global aliases that are configured in the

Global Alias Engine Configurator are conveniently available to choose from inside the browser. The tree control of the Global Alias Engine Configurator is mimicked in the tree control of the Global Alias Browser. Select a global alias by double-clicking the alias name (e.g. "Floor" in the figure below). The alias name appears at the top of the browser, which automatically adds the <# and #> delimiters to the alias name. Click the **OK** button.

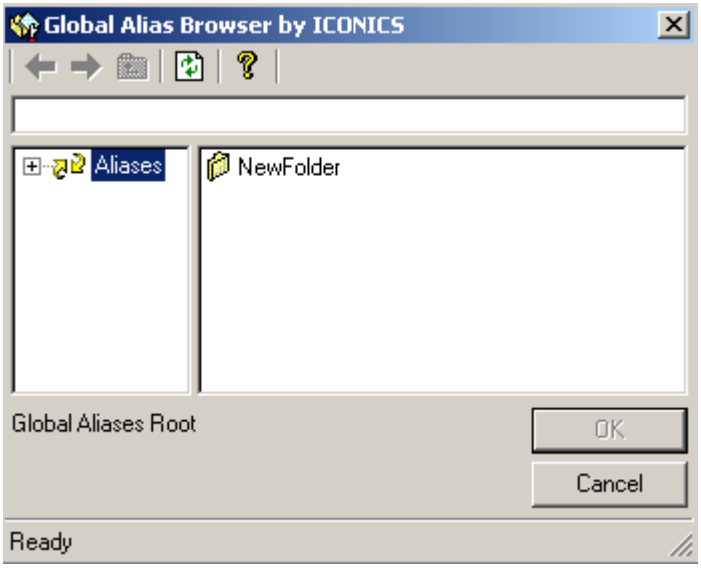


Figure 2.22. Selecting an Alias From the Global Alias Browser

Language Aliases

For language aliases within the expression, use the following syntax:

/+language_alias_name**+/**

Example:

x=/+WaterSystem+/

Selecting **Language Alias Browser** from the pop-up menu opens the Language Alias Browser, as shown in **Figure 2.23.** The browser includes all languages aliases in the language database. All language aliases that are configured in the Language Configurator are conveniently available to choose from inside the browser. The tree control of the Language Configurator is mimicked in the tree

control of the Language Alias Browser. Select a language alias by double-clicking the alias name. The alias name appears at the top of the browser, which automatically adds the /+ and +/ delimiters to the alias name. Click the **OK** button.

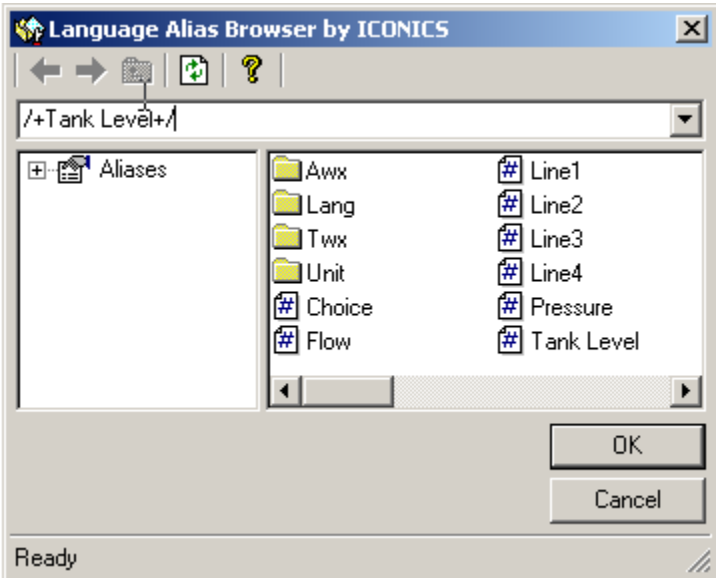


Figure 2.23. Selecting an Alias From the Language Alias Browser

2.4 Configuring a Multimedia Agent

You can configure any of the following multimedia agents to react when a predefined condition occurs within any alarm or events server:

- **E-mail:** Sends an e-mail message.
- **Sound / Text-to-Speech:** Plays prerecorded sounds and/or speech from text locally or remotely over a network.
- **Marquee:** Creates a marquee window displaying a message locally or remotely over a network.
- **Pager (SMS/GSM/TAP):** Sends a message to a pager.
- **Telephony:** The Call-out Agent calls a defined number and gives a message with options to respond. The Call-in Agent enables callers to dial in by phone to get alarm information and issue commands.
- **Fax:** Sends a message to a fax machine.

- **Instant Messaging:** Sends a message to any computer using Instant Messaging.
- **Popup:** Opens a program or Web site giving alarm messages.
- **Video:** Plays a video; can be a prerecorded video or a video captured at the moment of the alarm.

To configure a multimedia agent, do the following:

1. Right-click on the type of agent you wish to configure. Then select **New** and then the type of agent you wish to configure. The agent folders can be found in the **Multimedia Agents** folder, which is in the **Alarm Configurations** folder on the tree control, as shown in **Figure 2.24.**

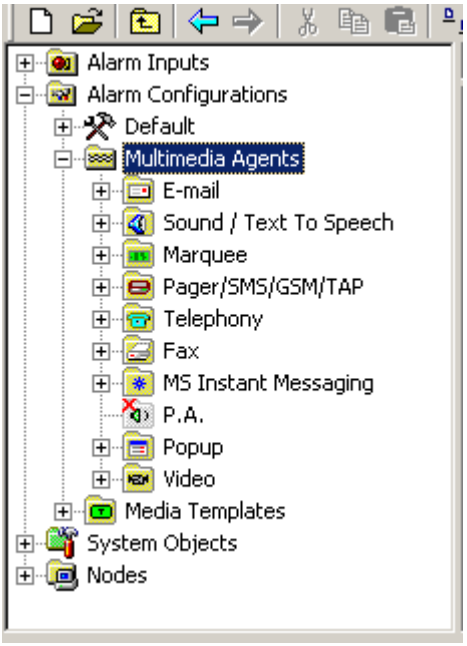


Figure 2.24. Multimedia Agents Tree Control

2. Depending on which type of agent you choose to configure, an appropriate dialog box will appear with all available options displayed. To see a description of each configuration field for a particular agent, click on that agent from the list above.
3. After entering all appropriate information, click **Apply** to save the agent information.

Note: For details on multimedia agent configuration, please see **Chapter 4.**

Note: You must enter an **Acknowledge Code** in the appropriate field if you wish for your user to be able to acknowledge or confirm receipt of an alarm. This is important if you will be using an escalating list of alarm actions and want the list to discontinue once someone has recognized an alarm has occurred. Note that the Sound / Text-to-Speech, Fax, Popup, and Video agents are used only for displaying messages and do not have an acknowledge option associated with them.

2.5 Creating an Alarm Configuration

The **alarm configuration** is where you specify which OPC subscription to be used and where you create action sets to be followed. Each new database you create will have a default alarm configuration. This is the alarm configuration you should plan to use if you are just creating one alarm configuration for your computer to follow. If you create a new alarm configuration with a name other than "Default," you will also need to create a new node configuration and link it to your alarm configuration.

To add the OPC subscription to be used in your configuration, do the following:

1. Right-click the **Alarm Configurations** folder and select **New > Alarm Configuration,** as shown in **Figure 2.25.**

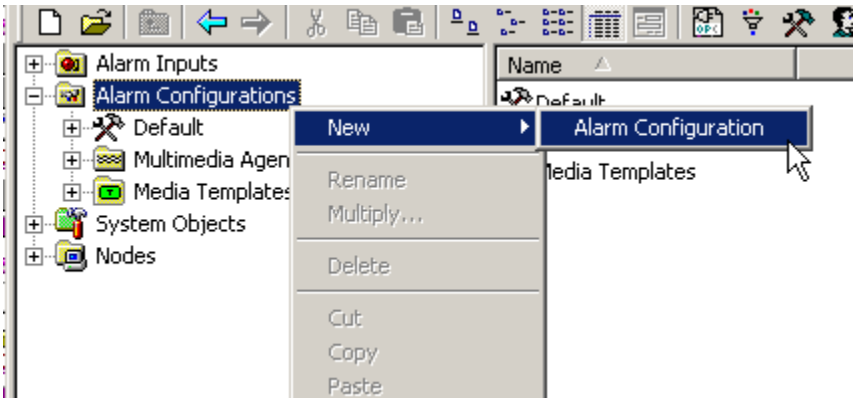


Figure 2.25. Adding a New Alarm Configuration

2. Select the OPC subscription you wish to use from the drop-down list, as shown in **Figure 2.26.**

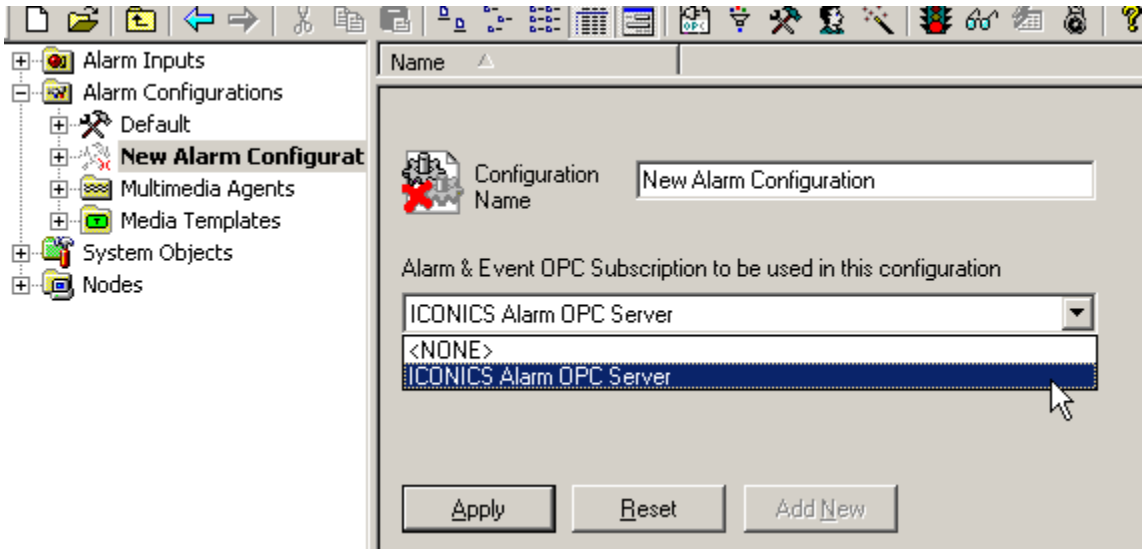


Figure 2.26. Choosing an OPC Subscription

3. Click **Apply.**

2.6 Creating an Alarm Action Set

An **Alarm Action Set** is a set of actions that the Multimedia Server will take whenever an alarm from that subscription occurs. For example, one action set could not only page the security guard, but it could also send an e-mail message to the technician on duty, announce the message over a phone, and fax the alarm to a remote center. You can create more than one action set under each alarm configuration. Each action set you create is based on a filter. Within each action set, you can define more than one procedure for that action set to follow.

To create an action set:

1. Right-click on **Default** and select **New > Alarm Action Set** from the pop-up menu, as shown in **Figure 2.27.** The **Default** alarm configuration object can be found in the **Alarm Configurations** folder on the tree control.

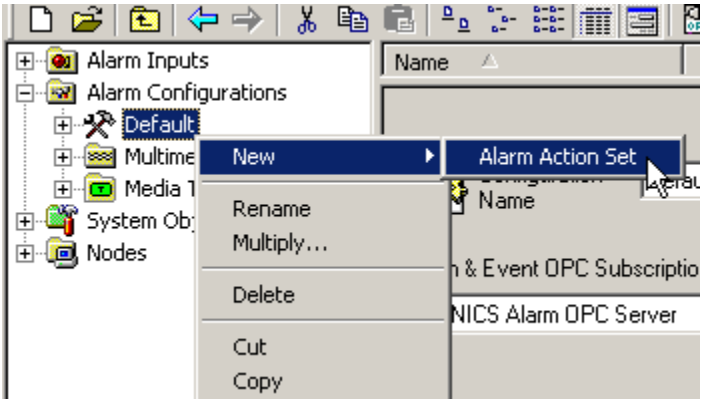


Figure 2.27. Creating a New Alarm Action Set

2. Enter a name for this action set, as shown in **Figure 2.28.**

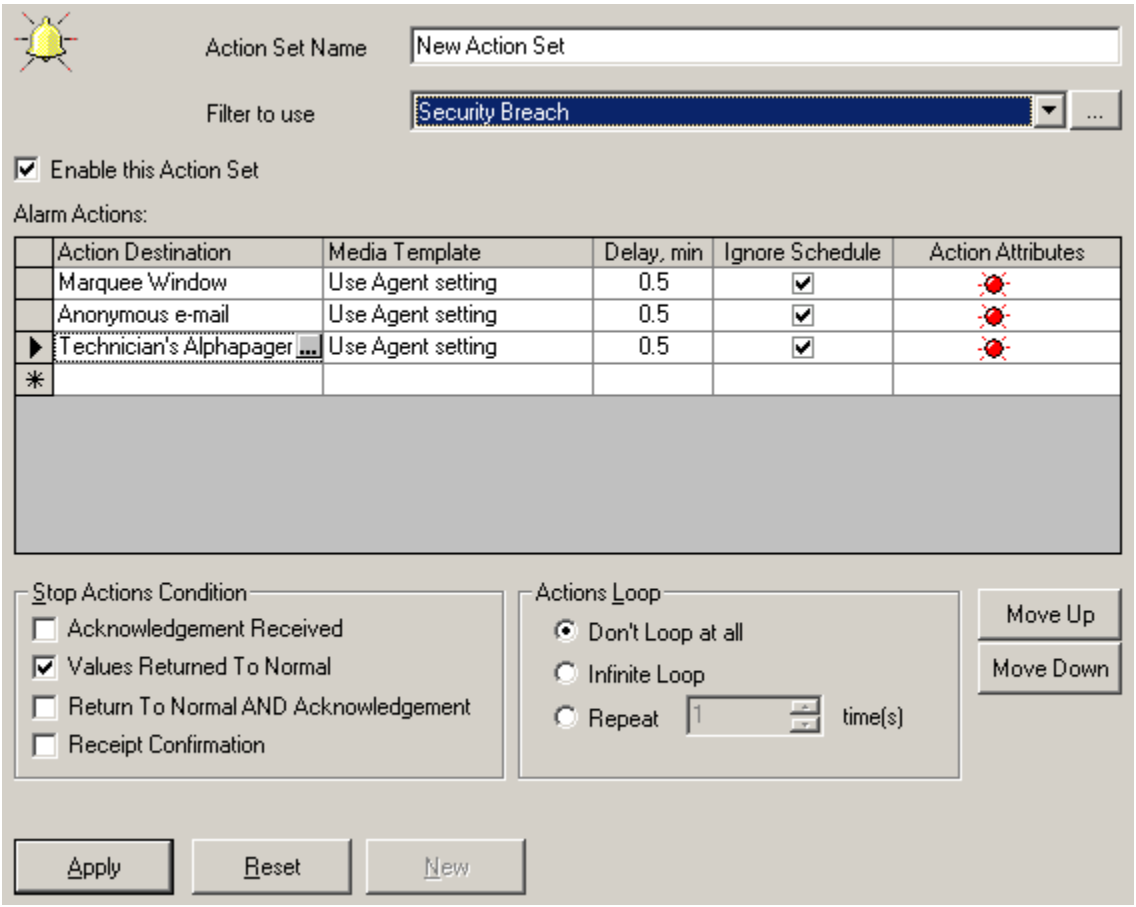


Figure 2.28. Setting the Properties for the New Alarm Action Set

3. Select a filter from the **Filter to Use** drop-down list.

4. In the **Alarm Actions** field, select what you want to occur from the list under **Action Destination.** Clicking the **…** button in each **Action Destination** row opens the **Select Action Destination** dialog box, as shown in **Figure 2.29.** Action destinations can be configured multimedia agents (e.g. Marquee Window) or roles (e.g. General Manager). Select an action destination from the tree control on the left and then click the **Set selected item as Action Destination** button, as shown in Figure 2.29.

   In the **Action Destination** field, you can also select <**NO ACTION>** by clicking the **Set as 'No Action'** button, as shown in Figure 2.29. When this

option is selected, the Multimedia Server will wait a specified amount of time (the delay time) before executing the next action.

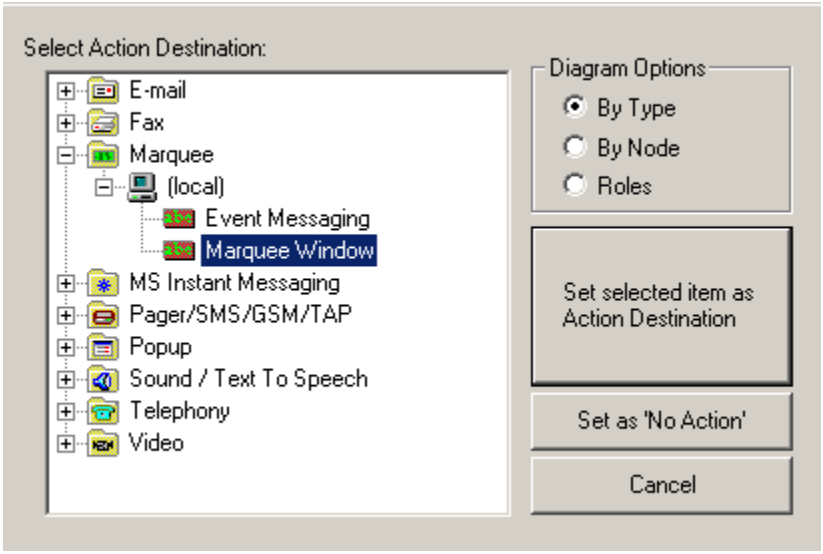


Figure 2.29. Selecting an Action Destination

5. Select from the **Media Template** list *only* if you wish to override the previously defined template under the multimedia agent.
6. If you are listing more than one **Alarm Action** to follow, you have the option of having them all occur at once or delaying the next action to take place. If you want the next action to take place at the same time as the previous one, leave the **Delay** set to 0 minutes. If you want the next action to take place after a certain number of minutes (if the **Stop Action Condition** has not yet been met) enter the number of minutes under **Delay, min.**
7. Check the **Ignore Schedule** box only if you wish to override any predefined schedules. (See **Chapter 6** for information about schedules.)
8. To set the **Action Attributes,** click the **…** button in each row. Select when to initiate each action: in the state of an **Alarm,** a **Return to Normal,** or an **Acknowledgement,** as shown in **Figure 2.30.**

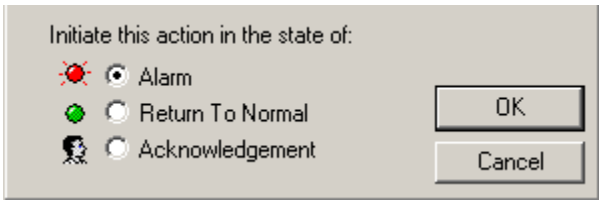


Figure 2.30. Selecting an Alarm Action Attribute

Note: The action attribute for the first alarm action in the action set should be set to **"Alarm."** Use of **Return to Normal** or **Acknowledgement** action attribute settings requires an associated **Alarm** action attribute. The **Alarm** action attribute must be listed in the action set before **Return to Normal** or **Acknowledgement.** Only action destinations that receive the alarm message will receive the return to normal or acknowledgement messages. An example of this is shown in **Figure 2.31.**

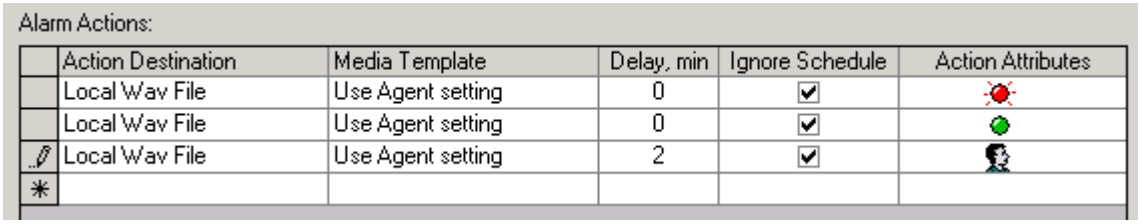


Figure 2.31. Alarm Action Attribute Listed in Action Set

9. The **Stop Actions Condition** field is where you define what will stop the list of **Alarm Actions** from escalating to the next action. If you do not check any of the options, the complete list of actions will occur regardless of whether any alarms were acknowledged or returned to normal.

   - If you check **Acknowledgement Received,** the list of actions will continue until one of the actions is acknowledged. The acknowledgement can be verified by either a multimedia agent or the alarm viewer.
   - If you check **Values Returned To Normal,** the list of actions will continue until the values return to normal.
   - If you check **Return to Normal AND Acknowledgement,** the list of actions will continue until one of the actions is acknowledged *and* the values return to normal.
   - Checking **Receipt Confirmation** tells the Multimedia Server that, yes, the alarm has been responded to, but does not mark the alarm as acknowledged. Therefore, the alarm will not be shown as acknowledged in the alarm viewer.
   - If more than one stop actions condition is checked, the complete list of actions will occur until all conditions have been met. For example, if both **Values Returned to Normal** and **Receipt Confirmation** are checked, the actions will occur until both the values have returned to normal and a confirmation has been sent through the multimedia agent.

     Note: The use of stop actions conditions is not required. However, if you

do not select a stop actions condition, the infinite actions loop is disabled.

10. Use the **Actions Loop** field if you wish to return to the first action destination and repeat all alarm actions until the specified stop actions condition has been met. If you want the loop to be repeated continuously, select **Infinite Loop.** If you want the loop to be repeated only a certain number of times, select **Repeat** and then enter the number of times you want the actions loop to be repeated. Alternatively, if you do not want an actions loop, select **Don't Loop at All.**

    Note: Be careful when enabling action looping. The **Actions Loop** is performed after the delay of the last action in the action set. It is possible for agents to queue hundreds of action requests. This occurs if the agent takes more time to process action requests than it takes to repeat the action loop.

11. Check **Enable This Action Set** for your alarm actions to take effect, and then click **Apply.**

To delete an alarm action entry, click on the gray cell to the left of that entry to select the entire row and press the **Delete** key.

Note: The **Stop Actions Condition** options apply to the escalating list of actions to be taken and not to one individual alarm action. However, if you only have one action and would like it to continue happening until it is acknowledged or until the values return to normal, check **Enable Alarm Actions Loop** and choose the **Stop Actions Condition** you wish to use to stop the action.

Note: You can also assign a role as an action destination. For information about configuring roles, please see **Chapter 6.**

2.7 Activating the Database

Once your alarm configuration is complete, you need to make sure that it is the active database. The database that is currently active is the one that the OPC server will use. To make the current database active, select **Make Active…** from the **File** menu of the Configurator, as shown in **Figure 2.32.** If the **Make Active…** selection is grayed out, then the current database is already the active database.

A dialog box will appear showing both the current active database and database that is currently being edited. To set the edited database as the active database, click the **Yes** button.

If you make changes to the database while the server is running, you can update the server with your changes while it is running. To do this, click the **Update Server Data** button on the toolbar.

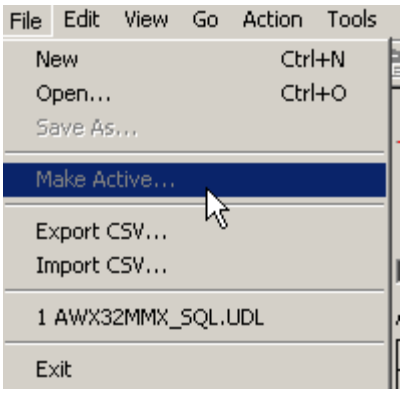


Figure 2.32. Activating the Database

2.8 Starting the Multimedia Server

In order for the Multimedia Server to use the information in the configuration database, the server must be placed into “runtime” mode. To start/stop the server, click the stoplight button on the toolbar, or select **Start Multimedia Server** from the **Action** menu, as shown in **Figure 2.33.**

If you make changes to the database while the server is running, you can update the server with your changes while it is running. To do this, click the **Update Server Data** button on the toolbar.

Note: You can also start/stop the Multimedia using the GenTray tool tray. For more information, please see the GenTray Help documentation.



Figure 2.33. Starting the Multimedia Server

Multimedia Configuration Wizard 3

3.1 Using the Multimedia Configuration Wizard

The **Multimedia Configuration Wizard** is a key feature of AlarmWorX32 Multimedia that helps you create and configure alarms. The Multimedia Configuration Wizard provides a simple, user-friendly walk-through that guides you through the creation and configuration of alarms. Using the Multimedia Configuration Wizard simplifies the alarm configuration process down to the following steps:

Step 1. Use the Multimedia Configuration Wizard to configure an alarm.

Step 2. Make the database active.

Step 3: Start the Multimedia Server.

Multimedia Assistant

For additional help on configuring alarms, you can consult the **Multimedia Assistant,** shown in **Figure 3.1,** at any time. To launch the Multimedia Assistant, select **Multimedia Assistant** from the **Help** menu. Follow the instructions provided by the Multimedia Assistant.



Figure 3.1. Multimedia Assistant

3.1.1 Starting the Multimedia Configuration Wizard

The Multimedia Configuration Wizard consists of a series of dialog boxes that guide you through alarm configuration. To start the Multimedia Configuration Wizard, click the **Multimedia Configuration Wizard** button on the Configurator toolbar, or select **Multimedia Configuration Wizard** from the **Tools** menu. Follow the instructions in the dialog boxes.

1. The first step in the Multimedia Configuration Wizard is to enter a name for your alarm configuration, as shown in **Figure 3.2.** You can also select an existing configuration from the drop-down list. Click **Next** to continue to Step 2.

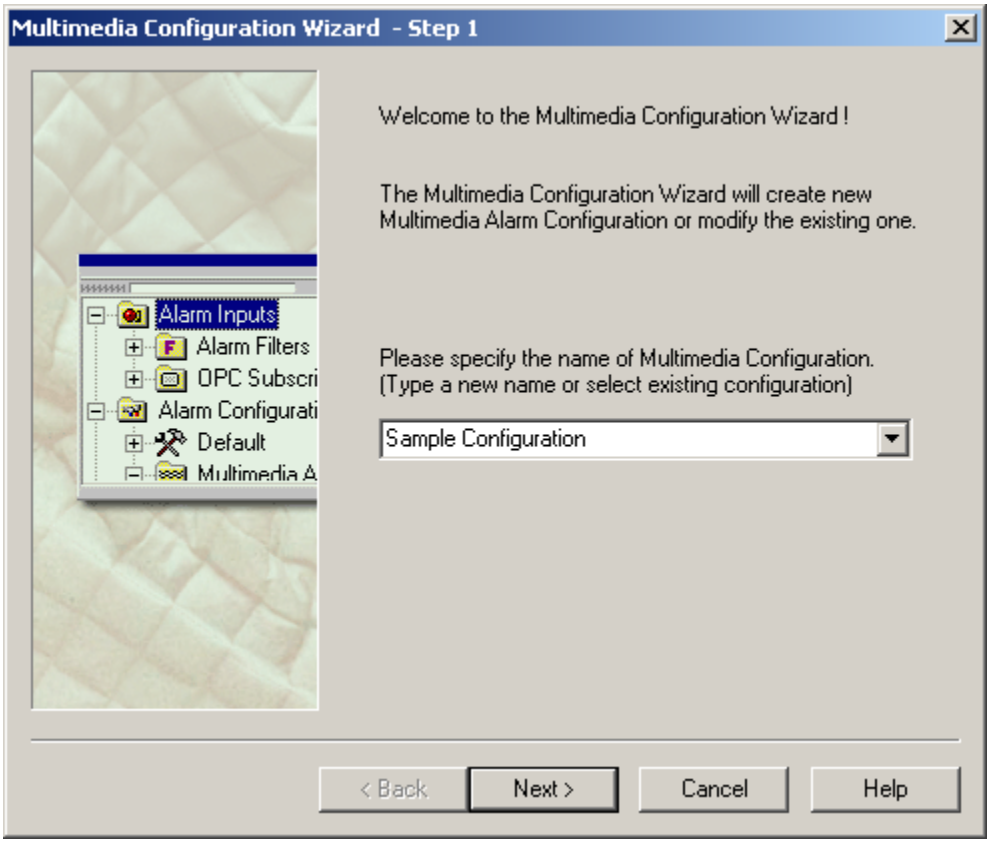


Figure 3.2. Step 1: Entering a Name for the Configuration

2. In Step 2, you must select an OPC subscription to use with the configuration. You have the option of creating a new OPC subscription or selecting an existing one. An **OPC subscription** is a connection to a local or remote alarm OPC server. **Create New OPC Subscription** is selected by default, as

shown in **Figure 3.3.** Click **Next** to continue to Step 3.

Note: If you wish to use an existing OPC subscription, select **Use Existing OPC Subscription** and click **Next.** The Multimedia Configuration Wizard will skip to Step 4.

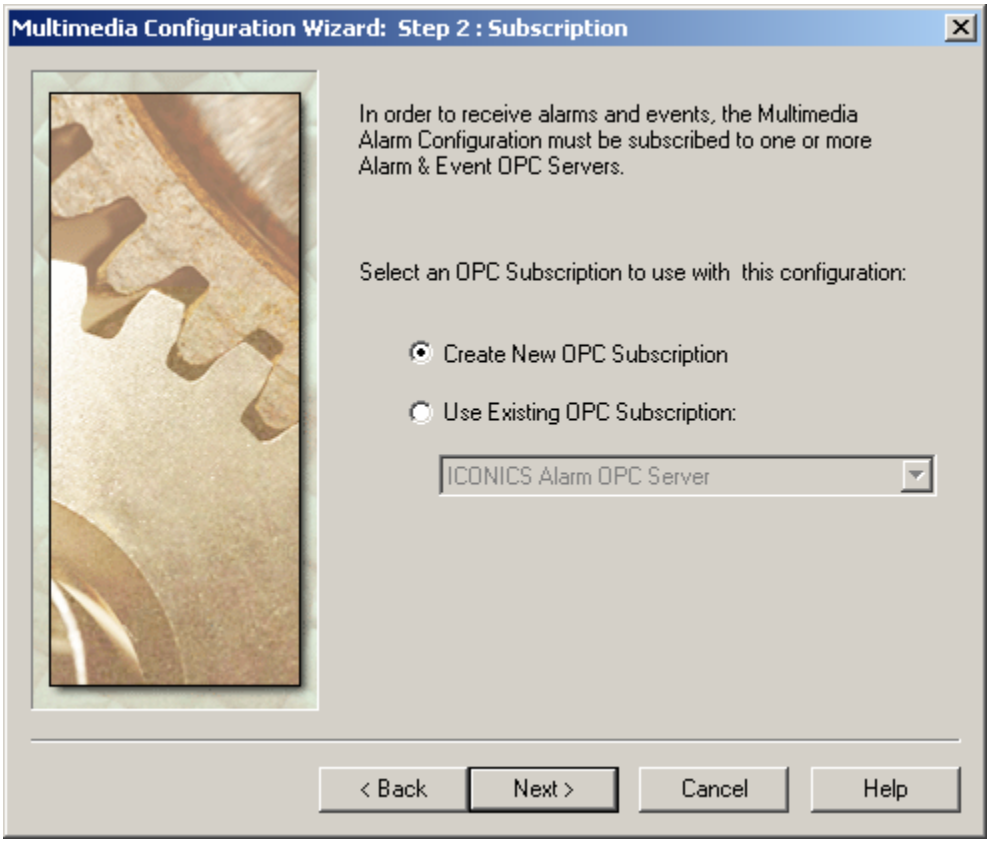


Figure 3.3. Step 2: Selecting an OPC Subscription

3. Enter a name for your new OPC subscription, and click the **Subscribe Now!** button, shown in **Figure 3.4.** Clicking this button will launch the **Subscription Properties** dialog box, which allows you to add and configure one or more OPC Alarm and Event server connections. If you have successfully connected, the traffic light icon on the dialog box will turn green. Once you have a green light, click **Next** to continue to Step 4.

   Note: Please refer to **Chapter 2** for more information on alarm subscription properties.

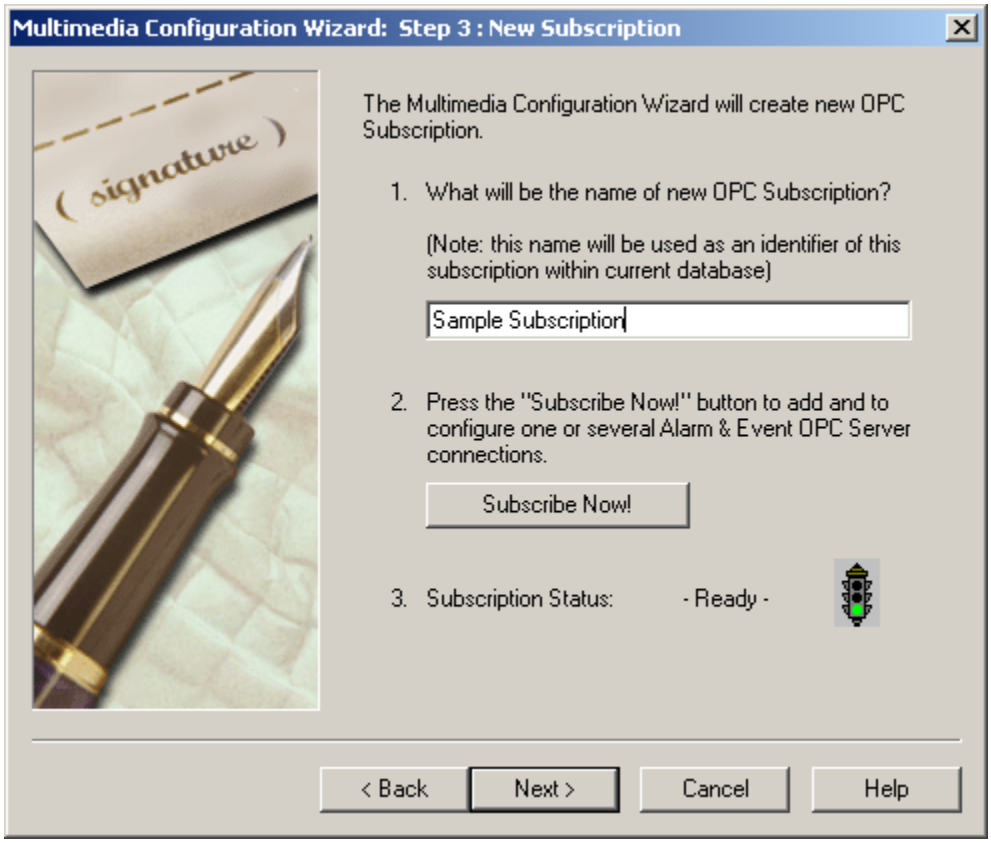


Figure 3.4. Step 3: Creating a New OPC Subscription

4. You are now ready to configure an alarm action set. An **Action Set** is a collection of tasks to be delegated to various multimedia agents (marquee, sound, e-mail, etc.). Give the action set a name and supply information on when the action set is to stop, as shown in **Figure 3.5.** If you choose to enable the alarm actions loop, then the multimedia actions will return to the first action destination and repeat all alarm actions until the specified stop actions condition has been met.

Note: For more information on creating an alarm action set and choosing stop actions conditions, please refer to **Chapter 2.**

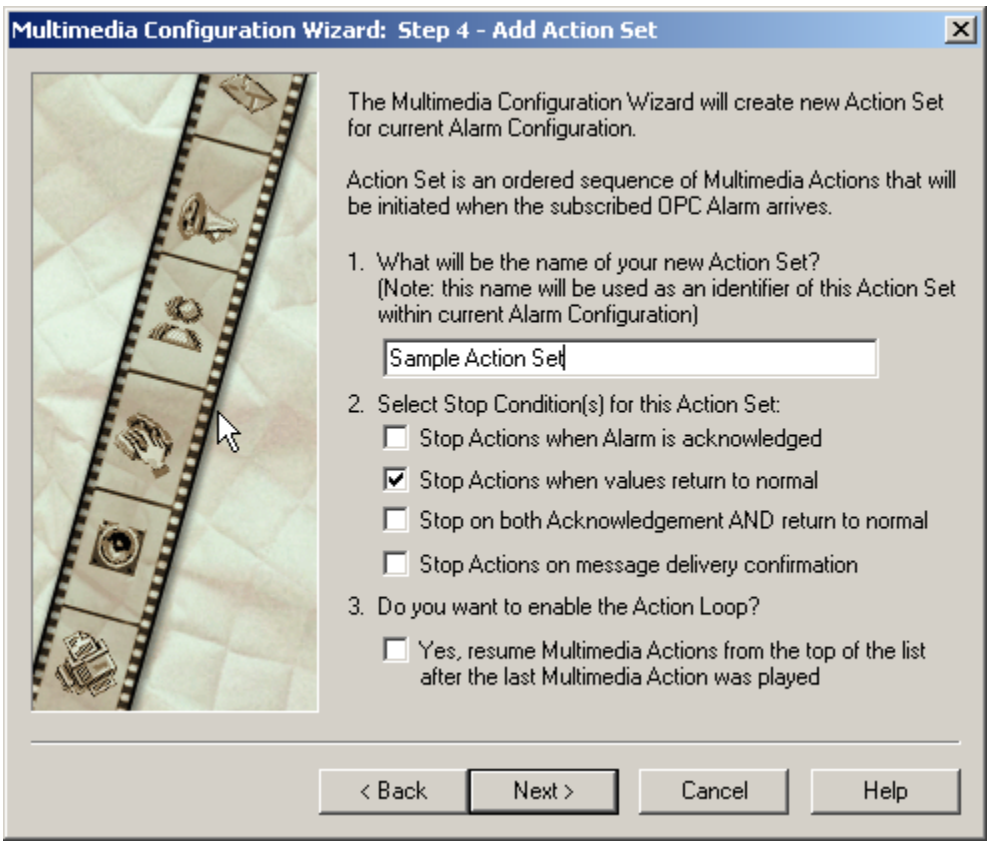


Figure 3.5. Step 4: Configuring an Alarm Action Set

5. The next step is to create or specify a filter for your action set, as shown in **Figure 3.6.** If you wish to use an existing filter, simply select the appropriate option button and pick from the list of existing filters provided. To create a new filter, select the first option and click **Next.** If you have chosen an existing filter, or if you have chosen not to use a filter at all, the Wizard will skip to Step 7.

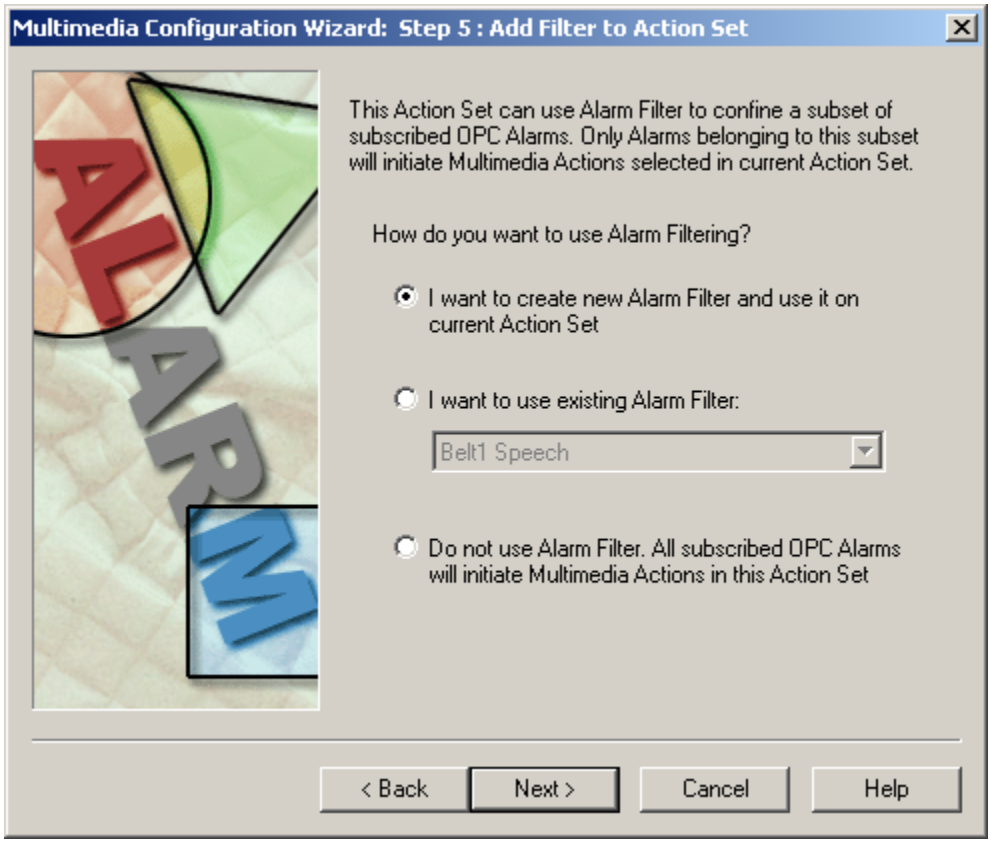


Figure 3.6. Step 5: Adding a Filter to an Alarm Action Set

6. If you chose in Step 5 to create a new filter, you will be asked in Step 6 to enter a name and an expression for your filter, as shown in **Figure 3.7.** Click the **Edit Filter Expression…** button to launch the Expression Editor, which enables you to set up your alarm filters.

Note: For help on writing expressions, please refer to **Chapter 2.**

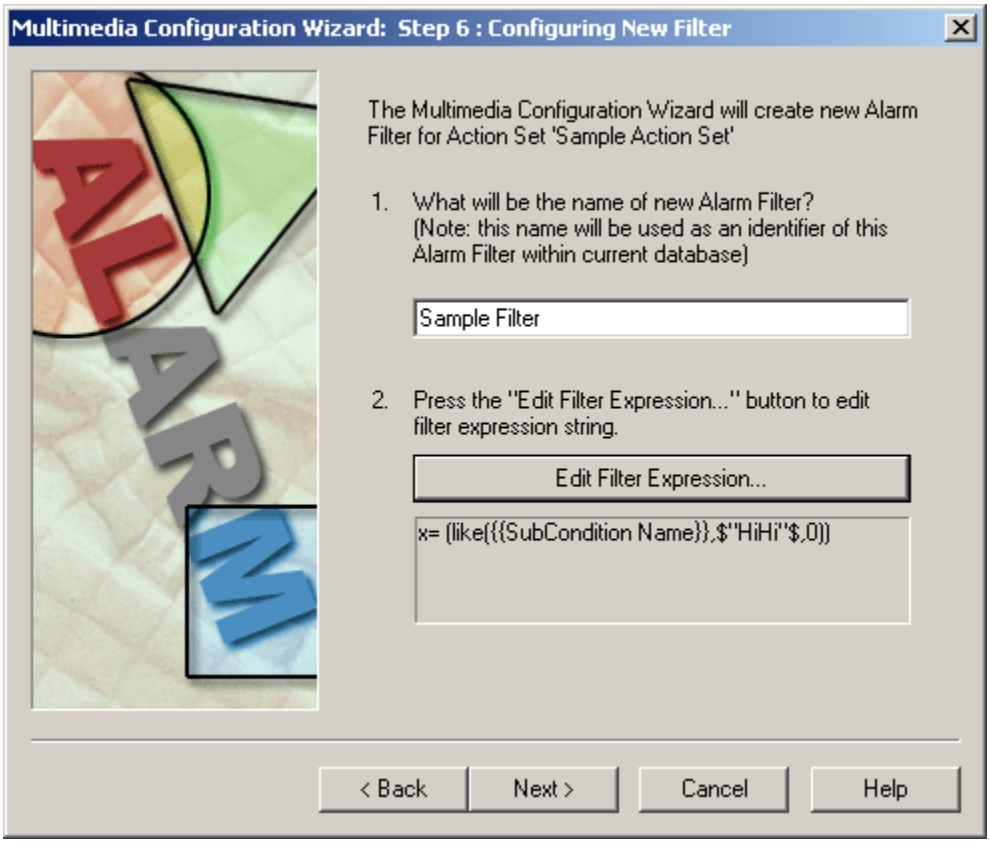


Figure 3.7. Step 6: Configuring the New Alarm Filter

7. In Step 7, you have the option of selecting a multimedia agent to respond to your action set, as shown in **Figure 3.8.** The corresponding multimedia agent will be configured for the action that you selected.

Note: The **Sending Alarm Over the Phone Line** option in Figure 3.8 applies only to the Call-out Agent. The Configuration Wizard does not support the Call-in Agent.

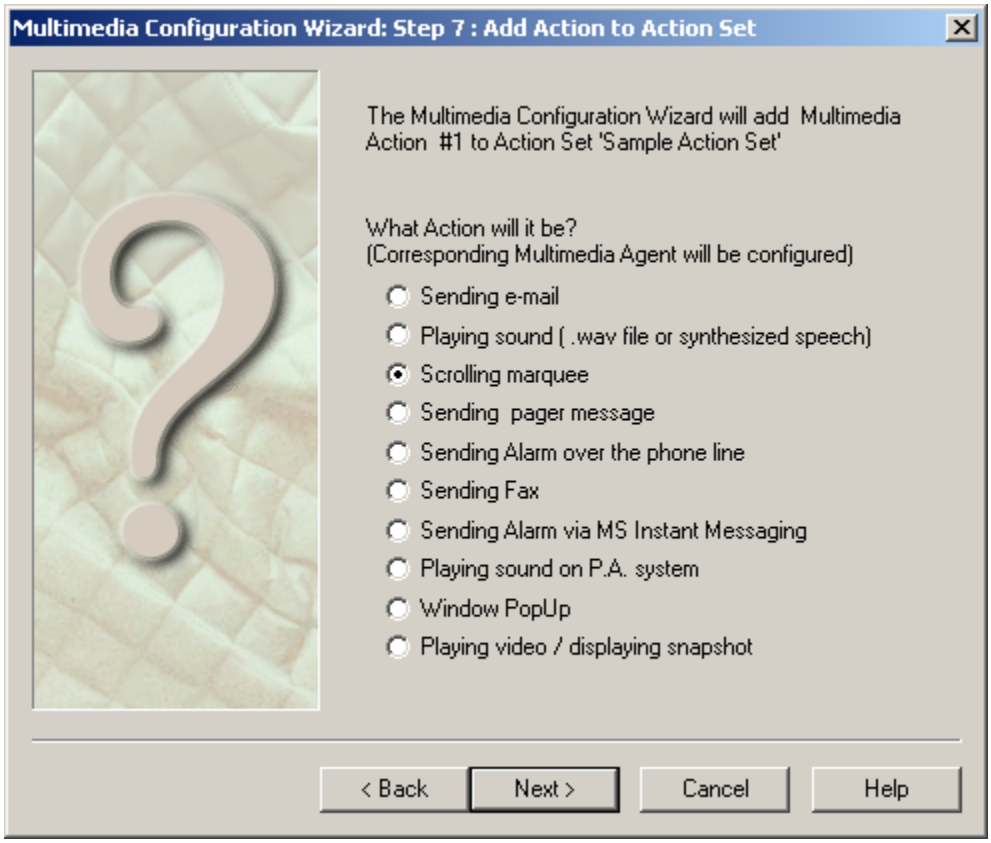


Figure 3.8. Step 7: Adding a Multimedia Agent to the Alarm Action Set

8. Once you have specified a multimedia agent, you will be prompted to create a new configuration or specify an existing configuration for that agent, as shown in **Figure 3.9.** To create a new agent configuration, select the appropriate option and click **Next.** If you choose to specify an existing agent configuration, select it from the provided drop-down list, and then click **Next.**

   Note: If you choose to use an existing agent configuration, the wizard will skip to Step 10.

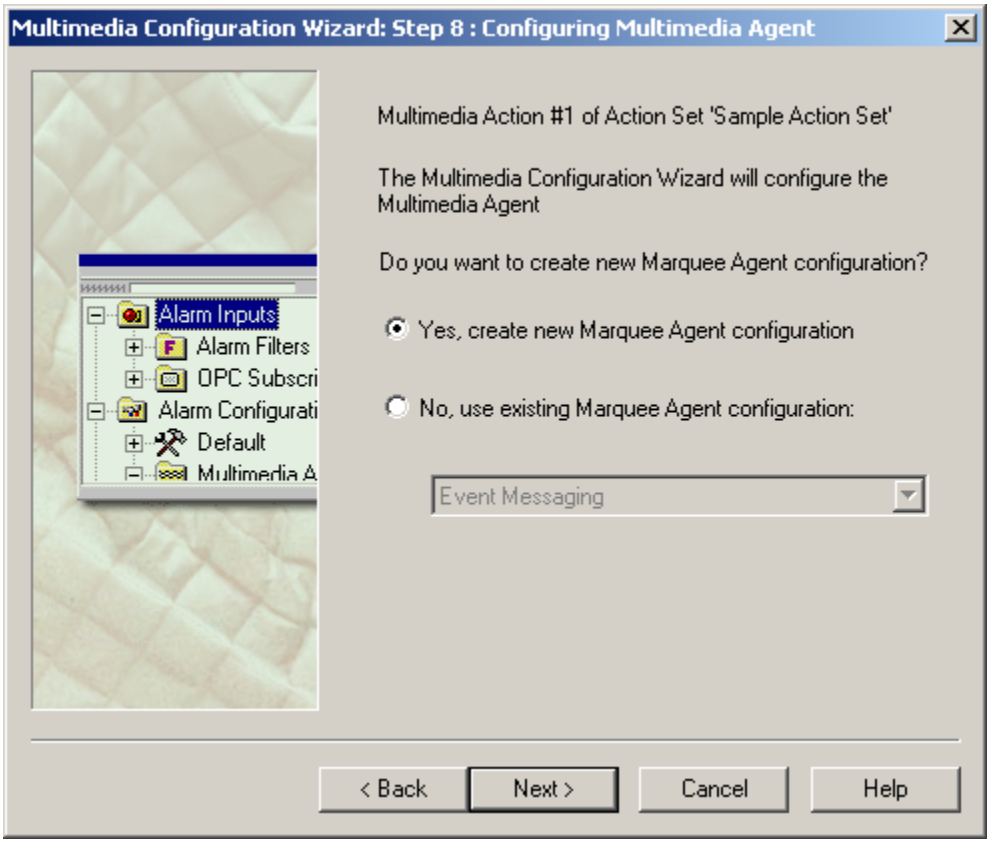


Figure 3.9. Step 8: Configuring a Multimedia Agent

9. In Step 9, enter a name for the multimedia agent configuration, as shown in **Figure 3.10.** Also choose a node on which to run the agent. You can browse for the node by clicking the **...** button to the right of the node name field. If you leave the node name field blank, the local node name will be assumed. The remaining items to be filled in vary from one agent to the next. The example in Figure 3.10 shows a sample configuration for the Marquee Agent. This configuration asks the marquee to repeat the alarm message once—play it twice (a repeat of zero means play once)—and accept any acknowledgement where a user entered "12345" as an acknowledgement code. If this were the configuration for the E-mail Agent, for example, there would be places to fill in the 'To:', 'CC:' and 'Subject' fields. Different agents call for different configurations.

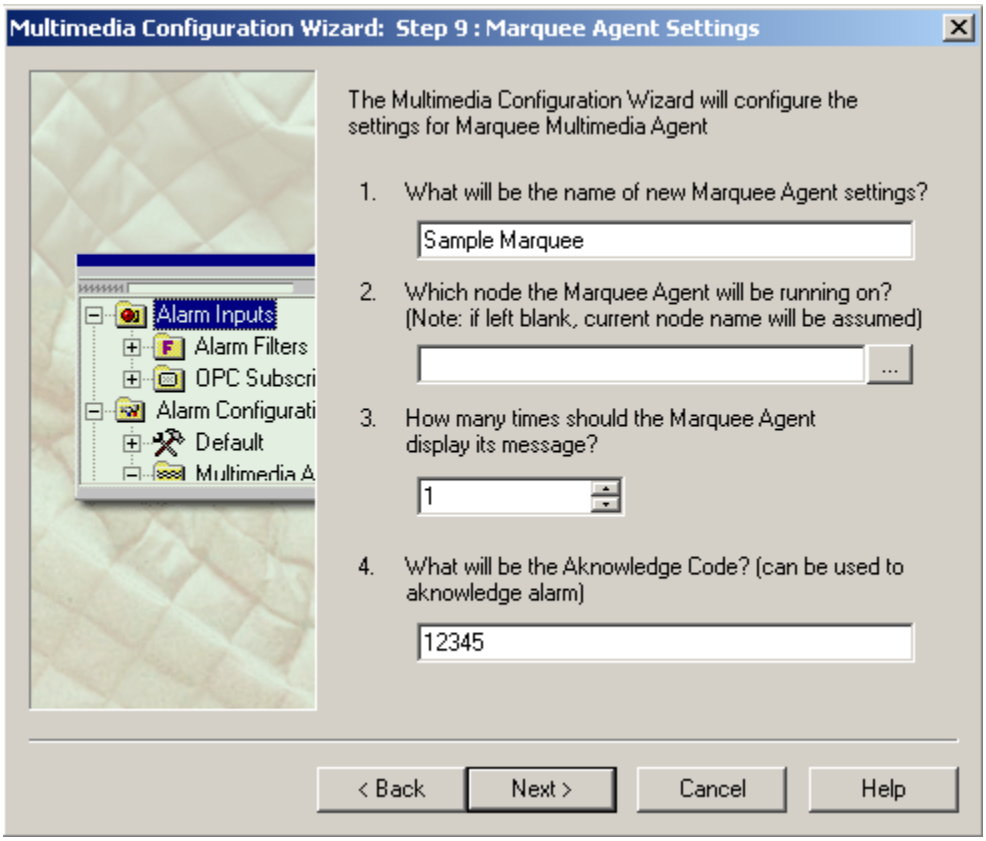


Figure 3.10. Step 9: Configuring the Settings for the Multimedia Agent

10. The next step is to create or specify a media template for the multimedia agent, as shown in **Figure 3.11.** A **media template** is simply a way of specifying exactly what information is to be sent to the agent. To create a new template, select the appropriate option and click **Next.** To use an existing template, select an existing template from the provided drop-down list.

Note: If you use an existing template, the Wizard will skip to Step 12.

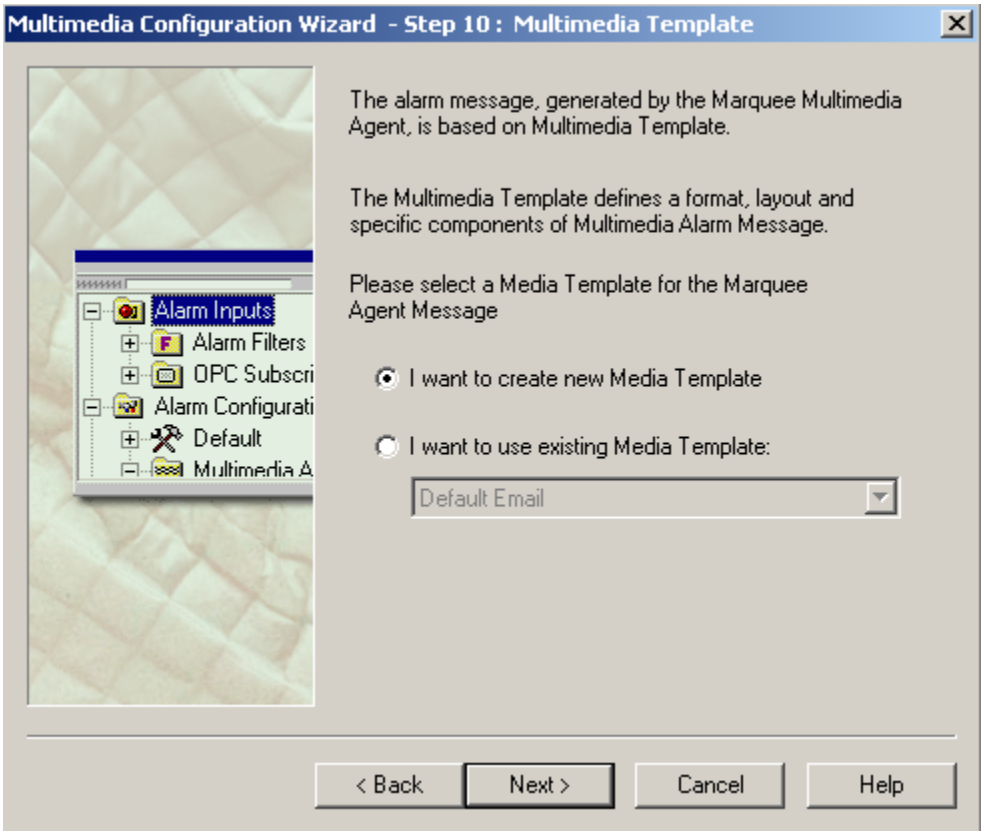


Figure 3.11. Step 10: Selecting a Media Template for the Multimedia Agent

11. In Step 11, enter a name for the template and select the alarm components to be delivered to the multimedia agent, as shown in **Figure 3.12.** For some agents, additional options will be available to you.

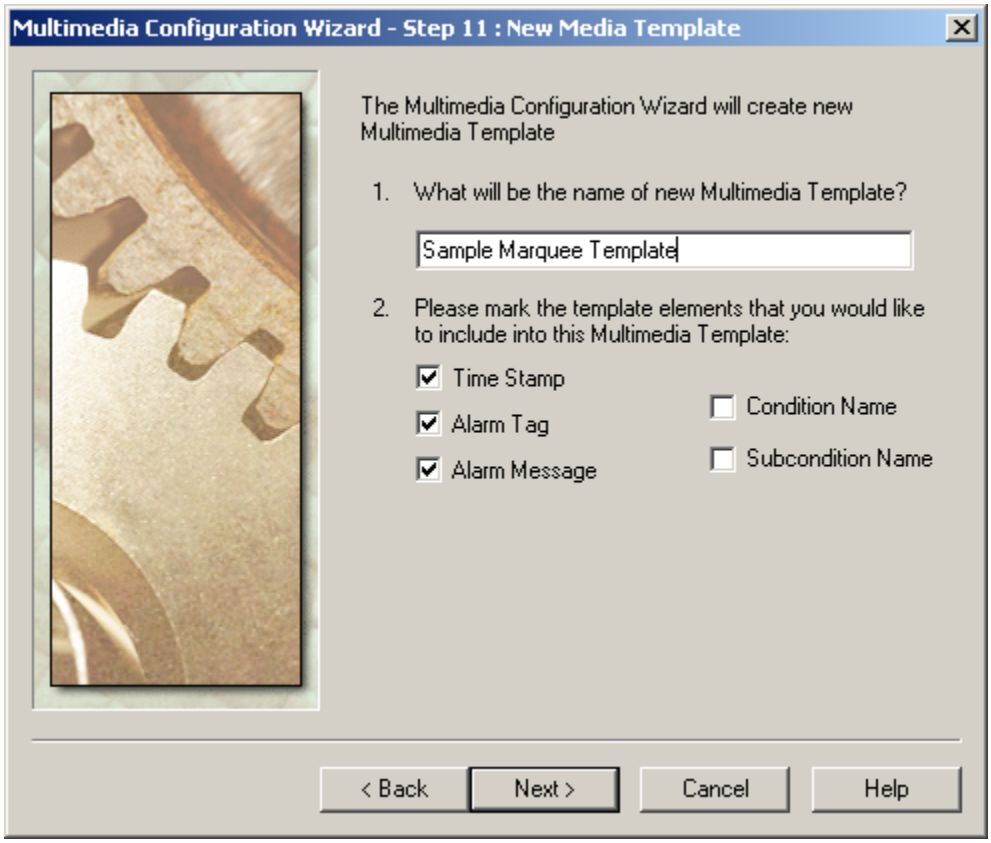


Figure 3.12. Step 11: Creating a New Media Template

12. Once the media template is configured, you have the option of selecting more multimedia actions for your action set, as shown in **Figure 3.13.** If you choose to add another multimedia action, specify a waiting time between the action you just configured and the action to be added. The Wizard will go back to Step 7, where the next multimedia agent can be selected. If you choose not to add another action set, the Wizard will proceed to Step 13.

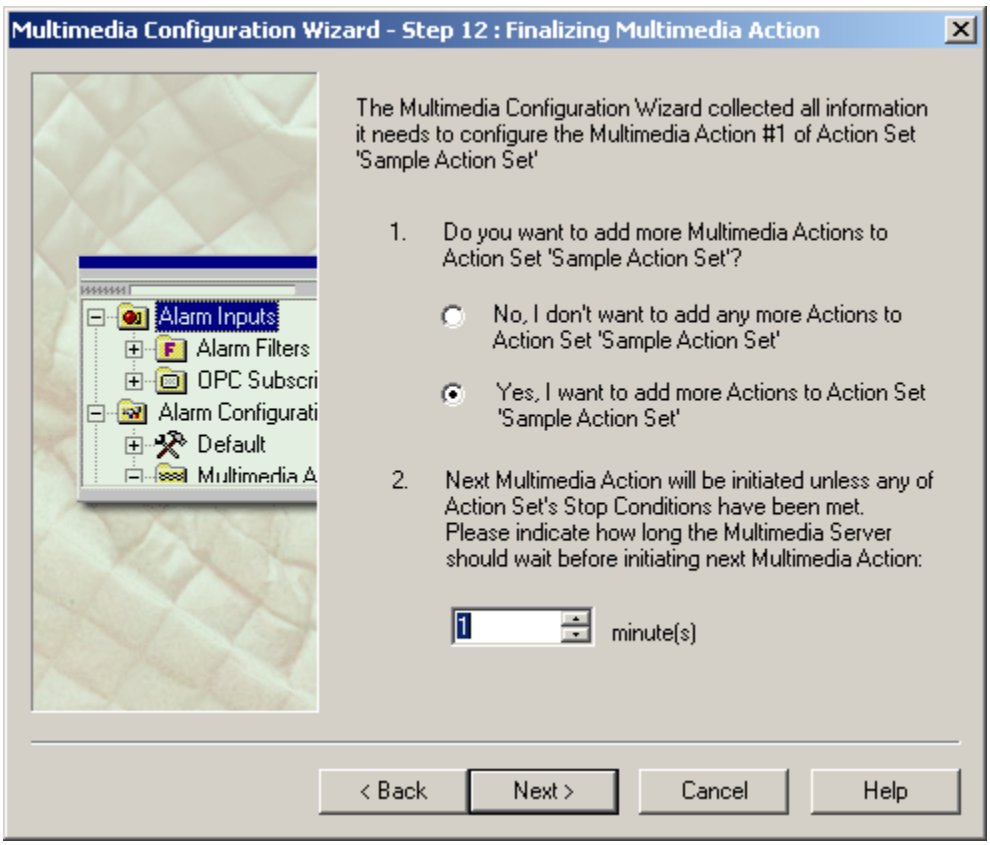


Figure 3.13. Step 12: Selecting Additional Actions for the Action Set

13. The last step of the Wizard gives you the option of adding more action sets to be connected to your alarm OPC server, as shown in **Figure 3.14.** If you choose to add another action set, the Wizard will take you back to Step 4. Otherwise, the Wizard will notify you that it has been completed successfully.

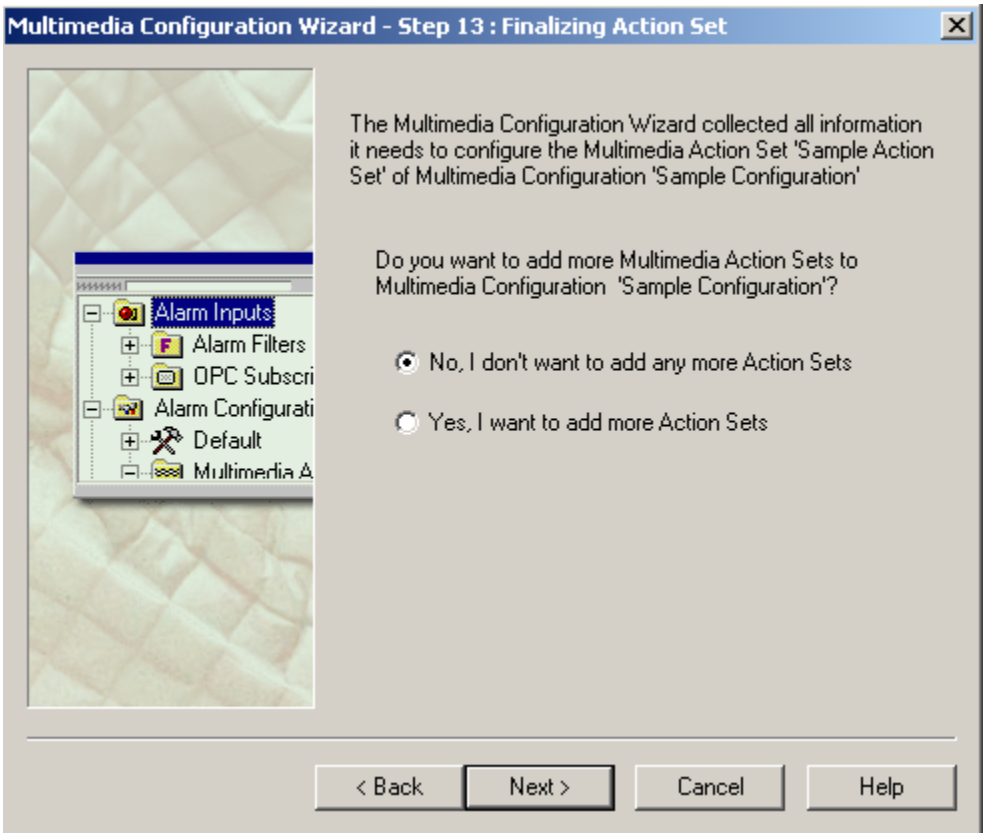


Figure 3.14. Step 13: Adding More Action Sets to the Configuration

14. Click the **Finish** button to complete your alarm configuration. Your new alarm configuration will appear under the **Alarm Configurations** tree control of the Configurator.

3.2 Making the Database Active

Once your alarm configuration is complete, you need to make sure that it is the active database. The database that is currently active is the one that the OPC server will use. To make the current database active, select **Make Active…** from the **File** menu of the Configurator, as shown in **Figure 3.15.** If the **Make Active…** selection is grayed out, then the current database is already the active database.

A dialog box will appear showing both the current active database and database that is currently being edited. To set the edited database as the active database, click the **Yes** button.

If you make changes to the database while the server is running, you can update the server with your changes while it is running. To do this, click the **Update Server Data** button on the toolbar.

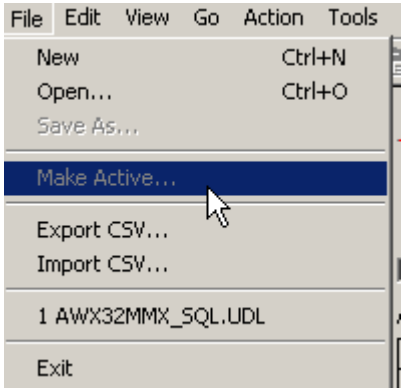


Figure 3.15. Activating the Database

Note: For information about advanced database settings and upsizing databases to MSDE and SQL, please see **Appendix D.**

3.3 Starting the Multimedia Server

In order for the Multimedia Server to use the information in the configuration database, the server must be placed into “runtime” mode. To start/stop the server, click the stoplight button on the toolbar, or select **Start Multimedia Server** from the **Action** menu, as shown in **Figure 3.16.**

If you make changes to the database while the server is running, you can update the server with your changes while it is running. To do this, click the **Update Server Data** button on the toolbar.

Note: You can also start the Multimedia using the GenTray tool tray. For more information, please see the GenTray Help documentation.



Figure 3.16. Starting the Multimedia Server

Multimedia Agents 4

4.1 Introduction to Multimedia Agents

The Multimedia Configurator contains the following multimedia agents for configuring alarms:

- **E-mail Agent:** Sends an e-mail message. (See **Section 4.2.**)
- **Sound / Text-to-Speech Agent:** Plays prerecorded sounds and/or speech from text locally or remotely over a network. (See **Section 4.3.**)
- **Marquee Agent:** Creates a marquee window displaying a message locally or remotely over a network. (See **Section 4.4.**)
- **Pager Agent:** Sends a message to a pager. (See **Section 4.5** and **Appendix A.**)
- **Telephony Agents:** The **Call-out Agent** calls a defined number and gives a message with options to respond. The **Call-in Agent** enables callers to dial in by phone to get alarm information and browse for OPC Data Access tags. (See **Section 4.6, Chapter 9,** and **Appendix B.**)
- **Fax Agent:** Sends a message to a fax machine. (See **Section 4.7.**)
- **Instant Messaging Agent:** Sends a message to any computer using instant messaging. (See **Section 4.8** and **Appendix E.**)
- **Popup Agent:** Opens an application of your choice (e.g. Internet Explorer) to provide alarm messages. (See **Section 4.9**.)
- **Video Agent:** Plays a video, which can be a prerecorded video or a video captured at the moment of the alarm. (See **Section 4.10.**)
- **PA Agent:** Uses a public address (PA) system device to announce alarms and events over a loudspeaker. **(See Section 4.11.)**

Note: Be sure to test your multimedia agent configurations by using the **TEST** button in the configuration field for each agent.

Multimedia Agents Tree Control

The **Multimedia Agents** tree control of the Configurator is shown in **Figure 4.1.** In the right-hand pane, you can view the agents **By Type** or **By Node.**

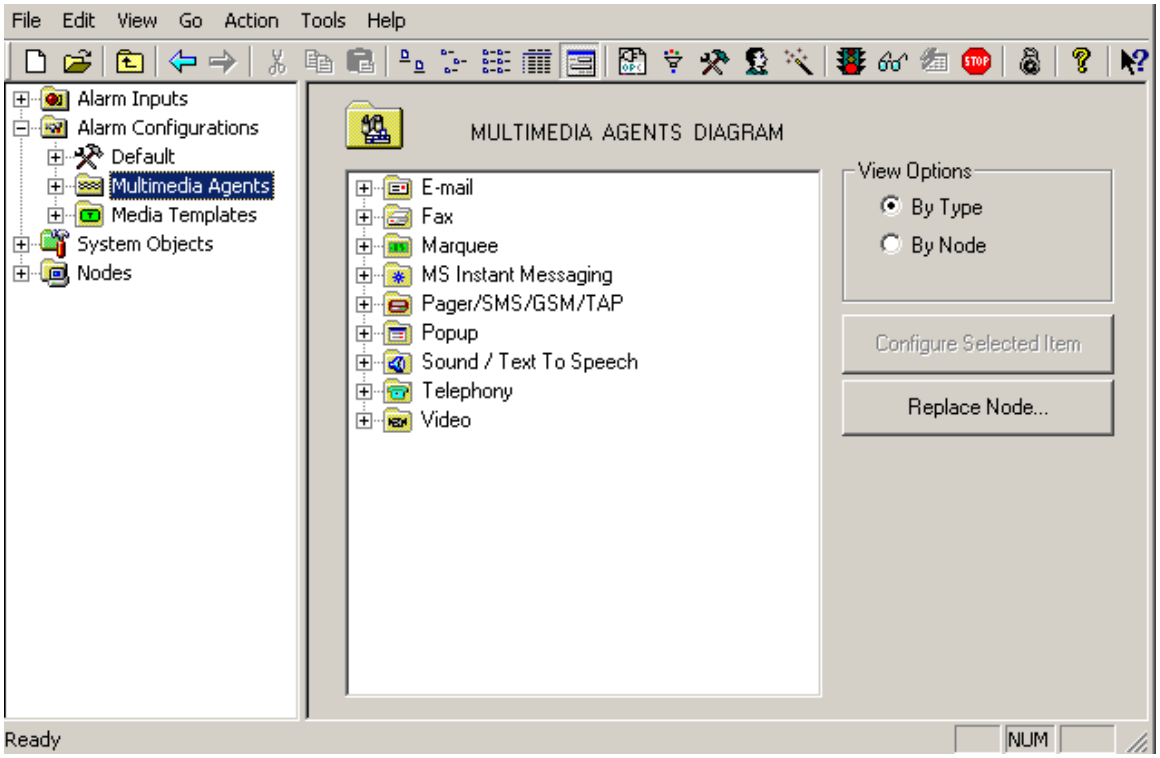


Figure 4.1. Multimedia Agents Tree Control

Clicking the **Replace Node** button opens the **Node Replace** dialog box, shown in **Figure 4.2,** which allows you to reassign multiple multimedia agents to run on a different node. In the **Replace** field, select the node you wish to replace. In the **With** field, click the … button to select a new node. If the **With** field is empty, the local node is used by default.

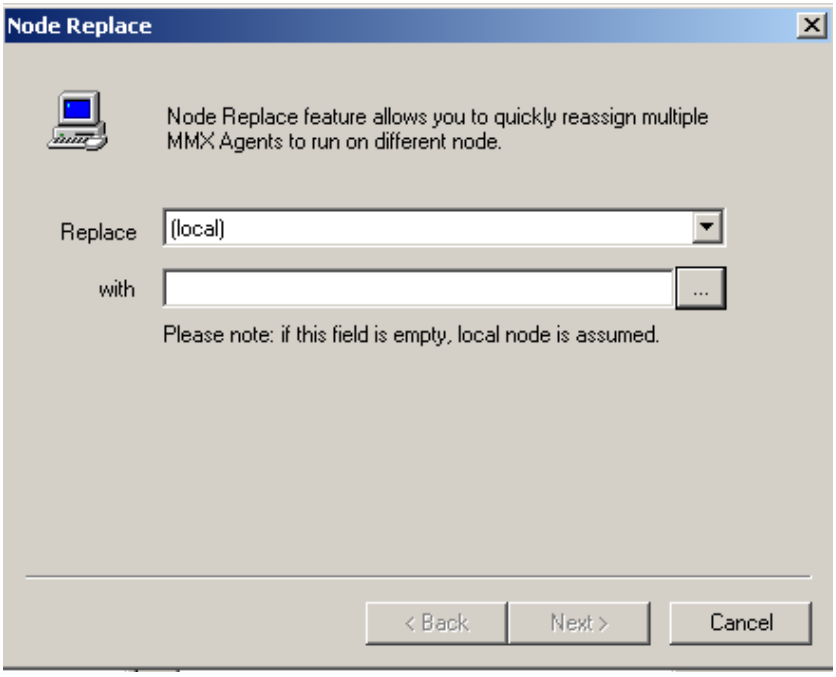


Figure 4.2. Replacing a Node

Clearing Agent Queue

Each multimedia agent configuration contains an **Empty Agent's Input Queue** button, as shown in **Figure 4.3.** Clicking this button cancels all requests made by the Multimedia Server to that agent, clearing all pending messages for the nodes on which the agent is configured.

Note: You can cancel queues to all agents by clicking the **Stop** button on the Configurator toolbar.

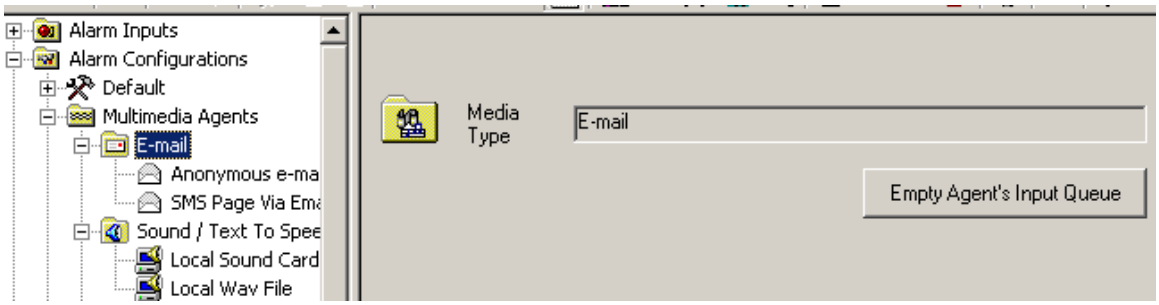


Figure 4.3. Emptying Agent Queue

4.2 E-mail Agent

The **E-mail Agent,** shown in **Figure 4.4,** allows you to receive and acknowledge alarms using an e-mail message. For information about acknowledging alarms and creating templates for the E-mail Agent, see **Appendix E.**

E-mail Configuration Fields

The following configuration fields are available for the E-mail Agent:

- **E-mail Name:** Enter a name for the e-mail contact.
- **Node Name:** Enter the node name for the computer from which you wish to send the e-mails. If left blank, the e-mails will be sent from the computer running the Multimedia Server. Click the **Browse** button to search for a node.
- **Scheduling:** If you are using scheduling, you can choose from the configured schedules on the drop-down list.
- **Send To:** Enter the e-mail address of the recipient to whom you wish to send the e-mail message.

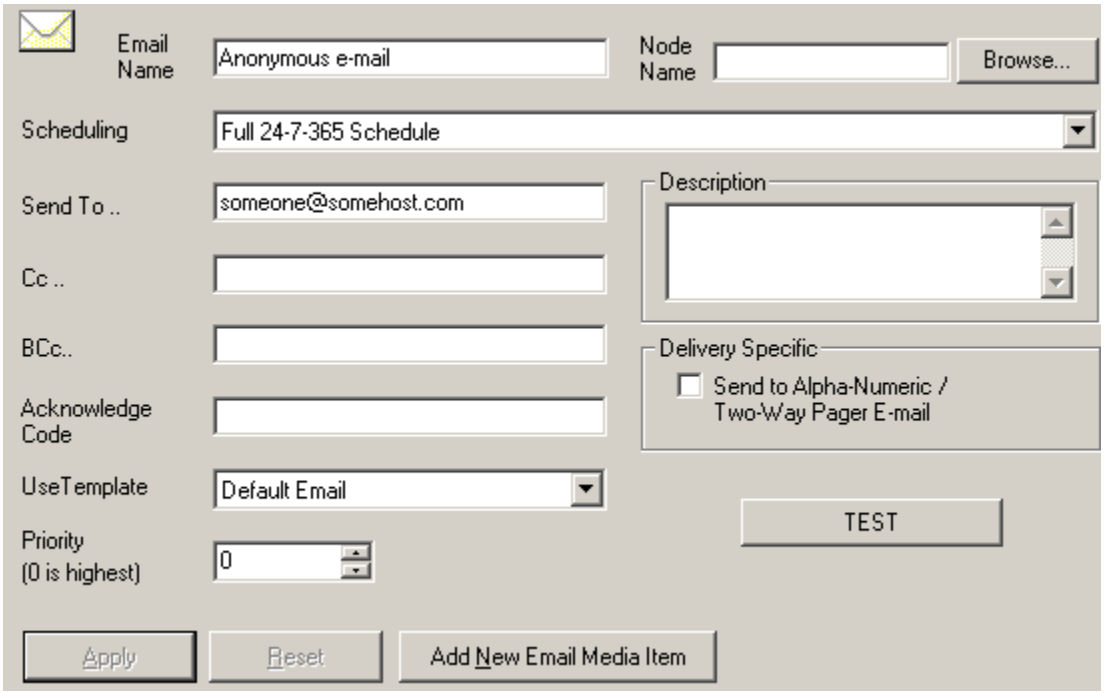


Figure 4.4. E-Mail Agent

- **Cc:** Sends a carbon copy of the e-mail to another recipient.
- **BCc:** Sends a "blind" carbon copy of the e-mail message to another recipient.
- **Acknowledge Code:** Enter the string you wish to use as the acknowledge code. (For information about acknowledging alarms using e-mail, see **Appendix E.**)
- **Use Template:** You must choose a template to be used with the E-mail Agent. The template determines the actual message that gets sent to e-mail recipients. The Configurator includes a template, called **Default Email,** created for sending e-mail messages. For more information about templates, please see **Chapter 5.**
- **Priority:** This is used with roles. If more than one person is on schedule (or one person has more than one agent configured using his schedule), then the agent with the highest priority will be the one that is carried out.
- **Description:** Allows you to add comments to the agent configuration.
- **Delivery Specific:** Uses the E-mail Agent to send an optimized message to a pager. You can still use the E-mail Agent to send a message to a pager without checking this. However, checking this decreases the character count of the identifier variables, thus reducing the cost in pagers that charge according to number of characters. **Note:** Using this option will limit you to 99,999 unique messages before resetting the numbering back to one.
- **TEST button:** Sends an e-mail message to test your configuration.
- **Apply button:** Saves all changes to the configuration database.
- **Reset button:** Clears all recently added information.
- **Add New E-mail Media Item:** Adds a new agent to be configured. You can also add a new E-mail Agent by right-clicking the **E-mail** folder on the tree control and selecting **New - E-Mail Contact** from the pop-up menu.

To operate the E-mail Agent, a MAPI-compliant third-party e-mail program must be on the computer from which e-mails are sent. Microsoft® Outlook is an example of a MAPI-compliant third party e-mail program. Microsoft Outlook Express can also be used and can be downloaded for free from Microsoft. However, unlike Outlook, Outlook Express will only work with POP3 e-mail servers. It is not necessary to have the e-mail program actively running on a Windows NT or Windows 2000 operating system. It is, however, necessary to have the e-mail program actively running on a Windows 98 operating system.

Outlook 2002 and Outlook Express version 6 require additional security settings in order for the E-mail Agent to work properly. For more information, go to http://www.microsoft.com/office/ork/xp/appndx/appa11.htm.

The E-mail Agent will only operate on e-mail messages in the e-mail programs default folder. For example, a reply with an acknowledge code will only be seen if sent to the default e-mail programs folder (Inbox for Microsoft Outlook). If you set up your e-mail program to reroute your mail to other various folders, the multimedia agent might not read the incoming e-mail. For more information about acknowledging alarms using the E-mail Agent, see **Appendix E.**

Using the E-mail Agent to Page

For high-volume applications, it is often better to use the E-mail Agent for pager support. This is due to the fact that a majority of pager services support e-mail to page. Set the **SentTo** field to "Pager number @Pager service." (e.g. 5551234@service.com). This causes the pager service's e-mail system to process the e-mail and send the information to the pager. This method avoids the delay associated with modem dial-up. The downside is that through put is limited by the Internet connection rather than the telephone connection.

4.3 Sound / Text-to-Speech Agent

The **Sound / Text-to Speech Agent,** shown in **Figure 4.5,** allows you to send alarm information using a sound message.

Note: The sound message is specified in the sound template, where you can select a sound (.wav) file from the **Sound Library** or enter a text message to be converted to speech. You can also add your own sound files to the Sound Library. For information about selecting sound files, please see **Section B.2** of **Appendix B.** For information about templates, please see **Chapter 5.**

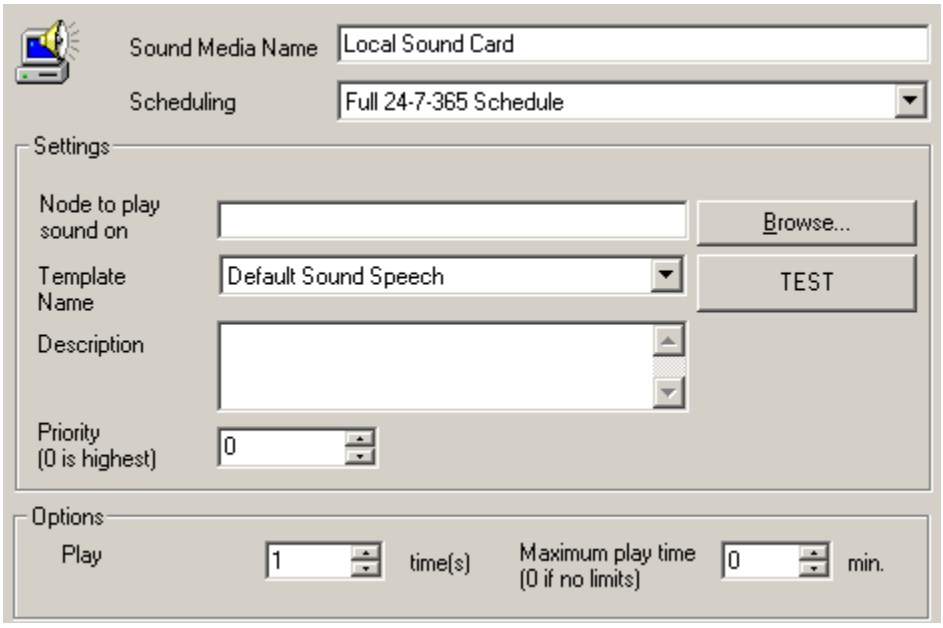


Figure 4.5. Sound / Text-to-Speech Agent

Sound Configuration Fields

The following configuration fields are available for the Sound / Text-to-Speech Agent:

- **Sound Media Name:** Enter a name for the configuration.
- **Scheduling:** If you are using scheduling, choose from the configured schedules on the drop-down list.
- **Node To Play Sound On:** Enter the node name for the computer on which you wish to play the sound. If this field is left blank, the sounds will be played on the computer running the Multimedia Server. Click the **Browse** button to search for a node.
- **Template Name:** You must choose a template to be used with the agent. The Agent plays a sound that is specified in the sound template, where you can select a sound (.wav) file from the Sound Library or enter a text message to be converted to speech. The Configurator already includes templates, called **Default Sound Wav** and **Default Sound Speech,** created for sending sound messages.
- **Description:** Allows you to add comments to the agent configuration.

- **Priority:** This is used with roles. If more than one person is on schedule (or one person has more than one agent configured using his schedule), then the agent with the highest priority will be the one that is carried out.
- **Play:** Plays the sound message a specified number of times.
- **Maximum Play Time:** Sets a maximum play time (in minutes).
- **TEST button:** Plays a sound message to test your configuration.
- **Apply button:** Saves all changes to the configuration database.
- **Reset button:** Clears all recently added information.
- **Add New Sound Media Item:** Adds a new agent to be configured. Note that you can also add a new Sound / Text-to-Speech Agent by right-clicking the **Sound / Text To Speech** folder on the tree control and selecting **New - Sound / Text To Speech** from the pop-up menu.

General Settings

To change the voice type, click on the **General Settings** button while in the main **Sound / Text To Speech** folder, as shown in **Figure 4.6.** If you do not see the **General Settings** button, make sure that **Dialog View** is checked on the **View** menu.

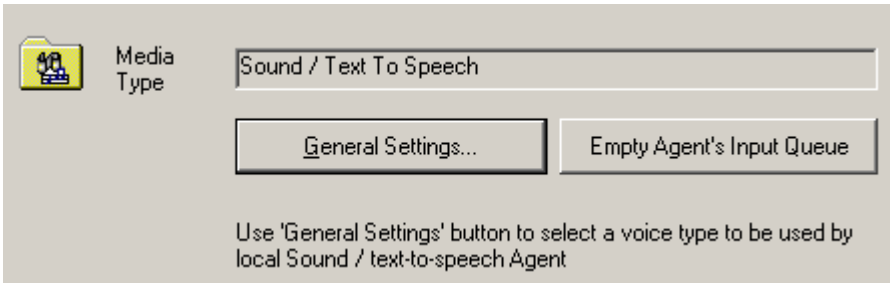


Figure 4.6. Sound / Text-to-Speech Agent: General Settings

Clicking the **General Settings** button opens the **Voice Configuration** dialog box, shown in **Figure 4.7,** which allows you to change the voice type.

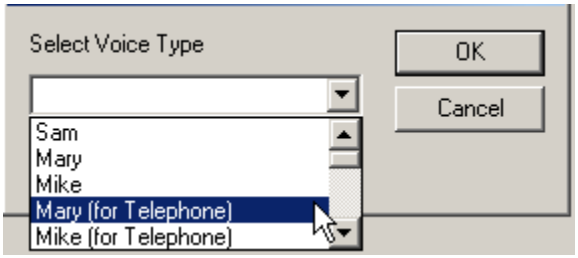


Figure 4.7. Voice Configuration Dialog Box

4.4 Marquee Agent

The **Marquee Agent,** shown in **Figure 4.8,** allows you to send alarm information using a message to a computer or a marquee device box. To acknowledge an alarm, right-click in the marquee window and select **Acknowledge.**

Marquee Configuration Fields

The following configuration fields are available for the Marquee Agent:

- **Marquee Media Name:** Enter a name for the Marquee Agent configuration.
- **Scheduling:** If you are using scheduling, choose from the configured schedules on the drop-down list.
- **Node To Use Marquee On:** Enter the node name for the computer on which you wish run the Marquee Agent. If left blank, the Marquee Agent will be run on the computer that is running the Multimedia Server. If you wish to display the message on a separate marquee device, this is configured under **General Settings** in the main **Marquee** folder. (See the "General Settings" section below.) Click the **Browse** button to search for a node.

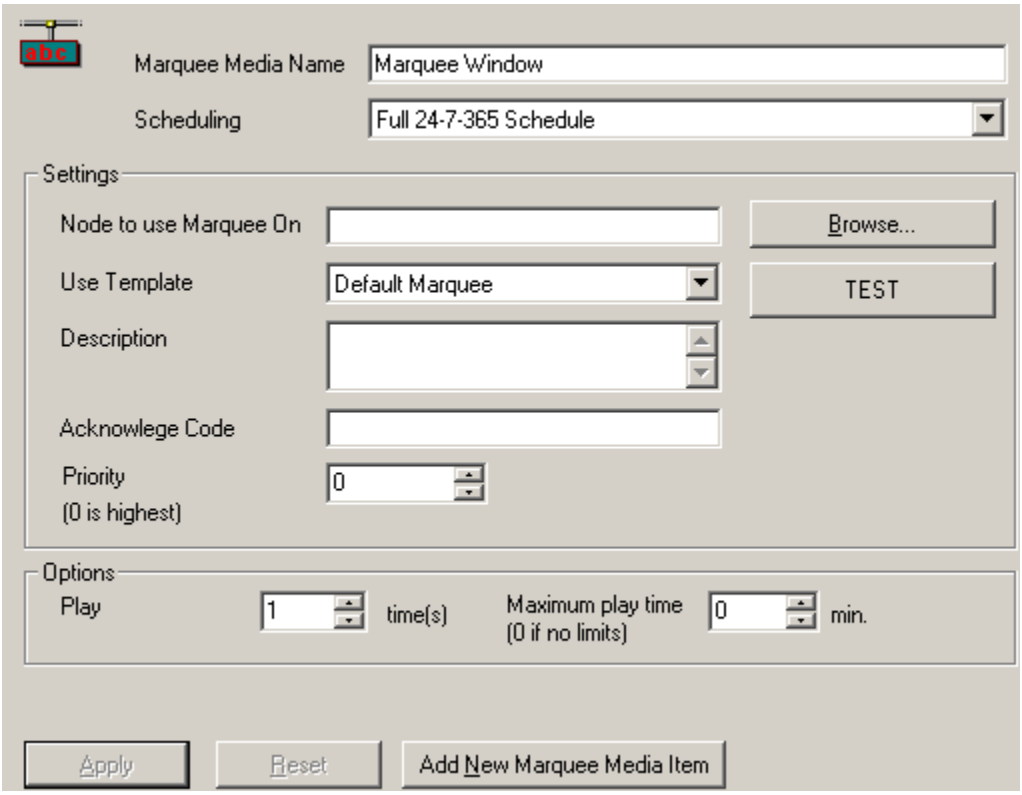


Figure 4.8. Marquee Agent

- **Use Template:** You must choose a template to be used with the agent. The template determines what information is displayed in the marquee message. The Configurator includes a template, called **Default Marquee,** created for sending marquee messages. For more information about templates, please see **Chapter 5.**
- **Description:** Allows you to add comments to the agent configuration.
- **Acknowledge Code:** Enter the string you wish to use as the acknowledge code.
- **Priority:** This is used with roles. If more than one person is on schedule (or one person has more than one agent configured using his schedule), then the agent with the highest priority will be the one that is carried out.
- **Play:** Specifies the number of times the marquee message will be displayed.
- **Maximum Play Time:** Sets a maximum play time (in minutes).

- **TEST button:** Displays a test marquee message.
- **Apply button:** Saves all changes to the configuration database.
- **Reset button:** Clears all recently added information.
- **Add New Marquee Media Item:** Adds a new Marquee Agent to be configured. Note that you can also add a new Marquee agent by right-clicking the **Marquee** folder on the tree control and selecting **New - Marquee Item** from the pop-up menu.

General Settings

The following options are set for all marquee items within the **Marquee** folder on the tree control. To change any of these options, click on the **General Settings** button while in the main **Marquee** folder, as shown in **Figure 4.9.** If you do not see the **General Settings** button, make sure that **Dialog View** is checked on the **View** menu.

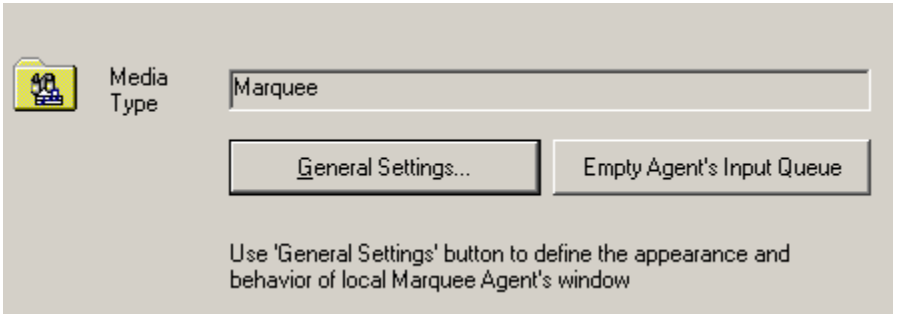


Figure 4.9. Marquee Agent: General Settings

Clicking the **General Settings** button opens the **Marquee Properties** dialog box, shown in **Figure 4.10,** which contains the following settings.

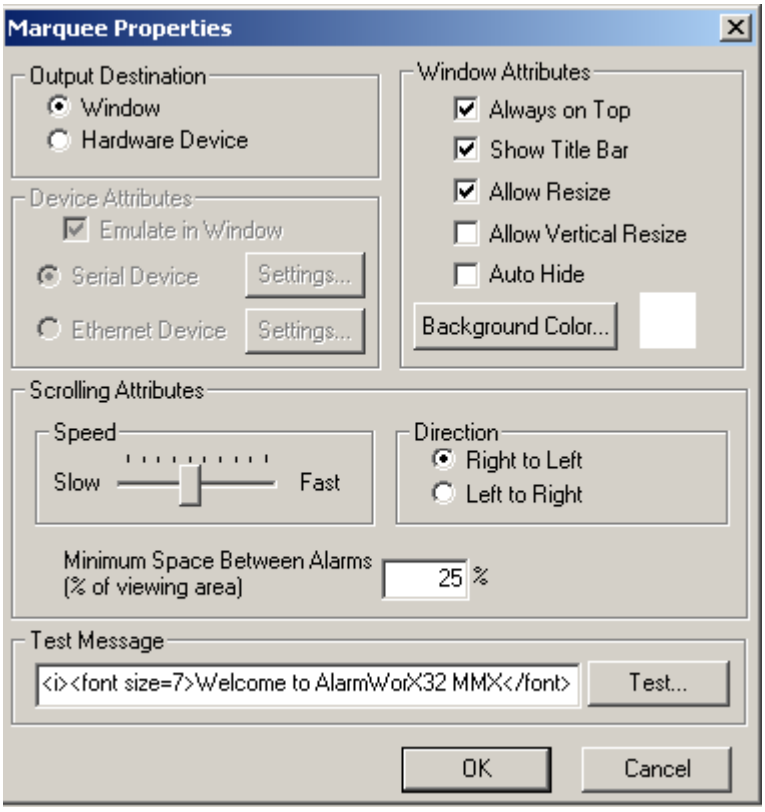


Figure 4.10. Marquee Properties Dialog Box

Output Destination

The **Output Destination** field allows you to choose whether to have the marquee displayed across a window on a computer monitor or across a separate hardware device.

Device Attributes

The **Device Attributes** field allows you to choose the type of device (serial or Ethernet) and to configure advanced settings for that device. Clicking the **Settings** button opens the **Serial Device Settings** dialog box, shown in **Figure 4.11,** which allows you to set the **Port, Baud, Data Bits, Parity, Stop Bits,** and **Maximum Characters.**

The **Stock Ticker** setting is a scrolling screen mode that allows the hardware device to scroll letters across the screen.

The **Traditional** mode allows the hardware device to display the entire text string. This mode displays the text string all at once without scrolling.

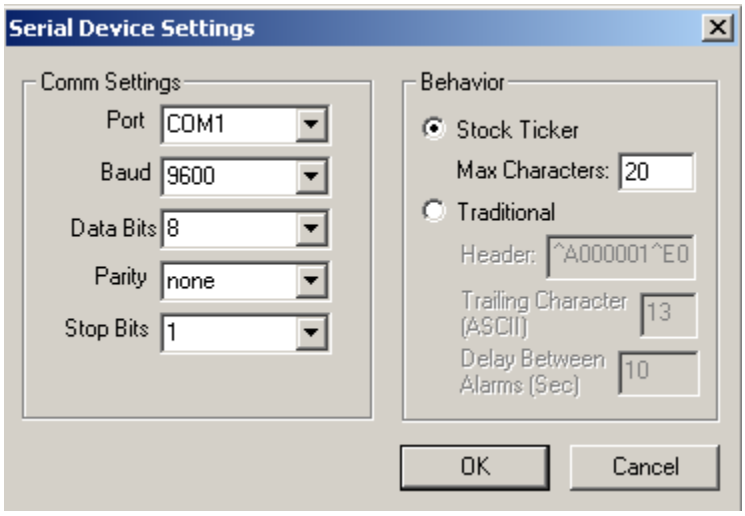


Figure 4.11. Serial Device Settings Dialog Box

The **Ethernet Device Settings** allow you to specify the port and IP address for the hardware device, as shown in **Figure 4.12.**

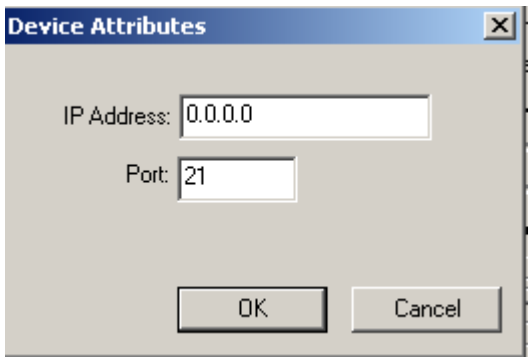


Figure 4.12. Ethernet Device Settings

Window Attributes

- **Always on Top:** Makes the marquee display visible on top of other open windows at all times.

- **Show Title Bar:** Shows (checked) or hides (unchecked) the title bar of the marquee window.
- **Allow Resize:** Resizes the marquee window horizontally while it is being displayed.
- **Allow Vertical Resize:** Resizes the marquee window horizontally as well as vertically while it is being displayed.
- **Auto Hide:** Automatically minimizes the marquee window after a message is displayed.
- **Background Color:** Sets the background color for the marquee window.

Scrolling Attributes

- **Speed:** Sets the speed of the marquee message display.
- **Direction:** Sets the direction of the marquee message display.
- **Minimum Space Between Alarms:** Sets the minimum amount of space (as a percentage of viewing area) between alarm messages.

Test Message

This option allows you send a test message showing the configuration options you have selected, as shown in the example in **Figure 4.13.**



Figure 4.13. Marquee Test Message

Note: If you choose to have the Marquee Agent run on a remote node and that node is running on Windows 95 or Windows 98, then the Marquee Agent must be open on that computer for it to display messages. If the node is running on Windows NT or Windows 2000, it is not necessary to have the agent already open.

4.5 Pager Agent

The **Pager Agent,** shown in **Figure 4.14,** allows you to send alarm information using a message to a pager. The Pager Agent sends alarm information to a pager via dial-up modems. (Please see **Appendix A** for information about pager services.)

Pager Agent Configuration Fields

The following configuration fields are available for the Pager Agent:

- **Pager Media Name:** Enter a name for this pager configuration.
- **Node Name:** Enter the node name for the computer from which you wish to send the e-mail messages. If this field is left blank, the e-mail messages will be sent from the computer that is running the Multimedia Server. Click the **Browse** button to search for a node.
- **Scheduling:** If you are using scheduling, choose from the configured schedules on the drop-down list.
- **Pager Number:** Enter the number of the pager to which you wish to send the message. Use the **General Settings** button in the **Pager/SMS/GSM/TAP** folder to configure pager services, dial-out numbers, modem properties, port settings, etc. (See the "Steps for Configuring the Pager Agent" section below for more information.) For details about pager service protocols, please see **Appendix A.**
- **Acknowledge Code:** Enter the string you wish to use as the acknowledge code.

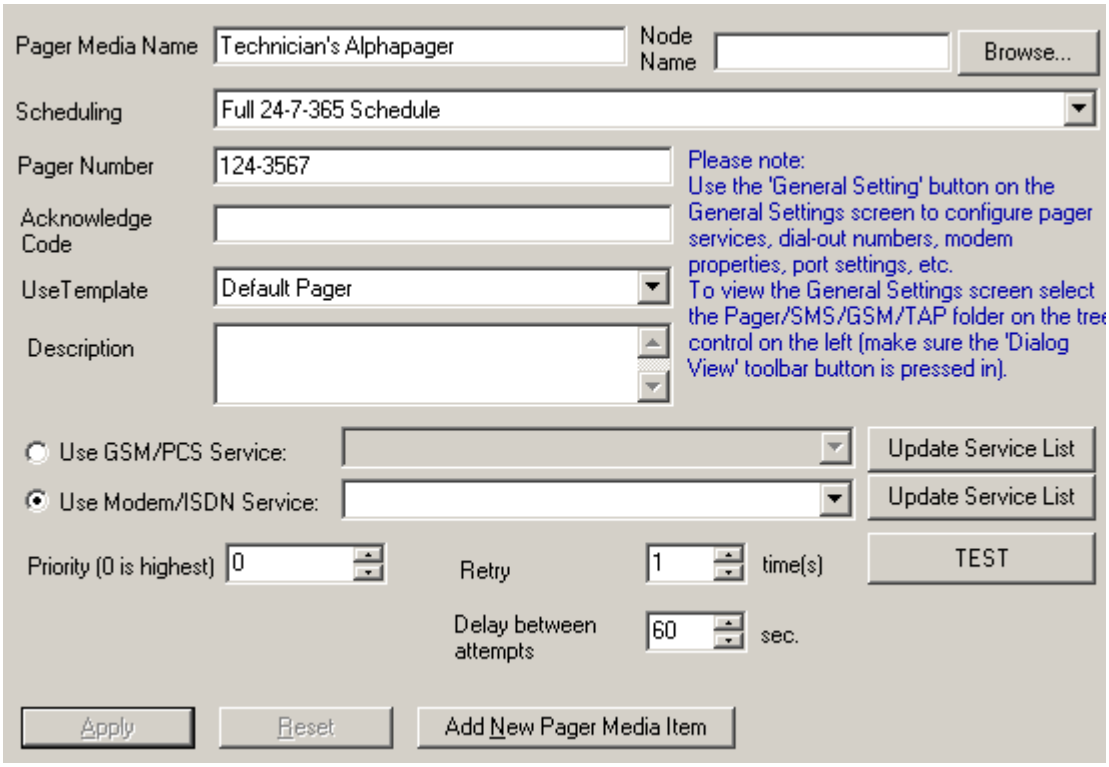


Figure 4.14. Pager Agent

- **Use Template:** You must choose a template to be used with the Pager Agent. The template determines the actual message that gets sent to configured pagers. You can select whether the message includes the timestamp of the alarm, the tag name that generated the message, the actual alarm message itself, and many other parameters. The Configurator includes a template, called **Default Pager,** created for sending alphanumeric pager messages. For more information about templates, please see **Chapter 5.**
- **Priority:** This is used with roles. If more than one person is on schedule (or one person has more than one agent configured using his schedule), then the agent with the highest priority will be the one that is carried out.
- **Description:** Allows you to add comments to the agent configuration.
- **TEST button:** Sends a pager message to test your configuration.
- **Use GSM/PCS Service:** Select the GSM/PCS service you wish to use with the Pager Agent from the drop-down list.

- **Use Modem/ISDN Service:** Select a service to use with your modem or ISDN line from the drop-down list.
- **Apply button:** Saves all changes to the configuration database.
- **Reset button:** Clears all recently added information.
- **Add New Pager Media Item:** Adds a new Pager Agent to be configured. Note that you can also add a new Pager Agent by right-clicking the **Pager/SMS/GSM/TAP** folder on the tree control and selecting **New - Pager Contact** from the pop-up menu.

Steps for Configuring the Pager Agent

When configuring the Pager Agent, use the following procedure. (For advanced pager settings and more detailed information about configuring the Pager Agent, please see **Appendix A.**)

Step 1: Configure a modem for your computer by going to the operating system's control panel and following the steps for configuring a modem.

Step 2: Ensure that your modem is working correctly by using HyperTerminal™ or any third-party dial-up software.

Step 3: In the Multimedia Configurator, open the **Alarm Configurations** folder and the **Multimedia Agents** subfolder. Click on **Pager/SMS/GSM/TAP,** and then click on the **General Settings** button located on the right-hand side of the window, as shown in **Figure 4.15.**

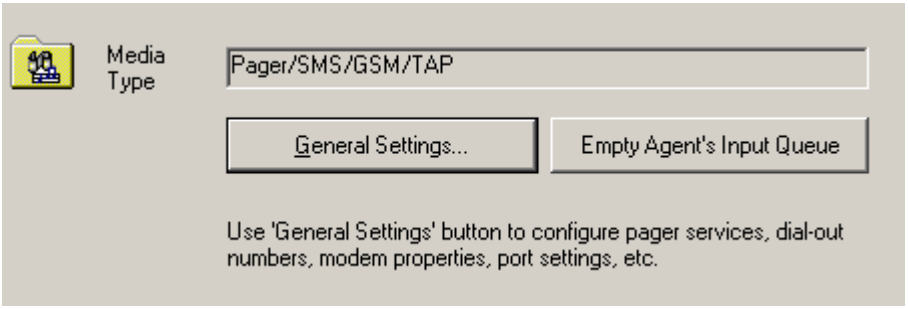


Figure 4.15. Pager Agent: General Settings

Step 4: Clicking the **General Settings** button launches the **Multimedia Pager TAP/SMS** dialog box, shown in **Figure 4.16.** Under **Diagnostic Utilities,** you can choose to enable the TAP log file, the **Multimedia Pager TAP Diagnostic** dialog box, and/or the **Multimedia Pager SMS Diagnostic** dialog box. The log file is only used for diagnostic utilities (limited to 10 KB).

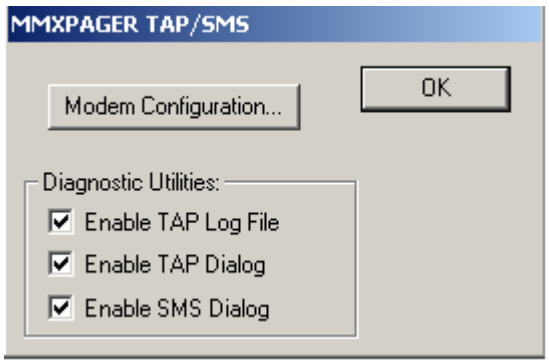


Figure 4.16. Multimedia Pager TAP/SMS Dialog Box

When the display enters runtime mode and the **Use GSM/PCS Service** option is selected in the Pager Agent configuration field, the **Pager SMS Diagnostic** dialog box will open, as shown in **Figure 4.17.**

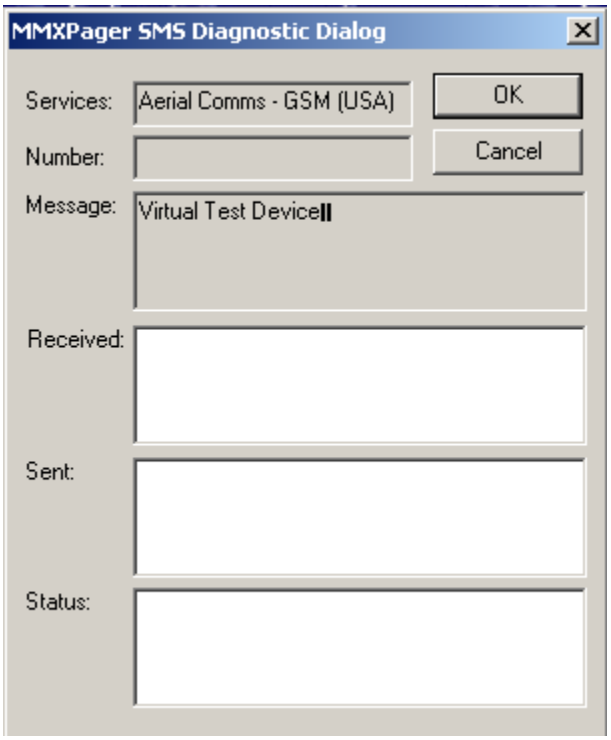


Figure 4.17. Pager SMS Diagnostic Dialog Box

When the display enters runtime mode and the **Use Modem/ISDN Service** option is selected in the Pager Agent configuration field, the **Pager TAP Diagnostic** dialog box will open, as shown in **Figure 4.18.** Clicking the **Open Log...** button opens the TAP log file (if the log file was enabled in the TAP/SMS dialog box).

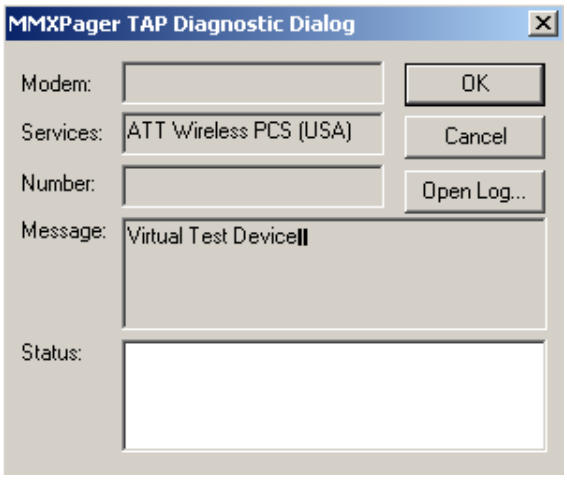


Figure 4.18. Pager TAP Diagnostic Dialog Box

Step 5: Click the **Modem Configuration** button to open the **DERDACK® Message Master™ Configuration Software** dialog box, shown in **Figure 4.19.** Select whether you wish to use modem/ISDN or GSM/PCS service for paging.

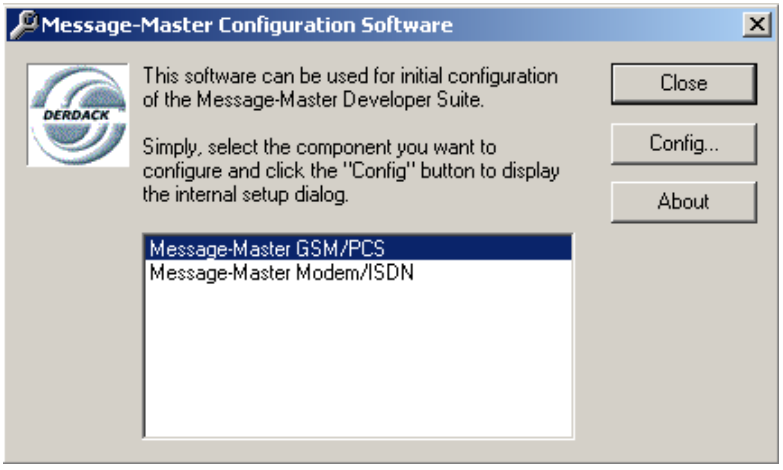


Figure 4.19. DERDACK Message Master Configuration Software Dialog Box

Step 6: Click the **Config...** button to open the **Settings** dialog box, shown in **Figure 4.20.** Fill out the information in the **General, Ports, Services,** and **Messages** tabs with the appropriate information. At any time, you can get help by clicking the **Help** button to launch the Message Master help documentation.

Note: Figure 4.20 shows the configuration settings for GSM/PCS configuration. The Modem/ISDN configuration settings are slightly different. On the **Defined Services** tab of the Modem/ISDN configuration settings dialog box, if you create a new service, the country code for the service must be included in parentheses at the end of the service name. When specifying a telephone number for the service, there is a strict protocol for how you enter the number, which must conform to the following format. Parentheses, where shown, are necessary:

+1 (area code) number. Example: +1 (800) 5551234

For international calls, replace the '1' with the appropriate country code. See the Message Master help or **Appendix A** for more information.

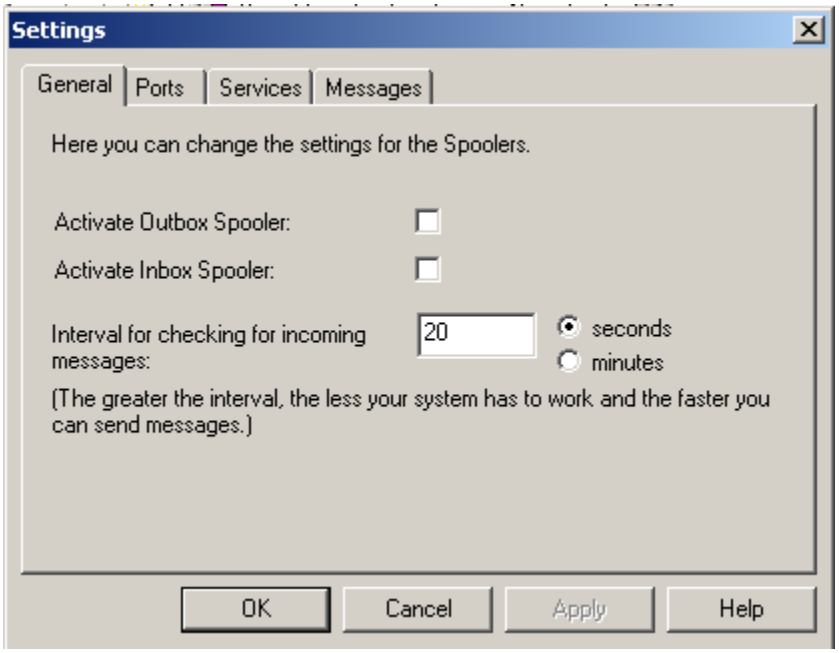


Figure 4.20. DERDACK Message Master Configuration Settings Dialog Box

Step 7: In the Multimedia Configurator, fill out all of the necessary configuration fields.

Note: If no services are listed next to the two options for Modem/ISDN and GSM/PCS, you need to manually launch an application to install these services.

(This application is normally executed at the end of the installation for AlarmWorX32 Multimedia.) The application, called **SrvSetup.exe,** is located in the "Bin/Pager" directory. Run this application, and at the first menu select "Services.inf." See **Appendix A** for more information.

4.6 Telephony Agents

Two separate agents are included under the **Telephony** folder of the Configurator tree control: the **Call-in Agent** and the **Call-out Agent.**

4.6.1 General Settings

To set the default settings for the Telephony Agents (Call-in and Call-out), click on the **Telephony** folder, as shown in **Figure 4.21.** If you do not see the **General Settings,** make sure that **Dialog View** is checked on the **View** menu. Configure the default settings for the Telephony Agents as described below.

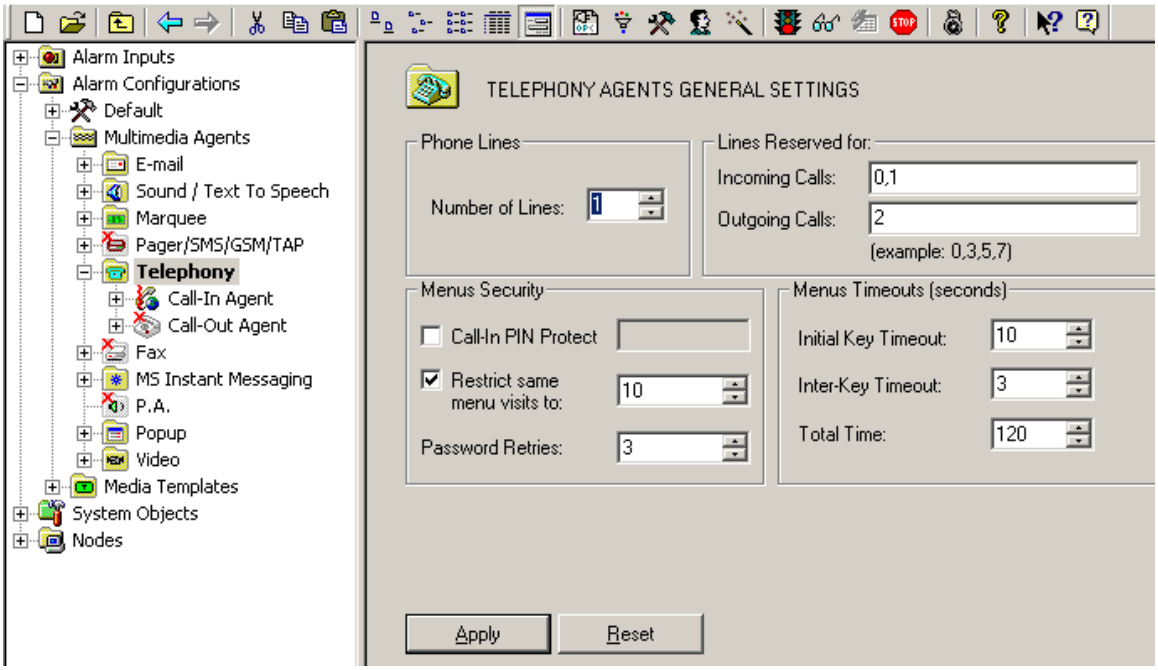


Figure 4.21. Telephony Agents: General Settings

Phone Lines

- **Number of Lines:** Sets the total number of phone lines that will be used by the Phone Agents.

  Note: The number of lines specified must be less than or equal to the actual number of phone lines that will be used. If the number of lines specified in the Configurator is greater than the actual number of lines in use, the Call-in Server will work under the assumption that additional phone lines are available even though the lines do not actually exist. Although up to 20 lines are supported, the number of lines that can be used may be limited by the type of Dialogic board. See **Appendix B** for details.

  Note: The telephony agents currently support up to 20 phone lines. However, the agent has been tested with a maximum of four phone lines.

- **Incoming Calls:** Specifies which phone lines will be reserved for incoming calls.

- **Outgoing Calls:** Specifies which phone lines will be reserved for outgoing calls.

  Note: When specifying which phone lines will be reserved for incoming and outgoing calls, the first line will always be line "0". For example, suppose you will be using a total of three lines, as shown in Figure 4.21. The first line is "0", the second line is "1", and the third line is "2". Since the first and second lines will be used for incoming calls, enter "0" and "1" in the **Incoming Calls** field, as shown in Figure 4.21. The third line will be used for outgoing calls, so enter "2" in the **Outgoing Calls** field, as shown in Figure 4.21.

  Any phone lines that are not reserved will be used as general purpose lines (i.e. for either incoming or outgoing calls).

  Note: If you are using only one telephone line, you cannot reserve the single line for both incoming and outgoing calls. Therefore, to configure a single-line system, both the **Incoming Calls** field and the **Outgoing Calls** field should be left blank.

Menus Security and Timeouts

- **Call-in PIN Protect:** Specify a numeric password or PIN that users must enter prior to each menu in order to progress through the phone menus in the Call-in Agent.

Note: This is different from the general security settings used for logging into the phone system. (The login settings are configured in the Call-in Agent tree control.)

- **Restrict same menu visits to :** Limits the number of times a user can access the same menu through the Call-in Agent. This limits the overall time users can remain in the phone system to prevent users from tying up the phone lines.
- **Password Retries:** Sets the number of times a user will be allowed to enter an incorrect password on the phone keypad.
- **Initial Key Timeout:** Sets the number of seconds the phone will wait for a key press before retry.
- **Inter-Key Timeout:** Sets the number of seconds allowed between key presses on the phone keypad before ending caller input.
- **Total Time:** Sets the total consecutive time (in seconds) that a caller may spend in the same menu before timeout. This includes the time the system uses to process and deliver the text-to-speech messages to the caller.

Dialogic Configuration

You must have a telephony card installed on the computer on which you are running the Telephony Agents (both Call-in and Call-out). AlarmWorX32 Multimedia supports Intel® Dialogic® boards. **Dialogic boards do not work for Windows 98, so neither the Call-in Agent nor the Call-out Agent will work on Windows 98.** You also need to have an analog phone line connected to the board. (**Note:** Digital lines are not supported.) Only Dialogic boards are supported for the current version of AlarmWorX32 Multimedia. Please see **Appendix B** for information about installing and configuring Intel Dialogic boards. For more information about purchasing and installing Intel Dialogic boards, please visit the Intel Web site at www.intel.com/network/csp/products/index_vp.htm.

4.6.2. Call-in Agent

The **Call-in Agent,** shown in **Figure 4.22,** enables users to access OPC data over the phone. The Call-in Agent configuration sets up the voice and key entries and menu options based on information supplied from the Multimedia configuration database and the current state of OPC data or alarms and the security level of the user calling into the system. The Call-in Agent configuration is too extensive to be described in this section. For complete information about configuring settings for the Call-in Agent, please see **Chapter 9.**

Note: The following Configurator features do NOT apply to the Call-in Agent: the Multimedia Configuration Wizard, action sets, and schedules.

Note: Dialogic boards do not work for Windows 98, so the Call-in Agent will not work on Windows 98.

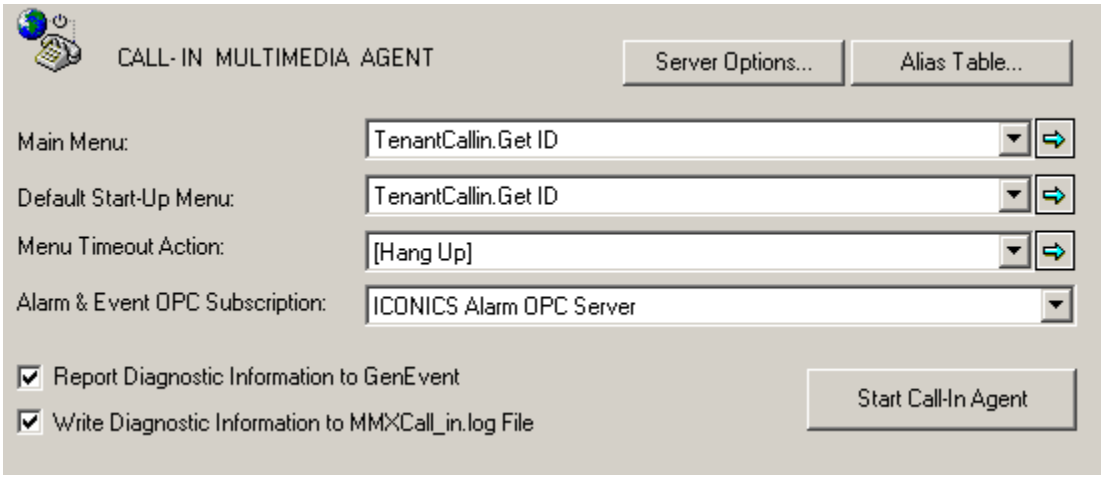


Figure 4.22. Call-in Agent: General Settings

4.6.3. Call-out Agent

The **Call-out Agent,** shown in **Figure 4.23,** sends alarm messages out over the telephone. **Note: Dialogic boards do not work for Windows 98, so the Call-out Agent will not work on Windows 98.**

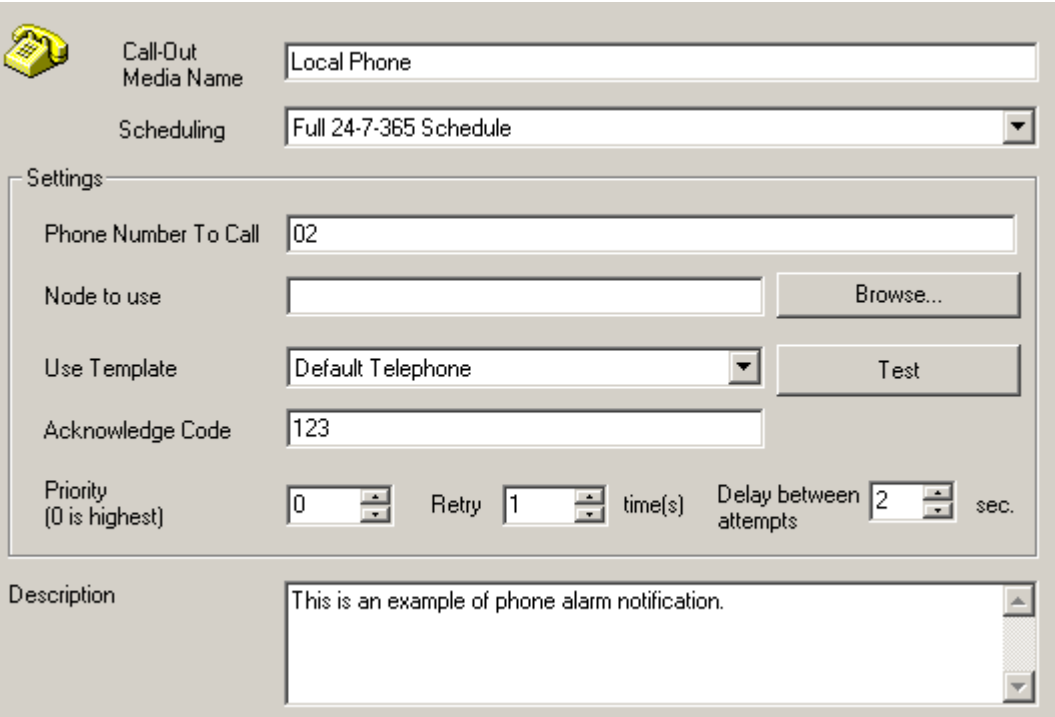


Figure 4.23. Call-out Agent

Call-out Agent Configuration Fields

The following configuration fields are available for the Call-out Agent in the Configurator tree control under **Local Phone,** as shown in Figure 4.23. (**Note: Local Phone** is an example Call-out Agent configuration.)

- **Call-Out Media Name:** Enter a name for the Phone Agent configuration.
- **Scheduling:** If you are using scheduling, choose from the configured schedules on the drop-down list.
- **Phone Number To Call:** Enter the phone number you want the agent to call.
- **Node To Use:** Enter the node name for the computer from which you to run the Phone Agent. If this field is left blank, the Phone Agent will be run from the computer running the Multimedia Server. Click the **Browse** button to search for a node.
- **Use Template:** You must choose a template to be used with the agent. The template determines the actual message that gets sent to the phone

number specified. The Configurator includes a template, called **Default Telephone,** created for sending call-out messages over the phone. For more information about templates, please see **Chapter 5.**

- **TEST button:** Tests your call-out configuration.
- **Acknowledge Code:** Enter the number you wish to use as the acknowledge code.
- **Priority:** This is used with roles. If more than one person is on schedule (or one person has more than one agent configured using his schedule), then the agent with the highest priority will be the one that is carried out.
- **Retry:** Sets the number of attempted calls to make to the specified phone number before timing out.
- **Delay between attempts:** Sets the number of seconds between subsequent phone call retry attempts.
- **Description:** Allows you to add comments to the agent configuration.
- **Apply button:** Saves all changes to the configuration database.
- **Reset button:** Clears all recently added information.
- **Add New Telephone Media Item:** Adds a new Call-out Agent to be configured. Note that you can also add a new Call-out Agent by right-clicking the **Call-out Agent** folder on the tree control and selecting **New - Phone Contact** from the pop-up menu.

4.7 Fax Agent

The **Fax Agent,** shown in **Figure 4.24,** allows you to send alarm information using a fax machine. The fax agent supports class 1, most class 2, and class 2.0 fax standards. It is not possible to be more specific on the class 2 standard because it was never a finalized standard. (**Note:** Color faxes are not supported.)

Fax Configuration Fields

The following configuration fields are available for the Fax Agent:

- **Fax Media Name:** Enter a name for the Fax Agent configuration.
- **Node To Send Fax From:** Enter the node name for the computer on which you wish to run the Fax Agent. If this field is left blank, the Fax Agent will be run on the computer that is running the Multimedia Server. Click the **Browse** button to search for a node.

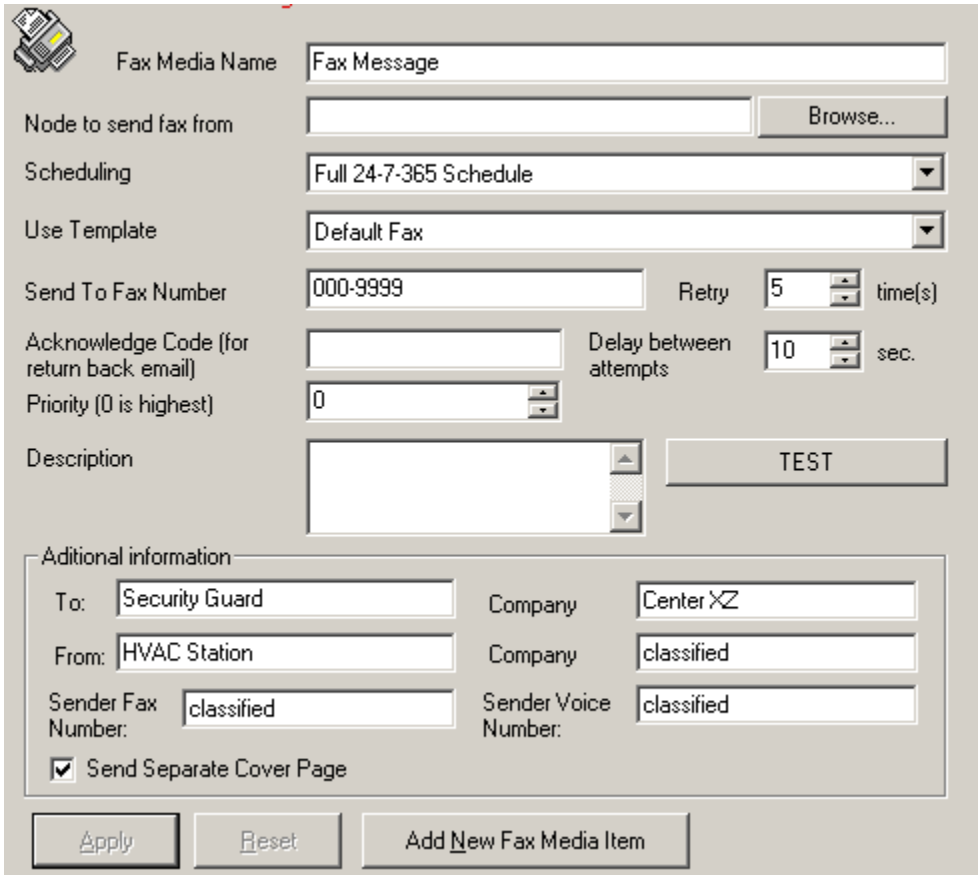


Figure 4.24. Fax Agent

- **Scheduling:** If you are using scheduling, choose from the configured schedules on the drop-down list.
- **Send To Fax Number:** Enter the fax number here.
- **Acknowledge Code:** This field is not supported.
- **Use Template:** You must choose a template to be used with the agent. The template determines the actual message that gets faxed to the number specified. The Configurator includes a template, called **Default Fax,** created for sending messages to a fax machine. For more information about templates, please see **Chapter 5.**
- **Description:** Allows you to add comments to the agent configuration.

- **Priority:** This is used with roles. If more than one person is on schedule (or one person has more than one agent configured using his schedule), then the agent with the highest priority will be the one that is carried out.
- **TEST button:** Sends a test fax based on the configuration settings.
- **Apply button:** Saves all changes to the configuration database.
- **Reset button:** Clears all recently added information.
- **Add New Fax Media Item:** Adds a new Fax Agent to be configured. You can also add a new Fax Agent by right-clicking the **Fax** folder on the tree control and selecting **New - Fax Contact** from the pop-up menu.
- **Send Separate Cover Page:** When this box is checked, the Fax Agent includes a cover page with the fax message. The fax template contains a **Fax Cover Page** field, which specifies a cover page design that will be used for all fax messages sent using the Fax Agent. The following fax file formats are supported: .pg, .cpe, and .fmf. For more information about templates, please see **Chapter 5.**

  Note: The location of the **Fax Cover Page** field in the fax template does not matter because the cover page is, by default, the first item to be sent in a fax message. However, if several cover pages are selected for a single template, the Fax Agent will use only the first cover page listed.

4.8 Instant Messaging Agent

The **Instant Messaging Agent,** shown in **Figure 4.25,** allows you to send and acknowledge alarm information using Microsoft MSN® Messenger Service. (For information about installing and configuring MSN Messenger Service, acknowledging alarms using MSN Messenger Service, and creating templates for the Instant Messaging Agent, please see **Appendix E.**)

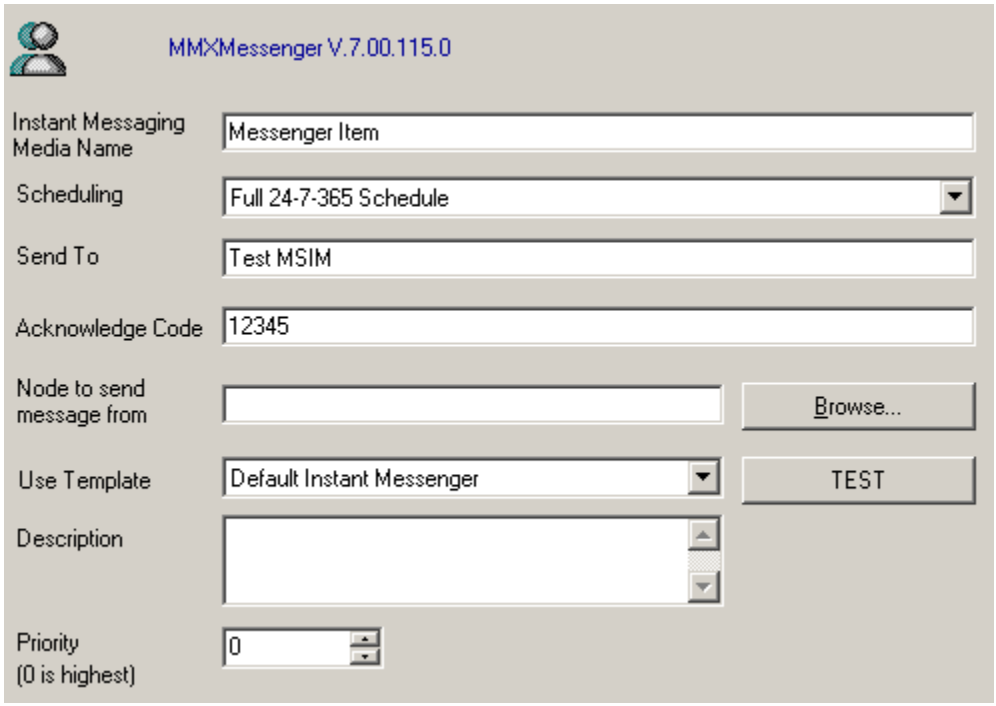


Figure 4.25. Instant Messaging Agent

Instant Messaging Configuration Fields

The following configuration fields are available for the Instant Messaging Agent:

- **Instant Messaging Media Name:** Enter a name for the Instant Messaging Agent configuration.
- **Scheduling:** If you are using scheduling, choose from the configured schedules on the drop-down list.
- **Send To:** For the Multimedia Instant Messaging Agent to work properly, MSN Messenger Service must be installed and running on the computer on which the Instant Messaging Agent is installed. The user name specified in the **Send To** field must also be an existing contact in the server computer's messaging client that is currently online.
- **Acknowledge Code:** Enter the string you wish to use as the acknowledge code. (For information about acknowledging alarms using instant messaging, see **Appendix E.**)

- **Node To Send Message From:** Enter the node name for the computer on which you wish to run the Instant Messaging Agent. If left blank, the Instant Messaging Agent will be run on the computer that is running the Multimedia Server. Click the **Browse** button to search for a node.
- **Use Template:** You must choose a template to be used with the agent. The template determines the actual message that gets sent to instant message recipients. The Configurator includes a template, called **Default Instant Messenger,** created for sending instant messages. For more information about templates, please see **Chapter 5.**
- **Description:** Allows you to add comments to the agent configuration.
- **Priority:** This is used with roles. If more than one person is on schedule (or one person has more than one agent configured using his schedule), then the agent with the highest priority will be the one that is carried out.
- **TEST button:** Sends a test instant message based on your configuration.
- **Apply button:** Saves all changes to the configuration database.
- **Reset button:** Clears all recently added information.
- **Add New Instant Messaging Media Item:** Adds a new agent to be configured. Note that you can also add a new Instant Messaging Agent by right-clicking the **Instant Messaging** folder on the tree control and selecting **New - Instant Messaging Media Item** from the pop-up menu.

4.9 Popup Agent

The **Popup Agent,** shown in **Figure 4.26,** allows you to open and execute a file on a computer. For example, you can configure a Popup Agent to open Microsoft Internet Explorer and display alarm information within Internet Explorer.

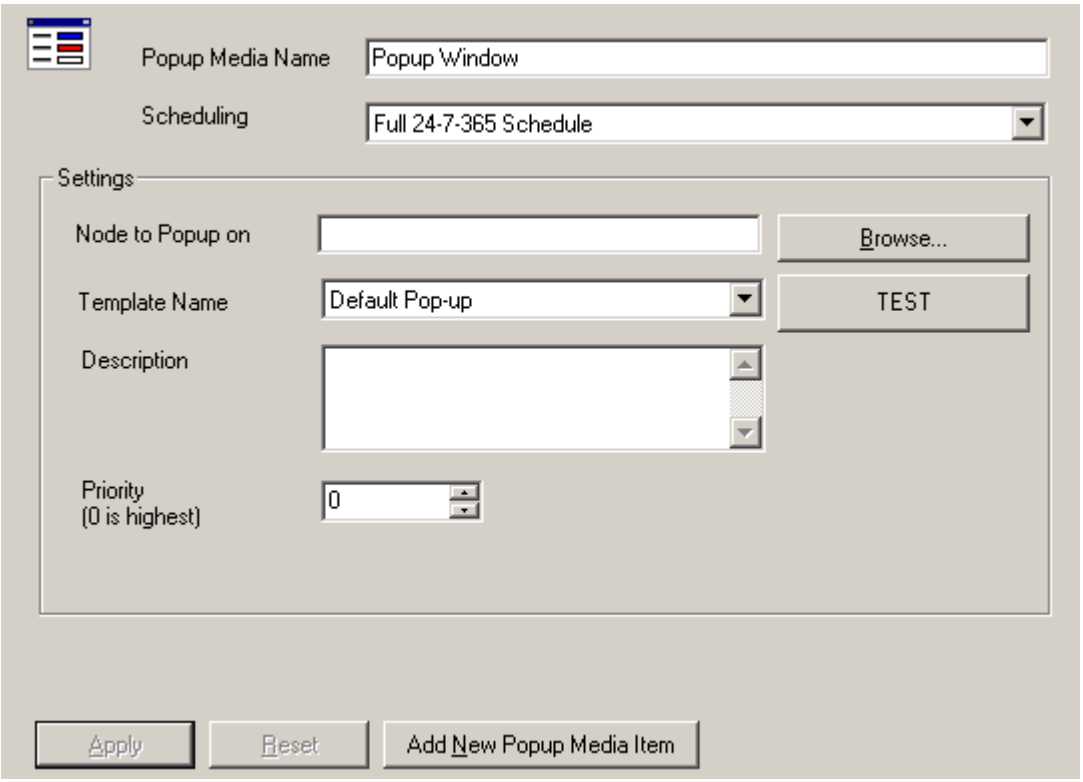


Figure 4.26. Popup Agent

Note: The Popup Agent is designed to launch other applications. The intent is that an operator will then close the applications when finished. The agent itself neither closes these applications nor limits the number of applications it will launch. Because of this, it is possible that an unmonitored station, using the Popup Agent, could launch so many applications as to run out of system resources.

Popup Configuration Fields

The following configuration fields are available for the Popup Agent:

- **Popup Media Name:** Enter a name for the Popup Agent configuration.
- **Scheduling:** If you are using scheduling, choose from the configured schedules on the drop-down list.
- **Node To Popup On:** Enter the node name for the computer on which you wish to run the Popup Agent. If this field is left blank, the Popup

Agent will be run on the computer that is running the Multimedia Server. Click the **Browse** button to search for a node.

- **Template Name:** You must choose a template to be used with the agent. The template determines the actual message that gets displayed in the popup window. The Configurator includes a template, called **Default Popup,** created for sending messages using popup windows. For more information about templates, please see **Chapter 5.**
- **Description:** Allows you to add comments to the agent configuration.
- **Priority:** This is used with roles. If more than one person is on schedule (or one person has more than one agent configured using his schedule), then the agent with the highest priority will be the one that is carried out.
- **TEST button:** Displays a test popup window based on your configuration.
- **Apply button:** Saves all changes to the configuration database.
- **Reset button:** Clears all recently added information.
- **Add New Popup Media Item:** Adds a new agent to be configured. You can also add a new Popup Agent by right-clicking the **Popup** folder on the tree control and selecting **New - Popup Item** from the pop-up menu.

4.10 Video Agent

The **Video Agent,** shown in **Figure 4.27,** allows you to use a video device to send a video or a snapshot to a computer providing alarm information.

Video Configuration Fields

The following configuration fields are available for the Video Agent:

- **Video Media Name:** Enter a name for this Video Agent configuration.
- **Scheduling:** If you are using scheduling, choose from the configured schedules on the drop-down list.
- **Play On Node:** Enter the node name for the computer on which you wish to run the Video Agent. If left blank, the Video Agent will be run on the computer that is running the Multimedia Server. Click the **Browse** button to search for a node.
- **Snapshot Node:** Enter the node name for the computer on which you wish to run the Video Agent Snapshot. If this field is left blank, the Video Agent Snapshot will be run on the computer running the Multimedia Server. Click the **Browse** button to search for a node.

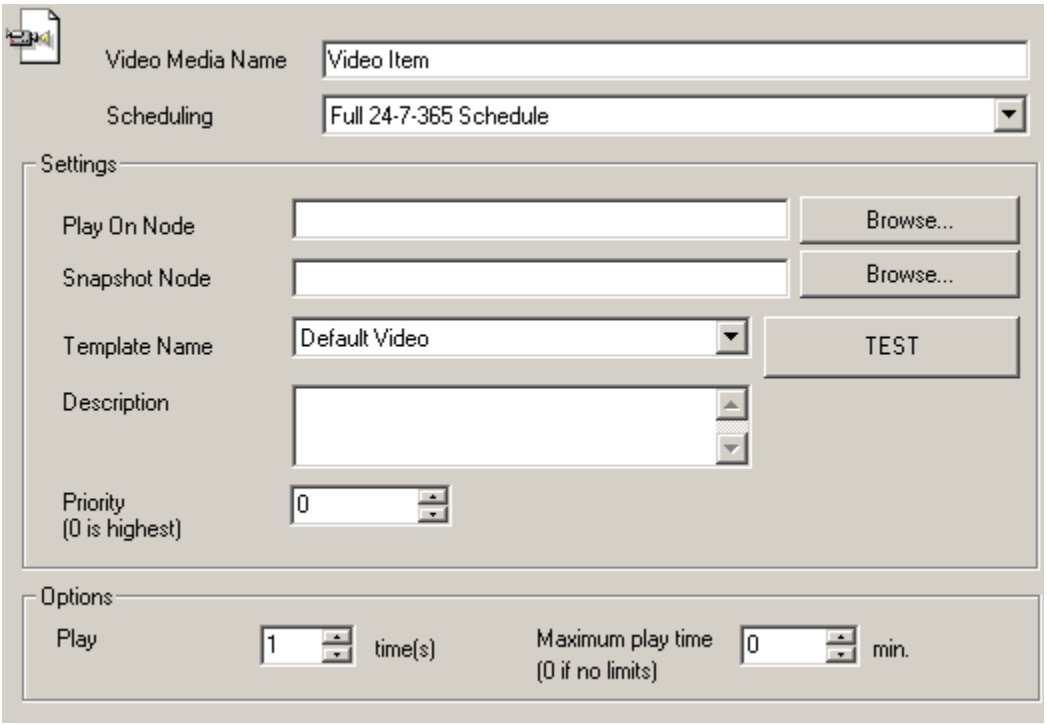


Figure 4.27. Video Agent

- **Template Name:** You must choose a template to be used with the agent. The template determines the actual video file (.avi, .mpg, .mpeg, or .mov) or snapshot (image) file (.bmp, jpg, jpeg, or .gif) that gets displayed. The Configurator includes a template, called **Default Video,** created for sending messages using video. For more information about templates, please see **Chapter 5.**
- **Description:** Allows you to add comments to the agent configuration.
- **Priority:** This is used with roles. If more than one person is on schedule (or one person has more than one agent configured using his schedule), then the agent with the highest priority will be the one that is carried out.
- **Play:** Plays the video for a specified number of times.
- **Maximum Play Time:** Sets a maximum video play time (in minutes).
- **TEST button:** Tests your video configuration settings.
- **Apply button:** Saves all changes to the configuration database.
- **Reset button:** Clears all recently added information.

- **Add New Video Media Item:** Adds a new agent to be configured.

General Settings

The following options are set for all video items within the **Video** folder. To change any of these options, click on the **General Settings** button while in the main **Video** folder, as shown in **Figure 4.28.** If you do not see the **General Settings** button, make sure that **Dialog View** is checked on the **View** menu.

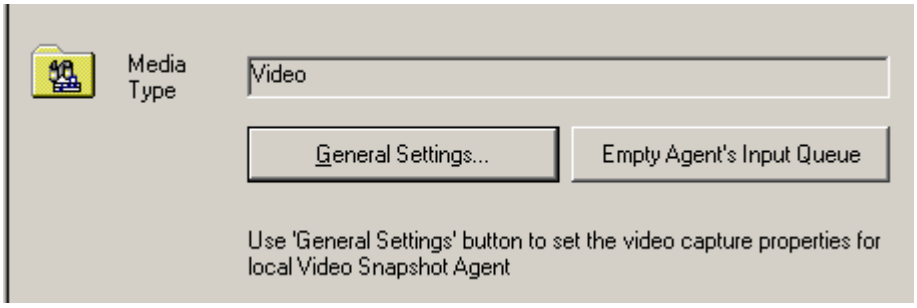


Figure 4.28. Video Agent: General Settings

Clicking **General Settings** opens the **Snapshot Configuration** dialog box, shown in **Figure 4.29.**

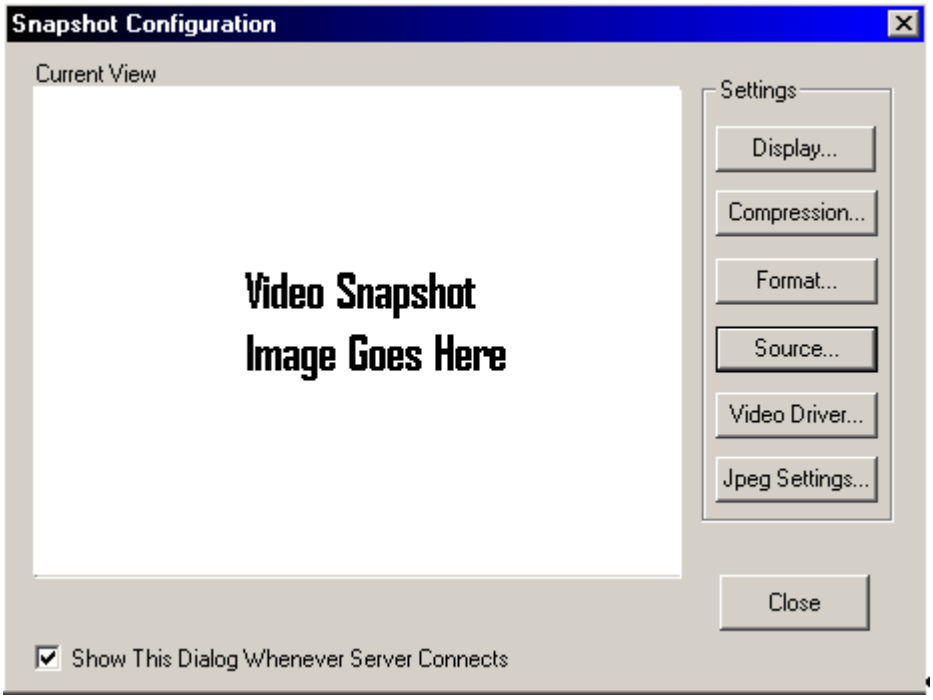


Figure 4.29. Snapshot Configuration Dialog Box

The **Snapshot Configuration** dialog box contains the following options:

- **Display:** Allows you to choose video display options.
- **Compression:** Choose a component to use if you wish to compress the video files.
- **Format:** Sets options such as color, mirror, flip, and size.
- **Source:** Configures hardware settings based on the video driver you choose to use.
- **Video Driver:** Choose a video driver to use.
- **Jpeg Settings:** Select the quality level and the option to display in color or grayscale for snapshots.

For information about video configuration settings, please see **Appendix C.**

Note: The general settings for video agents may vary depending on which video capture device is used. General settings will only function if you have a video capture device (Web camera) installed on your computer. If no video capture

device is found, you will get an error message informing you that the application could not find any video capture devices.

If you are using a remote node for video capture, you will have to go to the remote node and change the settings for video capture on that remote node. If there is no Multimedia Configurator installed on your video capture node, then you can run the "MMXSnapshot.exe" in the "Bin" directory to set the general settings.

4.11 P.A. Agent

The **P.A. Agent,** shown in **Figure 4.30,** allows you to use a public address (PA) system device to announce alarms and events over a loudspeaker. The PA Agent configuration settings are directly tied to the telephony agent settings. The Call-out Agent configuration must be activated in order for the PA agent to work. A Dialogic board is also required for the PA agent.

P.A. Configuration Fields

The following configuration fields are available for the P.A. Agent:

- **P.A. Media Name:** Enter a name for the configuration.
- **Scheduling:** If you are using scheduling, choose from the configured schedules on the drop-down list.
- **Phone Number to Call:** Enter a P.A. system access phone number.
- **Node Name:** Enter the node name for the computer on which you wish to play the P.A. message. If this field is left blank, the sounds will be played on the computer running the Multimedia Server. Click the **Browse** button to search for a node.
- **Use Template:** You must choose a template to be used with the agent.
- **Description:** Allows you to add comments to the agent configuration.
- **Priority:** This is used with roles. If more than one person is on schedule (or one person has more than one agent configured using his schedule), then the agent with the highest priority will be the one that is carried out.
- **Play:** Plays the P.A. message a specified number of times.
- **Maximum Play Time:** Sets a maximum play time for the message (in minutes).
- **TEST button:** Plays a P.A. message to test your configuration.
- **Apply button:** Saves all changes to the configuration database.

- **Reset button:** Clears all recently added information.
- **Add New P.A. Media Item:** Adds a new agent to be configured. Note that you can also add a new P.A. Agent by right-clicking the **P.A.** folder on the tree control and selecting **New - P.A. Item** from the pop-up menu.

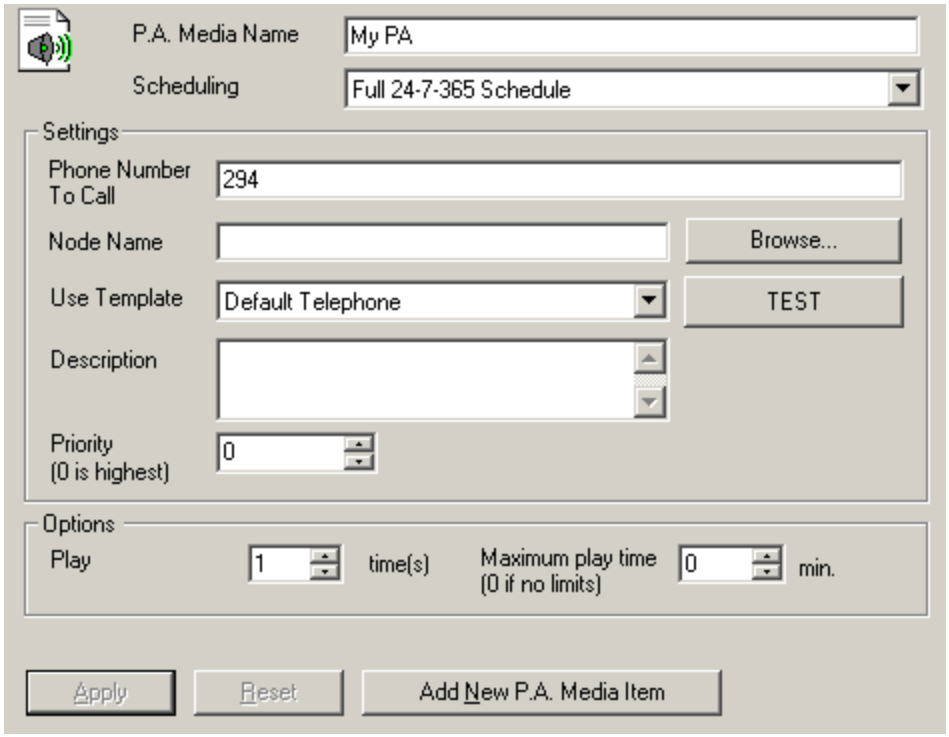


Figure 4.30. P.A. Agent Configuration Settings

Media Templates 5

5.1 Introduction to Media Templates

When configuring a multimedia agent, you must select a **media template** to apply to that agent. Templates allow you to configure design elements, including what and how much information to display when presenting an alarm. A default template is available for each type of agent. You can use or modify any one of the default templates provided for you, or you can create a new template as follows:

1. Right-click on the **Media Templates** folder on the tree control of the Multimedia Configurator screen and select **New > Media Template,** as shown in **Figure 5.1.** The **Media Templates** folder is located in the **Alarm Configurations** folder.

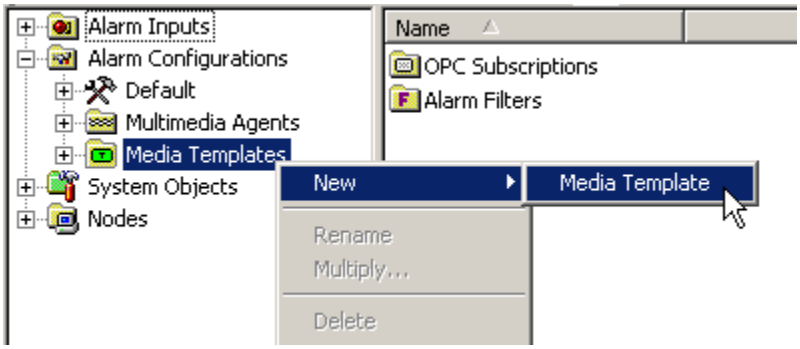


Figure 5.1. Creating a New Media Template

2. The new media template appears along with the configuration dialog box shown in **Figure 5.2.** In the **Template Name** field, enter a name for the template you are creating.
3. Select which **Template Type** you wish to create. You can choose from e-mail, sound/text-to-speech, marquee, pager, phone, fax, instant messaging, PA, popup window, or video.

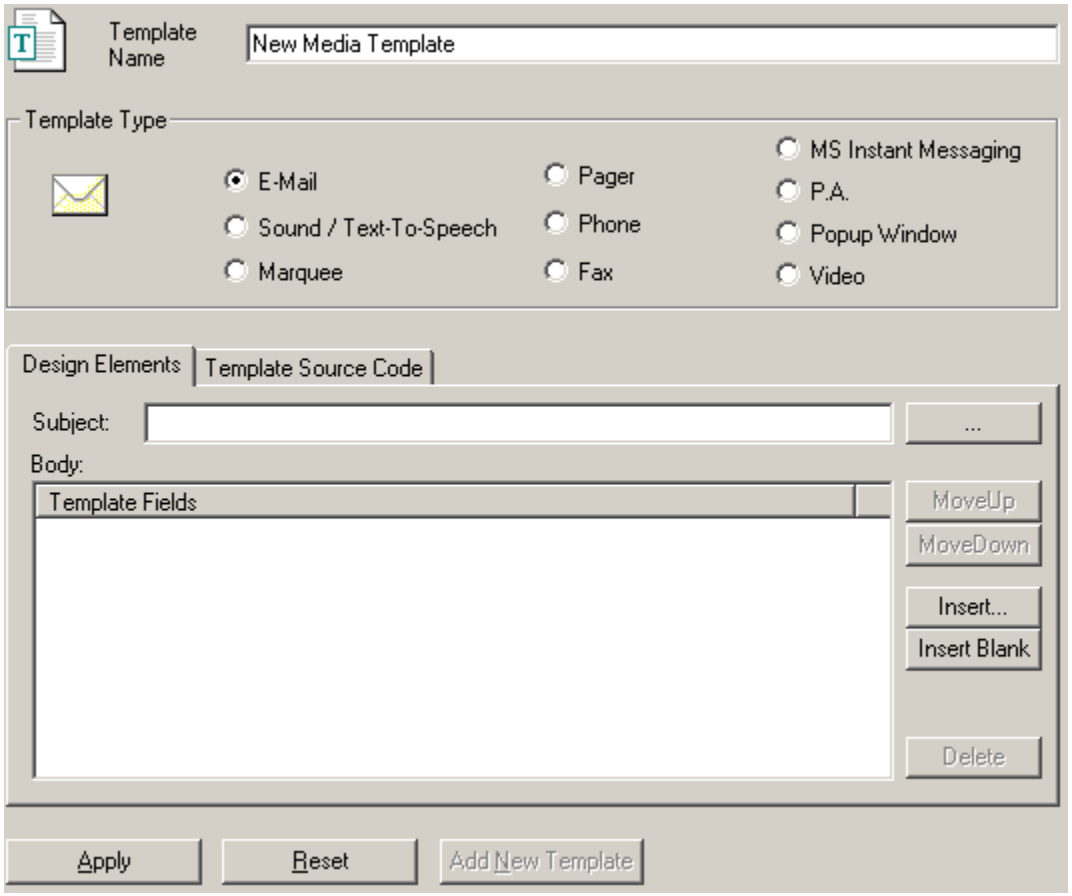


Figure 5.2. New Media Template Configuration

4. Click on the **Design Elements** tab of the template configuration dialog box, shown in Figure 5.2. If you are configuring a template with an option to enter a subject field, you may do so by clicking on the **…** button to the right of the **Subject** field. This opens the **Template Definition Wizard** dialog box, shown in **Figure 5.3,** which contains a list of available field types to add. For a list of field types, please see the "Template Field Types" section later in this chapter. Choose a field type and select from the additional options under **Field Properties;** and then click **Insert.** If you wish to change the order of the fields or to delete a field, use the appropriate buttons to do so. The **Insert Blank** button will insert a line break.

Note: Template configuration is for advanced users. It is recommended that you use the default templates that are provided with the Configurator.

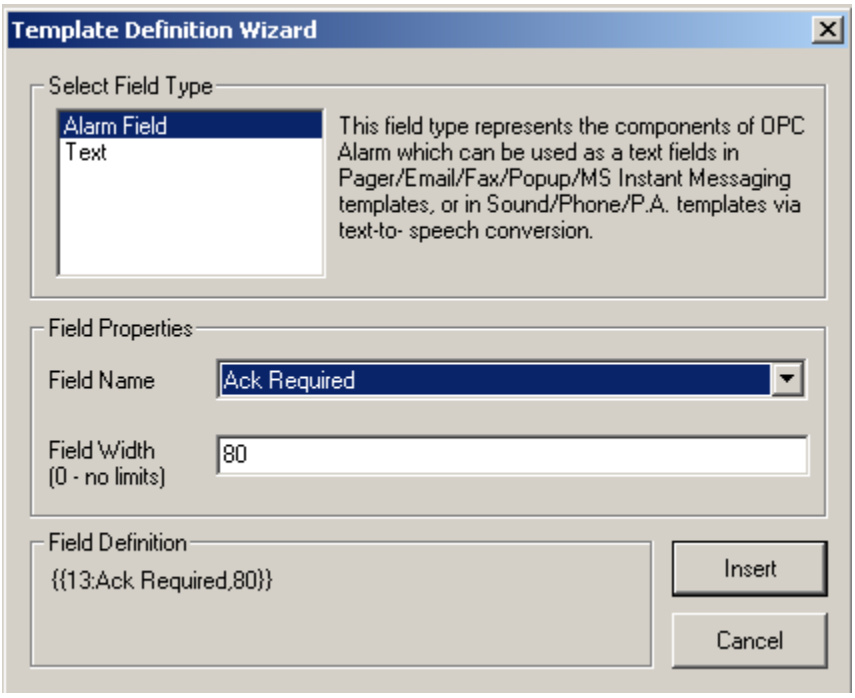


Figure 5.3. Template Definition Wizard Dialog Box

5. Click on the **Template Source Code** tab in the template configuration dialog box. The **Template Source Code** tab, shown in **Figure 5.4,** displays all of the fields in an editable format. If you need to manually edit a field, you can do so here.

   Note: The **Template Source Code** tab is recommended for advanced users only. Do not modify any fields here unless you are absolutely sure of what you are doing.

6. Click **Apply** on the template configuration dialog box to apply the changes.

Note: For additional template settings, see **Appendix B, Appendix C,** and **Appendix E.**

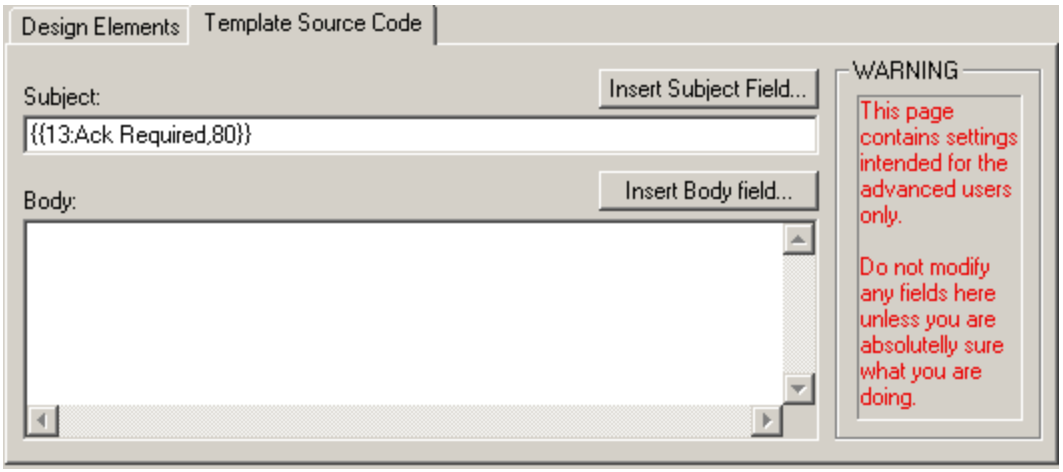


Figure 5.4. Media Template Configuration: Template Source Code Tab

5.2 Template Field Types

The following is a list of all template field types. When configuring a media template, clicking the **Insert** button on the **Design Elements** tab of the template configuration dialog box, shown in Figure 5.2, to display which field types are available for that particular template type.

Note: For more information about template field types, please see **Appendix B, Appendix C,** and **Appendix E.**

Alarm Field: Represents the components of OPC alarms; allows you to choose from a drop-down list of fields; allows you to enter a field width limit (enter zero for no limit); can be used as a text field with pager, e-mail, fax, popup, and instant messaging templates, or in sound, and phone (call-out) templates via text-to-speech conversion.

E-mail Attachment: Represents any file that can be sent as an e-mail attachment; used with e-mail templates.

Sound File: Represents a sound file; allows you to choose from the included Sound Library or to add your own sound file (.wav, .mid) to the Sound Library. Can be used with sound and phone (call-out) templates.

Delay: Enters a value representing a time delay in milliseconds before the next template item will be activated; can be used with sound, phone, and video templates.

File: Represents a file for the Popup Agent to process; used with popup templates.

URL: Represents a URL for the Popup Agent to display; used with popup templates.

SnapShot Capture: Enters a value representing the amount of time the Video Agent will take to capture a video snapshot; used with video templates.

Picture File: Represents an image file (.gif, .jpg); used with video templates.

Video File: Represents a video file (.avi, .mpg, .mpeg, .mov); used with video templates.

Text: Allows you to enter plain text; used by all media templates.

HTML Text: Text embedded in HTML tags; used by marquee, popup, and video templates.

Fax Cover Page: This template field is a cover page design that will be used for all fax messages sent using the Fax Agent. The following fax cover page file formats are supported: .pg, .cpe, and .fmf.

Note: The location of the **Fax Cover Page** field in the fax template does not matter because the cover page is, by default, the first item to be sent in a fax message. However, if several cover pages are selected for a single template, the Fax Agent will use only the first cover page listed.

5.3 Templates and HTML

This section is designed for advanced users who have some familiarity with HTML (Hyper Text Markup Language) and wish to see how HTML can be used in media templates. For more information on HTML, consult an HTML or Web-authoring tutorial.

The templates for the Marquee, Popup, and Video agents can respond to simple HTML tags used to define the appearance of alarm data upon the agents' loading. If you are comfortable using HTML and are comfortable with the organization of the multimedia templates, you may find it simpler to write HTML directly into the **Template Source Code** field (see Figure 5.3) designed for advanced users. Information on how HTML is handled in each agent is shown below.

5.3.1 Popup Agent

All HTML text written in a popup agent's template is taken as is, written to an HTML file, and launched in Microsoft Internet Explorer. Alarm fields are

translated into appropriate text and inserted into the HTML file wherever specified in the template. **Table 5.1** shows the example provided for the default popup template.

Table 5.1. Popup Template Items

HTML Command	Function
$BASE_PATH$\MMXSounds\Alarm.wav	Launches the file "Alarm.wav" using whatever installed media are capable of playing .wav files.
<html>	Begins HTML content.
<title>MMX Alarm</title>	Makes the title of the popup window "MMX Alarm."
<body bgcolor=#0000ff>	Begins the body of HTML text and gives the popup window a blue background. ('#0000ff' is a coded way of specifying blue.)
	Sets the font color to yellow and the font size to 6 (about 24 point).
[Alarm.Message]	Shows the message text of the current alarm in the font style specified on the previous line.
	Ends yellow text.
</body>	Ends body text.
</html>	End HTML.

5.3.2 Video Agent

The Video Agent handles HTML text and alarm fields the same way that the Popup Agent handles them. The difference in the Video Agent's template is the inclusion and interpretation of images and video files. Whenever the Video Agent encounters an image or video in the template, it automatically embeds HTML code around the image or video, allowing Internet Explorer to recognize and display the item as it should be shown. **Table 5.2** shows the items contained in the default video template.

Note: You will notice in this case that <html> and <body> have been omitted. For simple sections of HTML text like the one in this example, they are optional. Please see **Appendix C** for more information about video templates.

Table 5.2. Video Template Items

HTML Command	Function
<title>Intruder Alert</title>	Makes the title of the video popup page "Intruder Alert."'
	Sets the type color to red.
Intruder Alert! 	Writes "Intruder Alert" in red type, centered and in "Heading 1" style.

[Alarm.Message]	Writes the alarm message centered and in "Heading 2" style.
<table width = 100% border=1> <tr><td>	Creates a table with two columns. The left column is labeled "Authorized Employee," and the right column is labeled "Last person to enter."
Authorized Employee </td><td>	
Last person to enter </td></tr><tr><td>	
$BASE_PATH$\SnapShots\Eng1.jpg	Inserts the image "Eng1.jpg" in the table below "Authorized Employee."'
</td><td>	
Snapshot capture (millisec.) 0	Takes a still image of what the Web cam is looking at and places the image to the right of "Eng1.jpg."
</td></tr></table>	Closes the table.

5.3.3 Marquee Agent

Using HTML for the Marquee Agent is slightly different from standard HTML because the Marquee Agent does not load or display an entire Web page. The Marquee Agent uses HTML to determine the appearance of the text to be scrolled across the window. Since the Marquee Agent uses HTML only to modify the appearance of its text, it responds only to a limited set of HTML tags. The following is a list of useful HTML tags for the Marquee: <font>, <I>, <u>, <b>, <h1>, <h2>, <h3>, <body>, <blink>. All other HTML tags are completely ignored. If plain text is entered, or if alarm messages are entered into the template with no HTML around them, then the text will simply be displayed in plain, black, 10-point font. **Table 5.3** shows the items contained in the default marquee template. All of the "'ignored" fields have been left in to demonstrate how one can copy and paste HTML code from an HTML editor directly into the template and still generate the desired text.

Note: The <body> field was used here to force the background to a different color. The **Marquee Properties** dialog box has a **Background Color** option on its property page. An HTML-specified background color overrides the Marquee's configured background color.

Table 5.3. Marquee Template Items

HTML Command	Function
<HTML>	Ignored.
<BODY bgcolor=#530210>	Makes the background of the Marquee Agent dark red/maroon.
<DIV>	Ignored.
<FONT face=dot-matrix size=6 color=green>[Alarm.Time]	Shows the current time in dot-matrix font, green and size 6 (about 24 point).
[Alarm.Source]	Shows the Alarm Source in the same font.
<FONT face=dot-matrix size=+1 color=red>[Alarm.Message]</FONT></FONT>	Shows the Alarm Message in dot-matrix font, green, and size 7 (about 36 point).
</DIV>	Ignored.
</BODY>	Optional.
</HTML>	Ignored.

Schedules and Roles 6

6.1 Introduction to Schedules

The scheduling feature in AlarmWorX32 Multimedia allows you to configure an alarm action set so that an alarm message will be sent to a particular person only if that person is available according to his or her schedule. If you wish to use scheduling, you must configure the schedules before setting up your agents or alarm action set. Schedules are located under the **System Objects** tree control.

Under the **Schedules** configuration folder on the tree control of the Multimedia Configurator screen, there are **group schedules** and **personal schedules.** You must set up a group schedule first, and then you may add personal schedules to the group schedule. Some example schedules are provided for you by default.

There are two basic ways to use schedules:

- You can have a group schedule that has a configured time calendar, and every personal schedule under that group follows that time calendar. Use this method when each person will have the same basic schedule. For example, this method is appropriate if your group schedule will be for a specific time shift during which every person works the same times.
- The other way to use the schedules is to have a group schedule that does not have a configured time calendar and to configure each personal schedule with its own time calendar. Use this method when each person has a unique time schedule. Once you set up the time calendars, you can add or exclude specific dates and times from any group or personal schedule.

6.2 Creating a New Schedule Configuration

Use the following steps to configure a new schedule:

1. Right-click on the **Schedules** folder in the tree control and select **New > Group Schedule** from the pop-up menu, as shown in **Figure 6.1.**

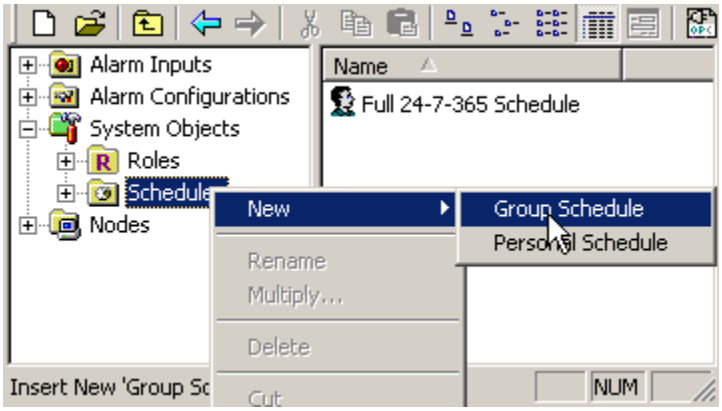


Figure 6.1. Creating a New Group Schedule

2. The group schedule configuration field will be displayed in the right-hand pane, as shown in **Figure 6.2.**

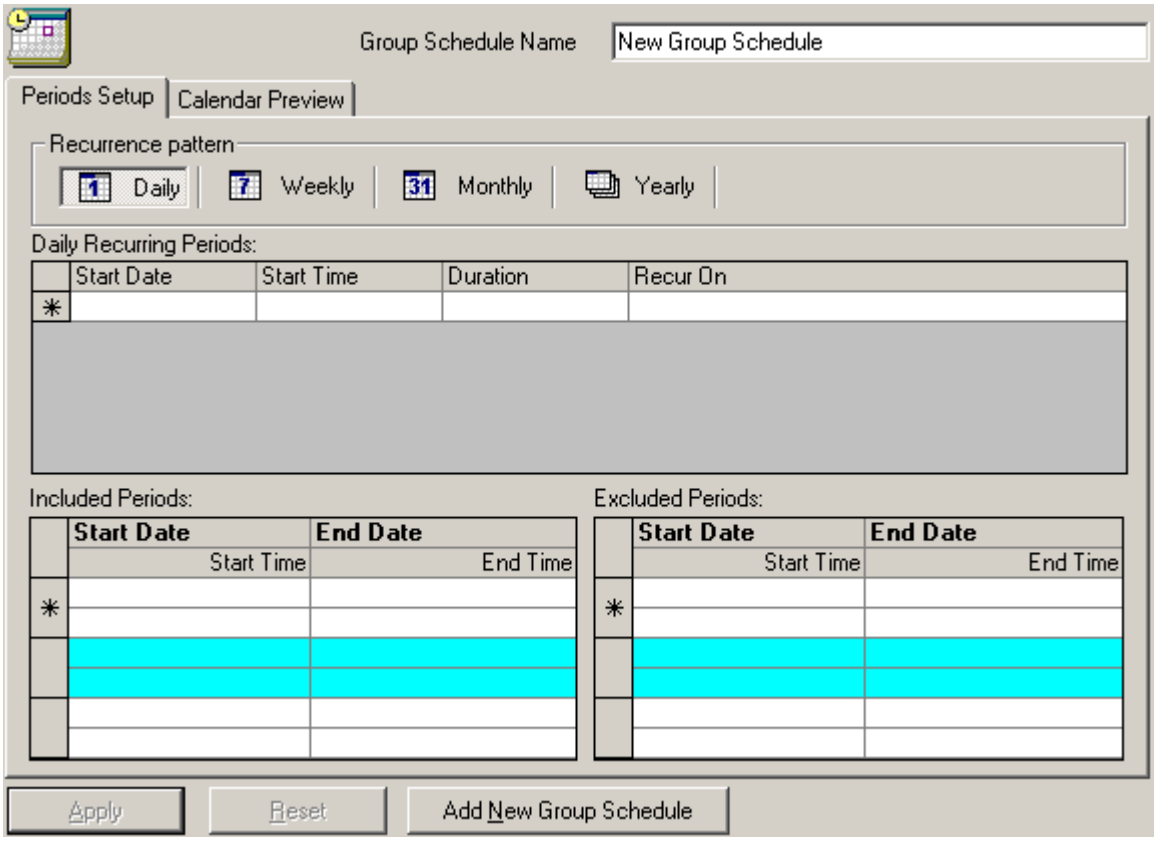


Figure 6.2. Configuring a New Group Schedule

3. Type a name for the new group schedule, as shown in Figure 6.2.
4. You will be setting up a time calendar for the whole group. Enter the scheduling information in the **Periods Setup** tab. You may click on the **Calendar Preview** tab to view the current schedule. For more information on the **Periods Setup** tab and the **Calendar Preview** tab, see the sections below.
5. Click the **Apply** button to apply your changes.
6. On the tree control, right-click on the group schedule you have just created and select **New > Personal Schedule** from the pop-up menu, as shown in **Figure 6.3.**

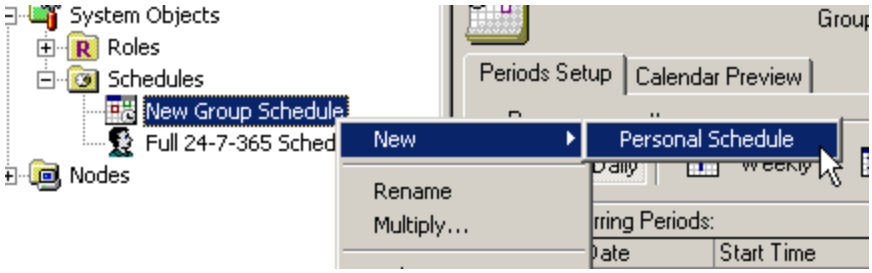


Figure 6.3. Creating a New Personal Schedule

7. Type a name (e.g. Chief Engineer) for the new personal schedule in the configuration field, as shown in **Figure 6.4.**

8. **Roles** allow you to configure an alarm action set so that an alarm message will be sent to the person who is on schedule from a list of configured people. For example, if you want to call a shift supervisor when a certain alarm appears, you can set up a role called "Shift Supervisors." (Please see section 6.3 for information about configuring roles.) Then when the alarm occurs, the alarm message will be sent to whichever shift supervisor is on schedule. In order to associate a personal schedule with a role, you must select a role from the drop-down list under **Role,** as shown in Figure 6.4.

9. If you will be setting up a time calendar for this personal schedule, enter the scheduling information in the **Periods Setup** tab. You may click on the **Calendar Preview** tab to view the current schedule. Any group times that you configured will be included in every personal schedule under that group schedule and will appear in the calendar preview.

10. Click the **Apply** button to apply your changes.

Note: If you set up a time calendar in a group schedule *and* in a personal schedule, then that person's schedule will include all scheduled times from both the group schedule and the personal schedules.

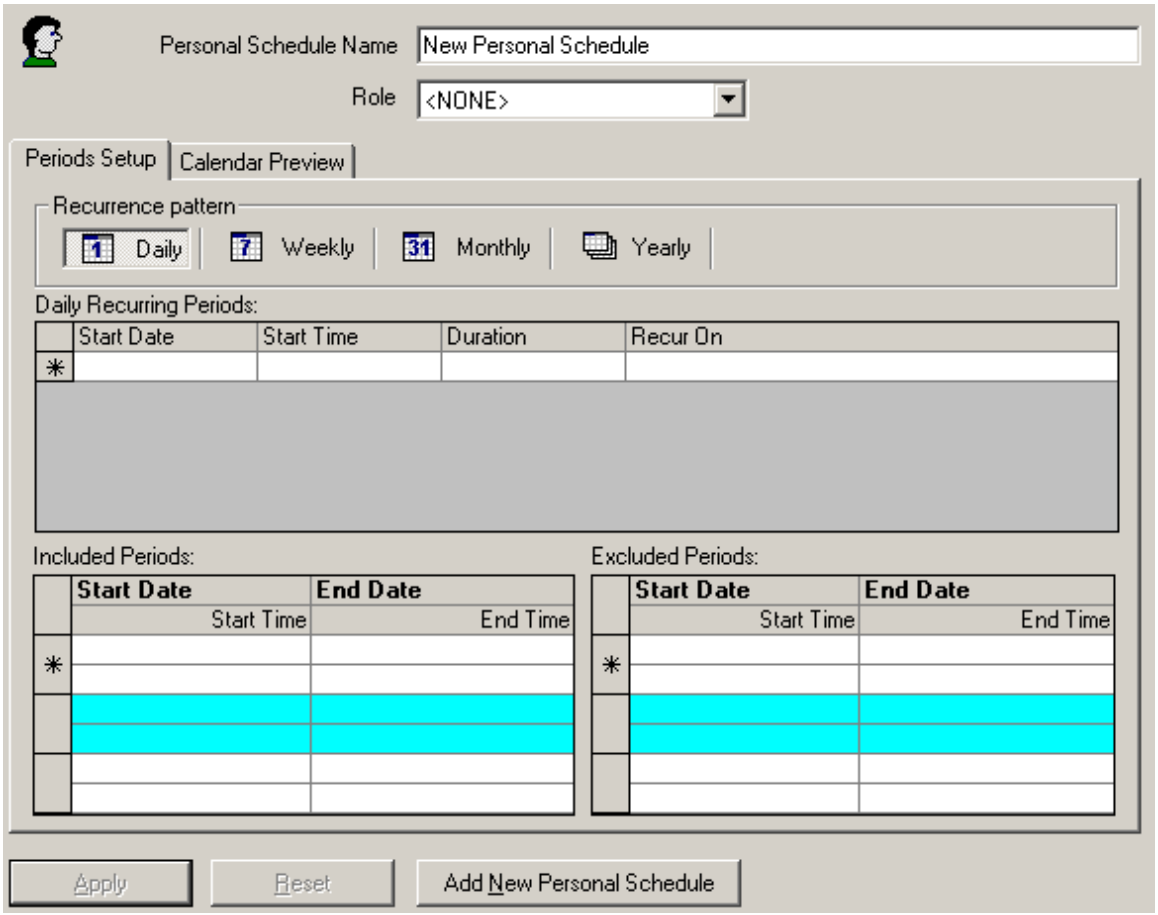


Figure 6.4. Configuring a New Personal Schedule

6.2.1 Setting up Periods

Use the **Periods Setup** tab, shown in **Figure 6.5,** to set up either a group schedule or a personal schedule. The following recurrence patterns are available in the **Periods Setup** tab: **Daily, Weekly, Monthly,** and **Yearly.** You can specify a start date, a start time, duration, and a "recur on" date for each period.

Daily Recurrence Pattern

The daily recurrence pattern allows you to set up a time block for a daily recurring period, as shown in Figure 6.5. Click on a new row to add a new daily

recurring time block. To delete a time block, click inside the far left gray cell for that block to highlight the entire row, and then press the **Delete** key.

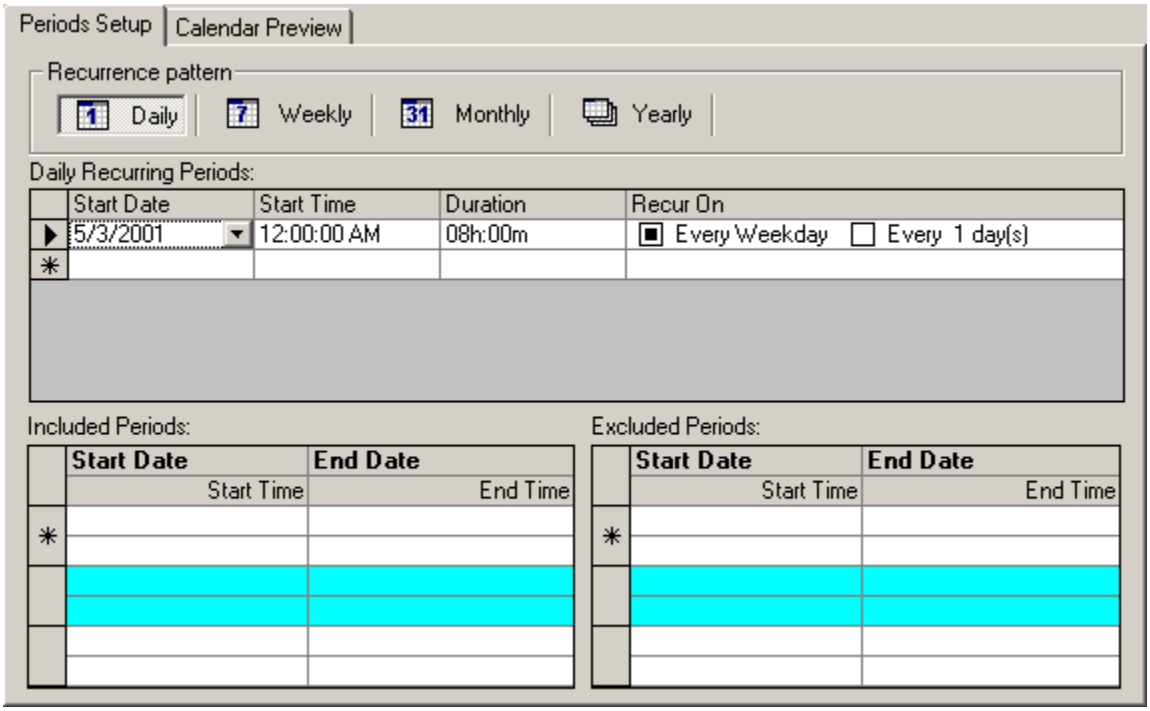


Figure 6.5. Periods Setup Tab

Start Date: The drop-down menu displays a calendar from which you can choose a start date, as shown in **Figure 6.6.**

Start Time: Type in the start time (followed by AM or PM) if your system is set up for 12-hour time, or just the time if your system is set up for 24-hour time.

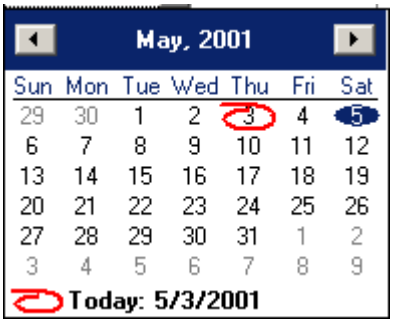


Figure 6.6. Calendar

Duration: Click on the **…** button to the right of the **Duration** field on the **Periods Setup** tab to choose the number of hours and/or minutes you wish to have the time block last, as shown in **Figure 6.7.**

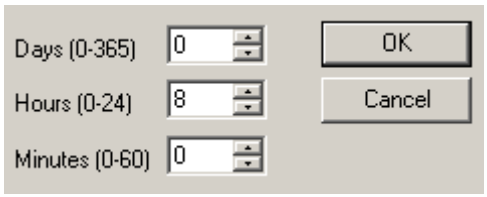


Figure 6.7. Duration Settings

Recur On: In this field, you can choose whether to have the period recur on every weekday or on every certain number of days. You can change the number of days by clicking on the far right side in the field to display a drop-down menu.

Weekly Recurrence Pattern

The weekly recurrence pattern allows you to set up a time block for a weekly recurring period. Click on a new row to add a new weekly recurring time block. To delete a time block, click inside the far left gray cell for that block to highlight the entire row, and then press the **Delete** key on the keyboard.

Start Date: The drop-down menu displays a calendar from which you can choose a start date, as shown in Figure 6.6.

Start Time: Type in the start time (followed by AM or PM) if your system is set up for 12-hour time, or just the time if your system is set up for 24-hour time.

Duration: Click on the **…** button to the right of this field to choose the number of days, hours, and/or minutes you wish to have the time block last, as shown in Figure 6.7.

Recur Every: The drop-down menu allows you to choose the number of weeks in which you wish have the time block recur. Check the day(s) on which you wish to have the time block recur.

Monthly Recurrence Pattern

The monthly recurrence pattern allows you to set up a time block for a monthly recurring period. Click on a new row to add a new monthly recurring time block. To delete a time block, click inside the far left gray cell for that block to highlight the entire row, and then press the **Delete** key.

Start Date: The drop-down menu displays a calendar from which you can choose a start date, as shown in Figure 6.6.

Start Time: Type in the start time (followed by AM or PM) if your system is set up for 12-hour time, or just the time if your system is set up for 24-hour time.

Duration: Click on the **…** button to choose the number of days, hours, and/or minutes you wish to have the time block last, as shown in Figure 6.7.

Recur On: Click on the **…** button to display a dialog box that will let you choose when to have the time block recur, as shown in **Figure 6.8.**

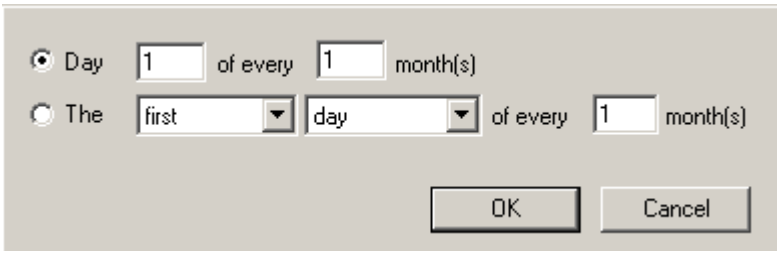


Figure 6.8. Settings for Monthly Recurring Period

Yearly Recurrence Pattern

The yearly recurrence pattern allows you to set up a time block for an annually recurring period. Click on a new row to add a new yearly recurring time block. To delete a time block, click inside the far left gray cell for that block to highlight the entire entry, and the press the **Delete** key.

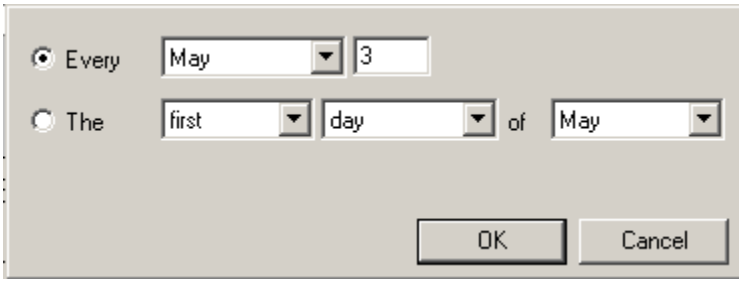


Figure 6.9. Settings for Yearly Recurring Period

Start Date: The drop-down menu displays a calendar from which you can choose a start date.

Start Time: Type in the start time (followed by AM or PM) if your system is set up for 12-hour time, or just the time if your system is set up for 24-hour time.

Duration: Click on the **…** button to choose the number of days, hours, and/or minutes you wish to have the time block last.

Recur Every: Click on the **…** button to display a dialog box that will let you choose when you wish to have the time block recur, as shown in **Figure 6.9.**

Included and Excluded Periods

The **Included Periods** and **Excluded Periods** fields on the **Periods Setup** tab allow you to include or exclude a particular block of time from a schedule. Click on a new row to add a new time block to include or exclude. The start date and time as well as the end date and time are shown for each included or excluded period. To delete a time block, click inside the far left gray cell for that block to highlight the entire entry, and then press the **Delete** key.

6.2.2 Calendar Preview

The **Calendar Preview** tab, shown in **Figure 6.10,** allows you to view your scheduled time blocks in a calendar layout. You can review various time spans by clicking the **Previous** and **Next** buttons. To change the time span, click the arrow next to the **Time Span to Preview** field, and select a time span from the drop-down list. You can choose from 2 months, 4 months, 6 months, 8 months, 10 months, or a year.

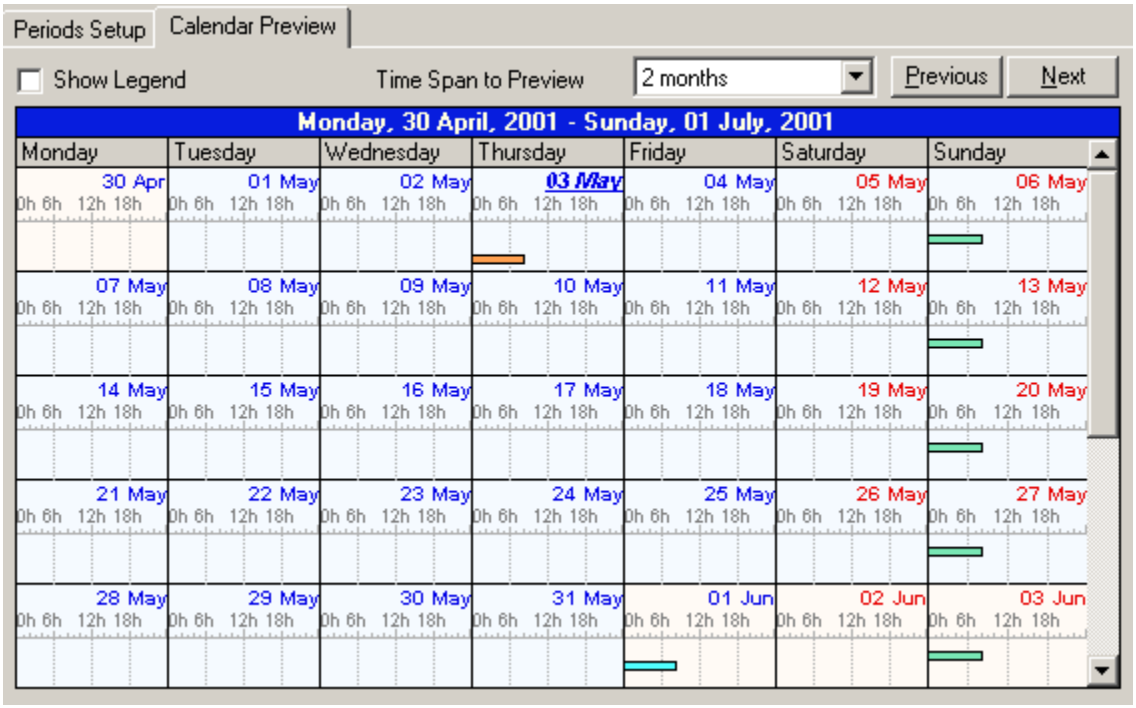


Figure 6.10. Calendar Preview Tab for Scheduling

Checking the **Show Legend** box will display a legend that indicates what each color represents, as shown in **Figure 6.11.**

Moving the cursor over a particular date will display a ToolTip with all time blocks set for that day.

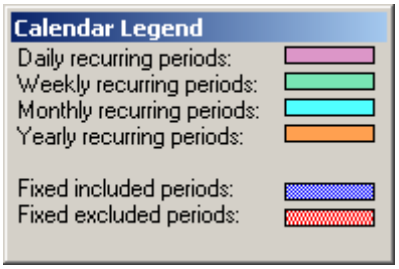


Figure 6.11. Calendar Legend

6.3 Working With Roles

Roles allow you to configure an alarm action set so that an alarm message will be sent to the person who is on schedule from a list of configured people. For example, if you want to call a shift supervisor when a certain alarm appears, you can set up a role called "Shift Supervisors." Then when the alarm occurs, the alarm message will be sent to whichever shift supervisor is on schedule.

If more than one person belongs to a role, alarm messages will be sent to all persons scheduled for the role. Recall that personal schedules (described earlier) allow for the configuration of one or more multimedia agents for each person in the role. If the people scheduled for the role use different multimedia agents, you can specify which multimedia agent will be used to notify each person. If multiple multimedia agents are configured for a single person in the role, you can also set a priority level to specify the "preferred" agent for that person.

6.3.1 Configuring Roles

To configure roles, use the following steps:

1. Right-click on the **Roles** folder in the tree control of the Multimedia Configurator screen, and select **New > Role** from the pop-up menu, as shown in **Figure 6.12.** The **Roles** folder is located under the **System Objects** folder on the tree control.

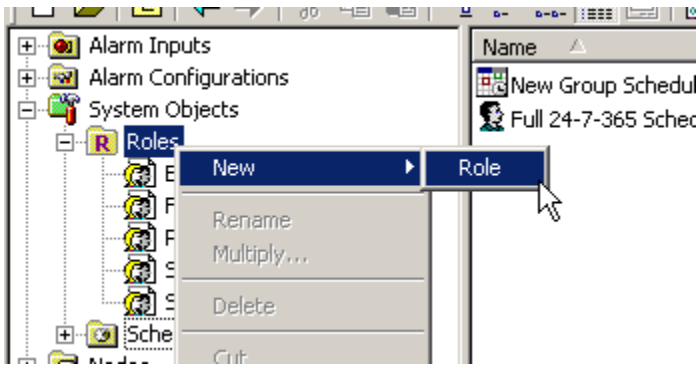


Figure 6.12. Creating a New Role

2. This opens the configuration field for roles in the right-hand pane of the Configurator screen. Type a name for the role, as shown in **Figure 6.13.**

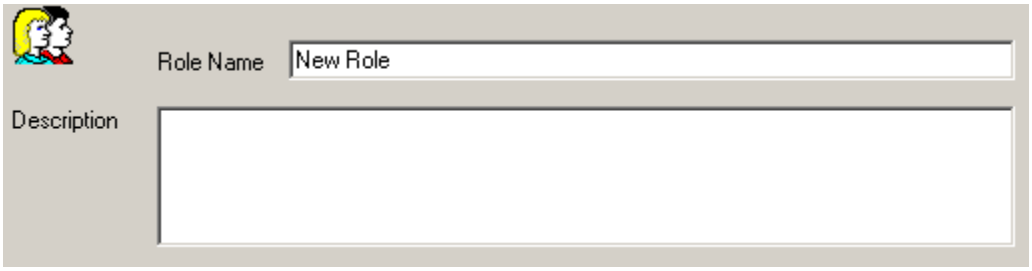


Figure 6.13. Configuring a New Role

3. Click the **Apply** button to apply your changes.

6.3.2 Using Roles

To use a role, you must do the following:

1. Assign the role to corresponding people in their personal schedules (see Figure 6.4).
2. Assign these personal schedules to multimedia agents. For information about configuring multimedia agents, please refer to **Chapter 4.**
3. Assign the role as an **Action Destination** in an alarm action set, if you want to send alarm messages to the role. For more information about configuring alarm action sets, please refer to **Chapter 2.**

   Note: This is where you can set a priority level to determine which multimedia agent will be active if more than one is scheduled to occur.

Additional Settings 7

7.1 Configuring Nodes

The Multimedia Configurator allows you to link alarm configurations to one or more nodes. Because the Multimedia Server uses a separate thread for each alarm configuration, you can also link multiple alarm configurations to each node.

To configure and link a node, use the following procedure:

1. Right-click on the **Nodes** folder in the tree control of the Configurator screen and select **New > Node** from the pop-up menu, as shown in **Figure 7.1.**

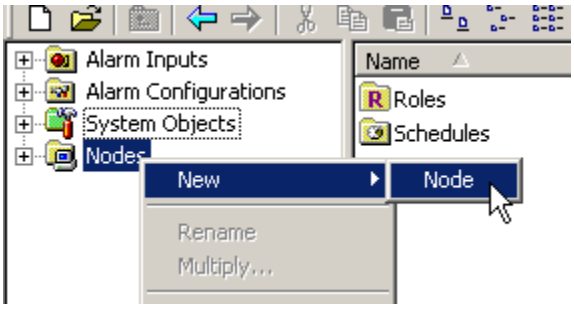


Figure 7.1. Creating a New Node

2. Give the new node a name, as shown in **Figure 7.2,** or click the **Browse** button to select a node.

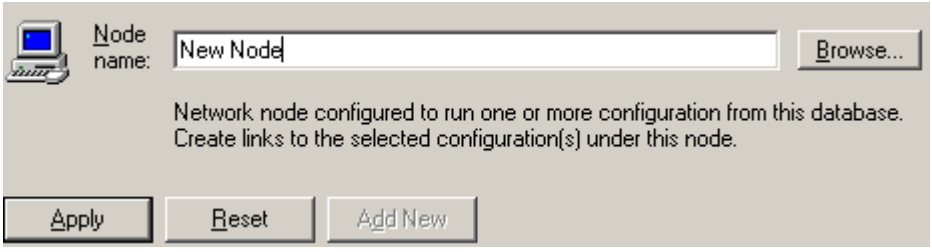


Figure 7.2. Specifying the Node Name

3. Click **Apply.** The new node will appear under the **Nodes** folder.
4. Now you can link one or more alarm configurations to the node by right-clicking the node and selecting **New > Link to Alarm Configuration** from the pop-up menu, as shown in **Figure 7.3.**

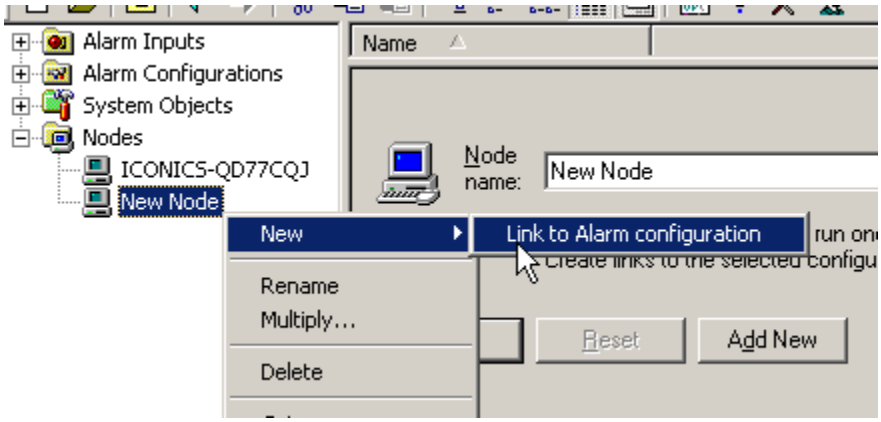


Figure 7.3. Creating a Link to an Alarm Configuration

5. Select the configuration from the drop-down list of configurations in the **Configuration Name** field, as shown in **Figure 7.4.** You can link one or more alarm configurations to a single node. The default alarm configuration is linked to the node automatically when no other configurations are linked to the node.

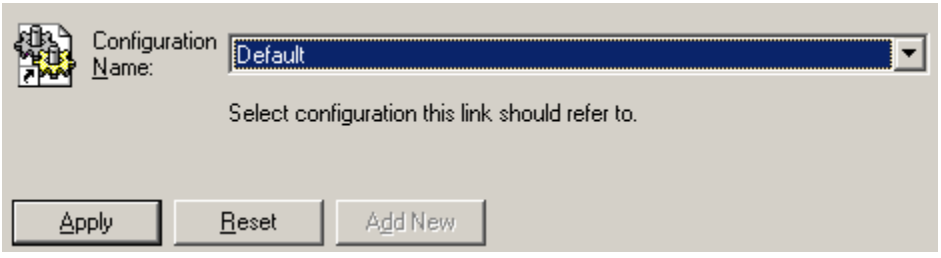


Figure 7.4. Linking a Node to an Alarm Configuration

7.2 Multiplying Items

The Multimedia Configurator is equipped with the ability to multiply items in the tree control, including templates, filters, schedules, action sets, agent

configurations, and alarm configurations. Multiplication provides a simple way of developing alarm configurations for which there are many similar items in a given category. To multiply an item, first select the item you wish to multiply. Then either right-click the item and select **Multiply…** from the pop-up menu, or select **Multiply** from the **Edit** menu. This opens the **Multiply Item** dialog box, shown in **Figure 7.5.**

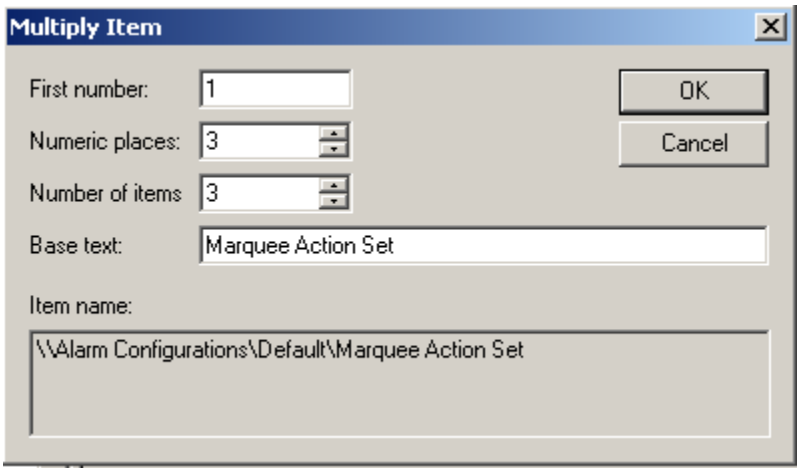


Figure 7.5. Multiplying an Item

When the items are multiplied, they will all be given a base name followed by a number. The default base text is the name of the item selected for multiplication. To modify the base text, change the **Base Text** field appropriately. In the **First Number** field, specify the number to appear next to the first multiplied item. In the **Number of Items** field, specify how many items you wish to create. The **Numeric Places** field refers to the minimum length of each number to append. Values that take up less space than the specified amount of numeric places will have zeros before the number. For example, the configuration shown in Figure 7.5 will create three new action sets with the following names:

- Marquee Action Set001
- Marquee Action Set002
- Marquee Action Set003

Click the **OK** button to do the multiplication.

7.3 Options

To choose additional settings, select **Options** from the **Tools** menu. This opens the **Options** dialog box, which contains the following tabs:

- General
- Table(s) Management
- Monitor View
- Multimedia Assistant

7.3.1 General Tab

The **General** tab of the **Options** dialog box, shown in **Figure 7.6,** contains the following options.

Save regional settings in registry: Checking this option saves regional configuration settings in the registry so that they are applied each time you start the Configurator. This applies to the language settings as well as time and date settings.

Automatically apply changes when selection is changed: Checking this option allows changes to the configuration database to be saved each time you switch dialogs without clicking on the **Apply** button or being shown a message asking if you would like to apply changes.

Enable hover selection: Checking this option allows you to highlight an item by moving the mouse pointer over that item and keeping it there for a specified amount of time.

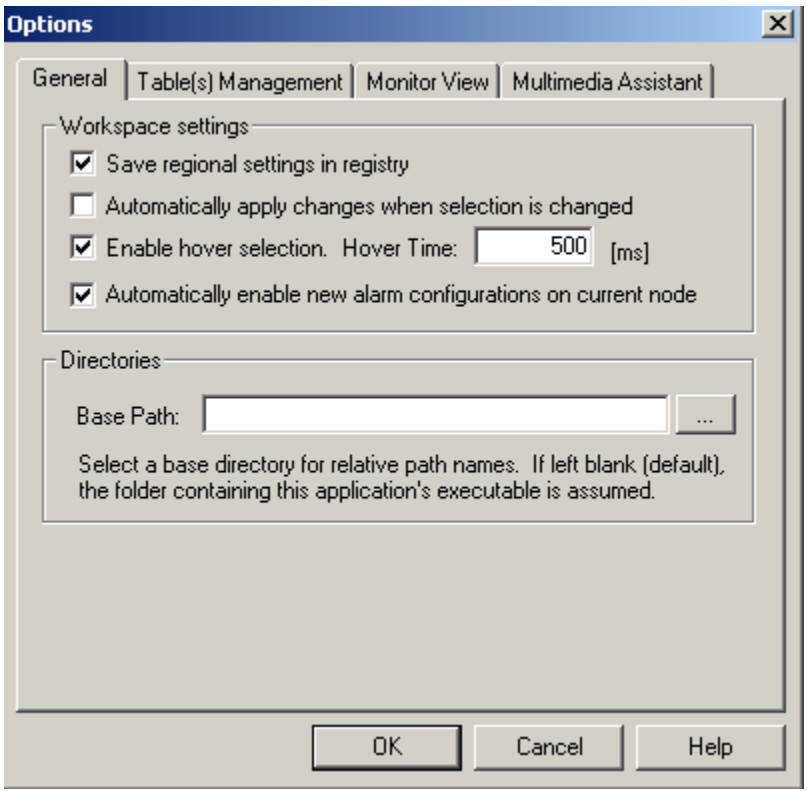


Figure 7.6. Options Dialog Box: General Tab

Automatically enable new alarm configurations on current node: If this option is checked, when a new alarm configuration is created the current node will be automatically added to the **Nodes** folder with a link to the alarm configuration.

Base Path: Select a base directory for relative path names. Click the **...** button to choose a directory. If this field is left blank (default), the folder containing this application's executable (.exe) file is assumed.

7.3.2 Table(s) Management Tab

The **Table(s) Management** tab of the **Options** dialog box, shown in **Figure 7.7,** controls how the Multimedia Server logs and stores data.

Multimedia Journal Table

Max Records: Sets the number of records that the Multimedia Server can store in the Journal Table before they are deleted or archived.

Max Interval: Sets the maximum amount of time that the records are stored in the Journal Table before being deleted or archived.

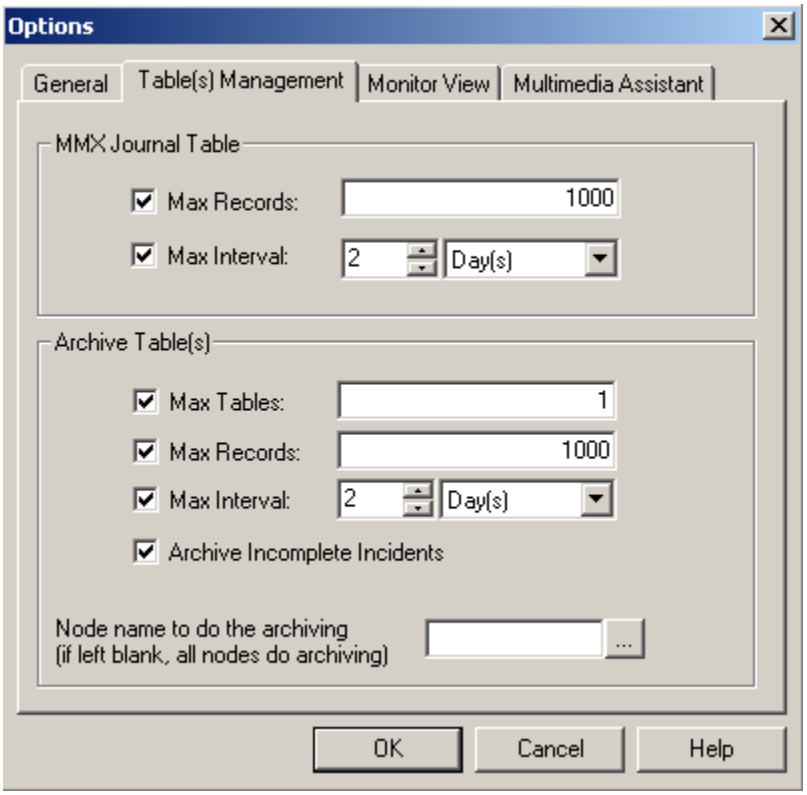


Figure 7.7. Options Dialog Box: Table(s) Management Tab

Archive Table(s)

Max Tables: Sets the number of tables to archive before deleting the oldest table.

Max Records: Sets the number of records to archive in a table.

Max Interval: Sets how long to archive for before deleting the oldest archive.

Archive Incomplete Incidents: When this box is checked, the Multimedia Server will log incidents or events to an archive table even if they have not yet been resolved.

Node name to do the archiving: Choose a node for archiving records. Click the **...** button to select a node. The **Browse for Computer** dialog box will open, as shown in **Figure 7.8.** Choose the desired node, and then click **OK.**

Note: If you would like Journal Table records to be deleted and not archived, check **Max Tables** and set the field to "0."

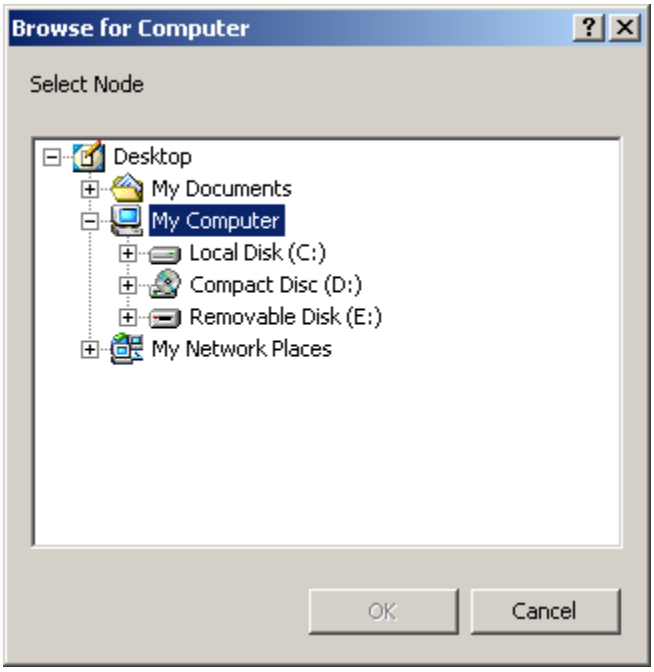


Figure 7.8. Choosing a Node for Archiving

7.3.3 Monitor View Tab

The **Monitor View** tab of the **Options** dialog box, shown in **Figure 7.9,** allows you to configure the settings for the **Runtime Monitor.** You have the option to:

- Select an **Update Rate** (in milliseconds).
- Limit the number of records displayed.
- Choose which fields are shown in the Runtime Monitor, as well as the order in which they are shown. To change the display order of a particular field, click on the field in the list box under **Show Fields** and then click the "up" and "down" arrows to the right to adjust its position.

Note: For more information about the Runtime Monitor, please see **Chapter 8.**

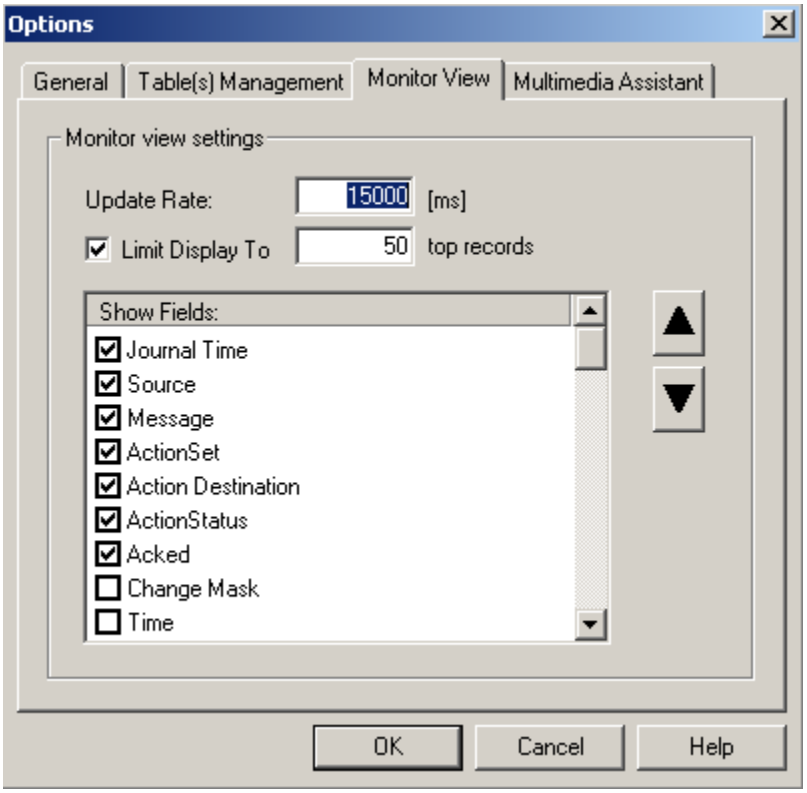


Figure 7.9. Options Dialog Box: Monitor View Tab

7.3.4 Multimedia Assistant Tab

For additional help, you can consult the Multimedia Assistant at any time by selecting **Multimedia Assistant** from the **Help** menu. Follow the instructions provided by the Multimedia Assistant.

In the **Multimedia Assistant** tab of the **Options** dialog box, shown in **Figure 7.10,** you can choose whether you want the Multimedia Assistant to speak or only to show text instructions.

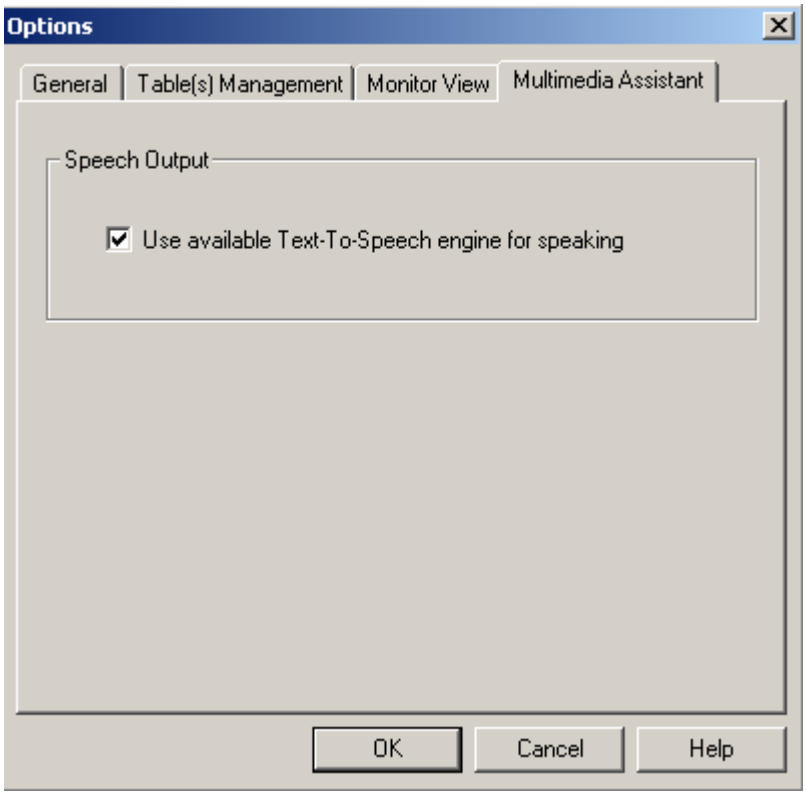


Figure 7.10. Options Dialog Box: Multimedia Assistant Tab

Runtime Operations 8

8.1 Starting the Multimedia Server

The majority of this user's guide is devoted to the configuration of alarms, alarm action sets, alarm filters, OPC subscriptions, multimedia agents, media templates, acknowledgement codes, schedules, roles, and nodes using the Multimedia Configurator. All of your configuration data are stored in your configuration database.

Once you have completed the configuration of your database, you are now ready to connect the Multimedia Server to the database by starting the Multimedia Server. Before starting the Multimedia Server, be sure to test your multimedia agent configurations by using the **TEST** button in the configuration field for each agent. To enter the Multimedia Server into runtime mode, select **Start Multimedia Server** from the **Action** menu. The following events occur when you activate the Multimedia Server:

1. The Multimedia Server reads all the alarm configurations in the multimedia configuration database.
2. The Multimedia Server then subscribes to OPC Alarm and Events (AE) servers based on the subscriptions that you created in the configuration database.
3. In turn, the OPC AE servers generate alarms back to the Multimedia Server.
4. When the Multimedia Server receives alarms, it responds to those alarms according to the settings and alarm action sets that you configured in your database.
5. Based on these action sets, the notification messages are then sent to a recipient (an operator or a group) via the configured multimedia agents.
6. The recipient of the alarm message can then acknowledge the alarms using the configured multimedia device by entering an acknowledge code.

8.2 Runtime Monitor

When you start the Multimedia Server, you should verify that the server is connected to the configuration database. Use the Multimedia **Runtime Monitor,** shown in **Figure 8.1,** to determine whether a connection has been established. The Runtime Monitor enables you to view the activity of the Multimedia Server during runtime mode. To display the monitor, select **Monitor View** from the **View** menu. The monitor will be displayed at the bottom of the screen. Check the monitor to make sure the Multimedia Server is receiving alarms.

The monitor lets you know what is going on in an active database and how the Multimedia Server is processing the alarms and the multimedia agents that you have configured. By default, the monitor displays the Time, Source, Message, Action Set, Action Destination, Action Status, and alarm acknowledgment status for the selected actions and alarms. You can choose which action sets and alarms to monitor by selecting from the **Action Set to Monitor** and **Alarm Tags** drop-down lists, respectively. Each incident for a particular agent is grouped by color.

The **Alarm Status** conditions are:

- **Alarm:** The Multimedia Server has received an alarm from the alarm OPC server.
- **Agent Done:** The multimedia agent has successfully processed the request but has not completed the action.
- **Normal:** The alarm has returned to normal.

Note: For information about how to change the Runtime Monitor display settings, see the next section.

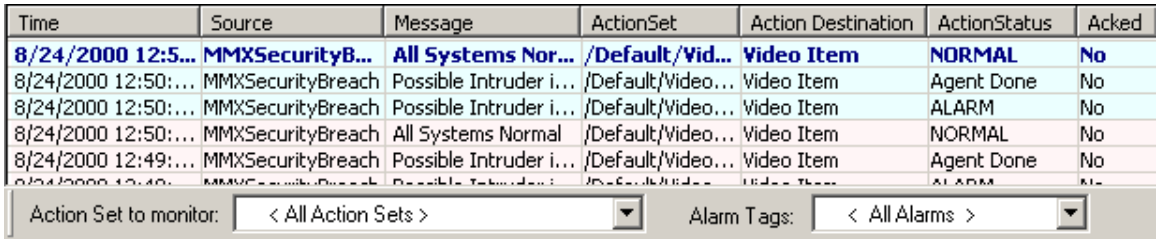


Figure 8.1. Runtime Monitor

There are three buttons in the runtime monitor, as shown in **Figure 8.2:**

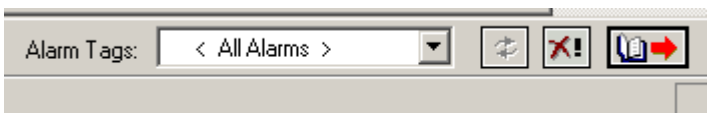


Figure 8.2. Function Buttons for Runtime Monitor

Refresh: Manually refreshes the journal table (besides the automatic refresh specified in the **Monitor View** tab of the **Options** dialog box).

Delete: Deletes all records from the journal table (only if the Multimedia Server is not running).

Export: Exports the data in the journal table to a text file. Clicking this button opens the **Export Multimedia Journal** dialog box, as shown in **Figure 8.3.** In the **Export File Name** field, specify the directory path and file name for the text file. Click the **…** button to browse for a directory. You can also choose to export archived journal data.

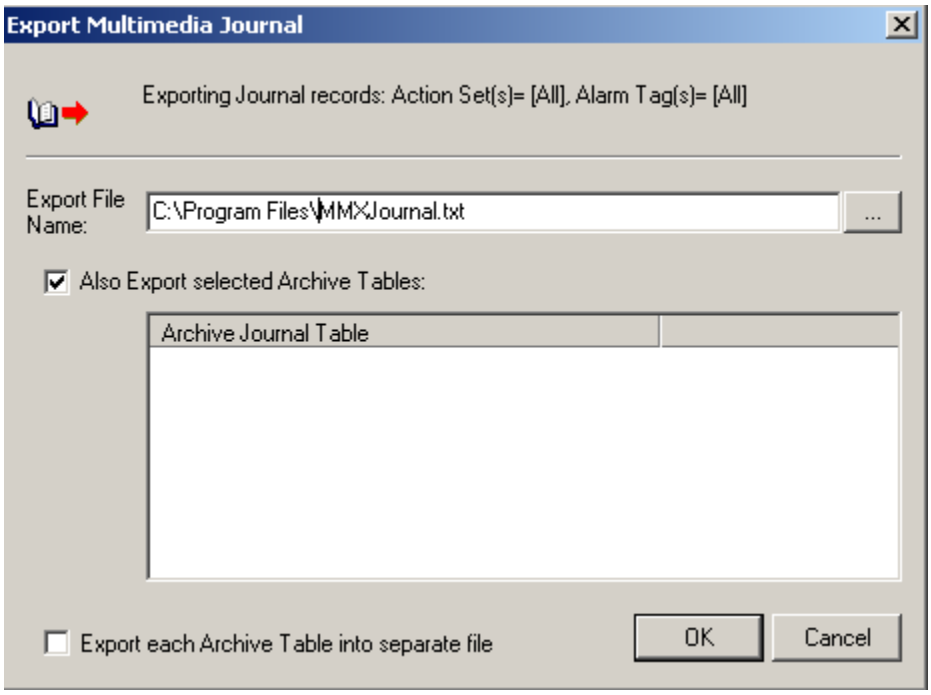


Figure 8.3. Exporting Data to a Text File

8.2.1 Adjusting Runtime Monitor Settings

You can adjust the settings for the Runtime Monitor by selecting **Options** from the **Tools** menu. This opens the **Options** dialog box. The **Monitor View** tab of the **Options** dialog box, shown in **Figure 8.4,** configures the settings for the Runtime Monitor. You have the option to:

- Select an **Update Rate** (in milliseconds) to determine how often the Multimedia Server will update the data that appear in the Runtime Monitor journal table.
- Set a maximum number of records to be displayed in the Runtime Monitor.
- Choose which fields are shown in the Runtime Monitor, as well as the order in which they are shown. To change the display order of a particular field, click on the field in the list box under **Show Fields** and then click the "up" and "down" arrows to the right to adjust its position.

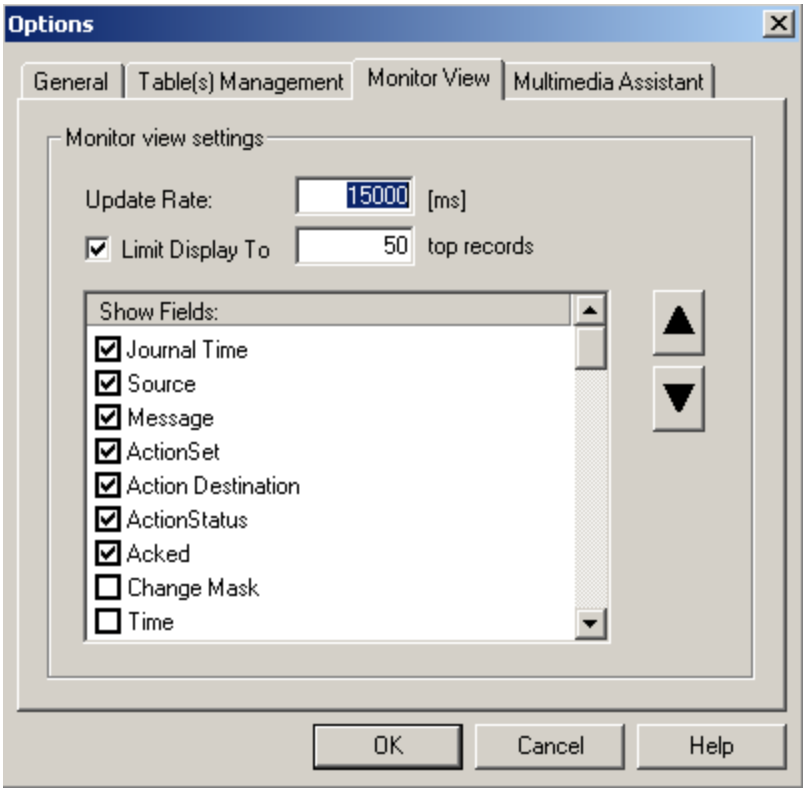


Figure 8.4. Options Dialog Box: Monitor View Tab

8.3 Table Management

You can adjust the Journal data-logging settings for the Multimedia Server by selecting **Options** from the **Tools** menu. This opens the **Options** dialog box. The **Table(s) Management** tab of the **Options** dialog box, shown in **Figure 8.4,**

allows you control how the Multimedia Server logs data to the journal and archive tables.

Multimedia Journal Table

Max Records: Sets the number of records that the Multimedia Server can store in the Journal Table before they are deleted or archived.

Max Interval: Sets the maximum amount of time that the records are stored in the Journal Table before being deleted or archived.

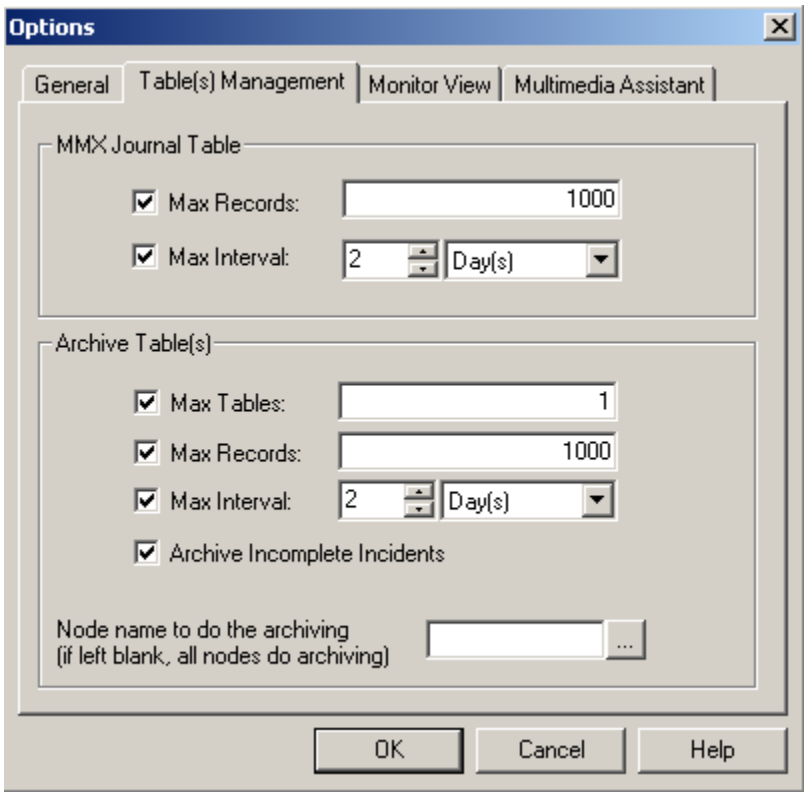


Figure 8.4. Options Dialog Box: Table(s) Management Tab

Archive Table(s)

Max Tables: Sets the number of tables to archive before deleting the oldest table.

Max Records: Sets the number of records to archive in a table.

Max Interval: Sets how long to archive for before deleting the oldest archive.

Archive Incomplete Incidents: When this box is checked, the Multimedia Server will log incidents or events to an archive table even if they have not yet been resolved.

Node name to do the archiving: Choose a node for archiving records. Click the **...** button to select a node. Choose the desired node, and then click **OK.**

Note: If you would like Journal Table records to be deleted and not archived, check **Max Tables** and set the field to "0."

8.4 Stopping the Multimedia Server

You can stop the Multimedia Server at any time by selecting **Stop Multimedia Server** from the **Action** menu of the Multimedia Configurator. This exits runtime mode. You can also click the traffic light button on the toolbar.

Note: You can also start/stop the Multimedia using the GenTray tool tray. For more information, please see the GenTray Help documentation.

IMPORTANT NOTE: Once the Multimedia Server has been stopped, alarm messages will stop being issued to the alarm action destinations.

Call-in Agent Configuration 9

9.1 Overview of the Call-in Agent

The **Call-in Agent** enables users to access OPC data over the phone. The Call-in Agent configuration sets up the voice and key entries and menu options based on information supplied from the Multimedia configuration database, the current state of OPC data or alarms, and the security level of the user calling into the system.

Note: The following Configurator features do NOT apply to the Call-in Agent: the Multimedia Configuration Wizard, action sets, and schedules.

9.1.1 Call-in Agent Quick Start

Configuring and using the AlarmWorX32 Multimedia Call-in Agent require the following steps:

1. Install the Dialogic hardware. (See **Appendix B** for information about installing and configuring Intel Dialogic boards. For additional information about purchasing and installing Intel Dialogic boards, please visit the Intel Web site at www.intel.com/network/csp/products/index_vp.htm.

2. Install the Dialogic drivers. (At the time of this writing, these drivers must be Dialogic version 5.1 with Service Pack 1.)

3. Install the AlarmWorX32 Multimedia software.

4. Configure the Dialogic card. During initial setup, it is recommended that the **Dialogic Configuration Manager (DCM)** be used for configuring and running the Dialogic drivers. (See the "Installing and Configuring Telephony Cards" section of **Appendix B.**) Open the DCM and select the **Action** menu. If you are familiar with the card, use the **Add Device** option, or have the DCM detect the card using the **Auto Detect Devices** option.

5. Start the Dialogic drivers. Highlight the configured Dialogic card from the graphical tree menu. Start the drivers by clicking the green start button. If the drivers fail to initialize the card, check the card type and settings. If problem persists, contact Dialogic for technical support.

6. Plug an analog phone line into the primary channel (zero channel). At this time, you should verify that the phone number is correct, that the phone line is analog, and that it is a dedicated line. It is also a good idea to verify a phone number to call out to. (**Note:** Digital phone lines are not supported.)

7. Launch the Multimedia Configurator by selecting **Start > Programs > ICONICS GENESIS-32 > AlarmWorX32 Multimedia > Multimedia Configurator.** Click on the **Phone** folder on the tree control of the Configurator under **Alarm Configurations/Multimedia Agents.** For the **Phone Agent General Settings** (see the "Setting General Phone Agent Parameters" section below), set the number of phone lines to "1." Make sure that phone line "0" is not reserved for outgoing calls.

8. Configure the Call-in Agent settings as described in **Section 9.4** below.

9. Enter the Call-in Agent into runtime mode by clicking the **Start Call-in Agent** button on the Call-in Agent's general settings.

10. Call the number of the phone line attached to the Dialogic card.

9.1.2 Tips and Troubleshooting

1. Check to make sure the phone line is securely attached to the zero channel. Dialogic boards support multiple channels, and it is relatively easy to connect the phone line to one of the other channels.

2. It is best to try an analog phone for first time calling. There have been issues with the Dialogic card not detecting phone keys when using digital phones in speaker mode.

3. Operation within a PBX (internal phone system) is dependent on the manner in which the PBX handles calls. A common example is where the phone seems to connect in the middle of the Multimedia messages. This is caused by a delay in connection. The PBX has taken the phone connected to the agent off the hook, thus starting the message, but has not connected the caller. A workaround for this is to add commas to the beginning of the message. In general, any PBX issue will be experienced by the Call-in Agent as if it were a normal user.

4. Make sure that the channel being tested for the Call-in Agent is not being reserved for call-out. The Call-in Agent prevents incoming calls from being used on lines reserved for outgoing calls.

5. Make sure that the number of lines does not exceed the number of working physical phone lines connected to the Dialogic card. The system uses the **Number of Lines** setting as an indication of the actual phone lines available. Setting this number higher than the number that actually exists causes the system to periodically use the lines that do not exist.

9.2 Setting General Telephony Agent Parameters

Before you begin configuring the Call-in Agent, you must first set up the default parameters for the Call-in Agent. Click on the **Phone** folder on the tree control of the Configurator, as shown in **Figure 9.1.** If you do not see the **General Settings,** make sure that **Dialog View** is checked on the **View** menu. Configure the default settings as described below.

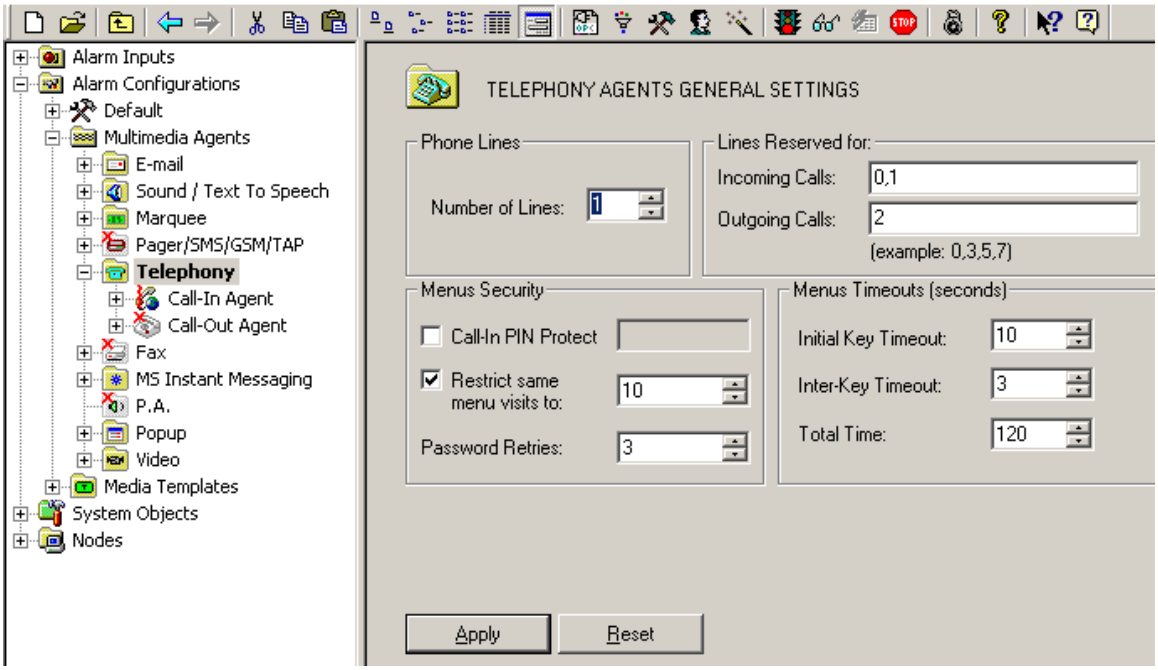


Figure 9.1. Telephony Agents: General Settings

9.2.1 Phone Lines

Configure the following parameters for the phone lines you will be using for the Call-in Agent:

- **Number of Lines:** Sets the total number of phone lines that will be used.

  Note: The number of lines specified must be less than or equal to the actual number of phone lines that will be used. If the number of lines specified in the Configurator is greater than the actual number of lines in use, the Call-in Server works under the assumption that additional phone lines are available even though the lines do not actually exist. Although up to 20 lines are supported, number of lines that can be used is limited by the type of Dialogic board. The Call-in Agent only supports communication with one Dialogic card per PC. See **Appendix B** for details.

  Note: The Telephony Agents currently support up to 20 phone lines. However, the agent has been tested with a maximum of four phone lines.

- **Incoming Calls:** Specifies which phone lines are reserved for incoming calls.

- **Outgoing Calls:** Specifies which phone lines are reserved for outgoing calls.

  Note: When specifying which phone lines are reserved for incoming and outgoing calls, the first line is always line "0". For example, suppose you are using a total of three lines, as shown in Figure 9.1. The first line is "0", the second line is "1", and the third line is "2". Since the first and second lines are used for incoming calls, enter "0" and "1" in the **Incoming Calls** field, as shown in Figure 9.1. The third line is used for outgoing calls, so enter "2" in the **Outgoing Calls** field, as shown in Figure 9.1.

  Any phone lines that are not reserved are used as general purpose lines (i.e. for either incoming or outgoing calls).

  Note: If you are using only one telephone line, you cannot reserve the single line for both incoming and outgoing calls. Therefore, to configure a single-line system, both the **Incoming Calls** field and the **Outgoing Calls** field should be left blank.

9.2.2 Menus Security and Timeouts

Configure the following security and timeout parameters for the Call-in menus.

- **Call-in PIN Protect:** Specify a numeric password or PIN that users must enter prior to each menu in order to progress through the phone menus in the Call-in Agent.

  Note: This is different from the general security settings used for logging into the phone system. (The login settings are configured in the Call-in Agent tree control branch.)

- **Restrict same menu visits to:** Limits the number of times a user can access the same menu through the Call-in Agent. This limits the overall time users can remain in the phone system to prevent users from tying up the phone lines.
- **Password Retries:** Sets the number of times a user is allowed to enter an incorrect password on the phone keypad.
- **Initial Key Timeout:** Sets the number of seconds the phone waits for a key press before retry.
- **Inter-Key Timeout:** Sets the number of seconds allowed between key presses on the phone keypad before ending caller input.
- **Total Time:** Sets the total consecutive time (in seconds) that a caller may spend in the same menu before timeout. This includes the time the system uses to process and deliver the text-to-speech messages to the caller.

9.2.3 Dialogic Configuration

You must have a telephony card installed on the computer on which you are running the Call-in Agent. AlarmWorX32 Multimedia supports Intel® Dialogic® boards. You also need to have an analog phone line connected to the board. **Dialogic boards do not work for Windows 98, so the Call-in Agent will not work on Windows 98.** (**Note:** Digital lines are also not supported.) Only Dialogic boards are supported for the current version of AlarmWorX32 Multimedia. Please see **Appendix B** for information about installing and configuring Intel Dialogic boards. For more information about purchasing and installing Intel Dialogic boards, please go to www.intel.com/network/csp/products/index_vp.htm.

9.3 Organization of Call-in Agent Groups and Menus

Click on the **Call-in Agent** folder under the **Telephony** tree control of the Configurator, as shown in **Figure 9.2.** This folder contains the configuration user interface for all call-in menus, which enable you to configure the options, key entries, and actions for the Call-in Agent.

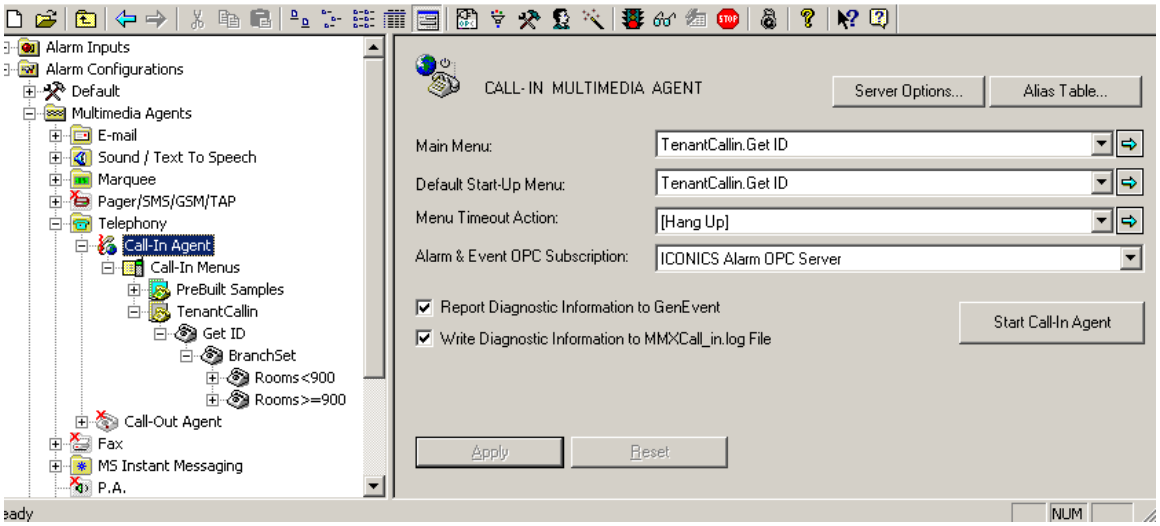


Figure 9.2. Call-in Agent Tree Control

The **Call-in Menus** branch of the tree control contains both menu groups and individual menus, as shown in **Figure 9.3.** For information about various menu types, please see **Section 9.6.**

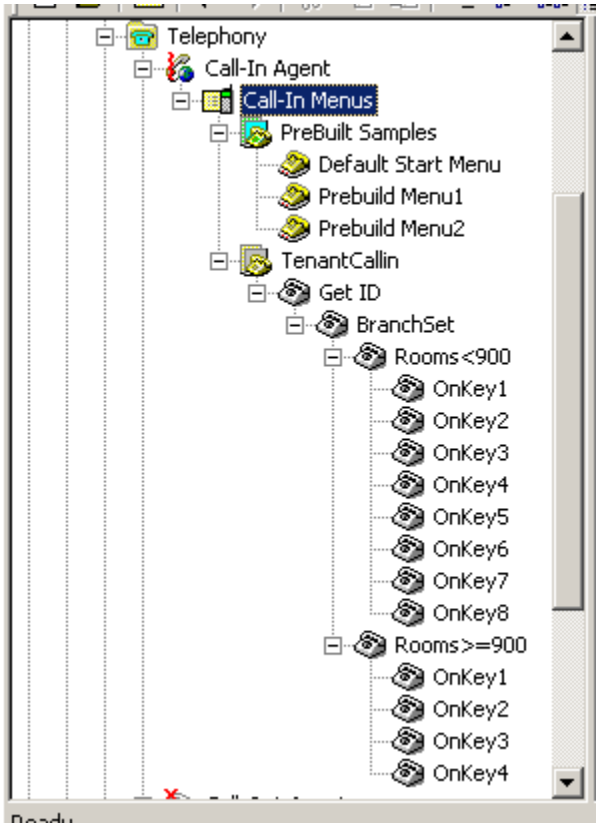


Figure 9.3. Hierarchy of Call-in Agent Tree Control

Two menu groups, shown in **Figure 9.4,** are provided by default to help you get started with your configuration. The **Prebuilt Samples** group contains preconfigured menus that you can use as templates for starting your Call-in Agent configuration. The **Tenant Callin** group is an example group that contains several fully configured example menus and submenus that you can use as a guide in creating your Call-in Agent configurations for tenant call-in applications for office rooms.

Configurator assigns an ID number for each group in the **Base Menu ID** field. Each of the menus that you create for the group is also assigned an ID number based on the Base ID for the group. Menu IDs can be used as key-in actions for key-in menus (described in **Section 9.6**).

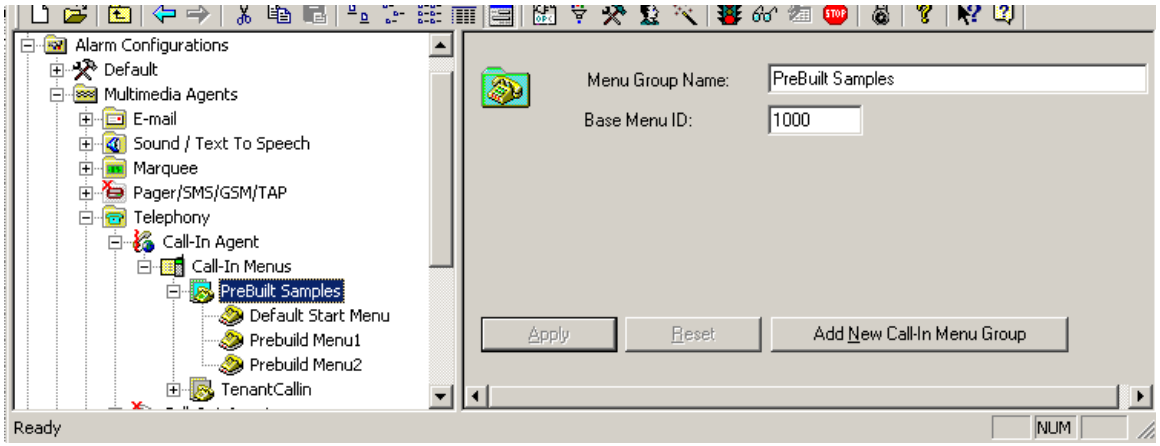


Figure 9.4. Default Call-in Menu Groups

Each group may contain several Call-in menus and submenus, as shown in **Figure 9.5.** The menus are organized hierarchically, similar to the way directories and files are organized on your computer's hard drive. For information about various menu types, please see **Section 9.6.**

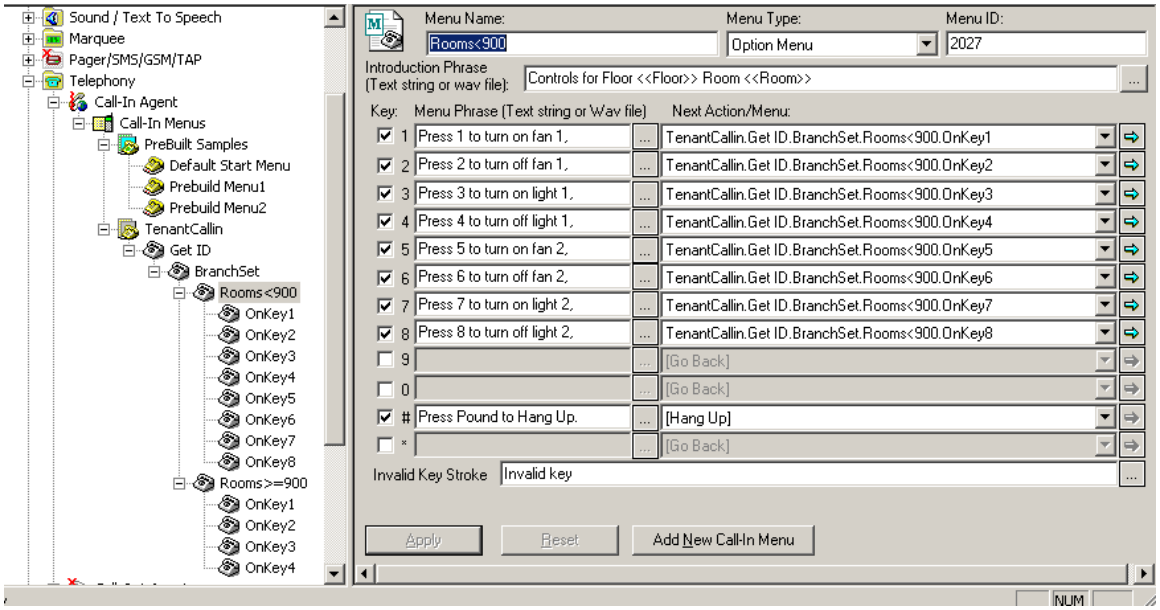


Figure 9.5. Default Call-in Menus

9.3.1 Modifying and Copying Groups and Menus

To save time, you can modify the default groups and menus and tailor them to your configuration. If you do not want to change the default groups and menus, you can also make a copy of them:

1. Right-click on a group or menu and select **Copy** from the pop-up menu, as shown in **Figure 9.6.**

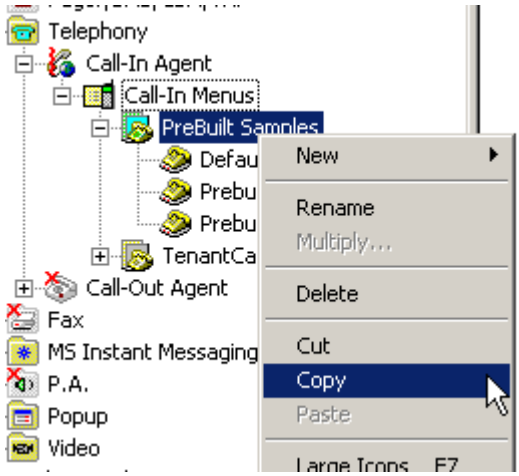


Figure 9.6. Copying a Group or Menu

2. Right-click the target folder and select **Paste** from the pop-up menu, as shown in **Figure 9.7.**

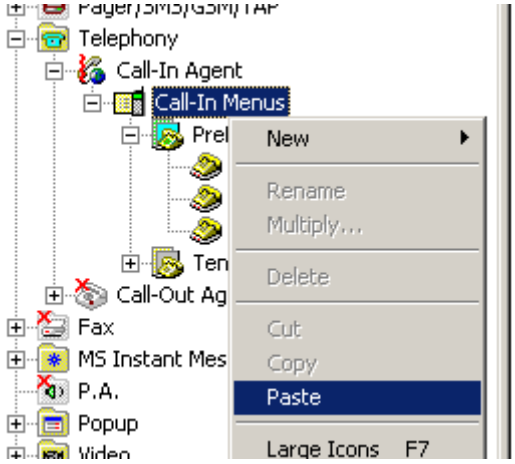


Figure 9.7. Pasting a Group or Menu

3. The copy of the group or menu appears under the target folder, as shown in **Figure 9.8.** Rename the group or menu as desired.

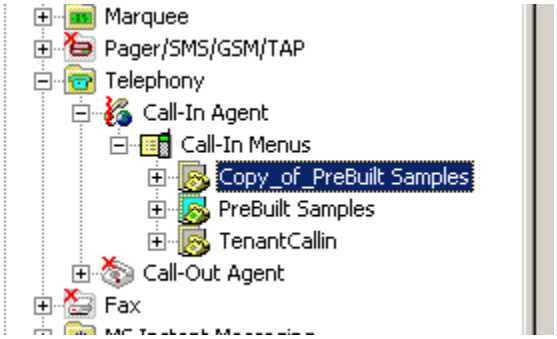


Figure 9.8. Copy of Group or Menu

9.3.2 Creating New Menu Groups

To create a new Call-in menu group:

1. Right-click the **Call-in Menus** folder on the tree control of the Configurator and select **New > Call-in Menu Group,** as shown in **Figure 9.9.**

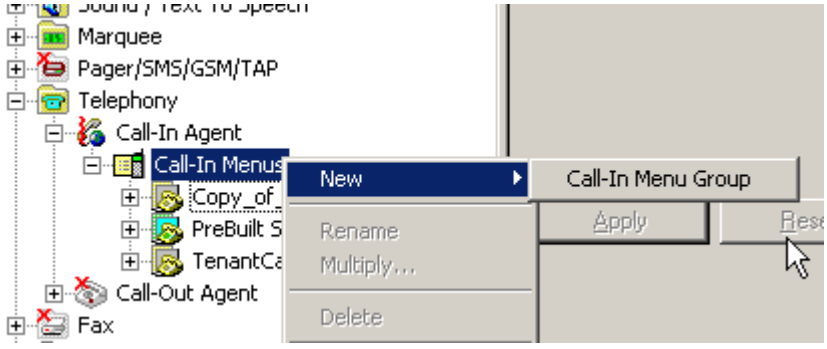


Figure 9.9. Creating a New Call-in Menu Group

2. The properties dialog box for the new group appears in the right-hand pane of the Configurator, as shown in **Figure 9.10.**

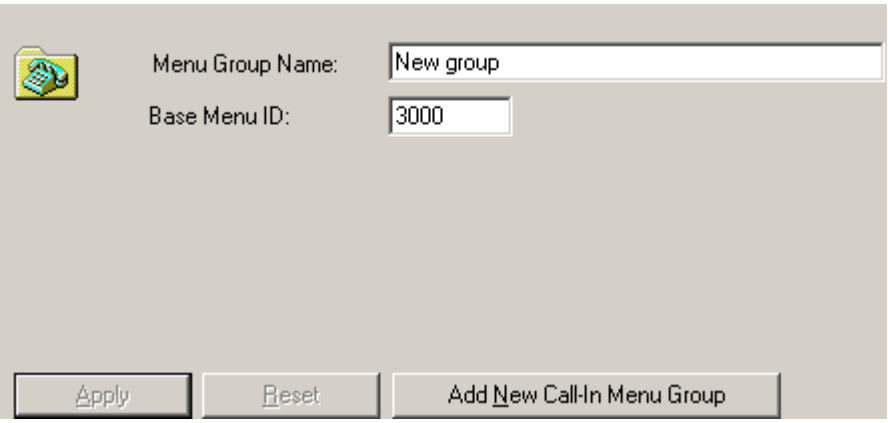


Figure 9.10. Setting the Properties for the New Call-in Menu Group

3. In the **Menu Group Name** field, type a name for the new group. The Configurator assigns an ID number for the group in the **Base Menu ID** field. Each of the menus that you create for the group is also assigned an ID number based on the Base ID for the group. Menu IDs can be used as key-in actions for key-in menus (described in **Section 9.6**).

9.3.3 Creating New Call-in Menus

To create a new Call-in menu:

1. Right-click a group in the **Call-in Menus** folder on the tree control of the Configurator and select **New > Call-in Menu,** as shown in **Figure 9.11.**

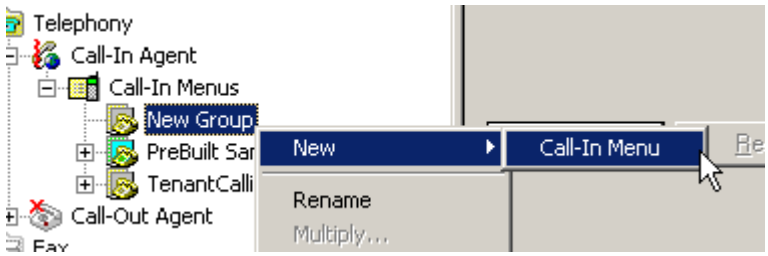


Figure 9.11. Creating a New Call-in Menu

2. The properties dialog box for the new menu appears in the right-hand pane of the Configurator, as shown in **Figure 9.12.**

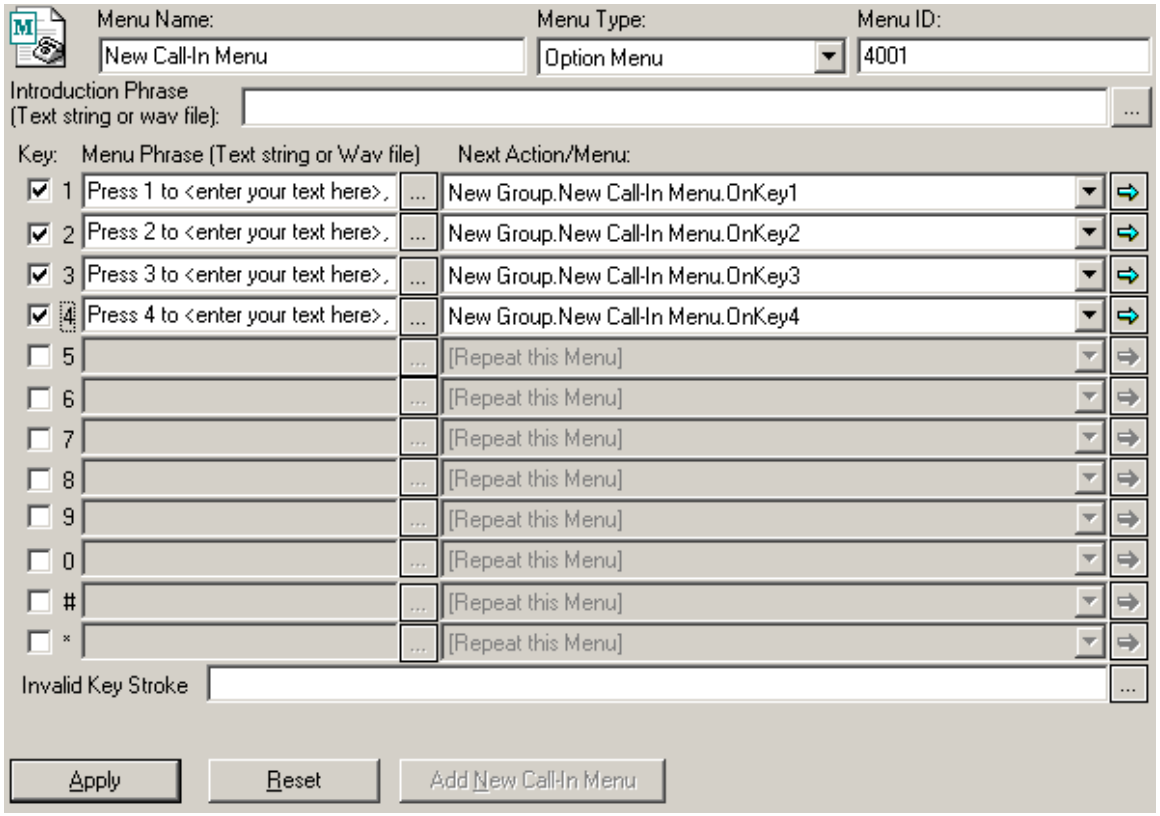


Figure 9.12. Setting the Properties for the New Call-in Menu

3. In the **Menu Name** field, type a name for the new menu. The Configurator assigns an ID number for the menu in the **Menu ID** field based on the Base ID number of the group in which the menu was created.

4. Configure the menu settings as described in the sections below.

9.4 Configuring General Call-in Agent Settings

Once you have set the default parameters for the Phone Agents, you are ready to begin configuring the Call-in Agent settings. Click on the **Call-in Agent** folder under the **Phone** tree control of the Configurator, as shown in **Figure 9.13.**

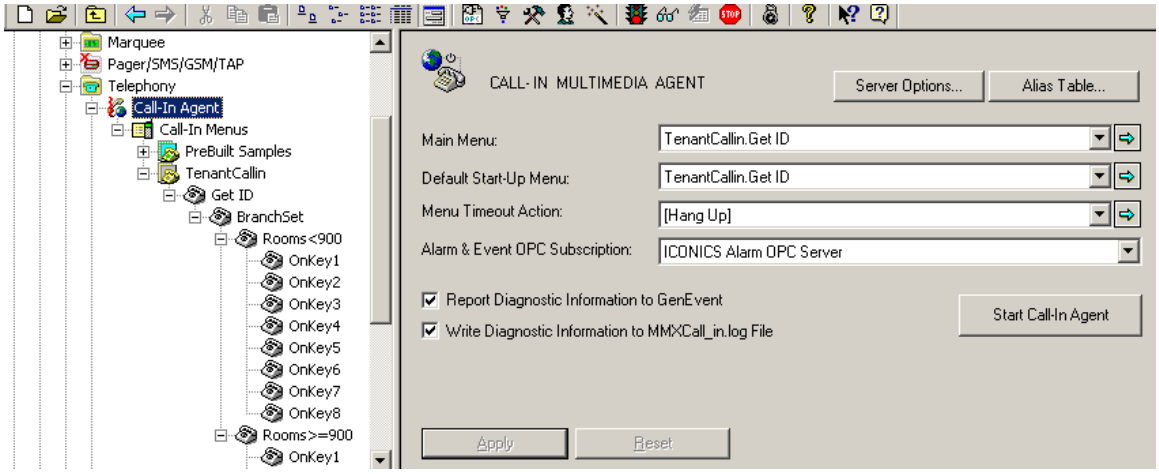


Figure 9.13. Call-in Agent General Settings

This folder contains the main configuration settings for the Call-in Agent.

1. Under **Main Menu,** select a menu from the drop-down list that you want to use as the main menu for your Call-in system. This is the menu to which callers are returned by default.

2. Under **Default Start-up Menu,** select a menu from the drop-down list that you want to use as the start menu for your Call-in Agent. The default start-up menu will most likely be the same as your main menu.

   Note: The drop-down lists under **Main Menu** and **Default Start-up Menu** contain only the top-level menus for each menu group.

3. Under **Menu Timeout Action,** specify what happens after a system timeout occurs. From the drop-down list, select an action (e.g. "repeat," "return to main menu," or "hang up") or a menu that immediately follows a timeout. For example, if a caller does not respond within the initial key timeout period, the system times out and then redirects the caller to the menu or action that you specified.

4. The report **Diagnostic information to GenEvent** check box is checked by default. All diagnostic information is reported to the GenEvent Server. This information can be viewed in the current alarm viewer, and provides a visual record of actions taken by the Call-in Agent.

5. If you want to log diagnostic information to a text file, check the **Write Diagnostic Information to MMXCall_in.log file** check box. The MMXCall_in.log file is a standalone file used for debugging purposes only.

6. The **Alarm & Event OPC Subscription** drop-down box allows you to select an alarm subscription to be used by the Call-in Agent while presenting OPC alarms.

9.4.1 Server Options

Clicking the **Server Options** button in the Call-in Agent general settings (Figure 9.13) opens the **Call-in Agent Options** dialog box, shown in **Figure 9.14.** This dialog box sets the parameters for the Call-in Server.

9.4.1.1 Server Strings Tab

The **Server Strings** tab allows you to customize predefined messages that the caller hears in certain situations. Use the **Call-In Agent's Message Type** drop-down list to select a particular message type, and then edit the text associated with that message type in the **Message Text** field. Figure 9.14, for example, contains a message that a caller hears when the caller is denied access to a menu: "Insufficient security to access this menu."

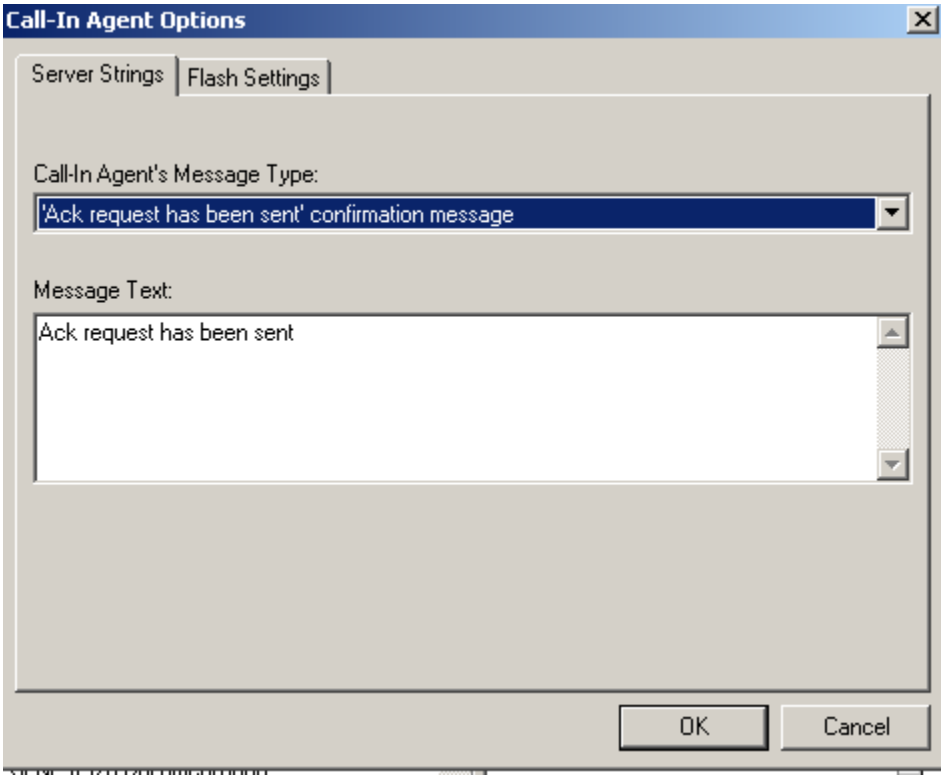


Figure 9.14. Server Strings

9.4.1.2 Flash Settings Tab

The **Flash Settings** tab sets the parameters for the **Flash Warning** function in direct action menus, where you can optionally specify a reset value. The reset value is written to the same OPC tag after the specified time interval, resetting the OPC value written by the menu action. When the **Flash Warning** check box is checked in a direct action menu, the system switches, or "flashes", the OPC tag between the tag's current (write) value and its reset value before finally resetting the tag value.

The **Flash Settings** tab, shown in **Figure 9.15,** sets the following parameters for the Flash Warning function in direct action menus:

Lead Time: Sets the amount of time before the system starts the flash process. The time is determined by taking the **Reset Time** (found on Direct Action menus) and subtracting the **Lead Time.** For example, if the **Reset Time** is 1 hour and the **Lead Time** is 10 minutes, the flash process will start 10 minutes before the final reset (in this case, 50 minutes after the value was originally set).

Time on: Sets the time period for each warning flash for the write value.

Time off: Sets the time period for each warning flash for the reset value.

Number of Flashes: Specifies how many times the system switches (flashes) between the tag's write value and reset value before resetting the value.

For each setting, you can specify how many minutes, seconds, and milliseconds.

Note: For information about configuring direct action menus, please see the "Menu Types" section below.

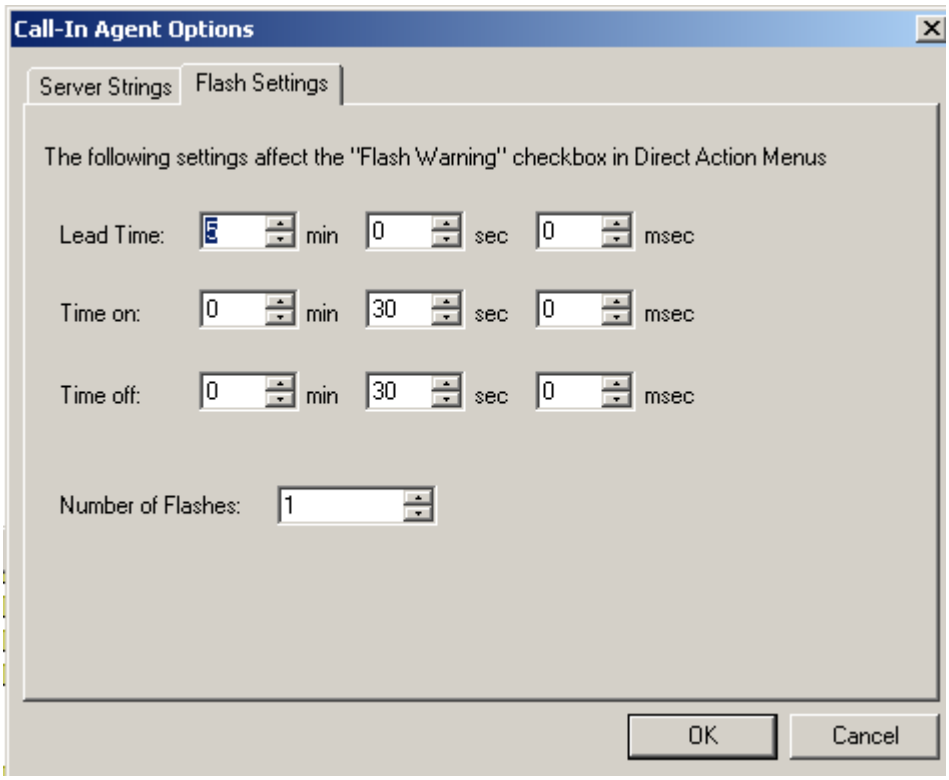


Figure 9.15. Flash Settings for Direct Action Menus

9.4.2 Aliases

The Call-in Agent can be configured to use an **alias key** for each user (caller). If using aliases, each caller uses a numeric alias key in the configuration. This is an ID number that the Call-in Agent uses to recognize the caller. Each alias key can be associated with numerous aliases, enabling you to customize settings for each user by associating the caller's alias key with certain parameters, such as

which locations in the building the caller can access (e.g. room, floor). Alias names then can be used in Call-In menus to significantly reduce the number of necessary menus.

When a caller dials into the system, the caller can be prompted to enter his or her alias key. If he or she then accesses a menu containing aliases, all aliases get resolved according to the caller's alias key, and the caller gets control over OPC resources determined by his or her alias resolution. If another caller accesses the same menu with a different alias key, he or she would have access to yet another set of OPC points, as specified by his or her alias key in the alias table.

To configure aliases, click the **Alias Table** button in the Call-in Agent general settings (Figure 9.13). The **Call-in Alias Table** appears, as shown in **Figure 9.16.** The table contains several columns. The **Alias Key** column lists each numeric alias key. The **UserName** column lists the name of the caller associated with each alias key. The **Alias Key** column and **UserName** column are fixed; neither can be deleted, and each alias key must be associated with a user name. (You can change the keys and user names in the columns, but the columns themselves cannot be deleted.) The remaining columns contain aliases (e.g. **Bldg, Floor,** and **Room**) that can be modified or removed as needed.

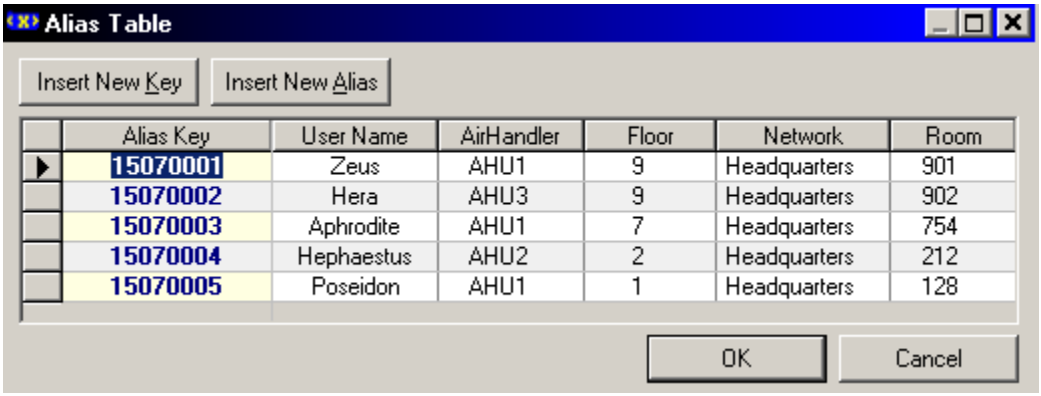


Figure 9.16. Alias Table

9.4.2.1 Alias Key-in Actions

A **Key-in menu,** such as the **Get ID** menu shown in **Figure 9.17,** is an example of when a caller would be asked to enter an alias key. The **Enter Alias Key to Resolve Aliases** option must be selected from the drop-down list under **Key-in Action,** as shown in Figure 9.17. For example, in the **GetID** key-in menu, the **Introduction Phrase** states "please enter your 8 digit ID." Thus, when a caller dials into the system, the caller is prompted to enter his or her alias key. If the system recognizes the caller's alias key, it resolves the user name and all other

aliases associated with the alias key. For more information about configuring key-in menus, please see **Section 9.6.**

Note: The Call-in Agent supports both alias login and the standard security login. The alias login uses the **UserName** alias column to log a caller into the agent. This only takes place if the alias key entry is specified in the key-in menu. When the caller accesses this menu and enters an alias key, the system uses the name associated with the UserName alias column for login purposes. The standard security login uses the security server password and the alias login UserName. The caller first enters an alias key, and then enters a security password. The name associated with the UserName alias column is sent to the security server as the login name. The security password entered is used as the login password. The security server will resolve this combination for security login.

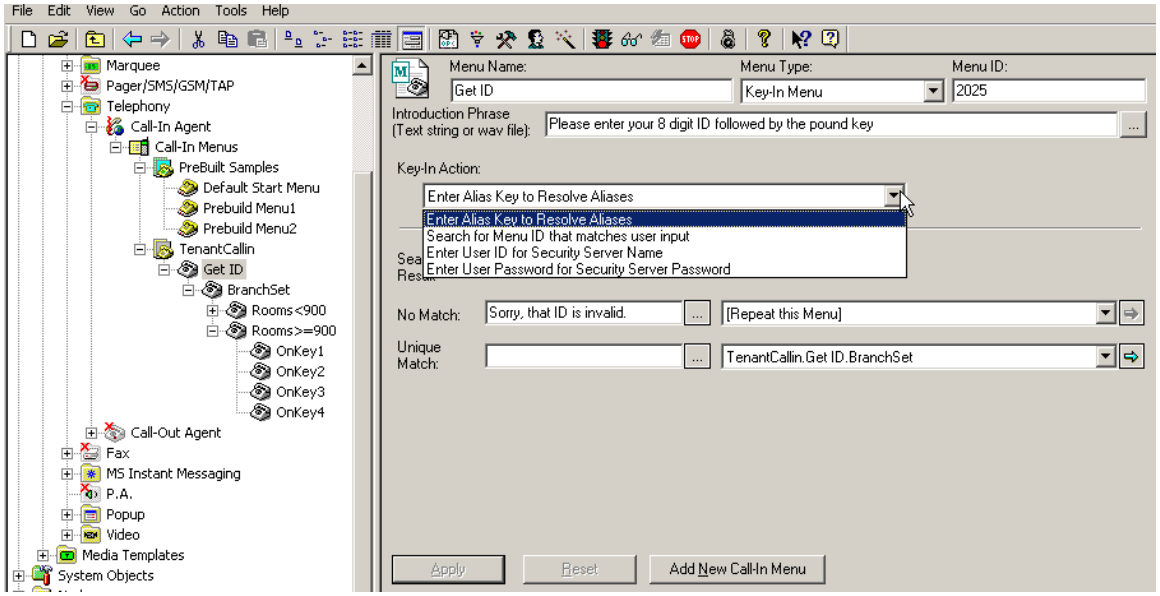


Figure 9.17. Alias Key-in Action

9.4.2.2 Creating Alias Keys

To add a new alias key to the table:

1. Right-click a column and select **Insert New Alias Key** from the pop-up menu, as shown in **Figure 9.18.**

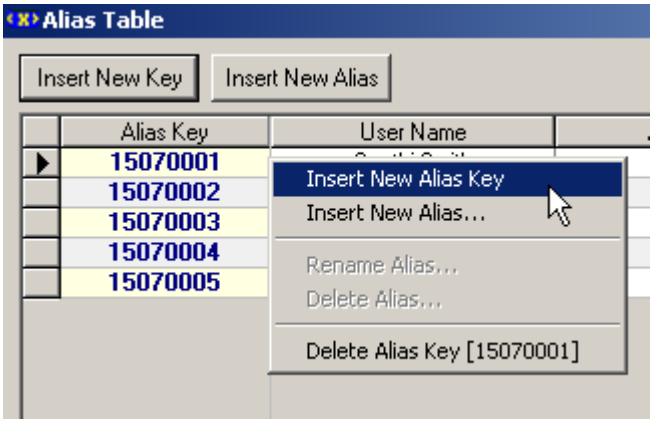


Figure 9.18. Creating an Alias Key

2. The new key appears under the **Alias Key** column, as shown in **Figure 9.19.** Type a number for the key (can be any number of digits) in the table row.

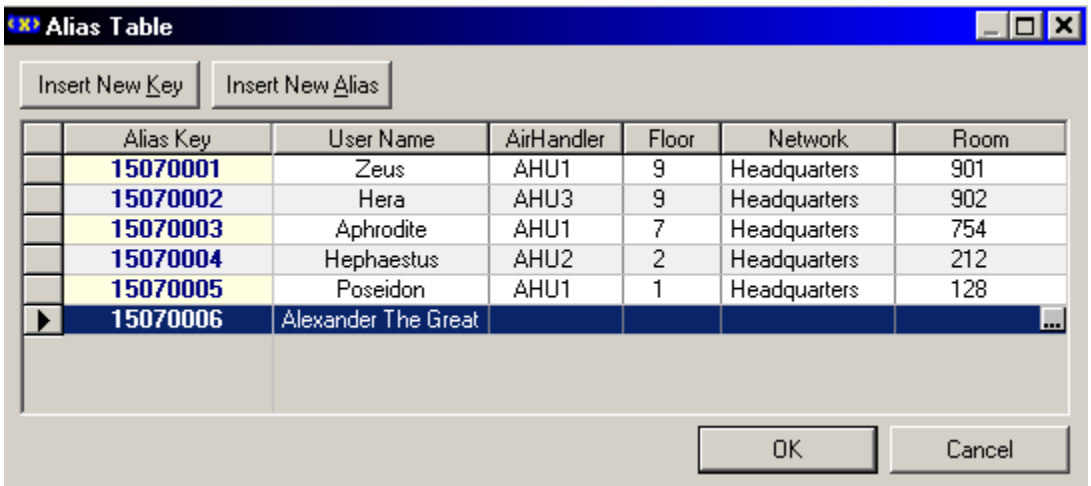


Figure 9.19. New Alias Key Added to Column

9.4.2.3 Creating New Aliases

To add a new alias to the alias table:

1. To add a new alias to the alias table, right-click inside a column and select **Insert New Alias** from the pop-up menu, as shown in **Figure 9.20.**

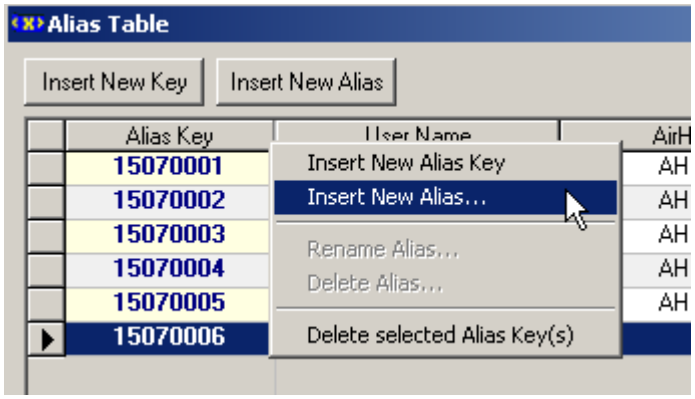


Figure 9.20. Creating a New Alias

2. The **New Call-in Alias** dialog box appears, as shown in **Figure 9.21.** Enter a name for the new alias, and then click the **OK** button.

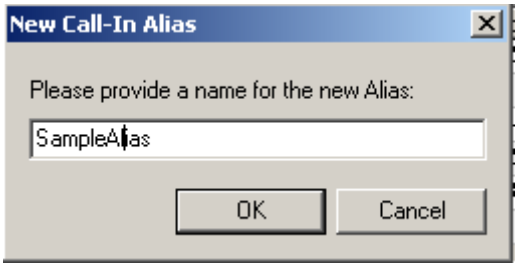


Figure 9.21. Naming the New Alias

3. The new alias column appears in the table, as shown in **Figure 9.22.**

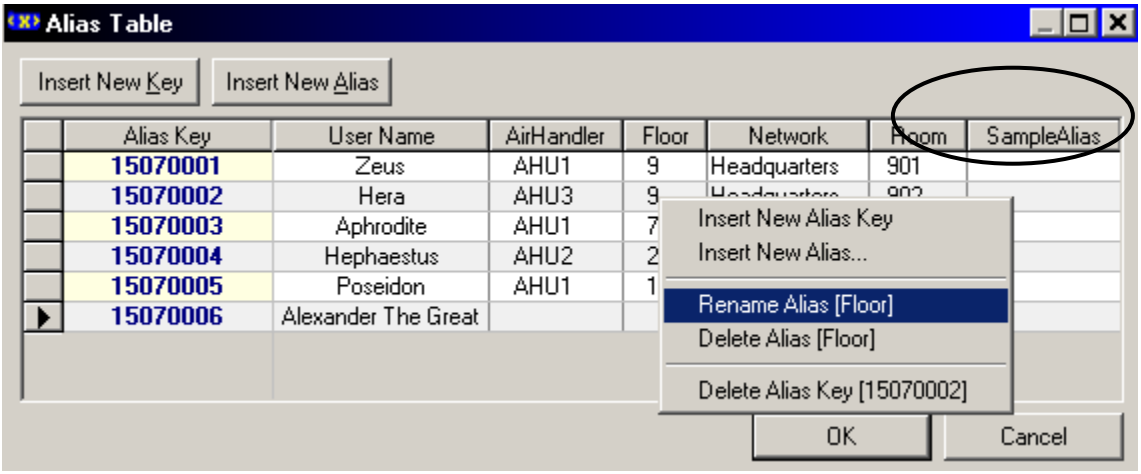


Figure 9.22. New Alias Added to Table

9.4.2.4 Deleting Alias Keys

To delete an alias key, right-click the key and select **Delete Alias Key** from the pop-up menu, as shown in **Figure 9.23.**

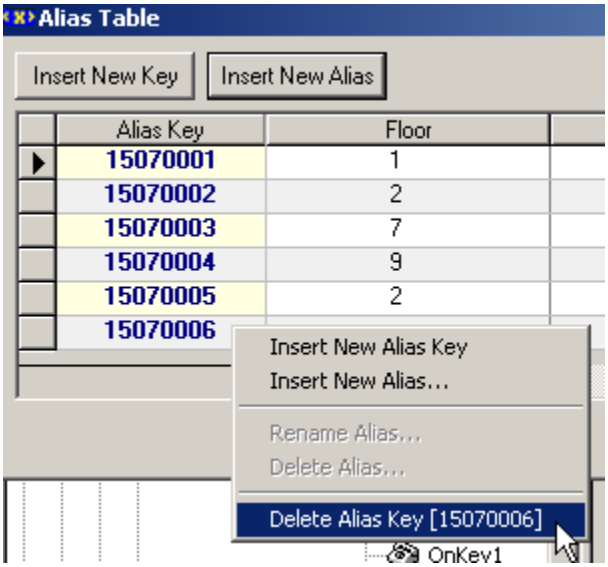


Figure 9.23. Deleting an Alias Key

9.4.2.5 Renaming Aliases

To rename an alias:

1. Right-click an alias and select **Rename Alias** from the pop-up menu, as shown in **Figure 9.24.**

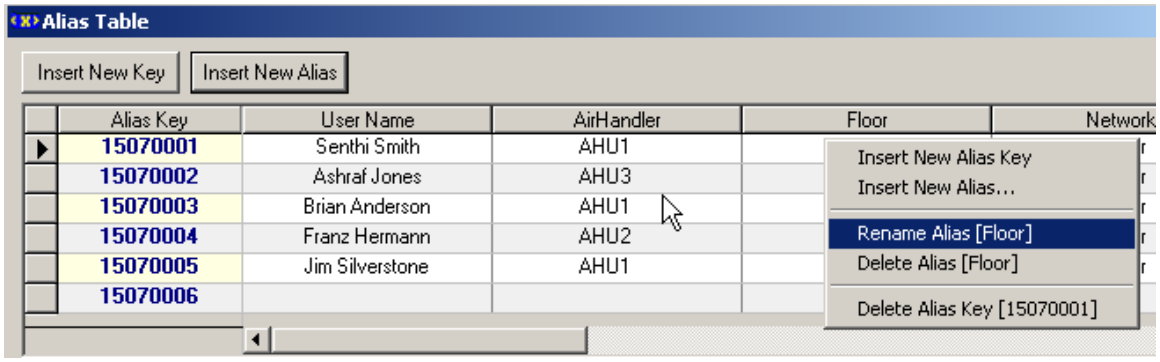


Figure 9.24. Renaming an Alias

2. The **Rename Call-in Alias** dialog box appears, as shown in **Figure 9.25.** Enter a new name for the alias, and then click the **OK** button.

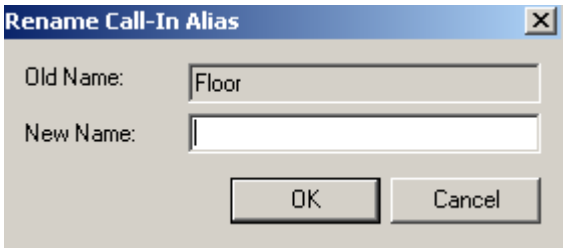


Figure 9.25. Typing a New Name for the Alias

9.4.2.6 Deleting Aliases

To remove an alias from the configuration, right-click an alias in the table and select **Delete Alias** from the pop-up menu, as shown in **Figure 9.26.**

Note: The **User Name** alias cannot be deleted.

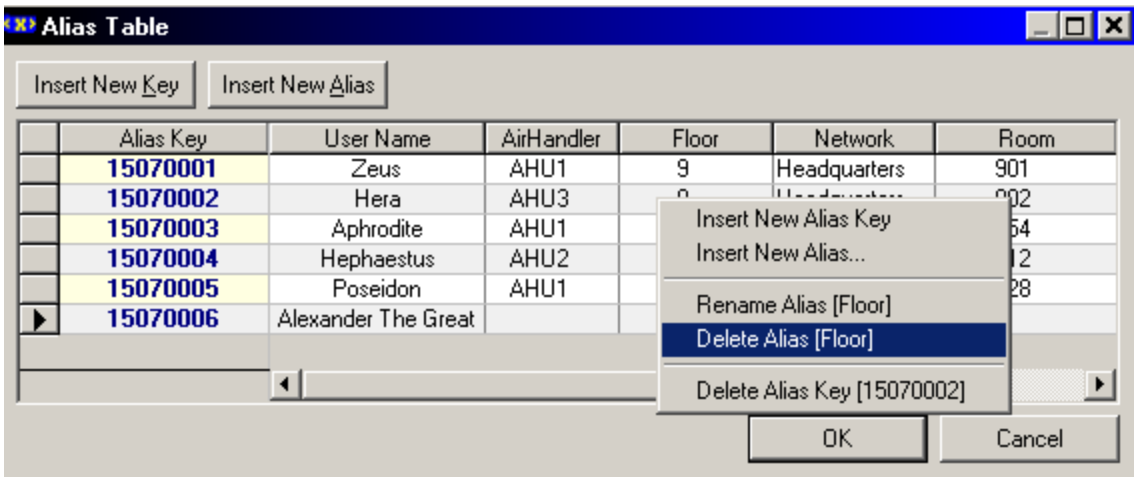


Figure 9.26. Deleting an Alias

9.5 Configuring Call-in Agent Menus

Each menu group may contain one or more Call-in Agent menus or submenus. All menus contain the following general configuration settings at the top of the configuration dialog box, as shown in **Figure 9.27.**

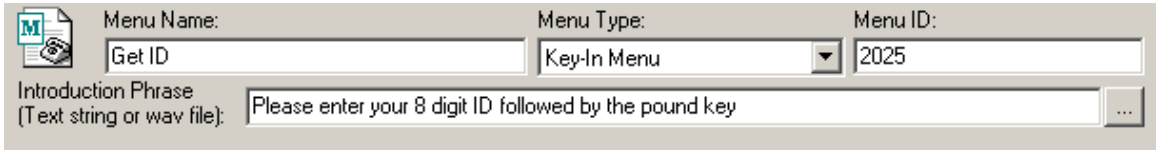


Figure 9.27. Basic Menu Configuration Settings

- **Menu Name:** Type a name for the menu in this field (maximum of 256 characters).
- **Menu Type:** Each menu contains an extensive configuration interface, which is divided into different menu types. Select from one of the following menu types:
  - Option Menu
  - Key-In Menu
  - Direct Action
  - Decision Menu

* Alarm Menu

For more information about configuring each kind of menu, please see the **Section 9.6.**

- **Menu ID:** The Configurator assigns a unique ID number for each menu based on the **Base ID** number of the group in which the menu was created. Menu IDs can be used as key-in actions for key-in menus (described in **Section 9.6**).
- **Introduction Phrase:** Enter the message (maximum of 256 characters) that the caller hears upon reaching the menu. The text is automatically converted to speech by the Call-in Agent. If you do not want to use a text message, you can instead select a sound file (.wav). You can also insert an alias name in this text (the alias name appears inside double angle brackets: e.g. **<<Floor>>**). The Call-in Agent tries to resolve this alias according to the alias key that caller entered earlier in the call-in session.

  Note: You can use text-to-speech messages, sound files, and text messages with aliases. For information about selecting a sound file or an alias, see the "Inserting Sound Files" and "Inserting Aliases" sections below.

9.5.1 Menu Progression and Sequence

When configuring Call-in menus, it is important to keep in mind how you want the callers to progress through the menus so that callers can efficiently communicate with the Call-in Agent. In the Call-in Agent menu configuration, you can specify the sequence of the menus by defining actions or menus that immediately follow each event.

The configuration for each menu type includes a **Next Action/Menu** field, shown in **Figure 9.28,** specifies the action or menu that results from each of the caller's actions or responses (i.e. key presses). From the drop-down list, you can select any available menu as well as the following actions:

- **Go back:** Returns the caller to the previous menu.
- **Repeat:** Repeats the current menu.
- **Hang up:** Ends the current call-in session.
- **Go to start menu:** Returns the caller to the start-up menu.
- **Go to main menu:** Returns the caller to the main menu.

If you select a menu from the drop-down list, the arrow to the right of the field is enabled, as shown in Figure 9.28. Clicking this arrow takes you to the menu you selected.

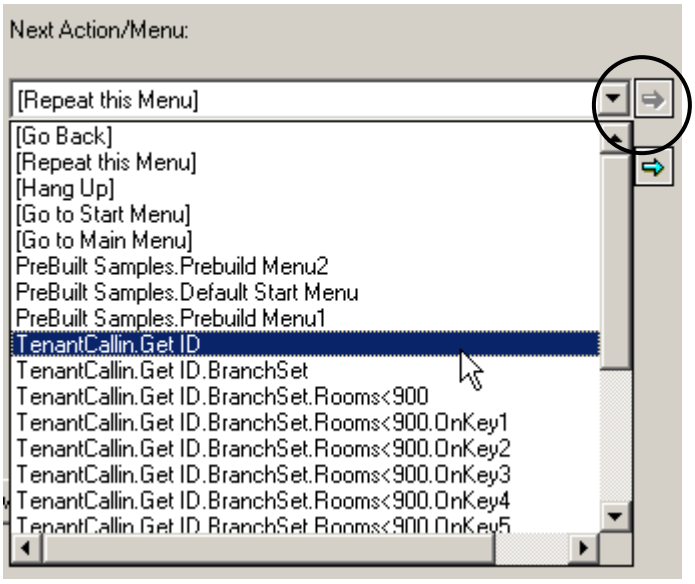


Figure 9.28. Next Action/Menu Field

9.5.2 Inserting Sound Files

If you do not want to use a text-to-speech phrase or message, you can instead select a sound file (.wav). To insert a sound file:

1. Click the **...** button next to an appropriate field (the **Introduction Phrase** field is used here as an example) and select **From Sound Library** from the pop-up menu, as shown in **Figure 9.29.**



Figure 9.29. Adding a Sound File to the Menu Configuration

2. This opens the **Sound Library** dialog box, shown in **Figure 9.30.** Click the **Add Sound File** button to browse for .wav files. Click **Open** to add the selected file to the Sound Library. To listen to a file, highlight the file and click the **Play** button. To select an existing sound file from the Sound Library, highlight the entire row for that file, and then click the **Select** button. The selected sound file appears in the configuration field you selected.

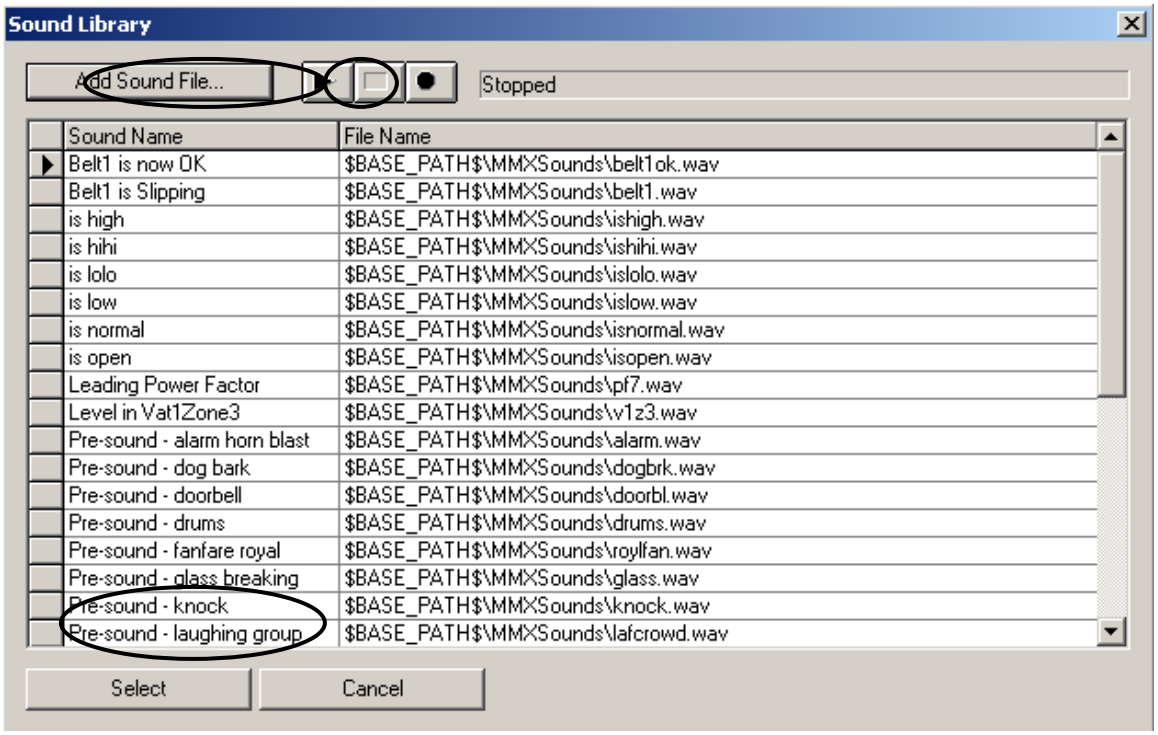


Figure 9.30. Selecting Sound Files From the Sound Library

3. The selected sound file is added to the **Introduction Phrase** field, as shown in **Figure 9.31.**

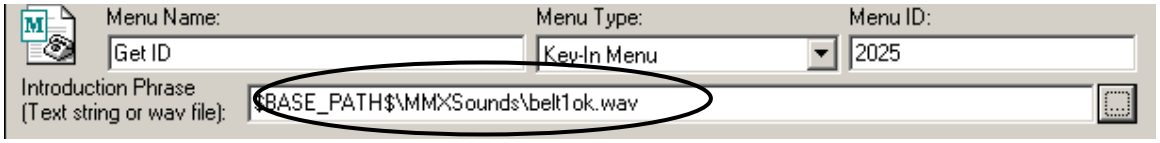


Figure 9.31. Sound File Added to Configuration

9.5.3 Inserting Aliases

To insert a an alias into a text message:

1. Click the **...** button next to the appropriate field (the **Introduction Phrase** field is used here as an example) and select **Insert Alias** from the pop-up menu, as shown in **Figure 9.32.**



Figure 9.32. Adding an Alias to the Menu Configuration

2. This opens the **Select Call-in Alias** dialog box, as shown in **Figure 9.33.** Select the desired alias, and then click the **OK** button. The selected alias appears in the configuration field you selected.

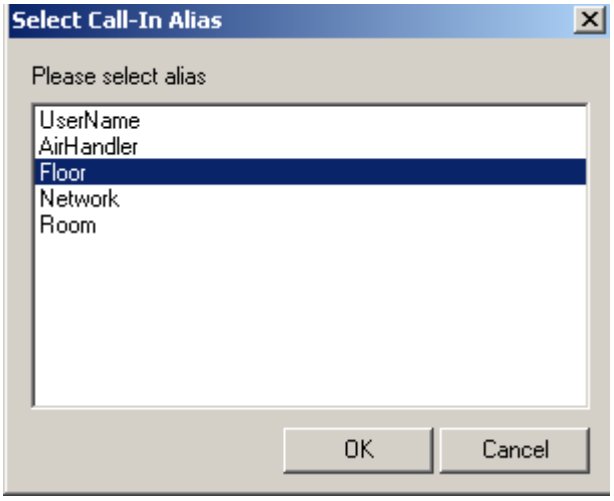


Figure 9.33. Selecting an Alias

3. The alias names that you selected (inside the double angle brackets: e.g. **<<Floor>>** and **<<Room>>**) are inserted at the current cursor position inside the text message field in the **Introduction Phrase** field, as shown in **Figure 9.34.**

Note: If any portion of the text in the field was highlighted, the inserted alias name replaces that portion.

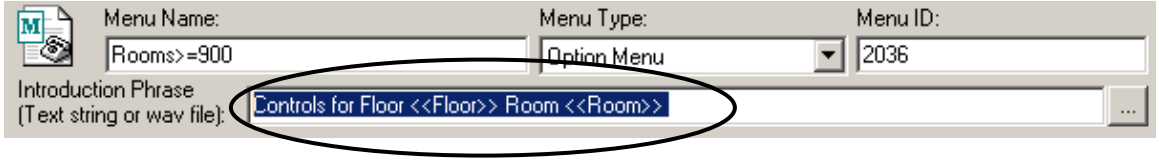


Figure 9.34. Aliases Added to Configuration

9.6 Menu Types

When configuring Call-in menus, you can select from the following types of menus, as shown in **Figure 9.35.**

- **Key-in Menu:** Contains a user-input menu with a string of digits followed by the pound key.
- **Decision Menu:** Gets rerouted to another menu based on value of an OPC tag or expression.
- **Option Menu:** Contains a list of user-configured menu choices.
- **Direct Action:** Specifies a direct, predefined action to take place upon entering the menu.
- **Alarm Menu:** Specifies a multimedia template and an alarm filter.

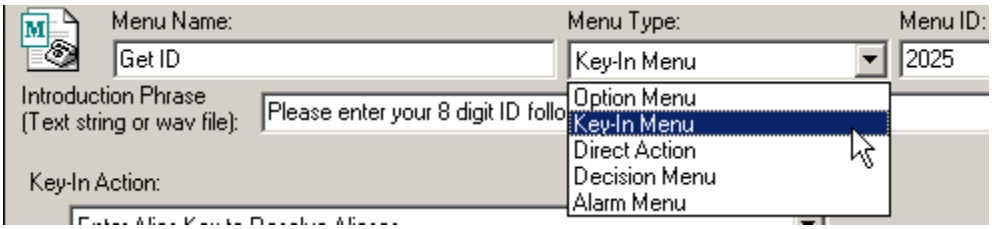


Figure 9.35. Selecting Menu Types

In describing these menu types, we will walk through various example menus from the **Tenant Callin** menu group, as shown in **Figure 9.36.**

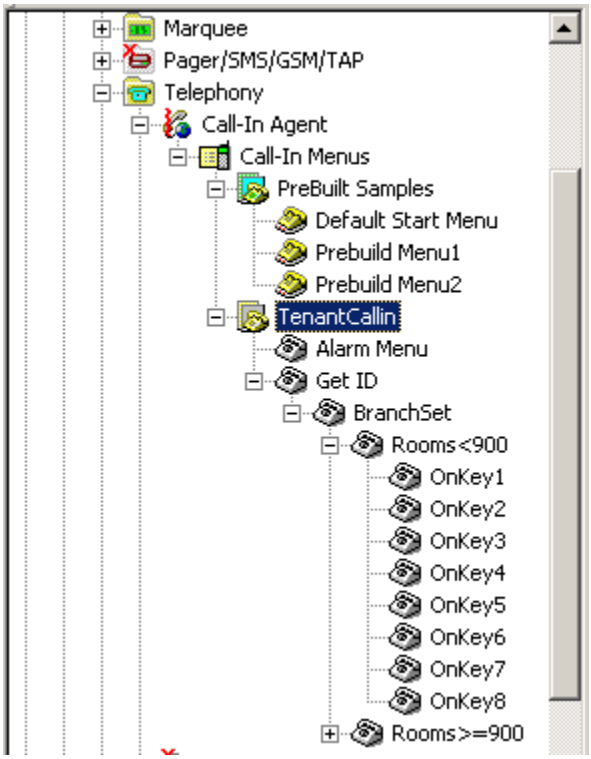


Figure 9.36. Menu Types in Group

9.6.1 Key-in Menus

A **Key-in menu,** such as the **Get ID** example menu shown in **Figure 9.37,** is a menu that expects the caller to enter in a series of digits, followed by the pound (#) key. The keys entered serve as a search parameter for finding OPC tags, aliases, menu IDs, security names, or security passwords.

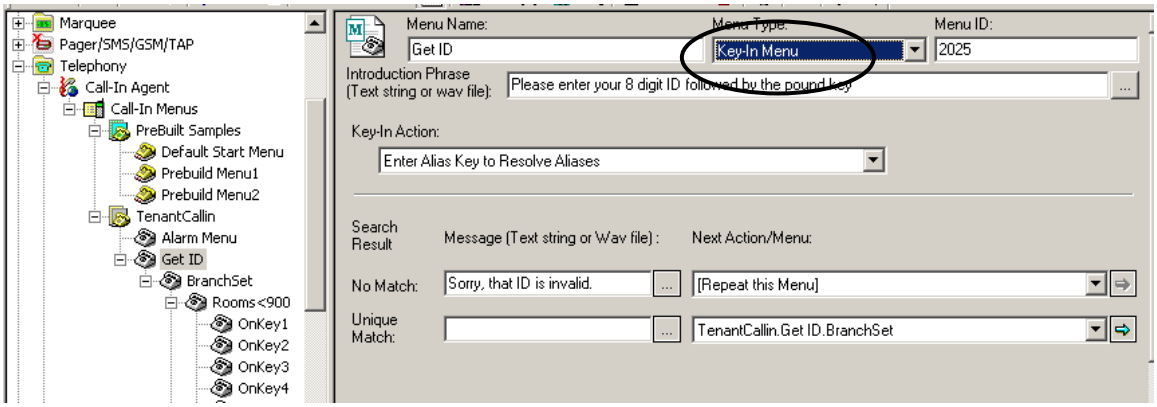


Figure 9.37. Key-in Menu

The **Key-in Action** specifies the search parameters. The caller can search for the following items:

- **Alias Key to Resolve Aliases:** Compares the caller's input with a unique alias key. The caller is prompted to enter his or her alias key. If the system recognizes the caller's alias key, it resolves the user name and all other aliases associated with the alias key.
- **Search for Menu ID:** Compares the caller's input with the unique ID number of an existing menu (e.g. 2025). If the menu ID exists, the caller is directed to the matching menu.
- **User ID for Security Server Name:** Compares the caller's input with a unique alias number. This number is used to retrieve the **UserName** alias. This string is then used in conjunction with **User Password** to create the Security Server user name and password. The input is sent to the Security Server.
- **User Password for Security Server Password:** Prompts the user for a password. This value is used in conjunction with the User ID. Both values are sent to the Security Server. This menu choice can only be used immediately after a User ID menu.

For more information about configuring the Security Server see **Section 9.8.**

The **Search Results** group specifies what happens when the caller's search is either successful or unsuccessful. There are two possible results when doing a search on caller input:

- A unique match
- No matches

For each of these possibilities, you can enter the text or select an alias or sound file to specify what the caller hears. You can also specify a menu to go to for each search result.

No Match: Specifies the message text or sound that the caller hears. (e.g. "Sorry, that ID is invalid") if the search is unsuccessful (i.e. there is no match).

Unique Match: Specifies the message text or sound that the caller hears if the search is an exact match.

The **Next Action/Menu** field specifies the action or menu that immediately follows each search result. From each drop-down list, you can select any available menu as well as the following actions:

- **Go back:** Returns the caller to the previous menu.
- **Repeat:** Repeats the current menu.
- **Hang up:** Ends the current call-in session.
- **Go to start menu:** Returns the caller to the start-up menu.
- **Go to main menu:** Returns the caller to the main menu.

Note: For information about how to select sound files and aliases, please refer to the "Inserting Sound Files" and "Inserting Aliases" sections.

9.6.2 Decision Menus

A **decision menu,** such as the **BranchSet** example menu shown in **Figure 9.38,** transports a caller to another menu based on the true/false condition of an OPC tag or the result of an expression.

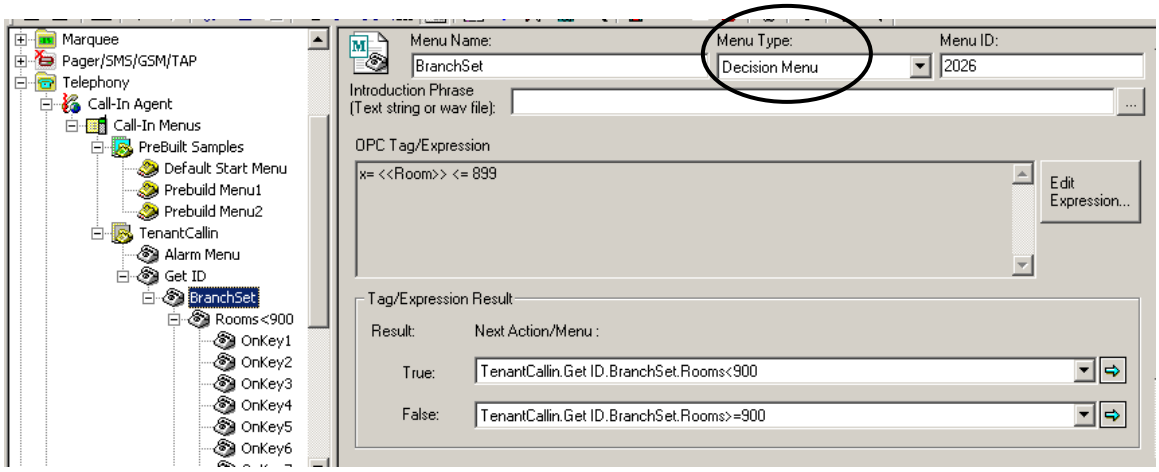


Figure 9.38. Decision Menu

The **Next Action** field specifies the action or menu that immediately follows the resolution of each OPC tag or expression that the caller accesses through the Call-in Agent. If the OPC tag or expression specified resolves to a nonzero value, or TRUE, the flow of execution goes to the menu specified in the **Next Action** drop-down list next to **True.** If the value is zero, or FALSE (or undefined), flow of execution goes to the menu specified in the **Next Action** drop-down list next to **False.**

From each drop-down list under **Next Action,** you can select any available menu as well as the following actions:

- **Go back:** Returns the caller to the previous menu.
- **Repeat:** Repeats the current menu.
- **Hang up:** Ends the current call-in session.
- **Go to start menu:** Returns the caller to the start-up menu.
- **Go to main menu:** Returns the caller to the main menu.

To specify an OPC tag or expression, click the **Edit Expression** button. This opens the **Edit Expression** dialog box, shown in **Figure 9.39.** The following options are available for editing OPC expressions:

- Arithmetic
- Relational
- Logical
- Bitwise
- Functions
- Tags

Note: For complete information about using the Expression Editor, please refer to **Chapter 2.**

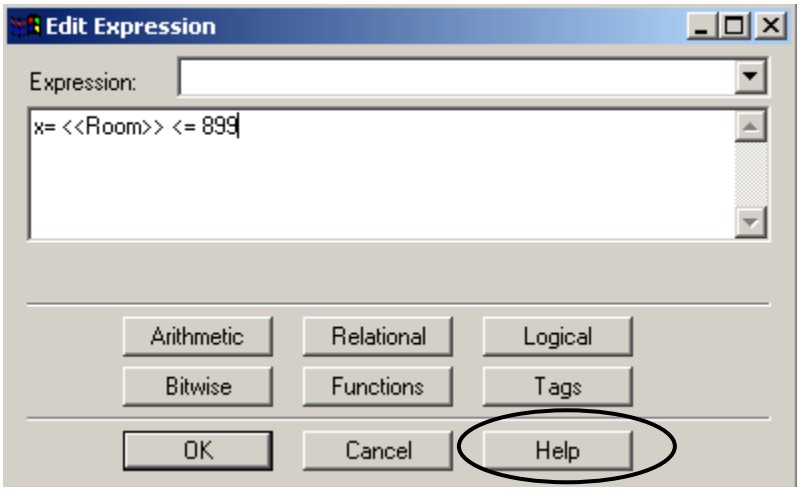


Figure 9.39. Expression Editor

To select an OPC tag, click the **Tags** button. This opens the **OPC Tag Browser,** as shown in **Figure 9.40.** Select an OPC tag from the **Data Access** tree control and then click **OK.**

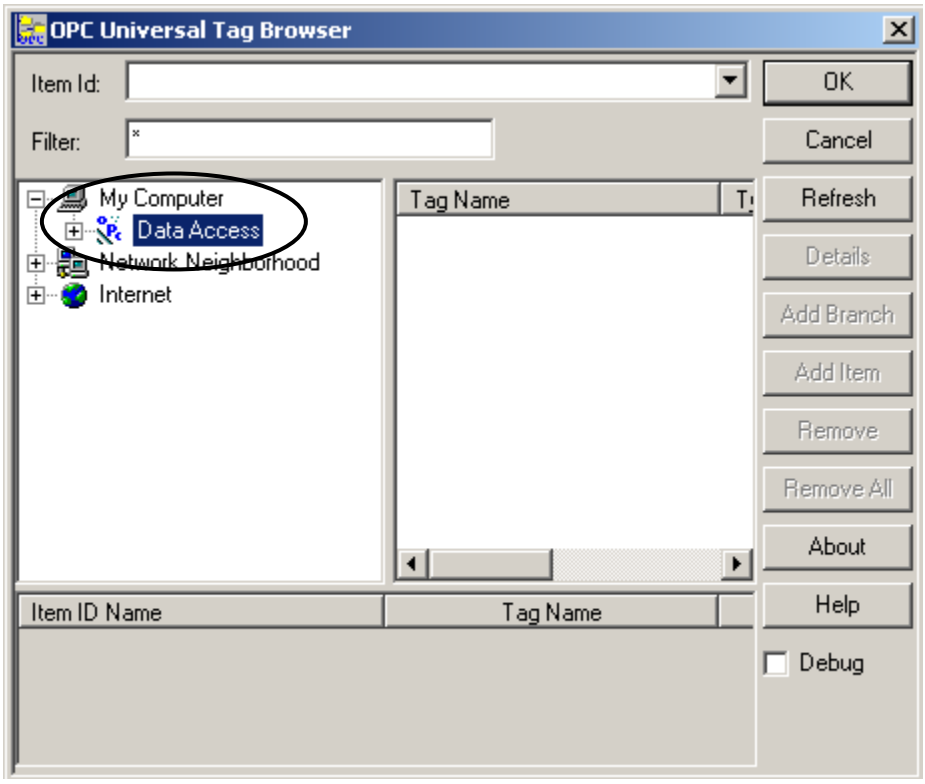


Figure 9.40. Selecting an OPC Tag From the Tag Browser

9.6.3 Option Menus

An **option menu,** such as the **Rooms<900** example menu shown in **Figure 9.41,** contains a list of options that are presented to a caller. The option menu configuration allows you to do the following:

- Enable or disable each phone key independently.
- Determine what the caller hears (i.e. a message or a sound) when the caller is presented with various options upon reaching the menu (e.g. "Press 1 to turn on fan 1").
- Specify which menu option corresponds to each of the keys on a standard phone keypad (i.e. keys 0-9, #, and *).
- Specify what happens after the caller presses each key.

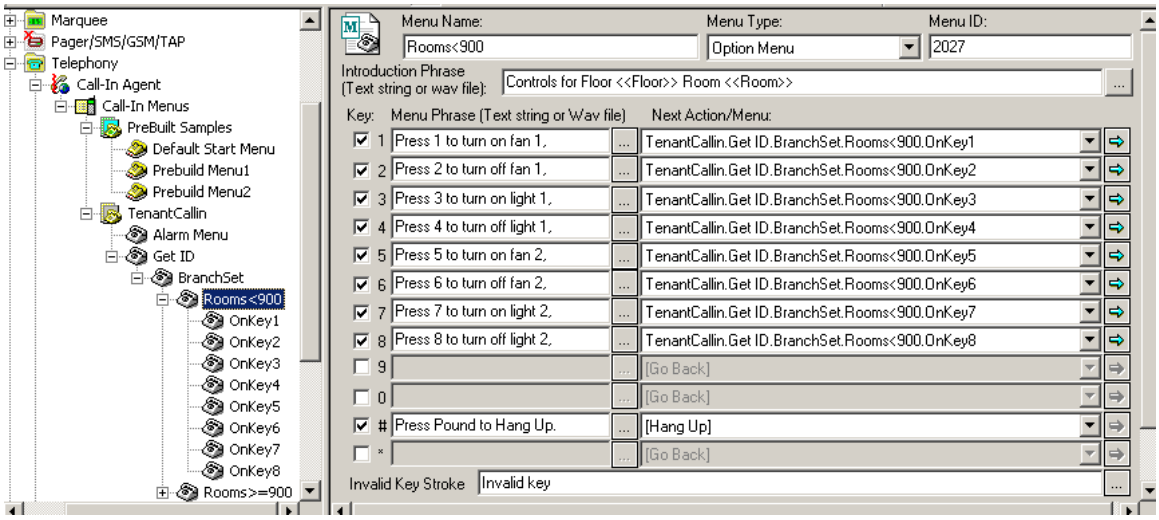


Figure 9.41. Option Menu

To enable keys for the menu:

1. Check the check box next to each key you want to use for the menu. The field under **Menu Phrase** now becomes available.
2. Under the **Menu Phrase** field for each enabled key, specify some text to be spoken or a sound file to be played. To select a sound file, click the **...** button next to each key. The caller hears each of the these items in the order in which they appear in the Configurator.

   In the example menu in the figure above, when a caller reaches the menu, the caller hears the following:

   "Press 1 to turn on fan 1."

   "Press 2 to turn off fan 1."

   "Press 3 to turn on light 1."

   "Press 4 to turn off light 1."

   "Press 5 to turn on fan 2."

   "Press 6 to turn off fan 2."

   "Press 7 to turn on light 2."

   "Press 8 to turn off light 2."

   "Press Pound to Hang Up."

3. For each enabled key, you must specify an action or a menu to which the caller is directed upon pressing the key on the phone pad. The **Next Action/Menu** field specifies the action or menu that results when the caller presses the key. From each drop-down list, you can select any available menu as well as the following actions:

    - **Go back:** Returns the caller to the previous menu.
    - **Repeat:** Repeats the current menu.
    - **Hang up:** Ends the current call-in session.
    - **Go to start menu:** Returns the caller to the start-up menu.
    - **Go to main menu:** Returns the caller to the main menu.

    In the **Invalid Key Stroke** field, specify the message or sound a caller hears (e.g. "Invalid Key.") when the caller presses the wrong key.

9.6.4 Direct Action Menus

A **direct action** menu, such as the **On Key 1** example menu shown in **Figure 9.42,** supplies quick updates and writes to and reads from OPC tags. In this example, the caller is directed to this direct action menu after pressing the "1" key on the pone pad (as defined by the **Rooms<900** example option menu in the section above). Direct action menus allows for quick browsing to a specific OPC tag group (or server). The menu specifies that the caller is going to request a specific action (instead of browsing and searching through groups/tags). In this example, the caller pressed "1 to turn on fan 1." The direct action menu enables you to tell the Call-in Agent how to turn on fan 1 by specifying OPC values.

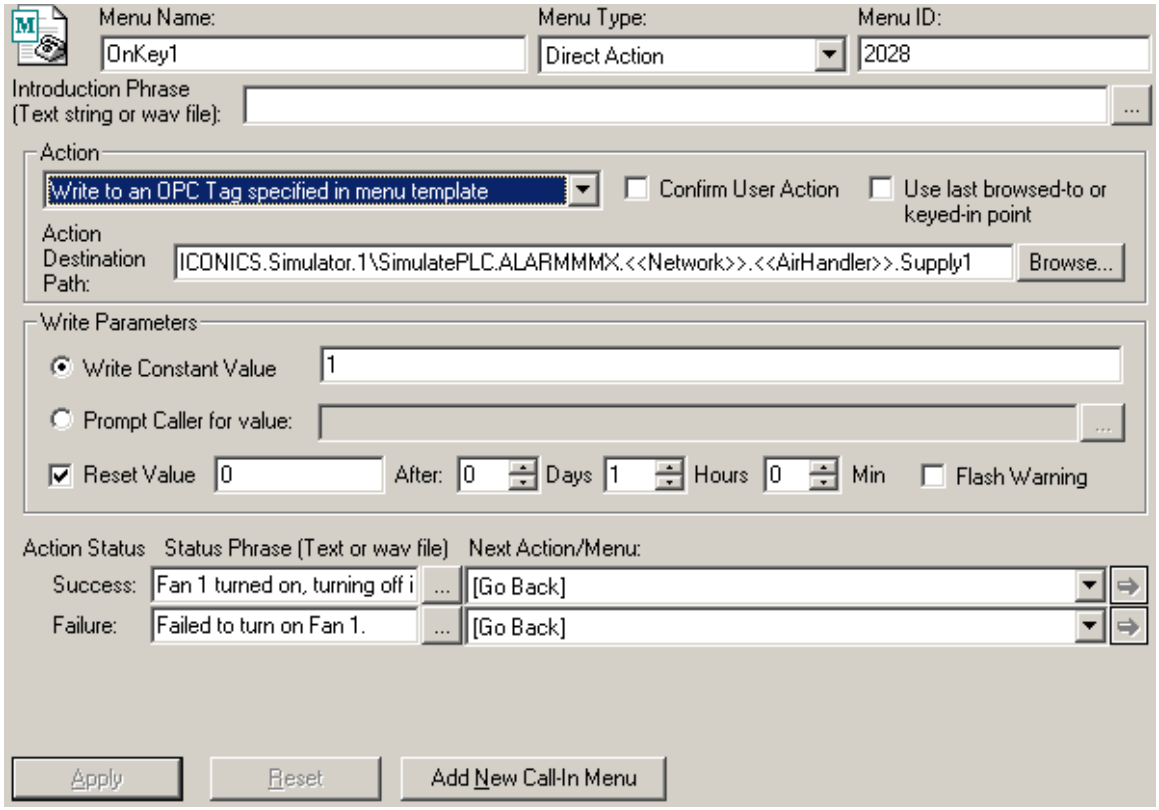


Figure 9.42. Direct Action Menu

1. Choose one of the following actions from the drop-down list under the **Action** field:

   - **Write to an OPC tag:** Writes a value to the OPC tag specified in the **Action Destination Path** field. Data to write can come from either the caller or a predefined constant.
   - **Read the value of OPC tag:** Gives the value of the OPC tag specified in the **Action Destination Path.**

     If the **Confirm User Action** check box is checked, the Call-in Agent asks whether the caller wants to proceed with the selected action before writing or reading the OPC value.

     Note: The **Use last browsed-to or keyed-in point** check box is not implemented in the current version.

2. Under **Action Destination Path,** click the **Browse** button either to launch the **OPC Tag Browser,** which allows you to select an OPC Data Access tag, or to select an alias.
3. Select from the following **Write Parameters** for OPC tags:
   - **Write Constant Value:** When this option is selected, the Call-in Agent automatically writes an OPC tag value (i.e. no action is required from the caller).
   - **Prompt Caller for Value:** When this option is selected, the caller must enter an OPC value using the phone keypad. [**Note:** The Star (*) key on the phone keypad can be used as a decimal point.] Enter the message text or select a sound file by clicking the **...** button to specify the Call-in Agent's prompt for entering the OPC value.

     Note: The **Confirm Value Changed** check box is not implemented in the current version.

     Reset Value: You can optionally specify a reset value, which is written to the same OPC tag after the specified time interval, resetting the OPC value written by this menu action. When **Flash Warning** is checked, the system switches the OPC tag between the tag's current (write) value and its reset value before finally resetting the tag value. The lead time, time off, time on, and number flashes are specified in the flash warning parameters set in the general Call-in settings. (Refer to the "Configuring General Call-in Agent Settings" section above.)
4. Under the **Action Status** field**,** you must specify what the caller hears (message or sound) when the OPC read/write is a **success** or a **failure.** In this example, the action is successfully completed when fan 1 is turned on.

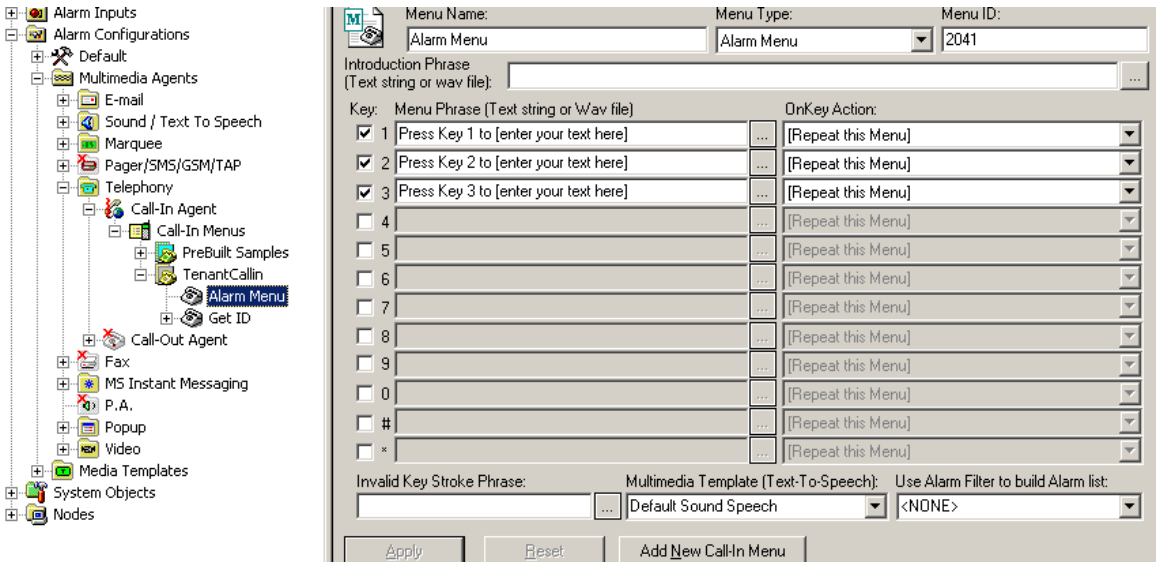
   You must specify an action or a menu to which the caller is directed upon success or failure. The field allows you to specify the action or menu that results when the caller presses the key. From each drop-down list under **Next Action/Menu,** select an available menu or one of the following actions:
   - **Go back:** Returns the caller to the previous menu.
   - **Repeat:** Repeats the current menu.
   - **Hang up:** Ends the current call-in session.
   - **Go to start menu:** Returns the caller to the start-up menu.
   - **Go to main menu:** Returns the caller to the main menu.

9.6.5 Alarm Menus

An **Alarm Menu** is similar to an Option menu in that it contains a list of options that are presented to a caller. The option menu configuration allows you to do the following:

- Enable or disable each phone key independently.
- Determine what the caller hears (i.e. a message or a sound) when the caller is presented with various alarms upon reaching the menu.
- Specify which menu option corresponds to each of the keys on a standard phone keypad (i.e. keys 0-9, #, and *).
- Specify what happens after the caller presses each key.

You can also specify a multimedia template (text-to-speech type) and an alarm filter.



Alarm Menu

For each enabled key, you must specify an action or a menu to which the caller is directed upon pressing the key on the phone pad. The **Next Action/Menu** field specifies the action or menu that results when the caller presses the key. From each drop-down list, you can select any available menu as well as the following actions:

- Go back: Returns the caller to the previous menu.
- Repeat: Repeats the current menu.

- Hang up: Ends the current call-in session.
- Go to start menu: Returns the caller to the start-up menu.
- Go to main menu: Returns the caller to the main menu.
- Play next alarm
- Play previous alarm
- Repeat last alarm
- Play alarm at the top of the list
- Refresh alarm list
- Acknowledge current alarm
- Acknowledge alarms played
- Acknowledge all alarms
- Play total number of alarm messages
- Play total number of acknowledged messages
- Play total number of messages in alarm state
- Play total number of unacknowledged messages
- Play total number of operators' messages
- Play total number of tracking messages

In the **Invalid Key Stroke** field, specify the message or sound a caller hears (e.g. "Invalid Key.") when the caller presses the wrong key.

9.7 Starting and Stopping the Call-in Agent

When the Call-in Agent is in configuration mode, the Call-in Agent branch on the tree control appears as shown in **Figure 9.43.** Notice that the phone icon has a red mark on it, indicating that the Call-in Agent server is turned off.

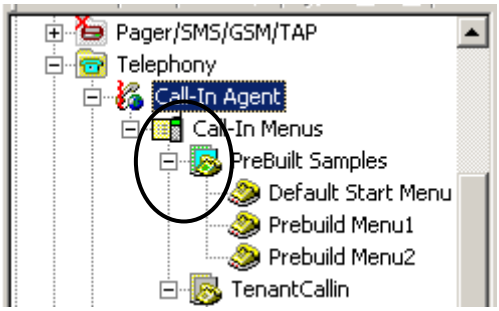


Figure 9.43. Call-in Agent in Configuration Mode

9.7.1 Starting the Call-in Agent

When your Call-in Agent configuration is complete, you must start the Call-in Agent server in order for callers to call in to the system.

1. Click the **Start Call-in Agent** button on the general settings dialog, as shown in **Figure 9.44.**

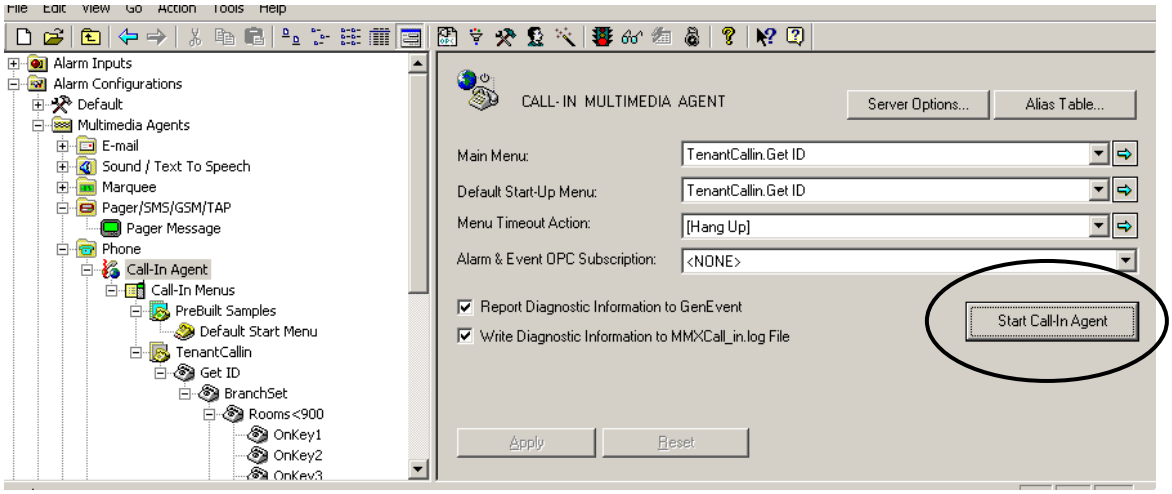


Figure 9.44. Starting the Call-in Agent

2. As the Call-in Agent loads, a progress window appears, as shown in **Figure 9.45.**

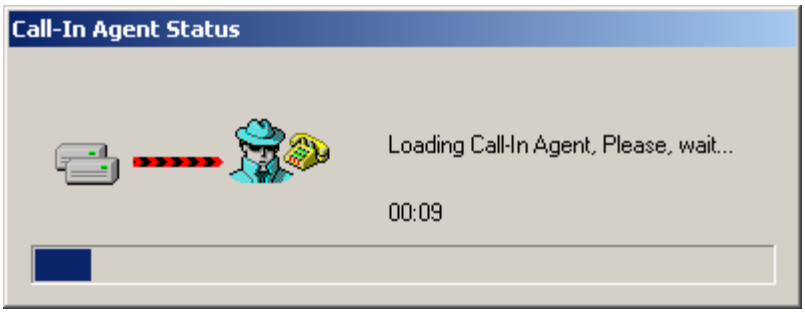


Figure 9.45. Call-in Agent Loading

3. Once the Call-in Agent is running, you can call the number of the phone line attached to the Dialogic card to dial in to the system. The red mark over the phone icon in the tree control is now removed to indicate that the Call-in Agent is running, as shown in **Figure 9.46.**



Figure 9.46. Call-in Agent Running

9.7.2 Stopping the Call-in Agent

After you start the Call in agent, the **Start Call-in Agent** button changes to say **Stop Call-in Agent.**

1. Click the **Stop Call-in Agent** button on the general settings dialog.
2. As the Call-in Agent shuts down, a progress window appears.

9.8 Security Administration

The Multimedia Configurator includes a **Security Administration** tool (for the Call-in Agent only) that mimics the Security Configurator, enabling you to configure user IDs and passwords for the Security Server. Once you have configured security for the Call-in Agent, you can specify when callers must enter their user IDs and passwords in the key-in menu configuration by selecting one of the following **key-in actions:**

- **User ID for Security Server Name:** Compares the caller's input with a unique alias number. This number is used to retrieve the **UserName** alias. This string is then used in conjunction with User Password to create the

Security Server user name and password. The input is sent to the Security Server.

- **User Password for Security Server Password:** Prompts the user for a password. This value is used in conjunction with the User ID. Both values are sent to the Security Server. This menu choice can only be used immediately after a User ID menu.

To log into the Security Server, create entries in the Security Server. Call-in entries must be a string name and a numeric password. In the Call-in Agent, add an alias key with a UserName matching the string name in the Security Server. Set up a Key-in menu with Key-in action: **User ID for Security Server Name.** The unique match from this menu must be a second Key-in menu with Key-in action: **User Password for Security Server Password.** This combination will log the user into the Security Server. Hanging up will automatically log the user out.

Note: For more information about Security Server settings, please refer to the Security Configurator and Security Login application Help documentation. For information about key-in menu settings, please see the Key-in Menus section above.

9.8.1 Logging into the Security Administration Tool

The **Security Administration** tool allows Security Server administrators to configure security setting for users and groups. You must enter an administrator password to use the Security Administration tool.

1. Click the **Security Administration** button (lock icon) on the toolbar. The **Security Server Administrator Login** dialog box appears, as shown in **Figure 9.47.** Enter the **Security Server Administrator's** user name and password, and then click the **OK** button.

   Note: A default administrator password is specified during installation. You will use this password to gain administrator access to the Security Server for the first time. When a new user is added to the system with Administrator privileges, the default password is disabled. The default password remains disabled as long as there is at least one user with administrator privileges. The Multimedia security administration tool does not allow you to use a default administrator account. In other words, the "Administrator" security account must be created first with the regular Security Configurator. This must be created in **Advanced** security mode. For more information about security modes, please see the Security Configurator Help documentation.

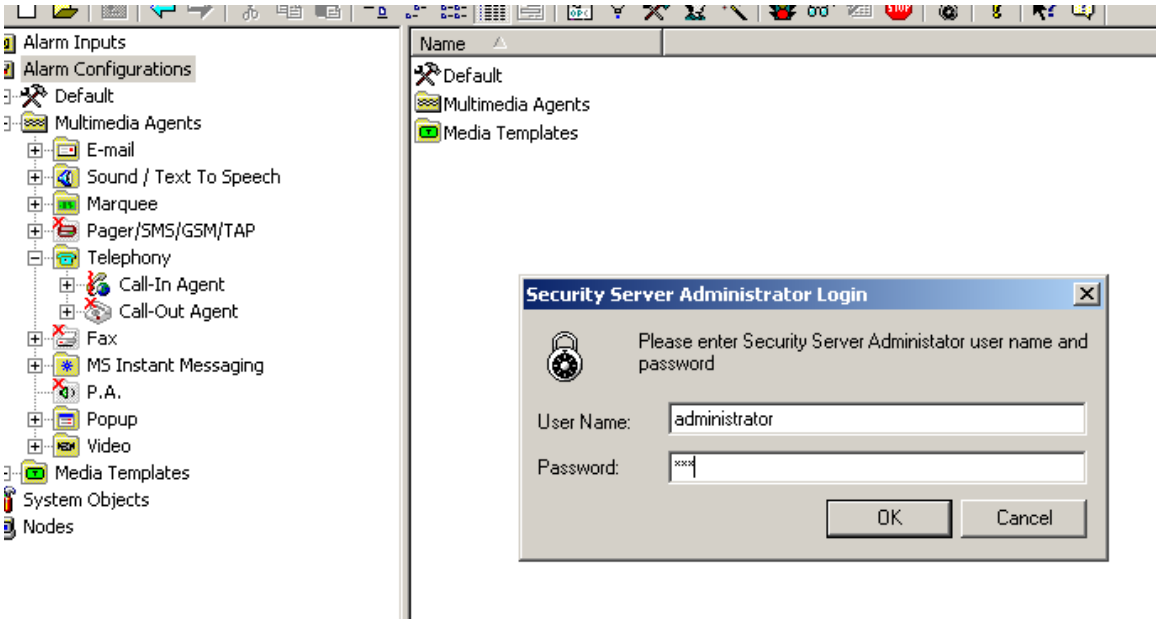


Figure 9.47. Logging Into the Call-in Agent Security Administration Tool

2. The **Security Administration** console appears, as shown in **Figure 9.48.** The configuration console consists of two separate panes. Each pane has a tree control. The left tree is the **Group View.** Here the root nodes are groups, and the child nodes are the users that belong to the group. The right tree is the **User View,** in which the root nodes are users, and the child nodes are the groups that have been assigned to each user. Some example groups and users are shown in the figure below.

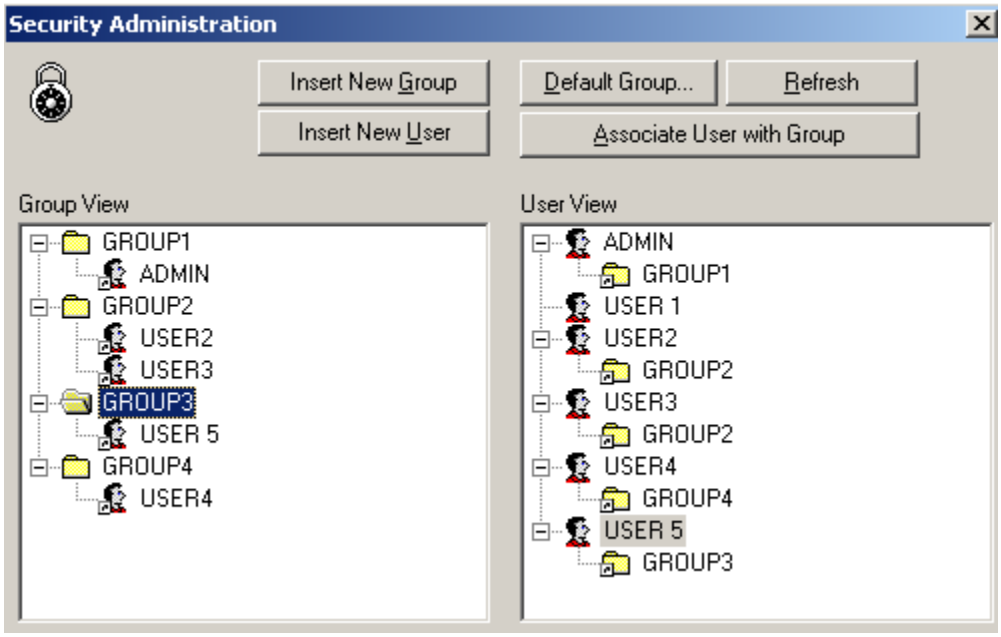


Figure 9.48. Security Administration Console

9.8.2 Configuring Users and Groups

The **Security Administration** console, shown in **Figure 9.49,** enables you to create user profiles and groups to customize Call-in Agent restrictions on a per-user basis. The figure below shows some example users associated with various roles.

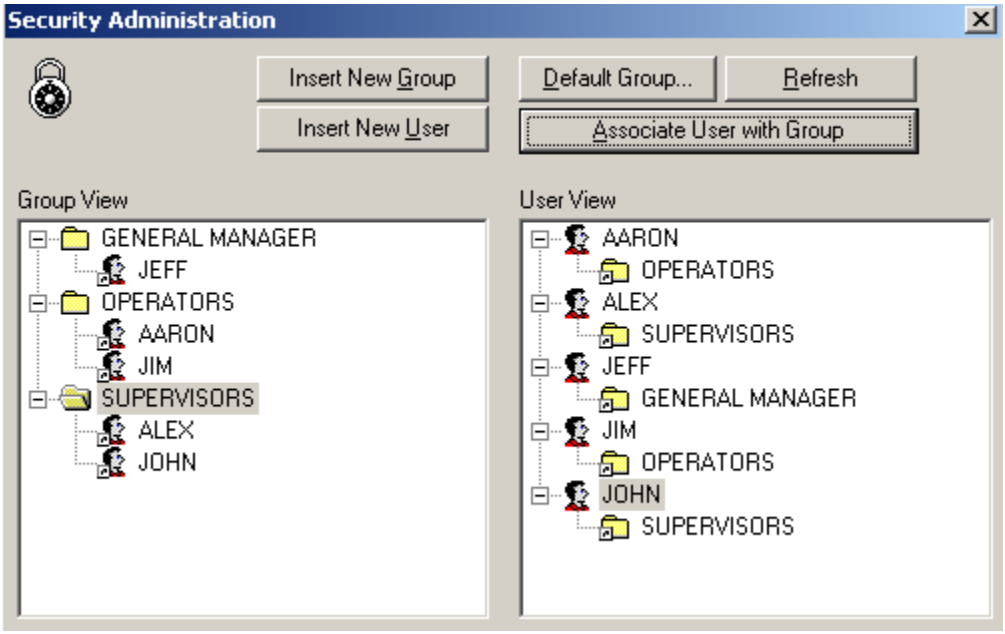


Figure 9.49. Configuring Security for Users and Groups

The example roles are:

- General Manager
- Supervisors
- Operators

Each of these roles is associated with five different example users:

- Aaron (Operator)
- Alex (Supervisor)
- Jeff (General Manager)
- Jim (Operator)
- John (Supervisor)

You can associate users with various groups to help simplify and organize security management. This way all users associated with a particular group are bound to the restrictions or properties for that group. For example, both Jim and John are supervisors, associated with the Supervisors group, and Jeff is associated with the General Manager group. If there are certain Call-in menus that only the general manager and supervisors are allowed to view but the operators may not view, the security administrator can use the Security Administration console to lock the operators out of those menus.

You can also configure properties for each user within a group. For example, both Aaron and Jim are operators and are therefore associated with the Operators group. However, Aaron's user properties may be configured separately from those of Jim so that each user within the group has unique security restrictions.

9.8.3 Adding a New Security Group

To add a new group to the Security Administration console:

1. Click the **Insert New Group** button, as shown in **Figure 9.50.**

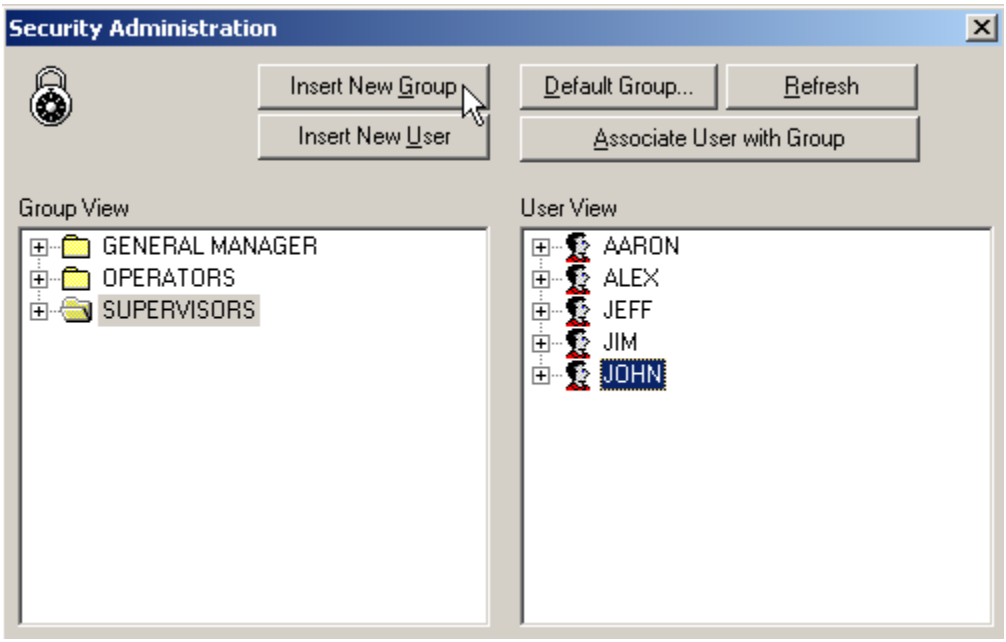


Figure 9.50. Adding a New Group

2. This adds a new group under the **Group View** tree. The name is highlighted, as shown in the figure below. It is suggested that you change the name at this point before further editing.

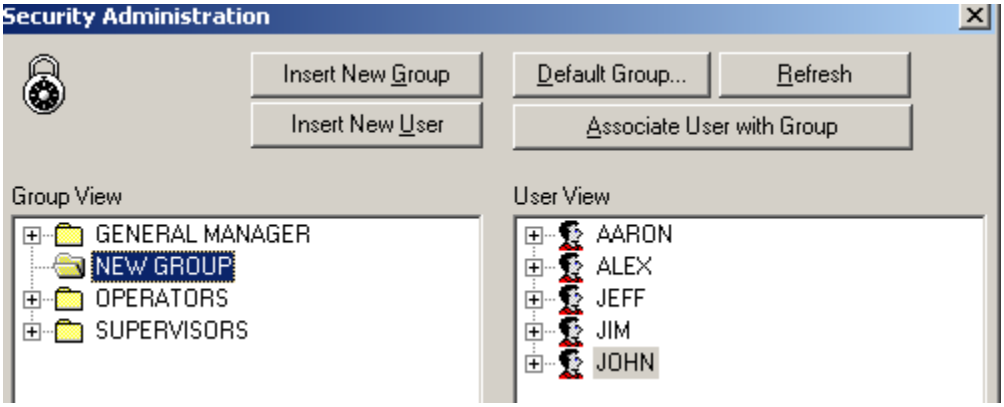


Figure 9.51. New Group Added to Group Tree

9.8.4 Adding a New User Profile

To add a new user profile to the Security Administration console:

1. Click the **Insert New User** button, as shown in **Figure 9.52.**

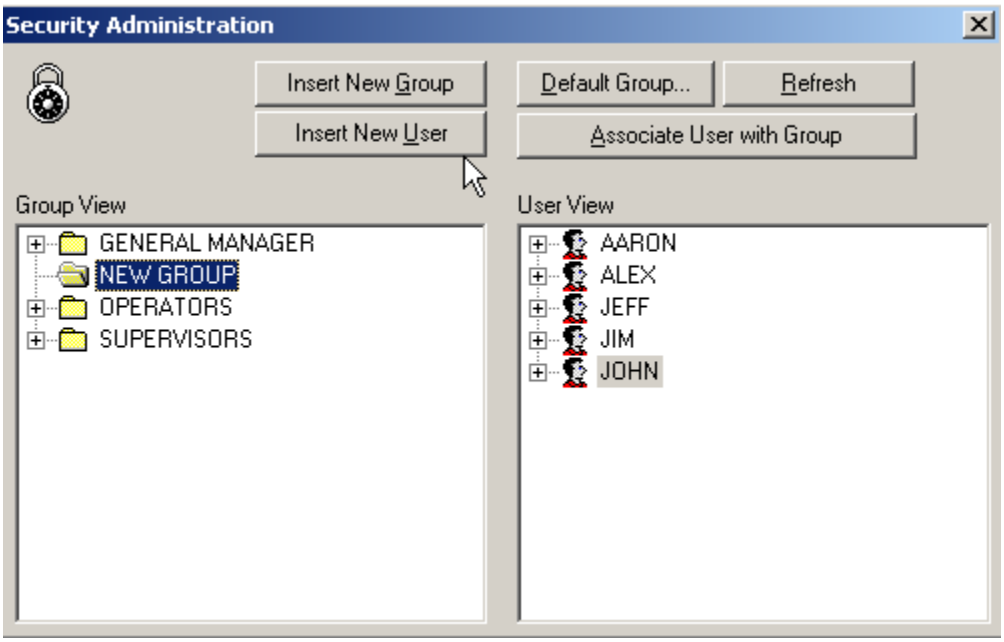


Figure 9.52. Adding a New User Profile

2. This adds a new user under the **User View** tree. The name is highlighted, as shown in **Figure 9.53.** It is suggested that you change the name at this point before further editing.

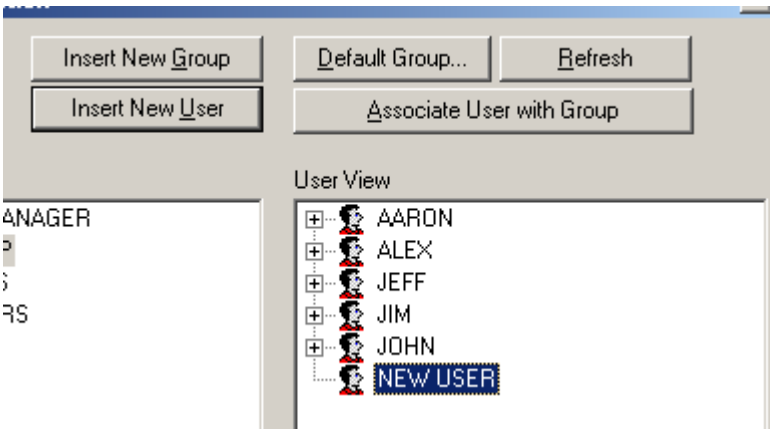


Figure 9.53. New User Added to User Tree

9.8.5 Deleting Users and Groups

To delete a user or a group from Security Administration console, select the desired group in the **Group View** tree, or the desired user in the **User View** tree, and do the following:

1. Right-click on the item and select **Delete** from the pop-up menu, as shown in **Figure 9.54.**

   Note: If you select a child item in the tree instead of a root item (i.e. you select a user in the group tree or a group in the user tree) and perform a delete as described above, you will remove the child item from the parent (dissociate the group from the user) but not actually delete it.

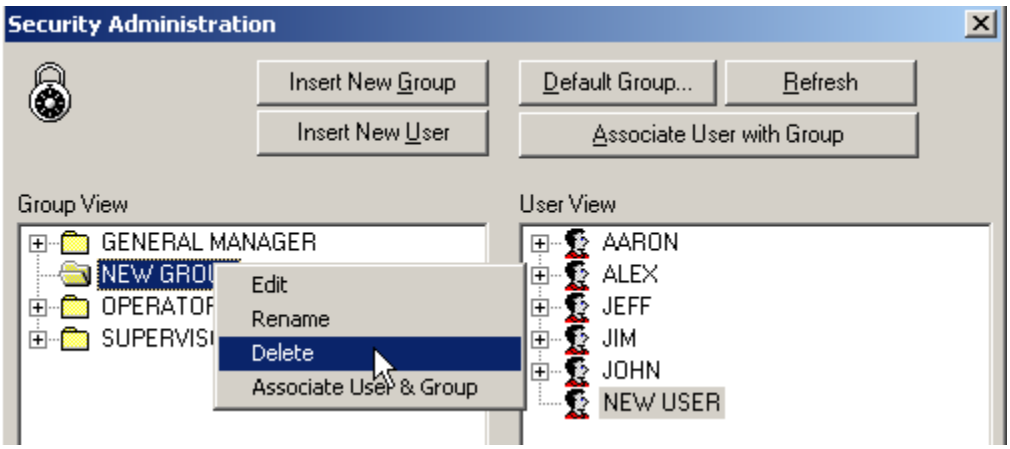


Figure 9.54. Deleting Users and Groups

2. You are then asked to confirm the deletion, as shown in **Figure 9.55.** Click **OK** to delete the user or group.



Figure 9.55. Confirming Deletion of a User or Group

9.8.6 Associating Users and Groups

To associate a group with a user in the Security Administration console:

1. Select the user to be associated under the **User View** tree.

2. Right-click the group to be associated under the **Group View** tree and select **Associate User & Group** from the pop-up menu (or click the **Associate User with Group** button), as shown in **Figure 9.56.**

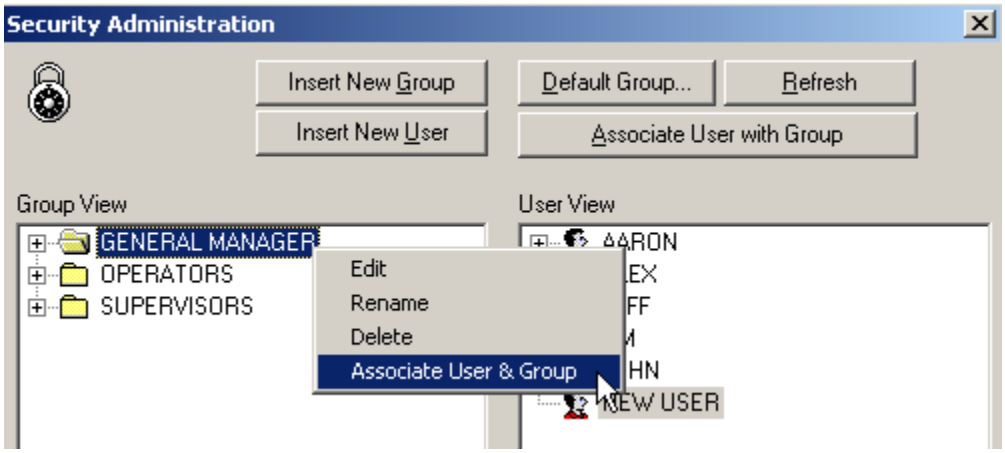


Figure 9.56. Associating Users and Groups

3. When a user and group are associated, the user appears as a child item under the group tree in the left pane, and the group appears as a child item under the user tree in the right pane, as shown in **Figure 9.57.** In this example, the user "Jeff" has been associated with the group "General Manager."

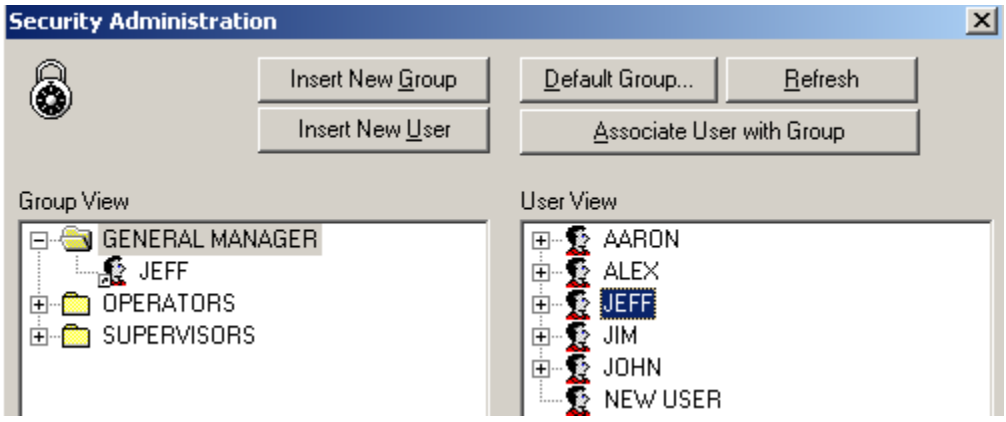


Figure 9.57. Viewing User and Group Associations

9.8.7 Removing Associations Between Users and Groups

To remove the association between a user and a group in the Security Administration console:

1. Select the user child item under the desired group in the left pane, or select the group child item under the desired user in the right pane.

2. Right-click the user or group to be dissociated and select **Delete** from the pop-up menu, as shown in **Figure 9.58.**

3. When the association is removed, the child user under the group in the left pane is removed, and the child group under the user in the left pane is removed.

Note: Performing this operation never deletes the selected user or group. Only their association is removed.

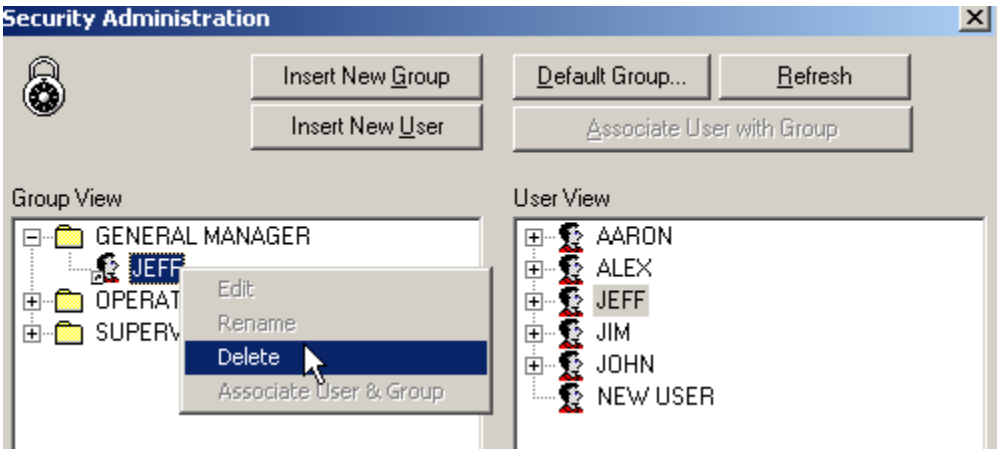


Figure 9.58. Dissociating Users and Groups

9.8.8 Editing Users and Groups

To edit the properties assigned to a user or a group in the Security Administration console:

1. Select the desired group in the group tree, or the desired user in the user tree.

2. Right-click on the group or user and select **Edit** from the pop-up menu, as shown in **Figure 9.59.**

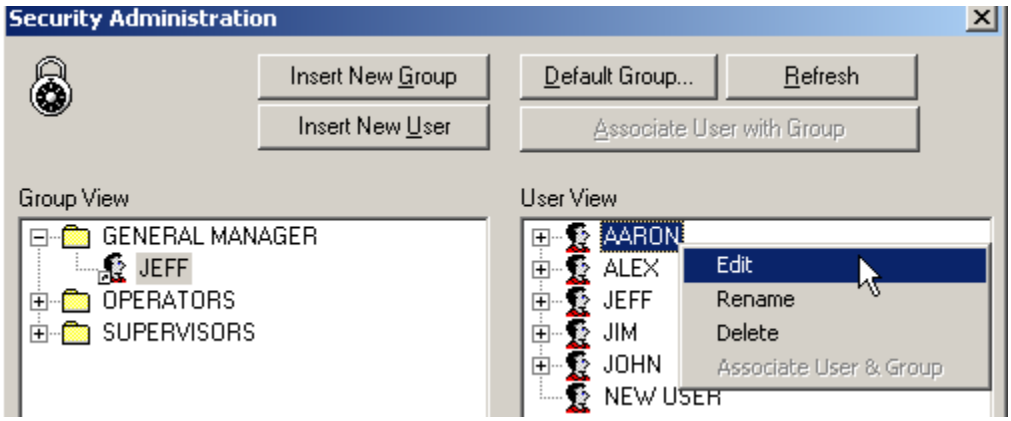


Figure 9.59. Editing User and Group Properties

This opens the **Properties** dialog box, shown in the figure below, which is used to configure a user or group. The **Properties** dialog box contains the following tabs:

- Properties
- Call-in Menus
- Points
- Time Sheet
- Account Policy

9.8.9 Configuring Properties for Users and Groups

The properties for users and groups vary slightly. The group fields are a subset of the user fields. The following fields are for users, as shown in **Figure 9.60.**

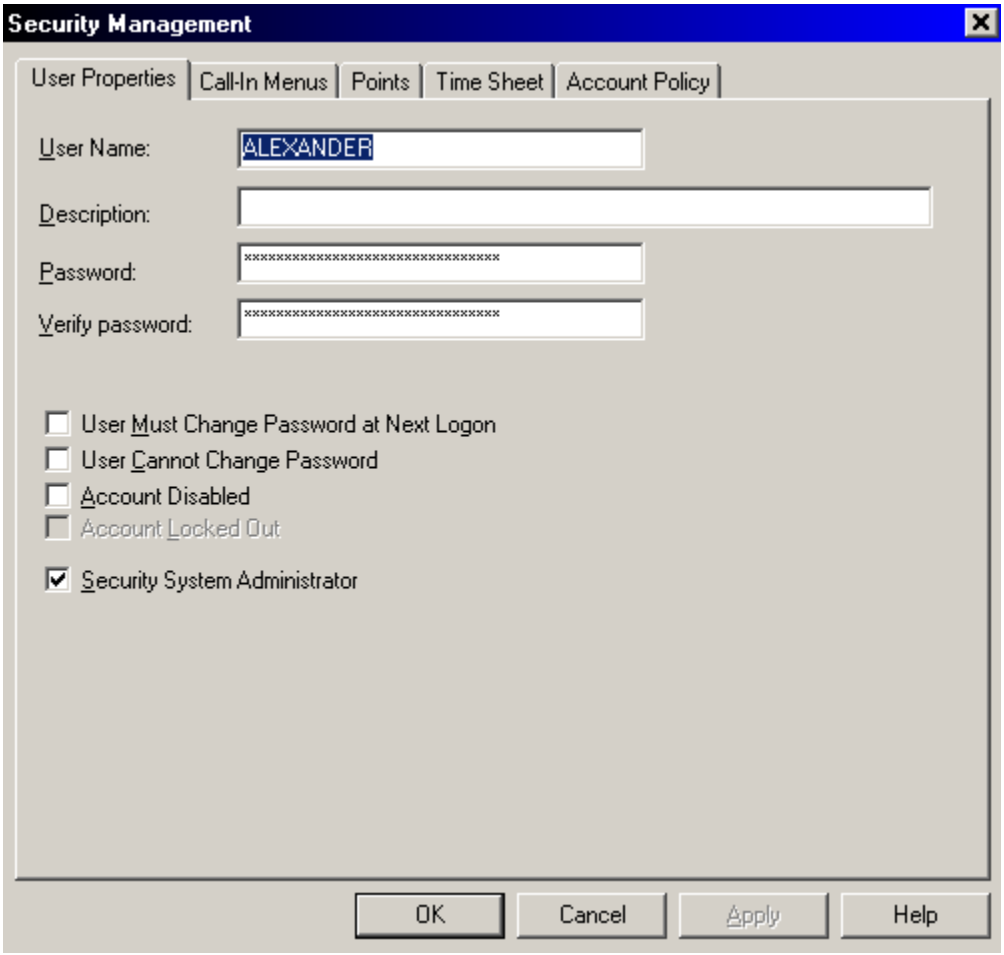


Figure 9.60. Configuring User Properties

Field	Description
User Name	Short name that the user types when logging on to the system.
Full Name	The user's full name for reference only (optional).
Description	Optional.

Field	Description
Password	The password the user must type to log in to the Security Server. This field is case-sensitive; no spaces are allowed.
Verify Password	If you change the **Password** field, you must type the exact same password into this field.
User Must Change Password at Next Logon	When checked, the user must change his or her password at the time of the next logon. This is often used when a new user created. The administrator enters a default password for the new user and checks this field to require a "real" password to be entered on first logon.
User Cannot Change Password	When checked, the user's password can only be changed from this dialog, and not from the Login Client.
Account Disabled	Checking this check box has the same effect as deleting the user without the permanence of an actual delete. The **Account Disabled** check box is checked by default, so you must uncheck this box in order to activate the user's account.
Account Locked Out	This field is normally unchecked and disabled. Should the account become locked out (see the account lockout description in the **Account Policy** tab), the field would be enabled and checked. From here, the administrator can uncheck the field to re-enable the user logon.
Security System Administrator	When checked, this user is allowed to log in as a Security System Administrator to configure all aspects of the security system.

The following fields are for groups, as shown in **Figure 9.61.**

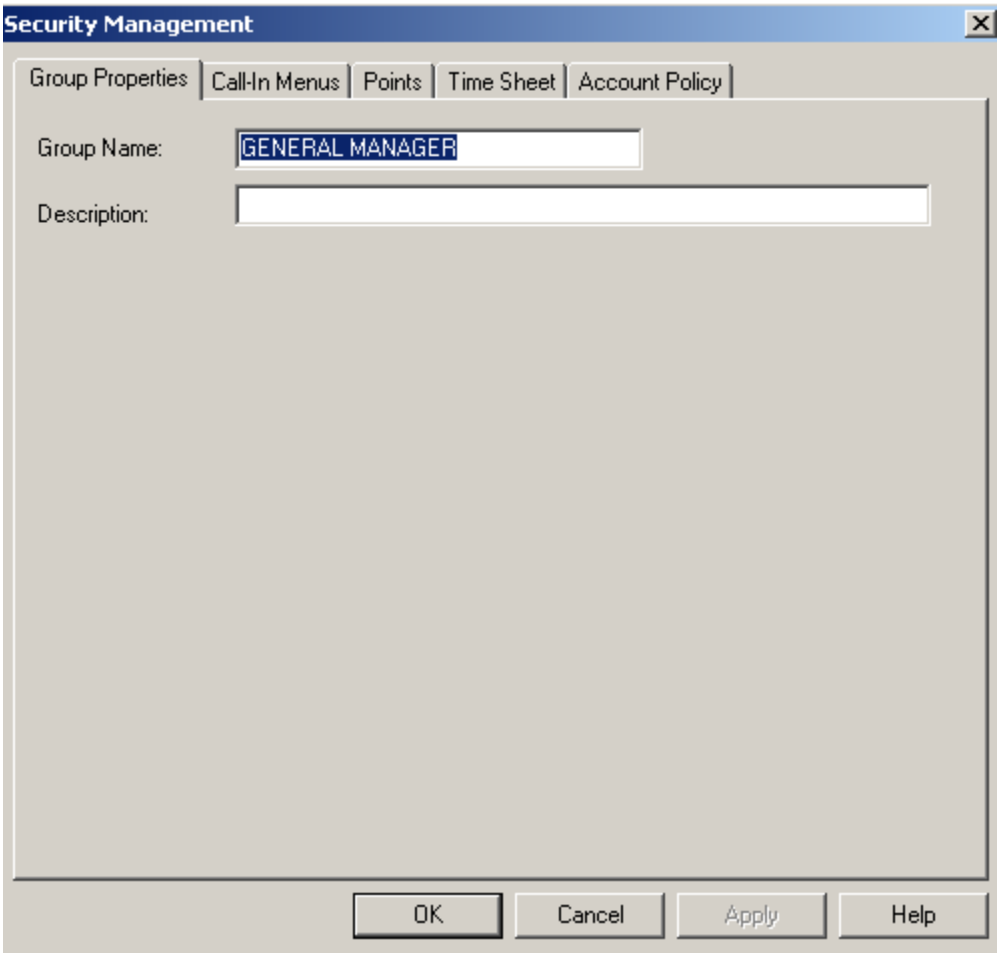


Figure 9.61. Configuring Group Properties

Field	Description
Group Name	Short name (no spaces) that uniquely identifies this group within the system.
Description	Optional.

Note: The **User Name** and **Password** can be used as key-in actions key-in menus.

9.8.10 Call-in Menus Security

The **Call-in Menus** tab of the user and group properties dialogs, shown in **Figure 9.62,** sets the user and group access restrictions for specific configured call-in menus. To allow or restrict access, the security administrator must include or exclude certain projects and pages by doing the following:

1. Click the **Browse** button under the **Include** or **Exclude** field.

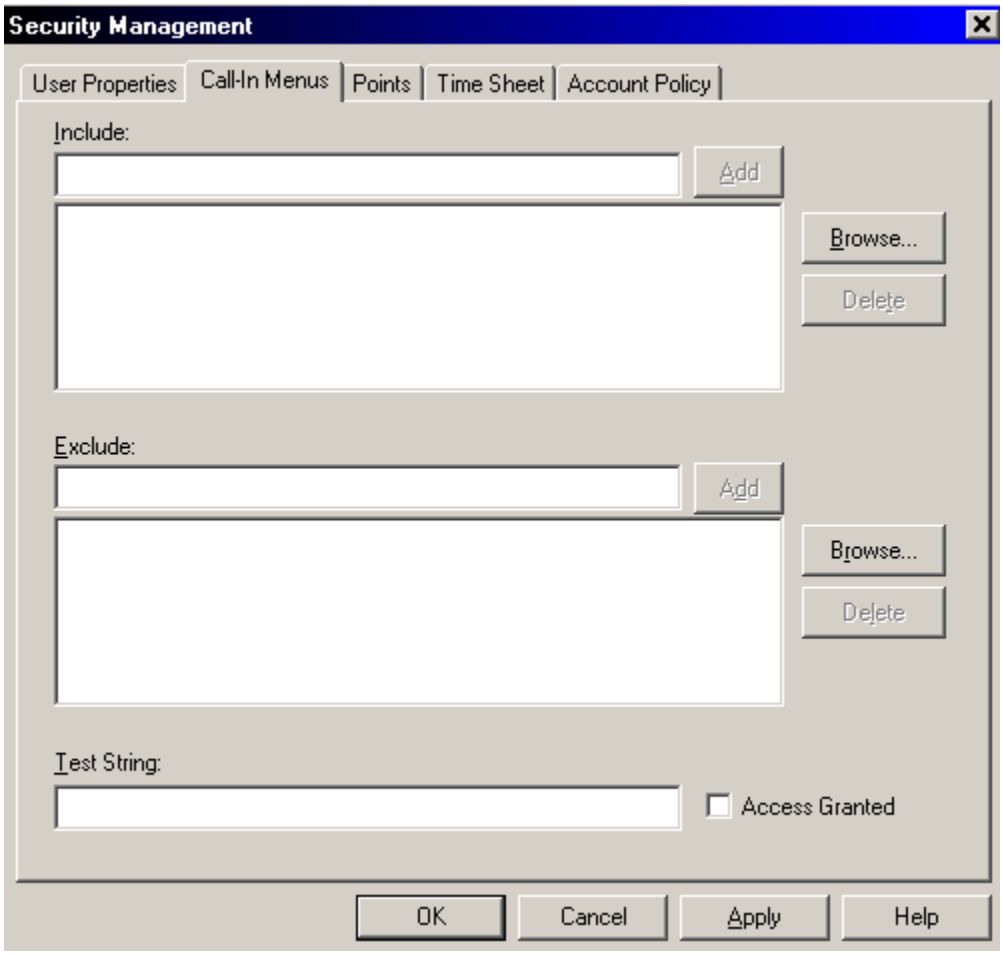


Figure 9.62. Setting User and Group Access Restrictions for Call-in Menus

2. This opens the **Call-in Menus Browser** dialog box, shown in **Figure 9.63,** which displays all available Call-in menus from the Configurator tree control.

Simply select the menus that you wish to include to allow the user or group access (or exclude to prevent user or group access). Click **OK.**

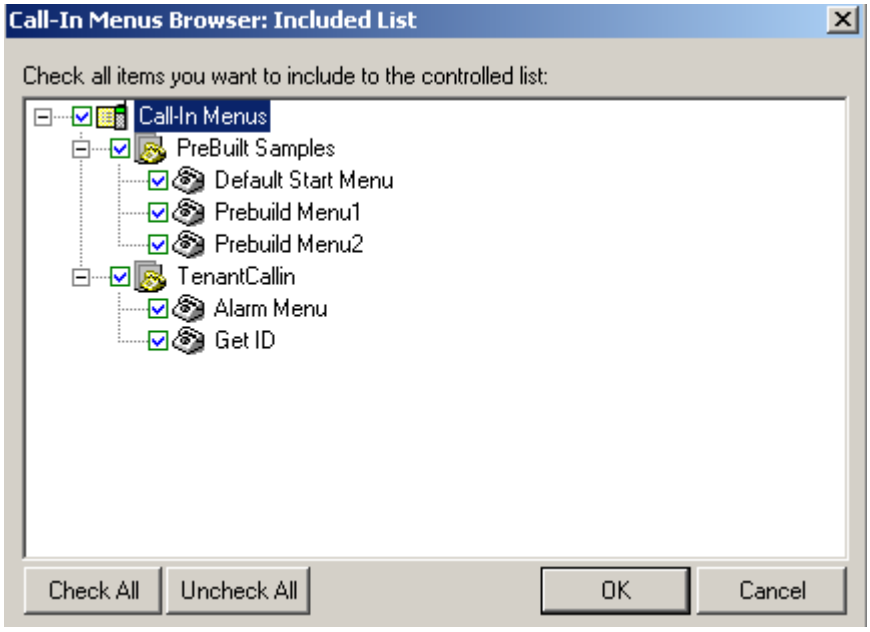


Figure 9.63. Selecting Call-in Menus To Include

3. The selected menus now appear under the **Include** and **Exclude** fields, as shown in **Figure 9.64.** To remove menus, highlight the item and click the **Delete** button. Click **Apply** to save changes to the user or group properties.

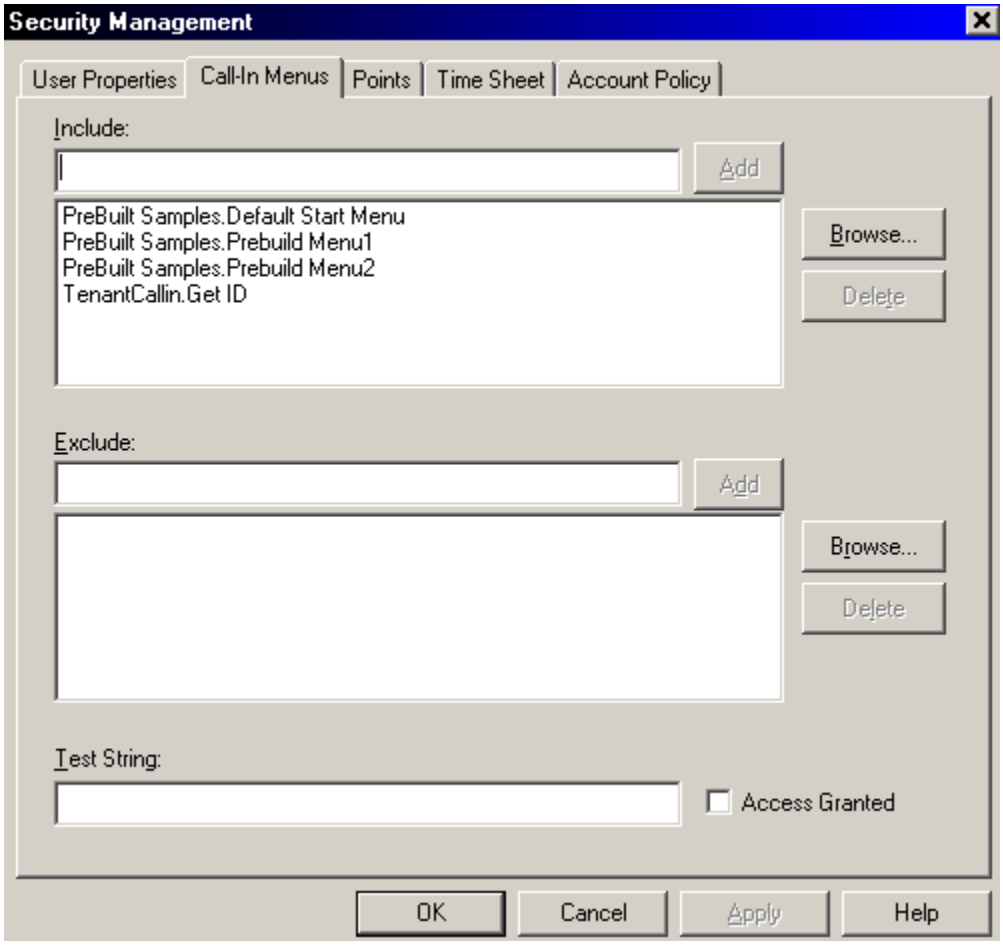


Figure 9.64. Included and Excluded Call-in Menus

9.8.11 Points

A GENESIS32 application that is configured to send outputs to points in OPC servers will disable them if denied by the Security Server. As with the file names, OPC point names with or without wildcards are placed in include or exclude lists for each user or group.

Before a GENESIS32 client outputs a process value to an OPC server, the unique string that identifies the OPC output point is sent to the Security Server to determine if the write should be allowed based on the currently logged-in user(s) and or the groups to which they belong. The **Points** tab of the **Properties** dialog

box, as shown in **Figure 9.65,** is used to configure which OPC output points are allowed to be written to by users and groups.

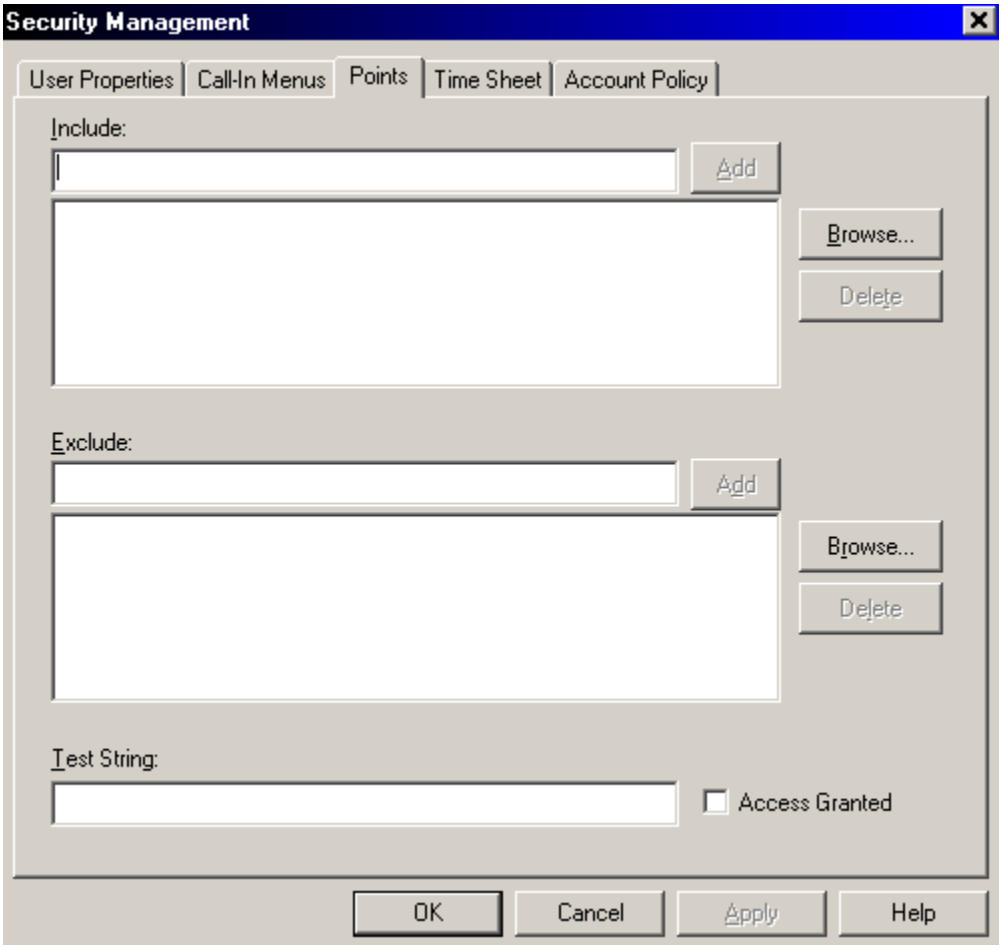


Figure 9.65. Points Configuration

The **Points** property page is divided into two sections, **Include** and **Exclude.** Each section contains an edit field and a list box. You can select strings by using the **Browse** buttons. Pressing the **Enter** key with the cursor in the edit field or clicking the **Add** button adds the edit field text to the list box. When an entry in the list box is selected, pressing the **Delete** key or clicking the **Delete** button deletes the selected entry.

If you type a string in the **Test String** field, the **Access Granted** check box indicates if access would be given to the user if the access to the "test string"

was requested. The test is made using only the include and exclude lists that are visible.

During runtime, when a GENESIS32 client sends an OPC point string to the Security Server for access testing (granted or denied), the include and exclude lists are string compared as follows for each active user and group until access is granted:

1. Compare the OPC point string with each string in the include list until a match is found. If no match is found, access is denied.

2. If a match is found in the include list, compare the OPC point string with every string in the exclude list. If no match is found in the exclude list, access to the point is granted, and no further testing of active groups and users is performed.

Note: The exclude list entries can only remove rights granted in their corresponding include list. For example if user *Aaron* belongs to the group *Operators,* and *Operators* grants access to OPC point *xyz,* adding point *xyz* to *Aaron's* exclude list has no effect.

Wildcards and Pattern Matching

The entries in the include and exclude lists allow pattern matching similar to the Visual Basic LIKE operator. Built-in pattern matching provides a versatile tool for string comparisons. The pattern-matching features allow you to use wildcard characters, character lists, or character ranges, in any combination, to match strings.

Text results in string comparisons are based on a case-insensitive textual sort order determined by your system's locale, for example:

(A=a) < (À=à) < (B=b) < (E=e) < (Ê=ê) < (Z=z) < (Ø=ø)

The following table shows the characters allowed in patterns and what they match:

Character(s) in pattern	Matches in string
?	Any single character.
*	Zero or more characters.
#	Any single digit (0 - 9).
[*charlist*]	Any single character in *charlist.*

Character(s) in pattern	Matches in string
[!*charlist*]	Any single character not in *charlist.*

A group of one or more characters (*charlist*) enclosed in brackets ([ ]) can be used to match any single character in string and can include almost any character code, including digits.

Note: The special characters left bracket ([), question mark (?), pound sign (#), and asterisk (*) can be used to match themselves directly only by enclosing them in brackets. The right bracket (]) cannot be used within a group to match itself, but it can be used outside a group as an individual character.

In addition to a simple list of characters enclosed in brackets, *charlist* can specify a range of characters by using a hyphen (-) to separate the upper and lower bounds of the range. For example, [A-Z] in pattern results in a match if the corresponding character position in string contains any of the uppercase letters in the range A-Z. Multiple ranges are included within the brackets without any delimiters.

The meaning of a specified range depends on the character ordering valid at run time (as determined by the locale setting of the system the code is running on). The range [A - E] matches A, a, À, à, B, b, E, e. Note that it does not match Ê or ê because accented characters fall after unaccented characters in the sort order.

Other important rules for pattern matching include the following:

- An exclamation point (!) at the beginning of *charlist* means that a match is made if any character except the ones in *charlist* is found in string. When used outside brackets, the exclamation point matches itself.
- The hyphen (-) can appear either at the beginning (after an exclamation point if one is used) or at the end of *charlist* to match itself. In any other location, the hyphen is used to identify a range of characters.
- When a range of characters is specified, they must appear in ascending sort order (from lowest to highest). [A-Z] is a valid pattern, but [Z-A] is not.
- The character sequence [] is ignored; it is considered a zero-length string.

9.8.12 Time Sheet

The **Time Sheet** property page allows time-of-day restrictions on an hourly basis for users and groups. For hours that are selected (highlighted) in the lists, access is allowed. For hours that are not selected, access is denied. **Figure 6.66** shows a configuration that allows access from 8 AM to 4 PM each day.

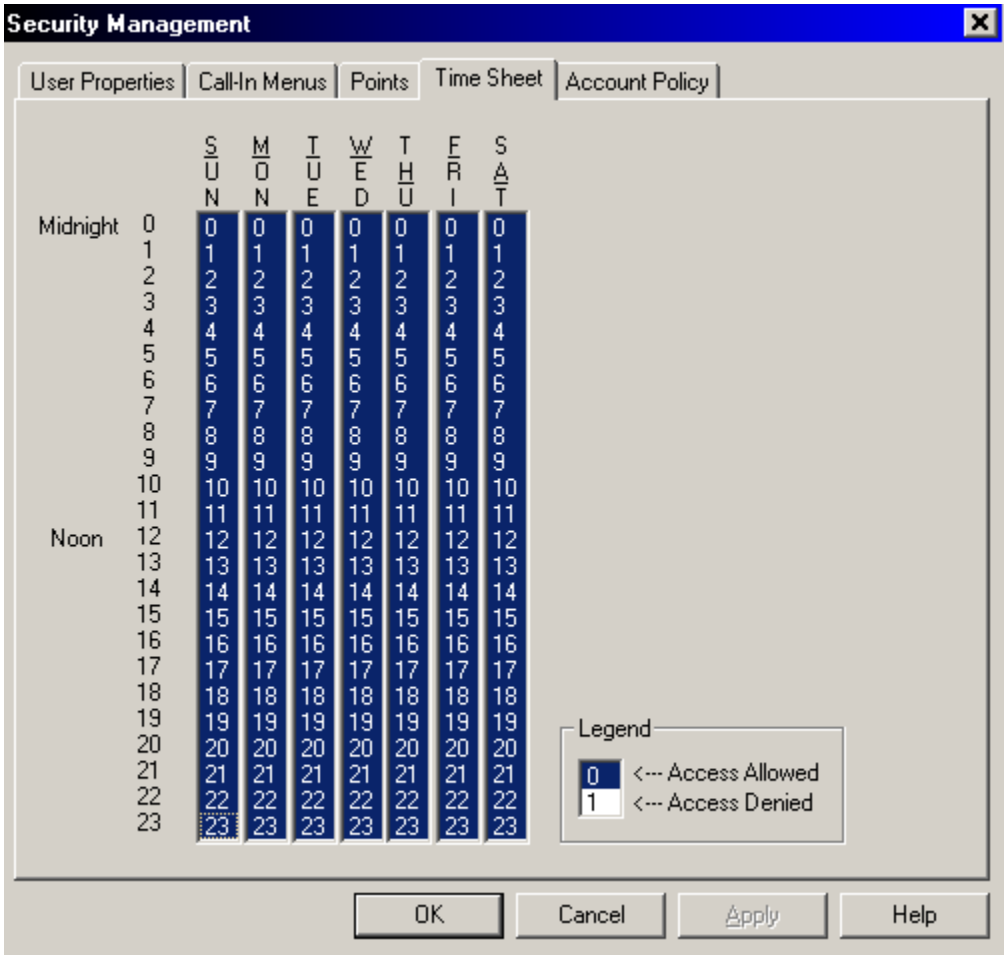


Figure 9.66. Time Sheet

9.8.13 Account Policy

The **Account Policy** property page is used to show how passwords must be used, and whether user accounts are automatically locked out after a series of incorrect login attempts. The base policy (i.e. the most restrictive) for the system is set in the default group (see the "Editing the Default Group" section). For users and groups other than the default group, each policy can selectively be enabled and set for that user or group.

During runtime, if more than one policy setting is in effect, the least restrictive is used. For this reason, the policy set in the default group must be the most

restrictive. Individual users and groups can be made less restrictive than the default, but never more restrictive.

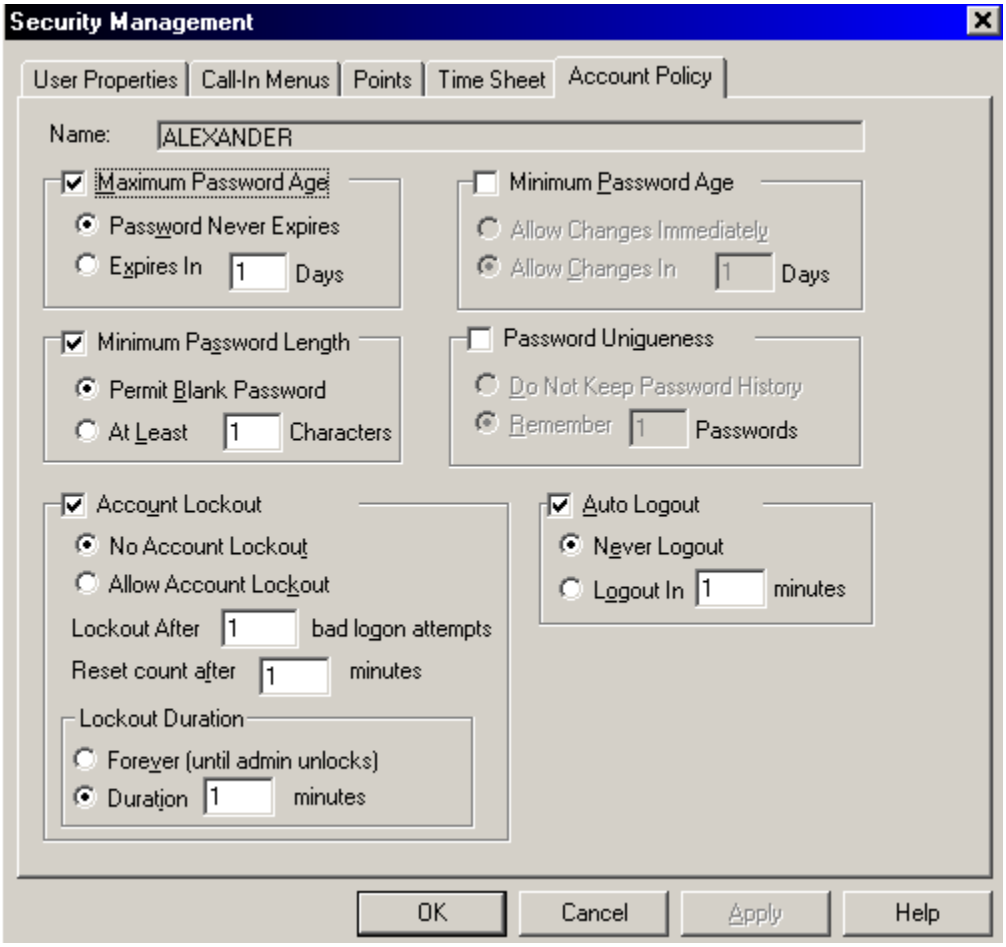


Figure 9.67. Account Policy Configuration

Field	Description
Maximum Password Age	Sets a time limit for a password, after which the user must change to a new password. If this is selected, the **Expires in** value can range from 1 to 999 days. To make the password permanent, select **Password Never Expires.**

Field	Description
Minimum Password Age	Sets the period of time a password must be in effect before the user can change it. If this is selected, the value can range from 1 to 999 days. To allow the user to change the password at any time, select **Allow Changes Immediately.** **Note:** Do not allow immediate changes if a **Password Uniqueness** value is entered.
Minimum Password Length	In the **At Least** field, this specifies the fewest number of characters a password can contain. If this is selected, the value can range from 1 to 14 characters. If **Permit Blank Password** is selected, there is no minimum password length.
Password Uniqueness	The number of new passwords that must be used by a user account before an old password can be reused. If **Remember Passwords** is selected, the value can range from 1 to 24 passwords. If **Do Not Keep Password History** is selected, there is no password uniqueness. **Note:** For uniqueness to be effective, an age value should be specified for **Minimum Password Age** (**Allow Immediate Changes** should not be selected).
No Account Lockout	When selected, user accounts are never locked out, no matter how many incorrect login attempts are made on a user account.

Field	Description
Account Lockout	If selected, all user accounts are subjected to lockout. If too many incorrect login attempts are made on a user account, no more than a specified amount of time between these, the account is locked out. If you select **Account Lockout,** you should also do the following: **1.** In **Lockout After,** type the number of incorrect login attempts that will cause the account to be locked. The range is 1 to 999. **2.** In **Reset Count After,** type the number of minutes that must pass between any two login attempts to ensure that a lockout will not occur. The range is 1 to 999. **3.** Click **Duration** and type the number of minutes that locked accounts will remain locked before automatically becoming unlocked. The range is 1 to 999. Or, select **Forever** in **Lockout Duration** to keep locked accounts locked out until an administrator unlocks them.
Password Complexity	This option mimics the NT test for complexity. The password must: • Not contain all or part of the user's account name. • Be at least six characters in length. • Contain characters from three of the following four categories: **1.** English upper case characters (A-Z) **2.** English lower case characters (a-z) **3.** Base 10 digits (0-9) **4.** Non-alphanumeric (For example, !,$#,%)
Auto Logout	If selected, sets the number of minutes from the time of user login, before the system automatically logs the user off. The range is 1 to 999 minutes.

Field	Description
Logout Password	To log out of the Security Server, the user specified in the **User Name** field of the **Security Login** dialog of the Security Login application must click the **Log Out** button, as shown in the figure below. When a **Logout Password** is required in the user's account policies, the user must type in his or her password when logging out.

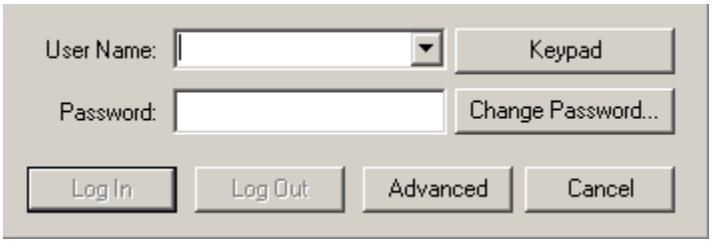


Figure 9.68. Security Login Dialog Box in Security Login Application

9.8.14 Editing Default Group Settings

The system **default group** (available in advanced security configuration mode only) is used to assign access rights that are granted regardless of whether any users are logged in. When the Security Server is first installed, the default group has full access to everything. The first step in configuring the security system is to remove most if not all access rights assigned to the default group.

Note: You must configure the default group to have minimum access rights, because individual users and groups can only add access rights but can never remove rights already granted in the default group**.**

1. To edit the default group, click the **Default Group** button in the Security Administration console, as shown in **Figure 9.69.**

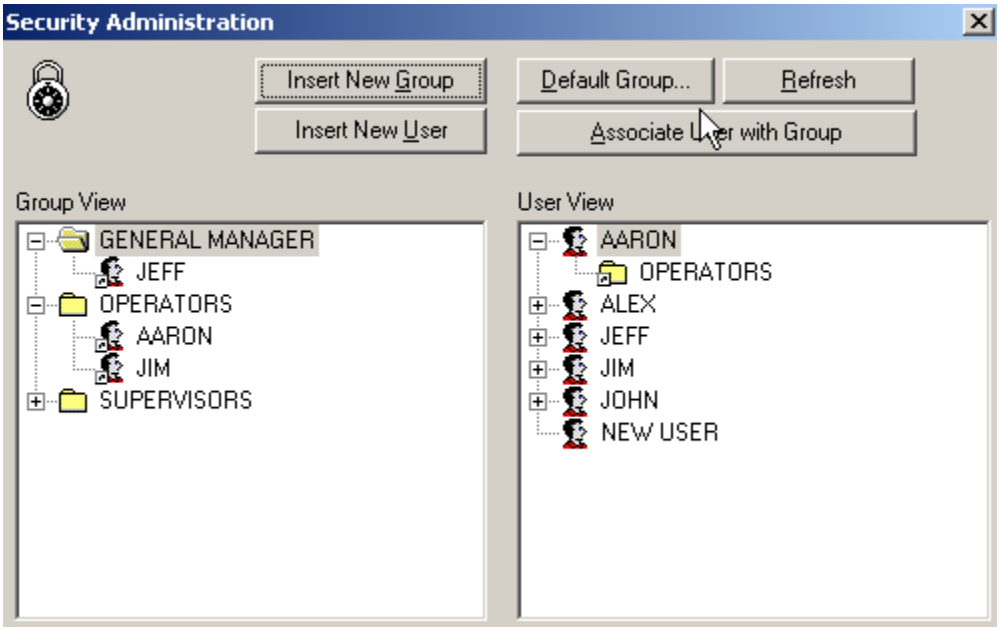


Figure 9.69. Editing the Default Group

2. This opens the **Properties** dialog box for the default group, as shown in the figure below. The same property pages used to edit ordinary groups are also used for the default group, with the following differences:

   - There is no **Time Sheet** property page. Default access is valid for all times.
   - **Account Policy** must be set in the default group, and there are two additional fields in this property page: **Simultaneous Logins** and **Allow Auto NT Login.** Checking the **Simultaneous Logins** box allows more than one user to be logged in to a single station at the same time. The effective access rights on that station become the sum of all rights of all logged in users.

Note: See **Editing Users and Groups** for details about configuring group properties. See the **Account Policy** section above for details about user and group account restrictions.

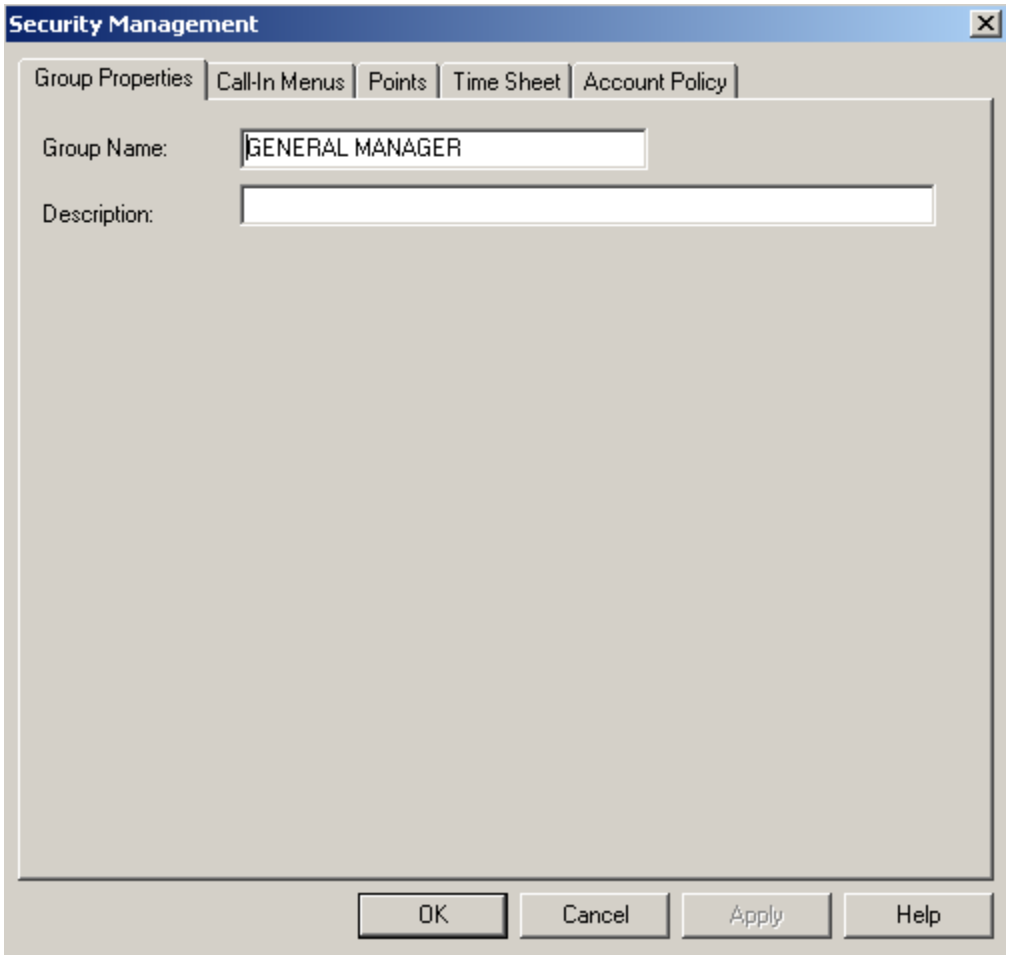


Figure 9.70. Default Group Properties

Appendix A: Pager Configuration

A.1 Overview of Pager Services Configuration

The Multimedia Configurator offers a Pager Agent that connects to a wide variety of pager services and supports the most popular paging protocols:

- Tele Alphanumeric Protocol (TAP)
- Simple Messaging Service (SMS)

Other variations are supported as well, such as Paging Entry Terminal (PET), which is basically the same as TAP.

The method through which a page is sent depends on the type of pager being used. For example, in the United States the predominant pager type uses TAP, and uses a standard modem to communicate. TAP pagers can also use Integrated Services Digital Network (ISDN) carriers. The Multimedia Configurator user interface calls out the use of “Modem/ISDN Service” (rather than specifying actual protocols used), as this is more straightforward for users to understand.

Note: It is the paging service and the Multimedia software that communicate via TAP; it is not something special in the modem itself. Therefore, most ‘Hayes compatible” off-the-shelf modems should work for sending TAP messages.

SMS pagers offer more sophisticated interaction. For example, they permit two-way paging. In the case of Multimedia, this allows users to send an “Acknowledge” back to the alarm system directly from the pager. SMS paging messages are not sent over a modem, but rather use the Global System for Mobile Communications (GSM) network. Again, rather than calling out the low-level protocols used, the Multimedia Configurator interface refers to the method of communication, and calls this “GSM/PCS Service.”

A.1.1 Installation

During the installation of AlarmWorX32 Multimedia, after checking the box for including the Pager Agent, you can select which paging services to include with

the installation. There are two separate lists: one for the Modem/ISDN (TAP) pagers, as shown in **Figure A.1,** and one for GSM/PCS (SMS) pagers. Note that you can select more than one. Simply use **Shift-Click** to select a sequential set, or **Ctrl-Click** to select items that are not next to each other.

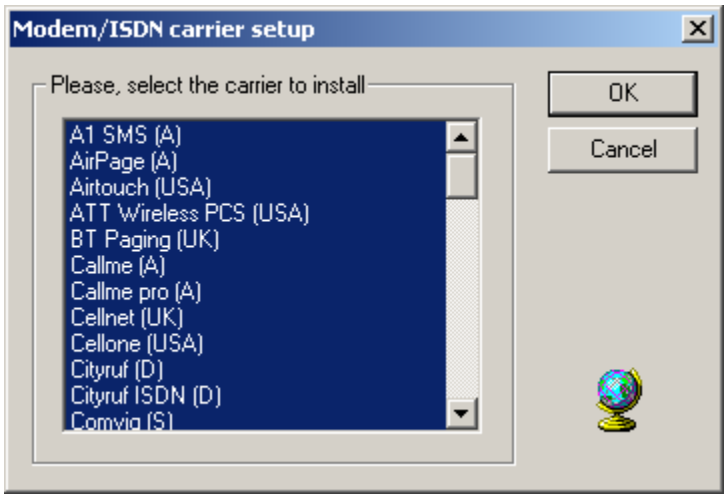


Figure A.1. Modem / ISDN Services Setup

A.1.2 Modem Configuration

To configure your modem, use the following procedure:

1. Plug in the modem hardware.
2. From the Windows Control Panel, select **Phone and Modem Options.**
3. Create or edit the dialing rules.
4. Add the appropriate drivers for the modem hardware.
5. Test the modem using a windows modem utility, such as HyperTerminal.

Note: The actual dialog boxes vary between Windows operating systems.

A.2 Creating and Modifying Pager Services

If you found your service in the list and have already installed it, you need not read this section. Instead, move on to the “Pager Configuration Settings” section below.

If you did not find your service in the list, you can set up a new TAP or SMS pager service. You can also edit the parameters for an existing pager service (e.g., in case the access phone number for your service changes).

1. Launch the Multimedia Configurator.
2. Select **Alarm Configurations - Multimedia Agents - Pager/SMS/GSM/TAP** from the tree control on the left-hand side, as shown in **Figure A.2.**
3. Launch the services configuration by clicking the **General Settings** button in the Pager Agent configuration, shown in Figure A.2.
4. The **TAP/SMS** diagnostics will be displayed, as shown in **Figure A.3,** giving you the option to view and log ISDN/GSM diagnostic messages during pager testing.
5. Click the **Modem Configuration** button to launch the Message Master configuration. This opens the **DERDACK Message Master Configuration** dialog box, as shown in **Figure A.4.** Here you have two options: **Message Master GSM/PCS** and **Message Master Modem/ISDN.** To configure TAP services, select the **Message Master Modem/ISDN** option, and then click the **Config...** button. To configure SMS services, select the **Message Master GSM/PCS** option, and then click the **Config...** button (or double-click on the item in the list).
   Note: Click the **Help** button at any time to view the Message Master help documentation.

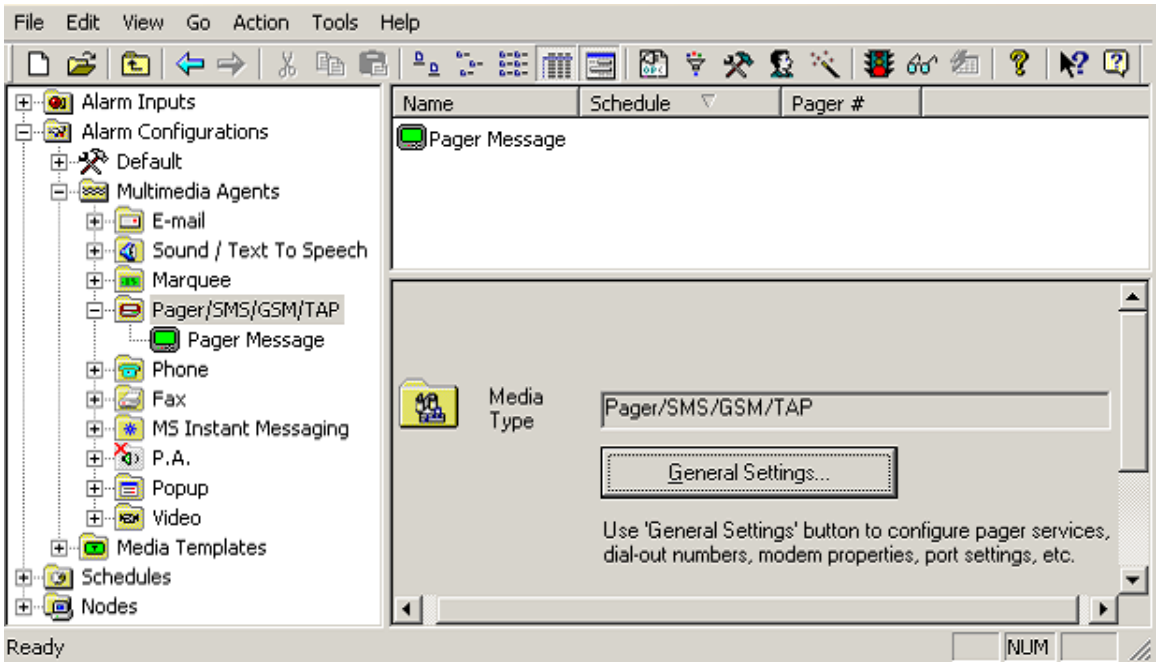


Figure A.2. Setting Up Pager Services

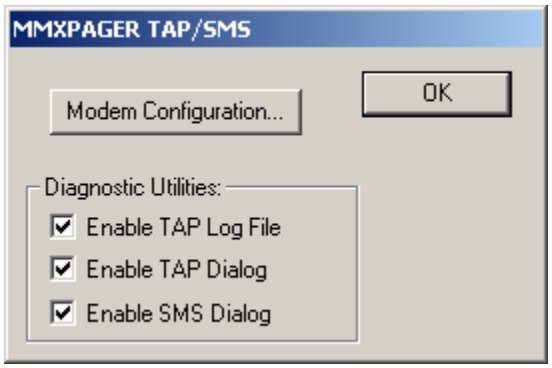


Figure A.3. TAP/SMS Diagnostic Utilities

6. Click on the **Defined Services** tab (labeled **Services** for GSM) and look to see if your service is listed. If it does appear in the list, you can select it. Click the **Properties** button to modify its parameters.

Note: The TAP and SMS dialog option will hold the MMXPager open until the dialogs are closed.

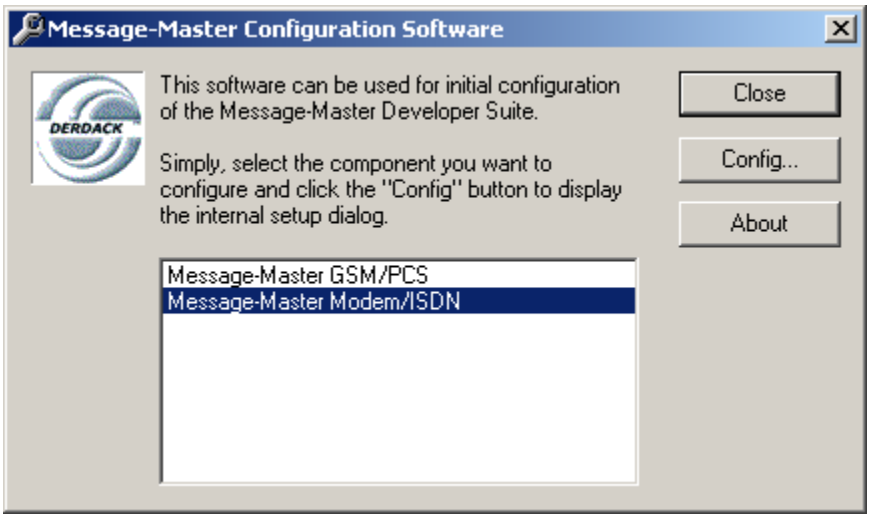


Figure A.4. DERDACK Message Master Configuration Dialog Box

A.3 TAP Configuration

This section covers the details of creating and modifying a TAP pager service. For details on SMS paging, see **Section A.4.** To configure TAP services, select the **Message Master Modem/ISDN** option (see Figure A.4), and then click the **Config...** button. The **TAP Configuration** dialog box will appear, as shown in **Figure A.5.**

1. On the **Dial Parameter and Modem Device** tab, shown in Figure A.5, configure the following parameters.

   - **Location:** This is the location set when configuring the dialing rules (mentioned in the "Modem Configuration" section above.)
   - **Device:** Select the device for the modem hardware.

     Note: We have found that many paging services (which must work with old technology modems for backwards compatibility) generally do not work with the out-of-the-box configurations of modern modems. Most

often, the only change needed is to turn off the modem's **Error Control** features.

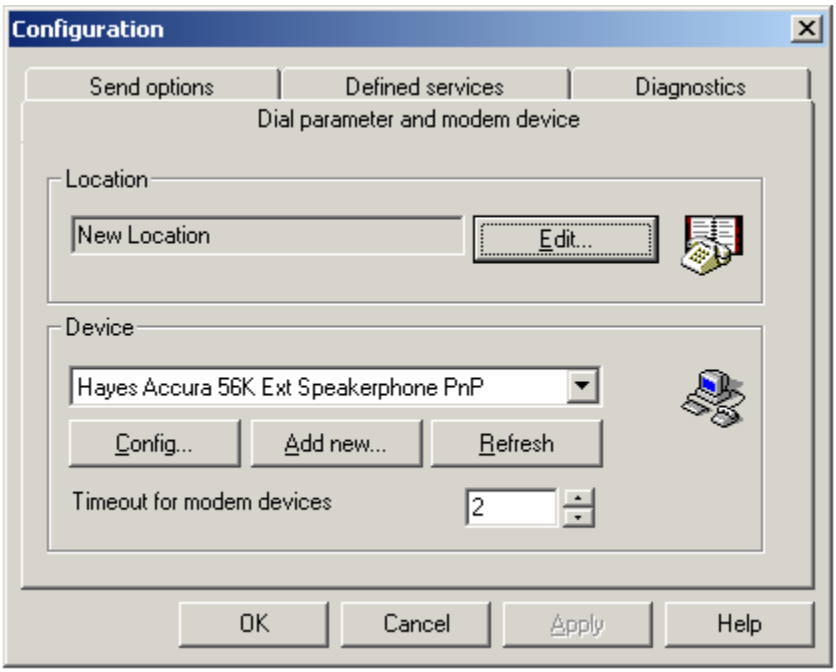


Figure A.5. TAP Configuration: Dial Parameter and Modem Device Tab

This can be done with a Windows setting from the Control Panel. Conversely, some very old modems with max. Baud rates less than 9600 sometimes do not work well with the new Windows interfaces (TAPI) used by the MMX software. So make sure your modem is TAPI compliant. Test to see if it works with HyperTerminal.

- **Timeout for modem devices:** Select the re-initialization timeout for the modem (in seconds).

Note: The **Device Config..** button actives the Modem configuration used for the AlarmWorX32 Multimedia Pager Agent.

2. On the **Send Options** tab, shown in **Figure A.6,** configure the following parameters:

   - **Attempts for resending messages in error cases:** Select the number of times to retry in case of error.

- Enable **Check messages for invalid characters.**
- Check **Replace invalid characters automatically** if desired.

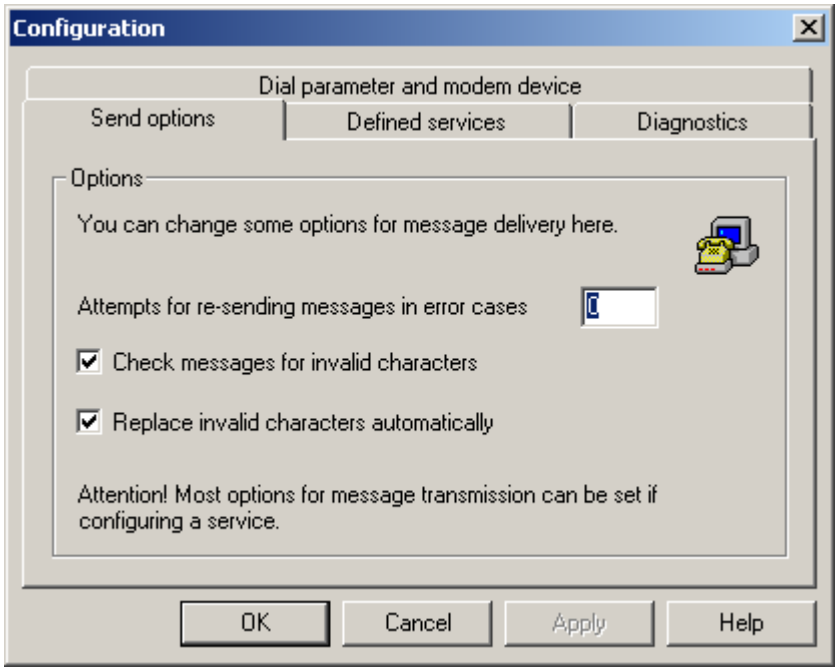


Figure A.6. TAP Configuration: Send Options Tab

3. On the **Defined Services** tab, shown in **Figure A.7,** check for your pager service provider. Verify that the service modem phone number is correct by selecting the service provider and clicking the **Properties** button. This opens the **Services** dialog box. The service provider number is located on the **Additional** tab in the **Number for dial-up terminal** field.

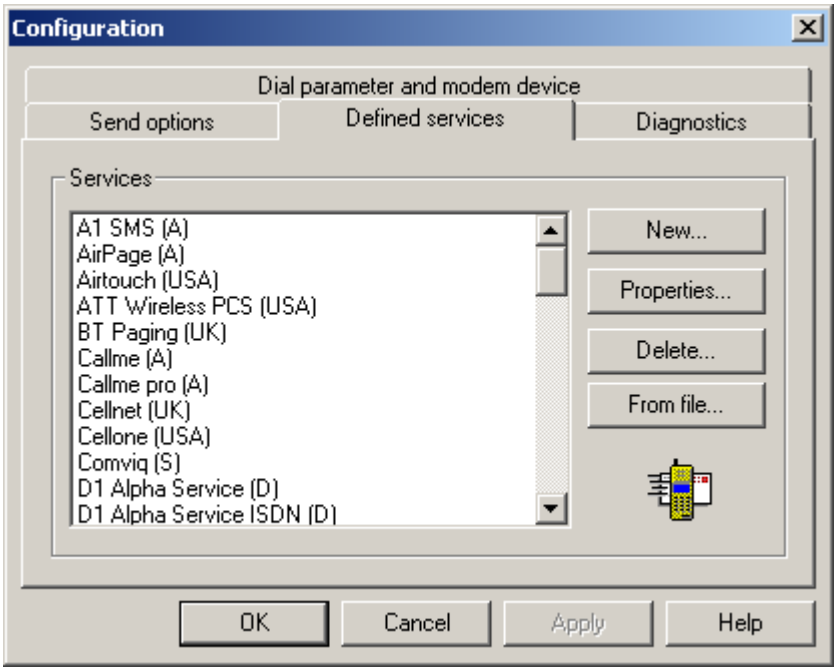


Figure A.7. TAP Configuration: Defined Services Tab

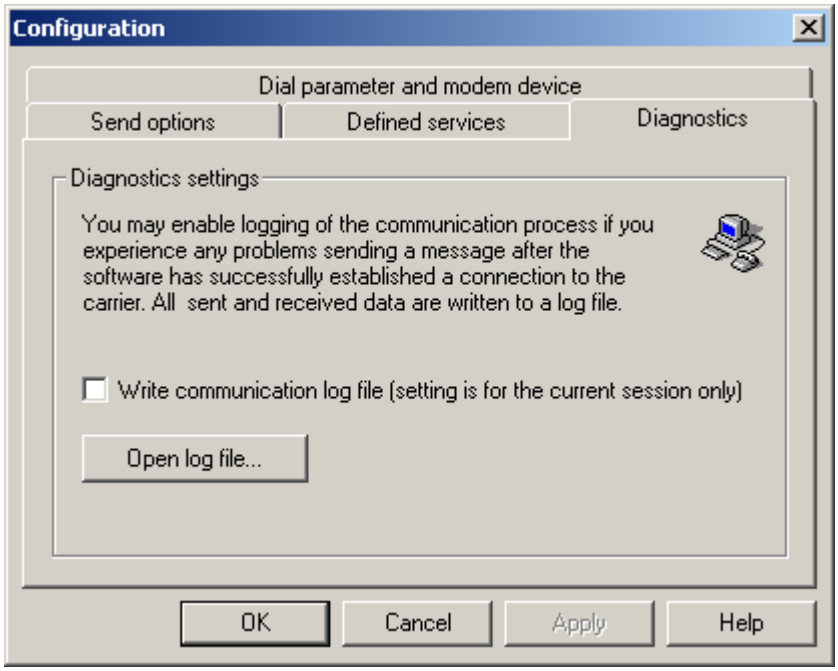


Figure A.8. TAP Configuration: Diagnostics Tab

4. On the **Diagnostics** tab, shown in **Figure A.8,** diagnostic support is available through the TAP dialog. The **Write communication log file** check box should not be used.

A.3.1 Setting up a New TAP Service

The standard Multimedia pager installation includes many of preconfigured TAP services. If your particular service is not listed, you can add it by following a few simple steps.

1. Launch the TAP configuration (as described above), and select the **Defined Services** tab, shown in Figure A.7.
2. If your service is not listed, click the **New** button.
3. On the **General** tab, shown in **Figure A.9,** configure the following parameters:
   - Enter a name for the new service.
   - Select **Message transmission based on data connections.**

- Set the **Protocol type** field to TAP.
- Pick a character set.

Click the **Next** button to continue.

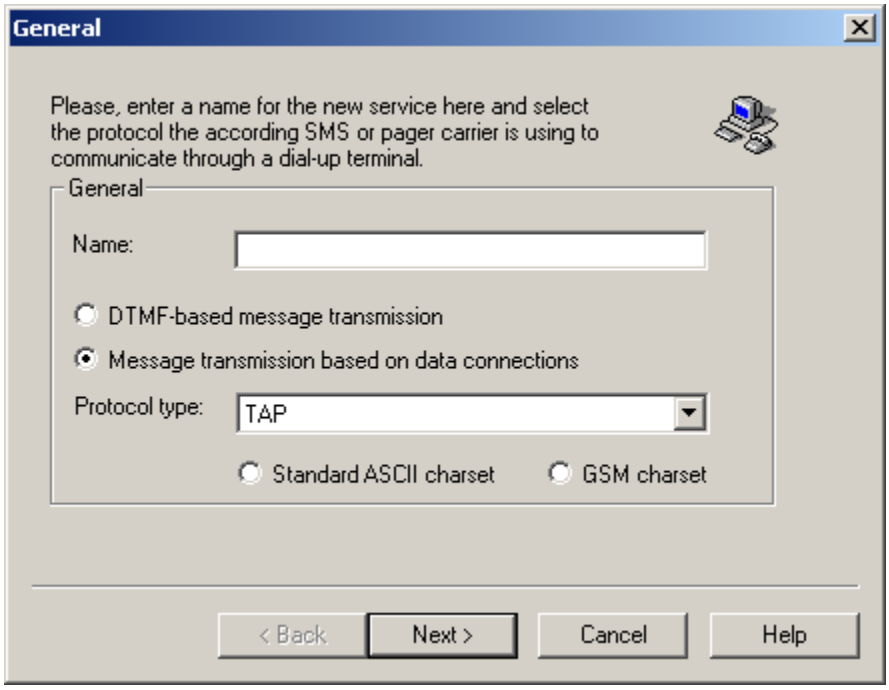


Figure A.9. Configuring a New TAP Service: General Tab

4. On the **Additional** tab, shown in **Figure A.10,** configure the following parameters:

   - **Number for dial-up terminal:** Enter the service modem number. This is the phone number your modem will call to connect to the pager service provider. Your service provider will need to inform you of this number,

which must be in TAP format. For the United States, the format is +1 (800) 2345678. The international format is +44 (215) 2345678.

- **Maximum message length:** Choose the maximum number of characters to display per message.
- **Password:** Not necessary
- **Calling zone:** Not necessary
- **Number of messages the carrier accepts at once:** 1

Click the **Next** button to continue.

Note: Find out (or simply test) whether your paging service can accept more than one message at a time. Quite often services do. Entering a number greater than one may result in fewer modem dial-outs when multiple paging

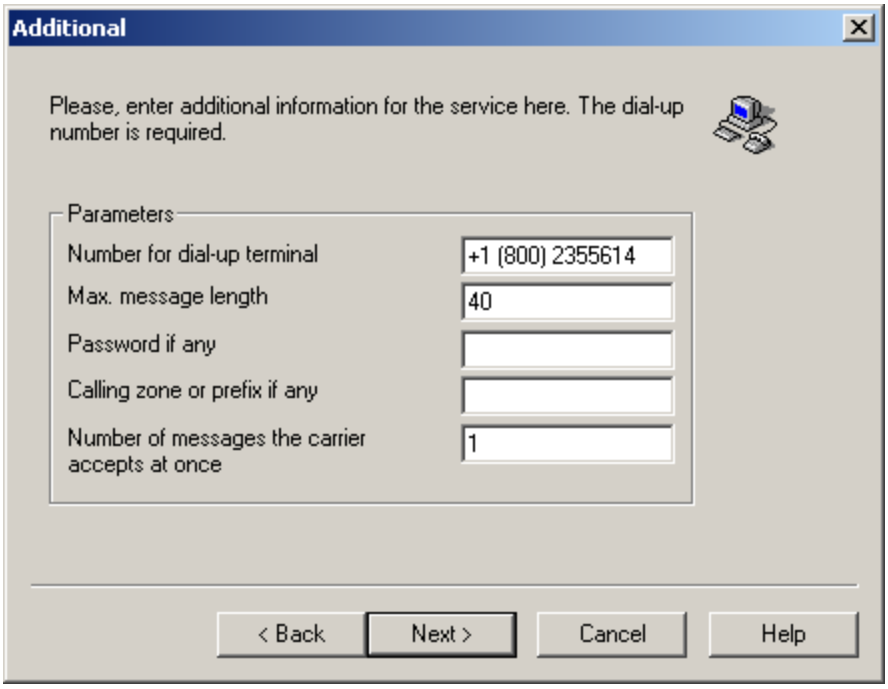


Figure A.10. Configuring a New TAP Service: Additional Tab

messages are queued up. In other words, if five messages have to be sent out over the modem, and this parameter is set to 1, it must dial out five separate times, once for each pager message. However, if this parameter is set to 5 and the paging service permits this, then only one dial-out session takes place, and all five messages are efficiently sent in that one phone call.

5. On the **Type** tab, shown in **Figure A.11,** configure the following parameters:
   - Select the **Type** appropriate to the pager. Generally this is **Alphanumeric.**
   - **UCP operation type:** This is not applicable.
   - Check the **Breakup larger messages automatically** check box.
   - **Maximum word wrap for breakup:** Generally, choose a number that evenly divides into the number chosen for the maximum message length (in the **Additional** tab shown in Figure A.10).

   Click the **Next** button to continue.

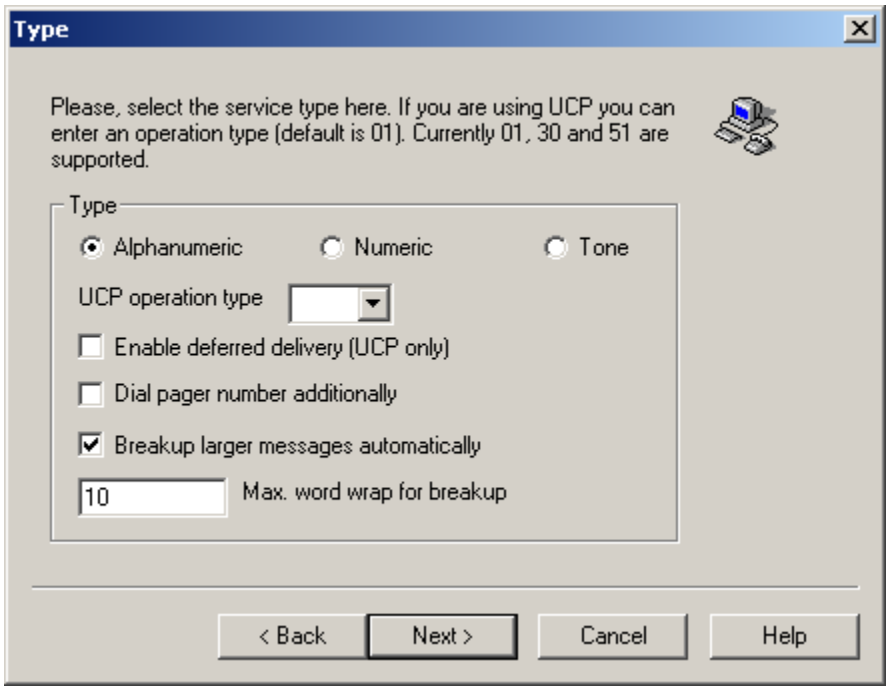


Figure A.11. Configuring a New TAP Service: Type Tab



Figure A.12. Configuring a New TAP Service: Country Code Tab

6. In the **Country Code** tab, shown in **Figure A.12,** enter a country code if applicable. Click the **Next** button to continue.

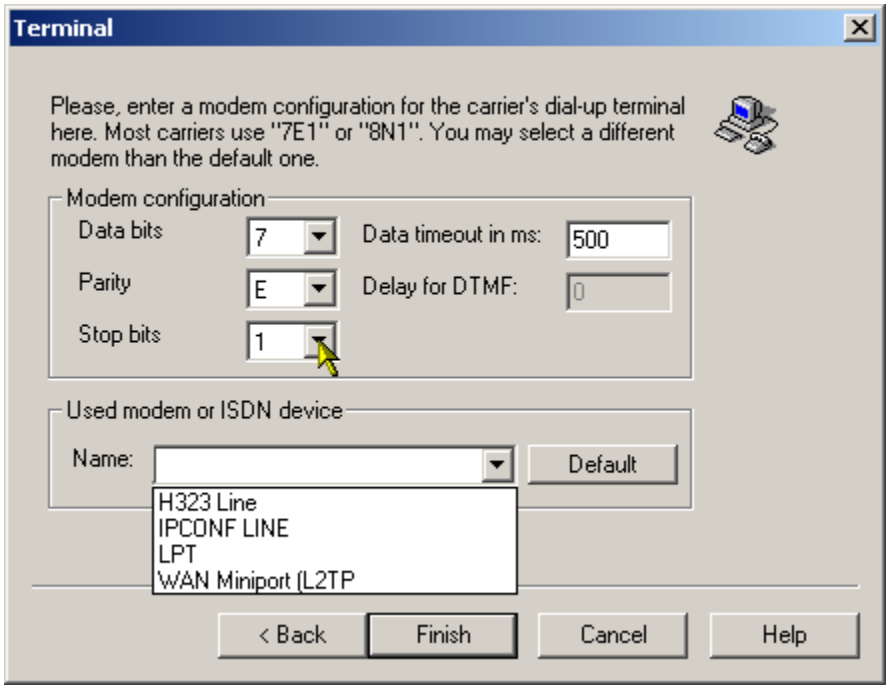


Figure A.13. Configuring a New TAP Service: Terminal Tab

7. On the **Terminal** tab, shown in **Figure A.13,** select the modem driver from the drop-down list under the **Used modem or ISDN device** field.
8. Click the **Finish** button to complete configuration of the new TAP service. Your new service is now available in the **Defined Services** list.

Note: While it is a good idea to configure this dialog, modem configuration is actually done by using the **Configure** button on the **Device** tab (see Figure A.5).

A.4 SMS Configuration

This section covers the details of creating and/or modifying an SMS pager service. If you are using TAP, then you can skip this section.

To configure SMS services, select the **Message Master GSM/PCS** option (see Figure A.4), and then click the **Config...** button. The **SMS Configuration** dialog box will appear, as shown in **Figure A.14.** On the **Services** tab, shown in Figure

A.14, check for your pager service provider. Verify that the service modem phone number is correct by selecting the service provider and clicking the **Properties** button. This opens the **Service Properties** dialog box, shown in **Figure A.15.** For information about service properties, please see the "Setting up a New SMS Service" section below.

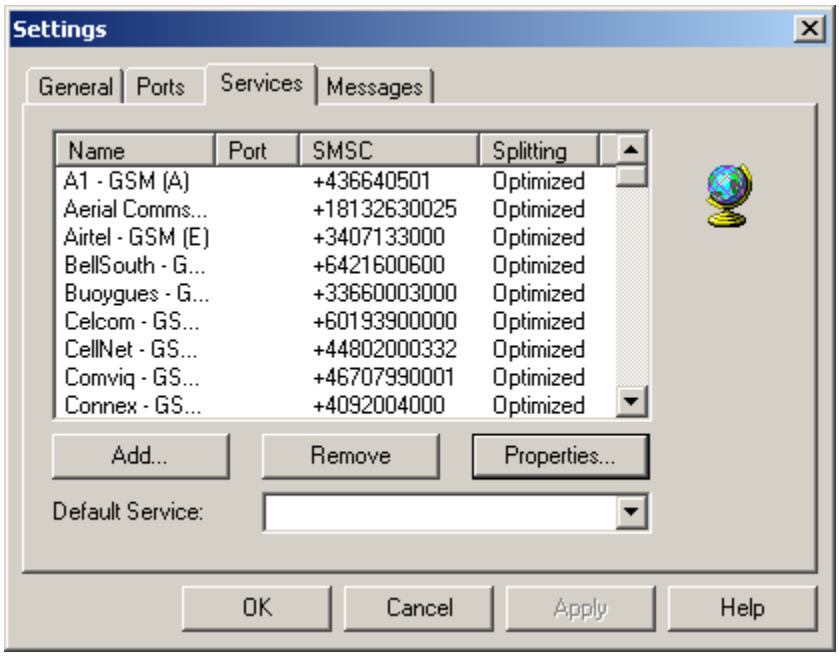


Figure A.14. SMS Configuration: Services Tab

Note: If a message window appears stating: "There is no port specified", then you must first add and configure a port to use for SMS paging via the **Ports** tab. You should have your SMS equipment connected to your appropriate COM port before completing the port configuration.

A.4.1 Setting up a New SMS Service

If your SMS service is not listed in the **Services** tab:

1. Click the **Add** button, as shown in Figure A.14. This opens the **Service Properties** dialog box, shown in Figure A.15.
2. On the **General** tab, shown in Figure A.15, configure the following parameters:
   - **Name:** Enter the name of the new service to be shown in the list of GSM/PCS services.

- **Port:** Select the port the on which the GSM hardware is located.
  Note: If no port is configured, go to the **Ports** tab on the SMS Configuration **Settings** dialog box (see Figure A.14) and click the **Add** button to set up a port for GSM use.
- **SMSC:** Enter the service modem number. Include a "+" before the first number.
- **Default Country Code:** This is not applicable.
- **Default Prefix:** This is not applicable.
- **Resend Attempts:** Enter number of times to resend.

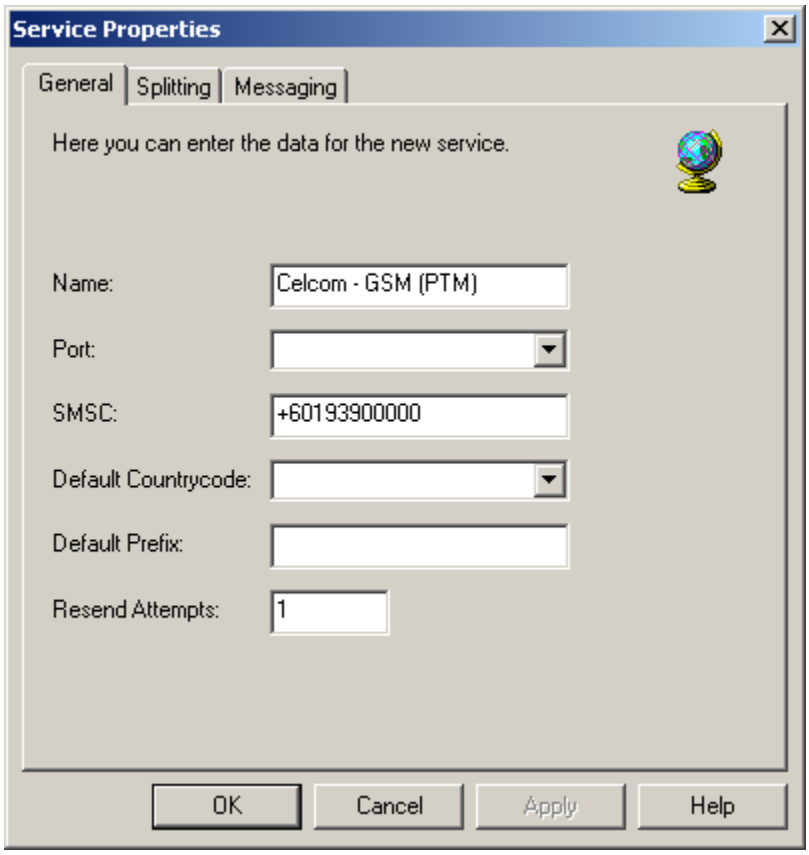


Figure A.15. SMS Service Properties: General Tab

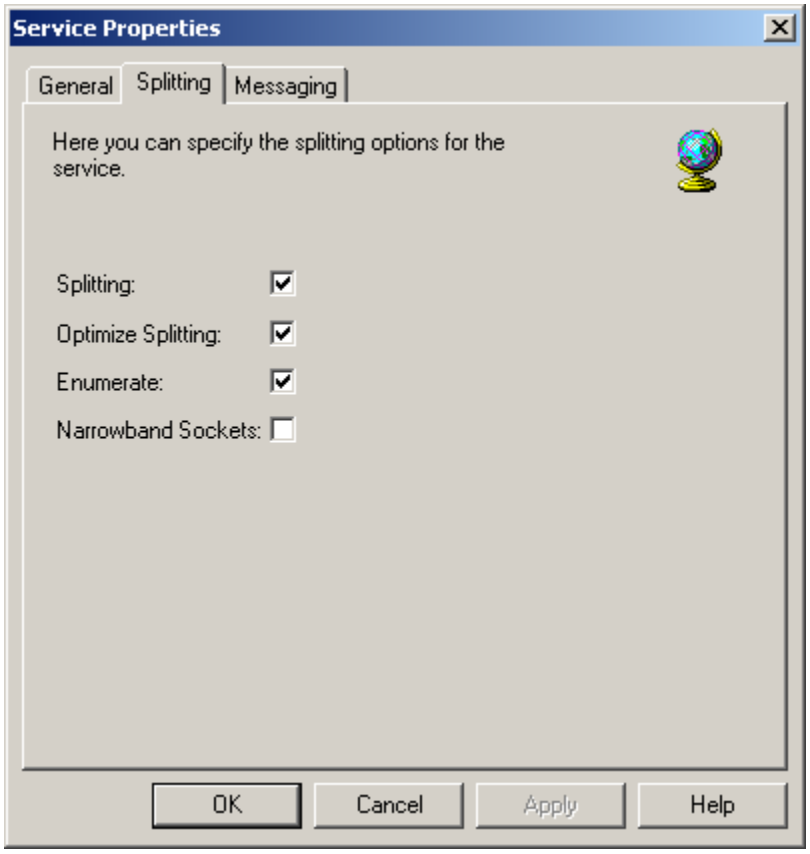


Figure A.16. SMS Service Properties: Splitting Tab

3. On the **Splitting** tab, shown in **Figure A.16,** check the **Splitting, Optimize Splitting,** and **Enumerate** check boxes.
4. On the **Messaging** tab, shown in **Figure A.17,** enter a string to add before the message (if this is necessary for your pager service).
5. Click the **OK** button. Your new service is now in the services list.
6. On the **General** tab of the **SMS Configuration** dialog box, check both the **Activate Outbox Spooler** and the **Activate Inbox Spooler** check boxes, as shown in **Figure A.18.**

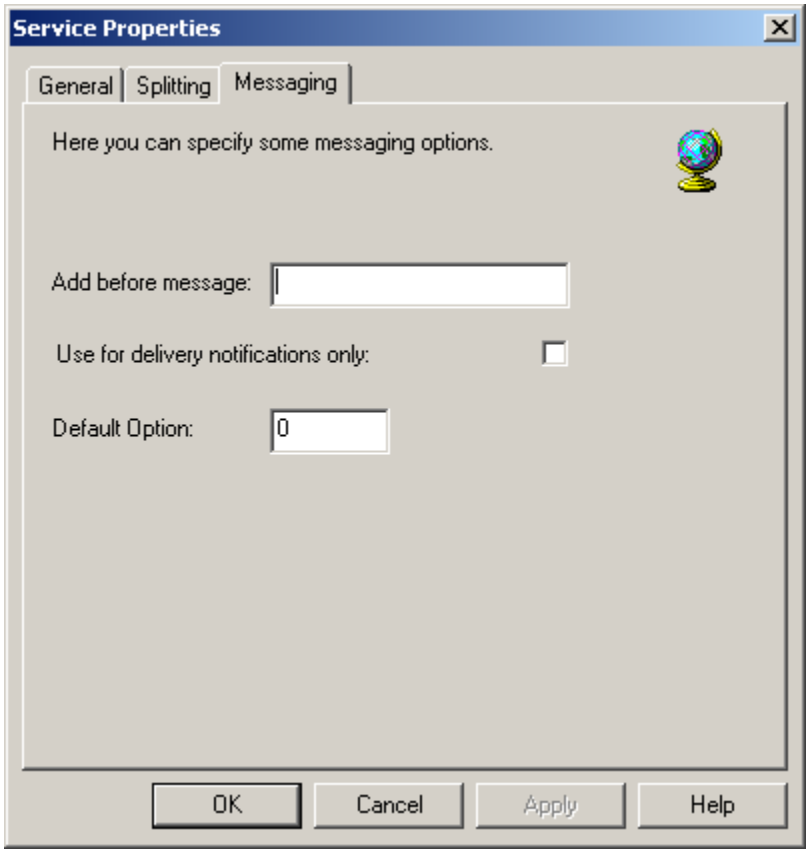


Figure A.17. SMS Service Properties: Messaging Tab

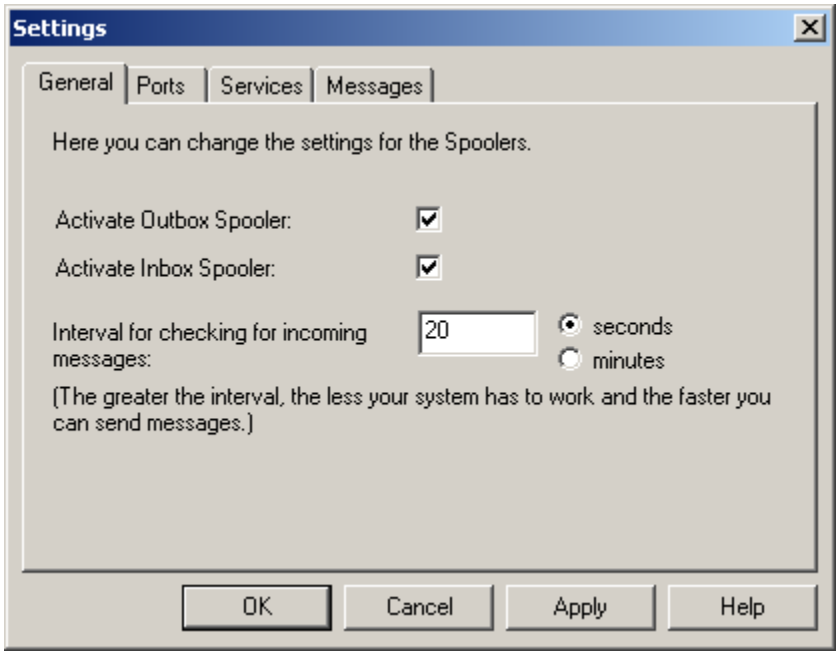


Figure A.18. SMS Configuration: General Tab

A.5 Pager Configuration Settings

Once you have properly set up your pager service, you can complete the Pager Agent configuration by using the following procedure. For more information about Pager Agent configuration fields, please refer to **Chapter 4.**

1. In the tree control in the left pane of the Multimedia Configurator screen, right-click **Pager/SMS/GSM/TAP** and select **New - Pager Contact** from the pop-up menu.
2. Enter the **Pager Media Name** in the configuration field in the right pane.
3. Enter the **Pager Number.** This is the phone number of the pager to contact, and is the same number you would use if you where paging from a touch-tone phone.
4. Select a template from the drop-down list.
5. If you are using a TAP pager, select **Use Modem/ISDN Service** and choose the service provider for your pager from the drop-down list. If you are using an SMS pager, select **Use GSM/PCS Service** and choose the service provider for your pager from the drop-down list. For an SMS Pager, also enter something in the **Acknowledge Code** field. This is used for “callbacks”,

when the user makes use of two-way paging to acknowledge an alarm message back into the system.

Note: If a new pager service has been added, click the **Update Service List** button to display the service in the drop-down list. If your pager service provider is not listed, you will need to go back and follow the steps for setting up pager services.

6. Click **Apply** to save the changes.
7. To test your configuration without having to actually trigger an alarm, click the **TEST** button. If you experience problems in getting Multimedia to successfully send a page, enable the diagnostic dialog and/or log file to see where within the paging sequence the problem is occurring. If you chose to enable the diagnostic utilities (see Figure A.3) when configuring your pager services, the diagnostic dialog boxes will appear. The **SMS Diagnostic** dialog box is shown in **Figure A.19.** If you are using TAP and you chose to enable the TAP log file (in Figure A.3), you can view the log file by clicking the **Open Log** button in the **TAP Diagnostic** dialog, shown in **Figure A.20.**

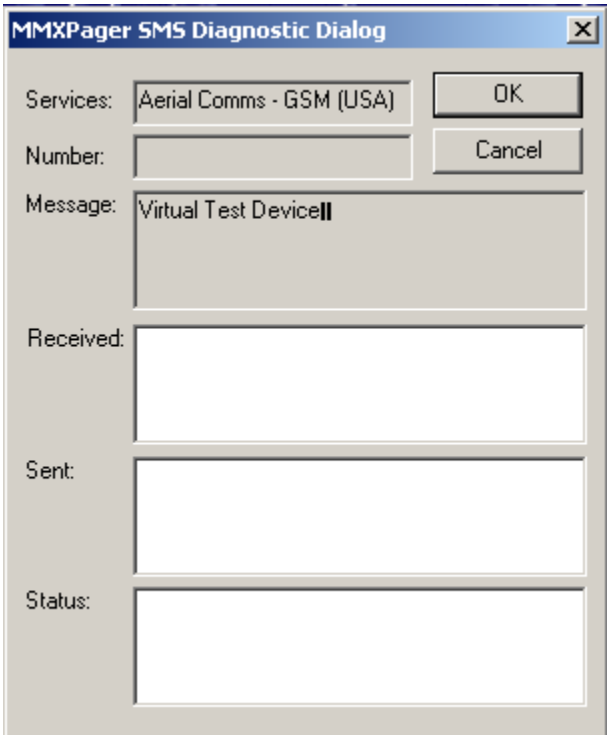


Figure A.19. SMS Diagnostic Dialog Box

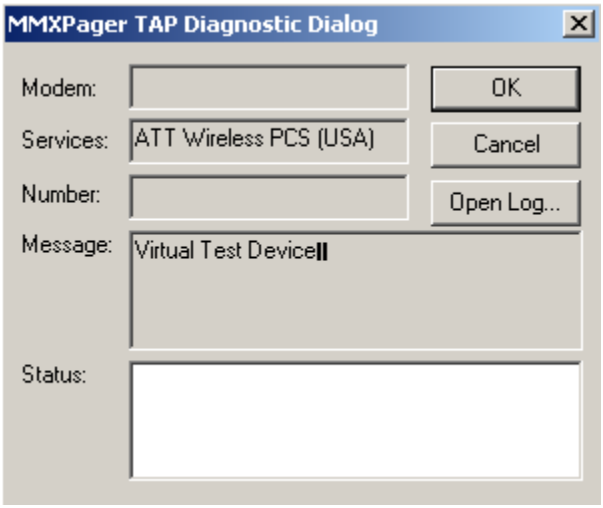


Figure A.20. TAP Diagnostic Dialog Box

Note: Status updates take place after the dial attempt. This does not affect single test cases. For multiple pages, the status information will often be one page behind the current page attempt.

A.6 Using the Multimedia Wizard for Pager Configuration

Perhaps the easiest way to configure the Multimedia software to send out a message to a pager when an alarm occurs is to use the **Multimedia Configuration Wizard**. The following example explains how to create a simple pager configuration using this wizard.

Note: You may also wish to explore the interactive **Multimedia Assistant** tutorial, which walks you through, using an animated talking teacher, the steps for creating alarm configurations. Choose **Multimedia Assistant** from the **Help** menu.

Note: If your paging service was not available in the list at installation time, or you did not choose a service, define a paging service now. Refer to **Section A.2** for details on how to define a service. This must be done before starting the wizard. Refer to **Chapter 2** for details about alarm configurations.

To start the Multimedia Configuration Wizard, click the button on the toolbar that looks like a magic wand starts, as shown in **Figure A.21.** (The wizard is also accessible from the **Tools** menu).



Figure A.21. Launching the Multimedia Configuration Wizard

The wizard will walk you through the following steps:

Step 1

The first step is to give this configuration a name, which will then appear in the left-hand tree control under **Alarm Configurations** once the wizard is complete. Each configuration can contain multiple action sets (described later) performing different types of multimedia notification (e.g., paging, voice, email, etc.), but is tied to just one OPC Alarm and Event Subscription (described in the next step). So, if you only have one alarm server, you will typically only need one configuration. Enter a name for identifying this multimedia configuration ("HVAC Alarms" in this example), as shown in **Figure A.22.** Click **Next** to continue to Step 2.

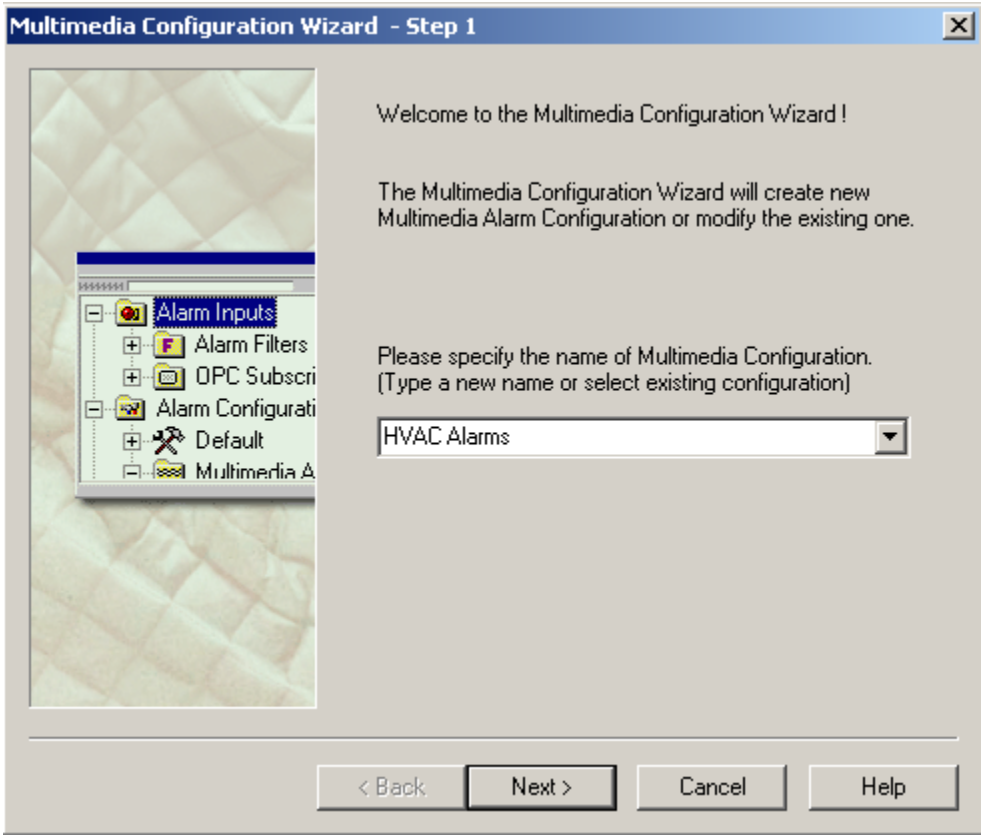


Fig. A.22. Naming the Alarm Configuration

Step 2

Step 2 specifies where alarms will come from. For ICONICS installations, this will typically be the ICONICS Alarm OPC Server, or possibly the ICONICS Modbus OPC Server Version 3.05.

Basically the Multimedia Server subscribes to the OPC Alarm and Event server and receives all alarms made available by that server. The Multimedia Server will then use the alarm filters to select subsets of these alarms to determine the messages for which paging messages will be sent.

This is the same “subscription process” as is used for the Alarm Viewer ActiveX control to view the list of active alarms. For further details about subscriptions, please review the AlarmWorX32 documentation that came with your GENESIS32 software. Also refer to **Chapter 2,** or see the **Alarm Subscription** section later on in this appendix.

For this example, we will simply select the **ICONICS Alarm OPC Server** subscription already created in the database installed from the CD. Select **Use Existing OPC Subscription** and choose the appropriate one from the drop down list, as shown in **Figure A.23.** Then click **Next** to skip to Step 4.

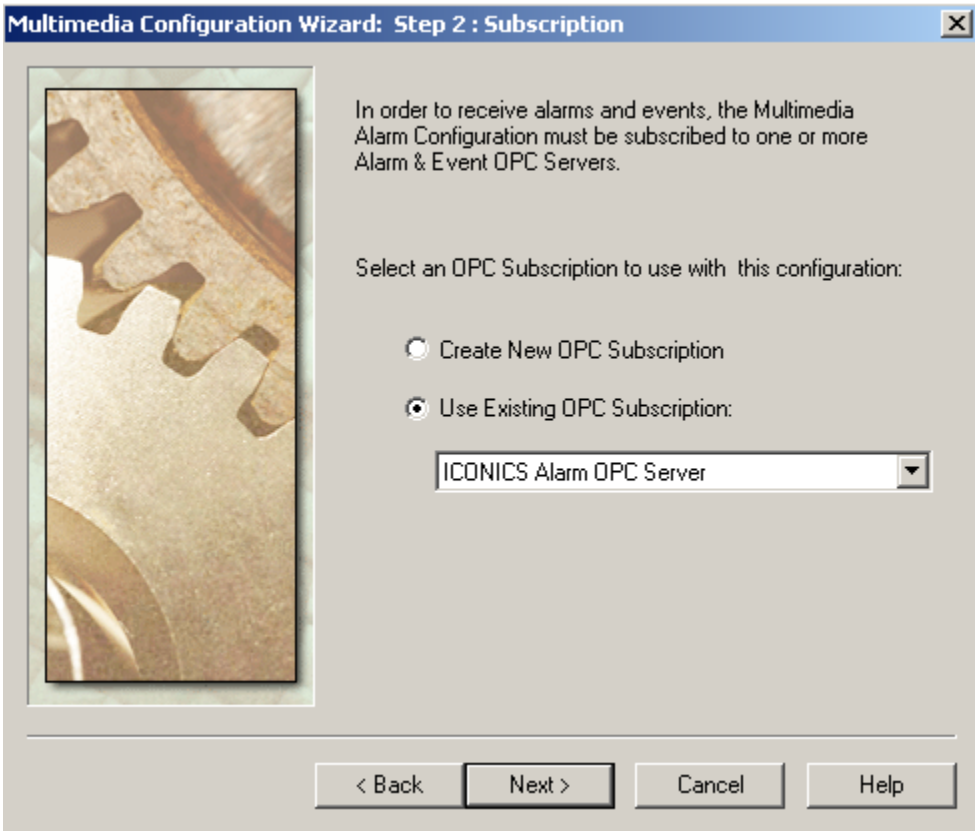


Figure A.23. Creating a Subscription Set

Step 3

Step 3 is shown only if you elected to create a new OPC alarm subscription in Step 2. Since you chose an existing alarm subscription, this portion of the wizard is skipped. For details on creating a subscription outside the wizard, please refer to **Chapter 2,** or see the "**Alarm Subscriptions"** section later in this appendix.

Step 4

In Step 4, the wizard helps create what is known as an alarm **Action Set.** This is a set of actions that the Multimedia Server will take whenever an alarm from that subscription occurs. For example, one action set could not only page the security guard, but it could also send an e-mail message to the technician on duty, announce the message over a P.A. system, and fax the alarm to a remote center. Here we will simply set up one entry for paging.

Note: For more information about action sets, please refer to **Chapter 2.**

First, give this action set a name ("SendPage" in the example below). This name will appear in the tree under the alarm configuration once the wizard is complete.

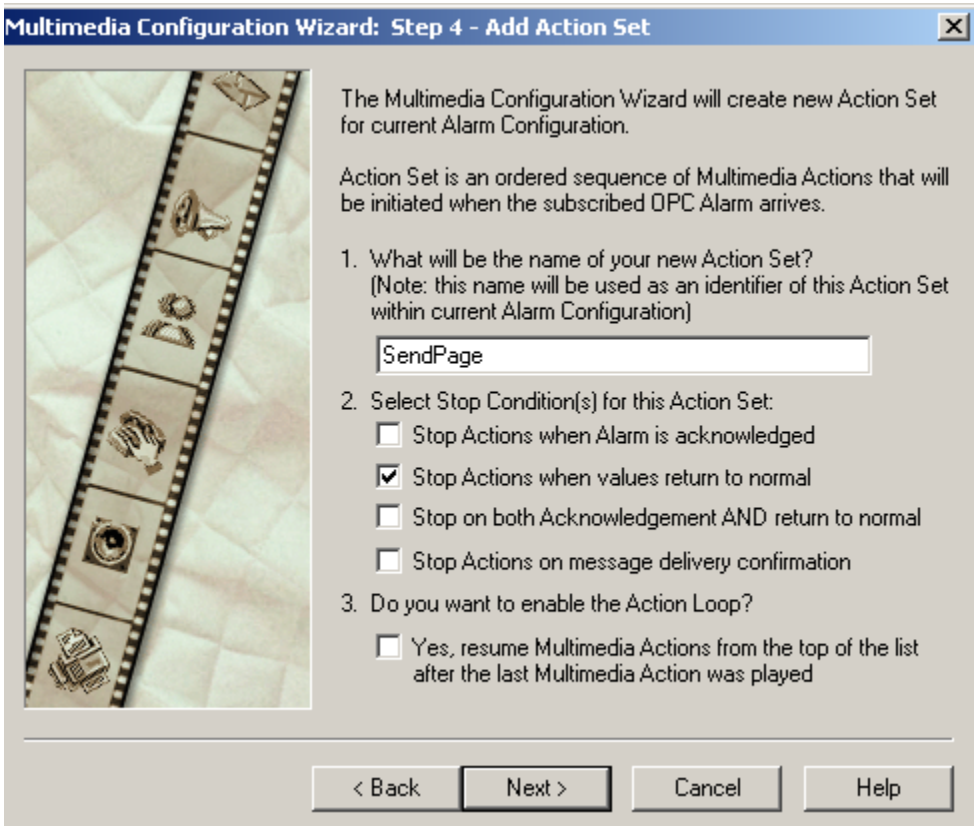


Figure A.24. Defining Action Set Parameters

Second, select what type of event will stop this action set from continuing through the list. For action sets with multiple notification options configured (as mentioned above) the progression through those actions will be interrupted by the stop condition, and the remainder of the actions will not be executed. For example, you could have the Multimedia Server stop sending messages once someone acknowledges the alarm, or perhaps when the alarm returns to normal. Simply check the appropriate box(es), as shown in **Figure A.24.**

Although there is also a third possible step shown for repeating the action set via the loop feature (e.g., keep paging someone every 20 minutes until the alarm returns to normal), this option will not be enabled for this action set.

Click **Next** to continue to Step 5.

Step 5

The wizard then permits you to add an **Alarm Filter** for this action set. While your OPC subscription may be receiving "ALL" the alarms generated by the OPC server, it is often necessary to specify which subset of those alarms will result in a message being sent to a pager. That's where an alarm filter is used. For example, you could set it up such that only HI ALARMS will send a pager message. Another filter might specify that only high priority alarms will initiate the sending of a pager message.

Please refer to **Chapter 2** for details about configuring alarm filters for Multimedia, or see the **Alarm Filters** section later in this appendix for more information on creating your own filters. For complete details on the use of alarm filters and how to construct them with the various OPC Alarm and Events servers, please consult the AlarmWorX32 documentation.

In this step of the wizard, you can either choose to create a brand new alarm filter, select an existing one, or forgo using any filter. For this example, select one of the default filters installed automatically from the CD. So, select the second option **I want to use existing Alarm Filter,** as shown in **Figure A.25.**

Then, select from the drop-down list the filter labeled **Radiation Level.**

Click **Next** to jump to Step 7. (Step 6, for creating new filters, is skipped).

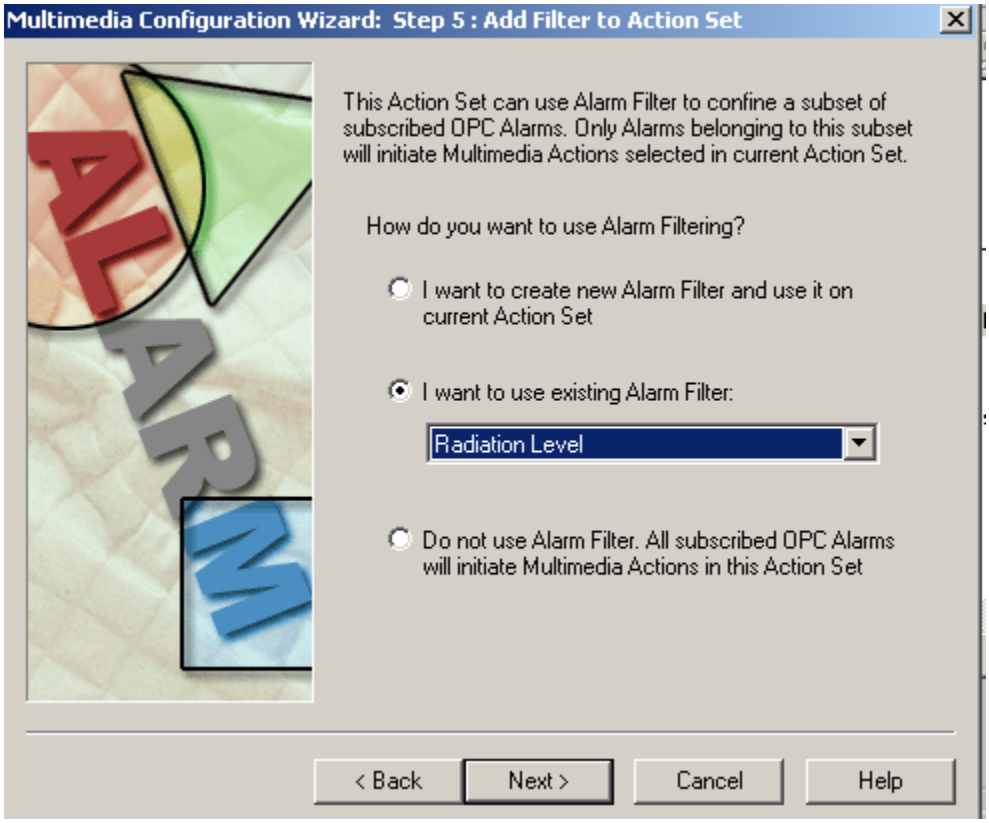


Figure A.25. Choosing an Alarm Filter for the Action Set

Step 6

Step 6 is for configuring a new alarm filter, and is skipped in this example because an existing filter was selected in Step 5. Refer to Chapter 2, or see the **Alarm Filters** section later in this appendix for more information on creating your own alarm filters for use within Multimedia.

Step 7

Each action set can actually execute multiple multimedia notification methods. For example, when an alarm occurs you can configure Multimedia to first announce the alarm over the local P.A. speaker system, and then send out an alphanumeric pager message, then send out an e-mail message to five people, and then send a fax to a remote site — all triggered by the same alarm.

Note: Only those multimedia agents selected during the installation process will work.

The wizard walks through setting up each action within the action set. For purposes of this example, we will only define one action within this action set: that of sending out a message to a pager.

Make sure **Sending pager message** is selected in Step 7, as shown in **Figure A.26.** Then, click **Next** to continue on to the next step.

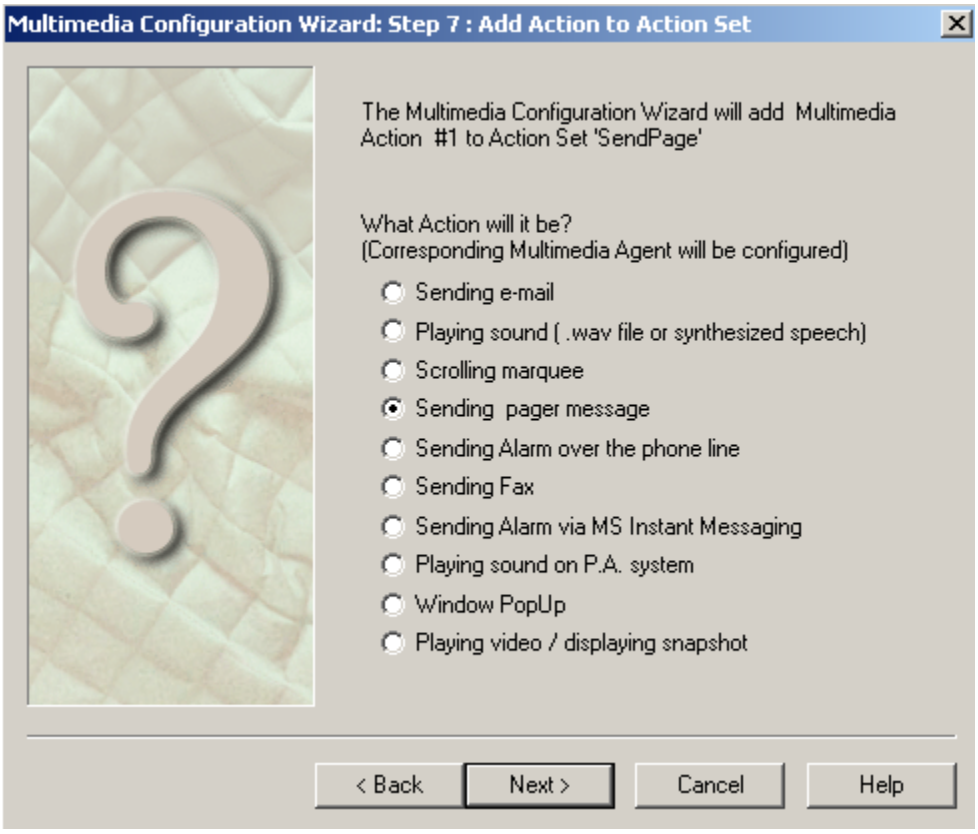


Figure A.26. Selecting Paging Action

Step 8

Step 8 of the wizard lets you choose to either use an existing Pager Agent definition or to create a new one. A Pager Agent defines to whom the message

should be sent (e.g., the security guard's pager number), and identifies the paging service protocol to use (e.g., PageNet service).

For this example, we will walk through creating a new Pager Agent, so select **Yes, create new Pager/SMS/GSM/TAP Agent configuration,** as shown in **Figure A.27.**

Then click the **Next** button to continue to Step 9.

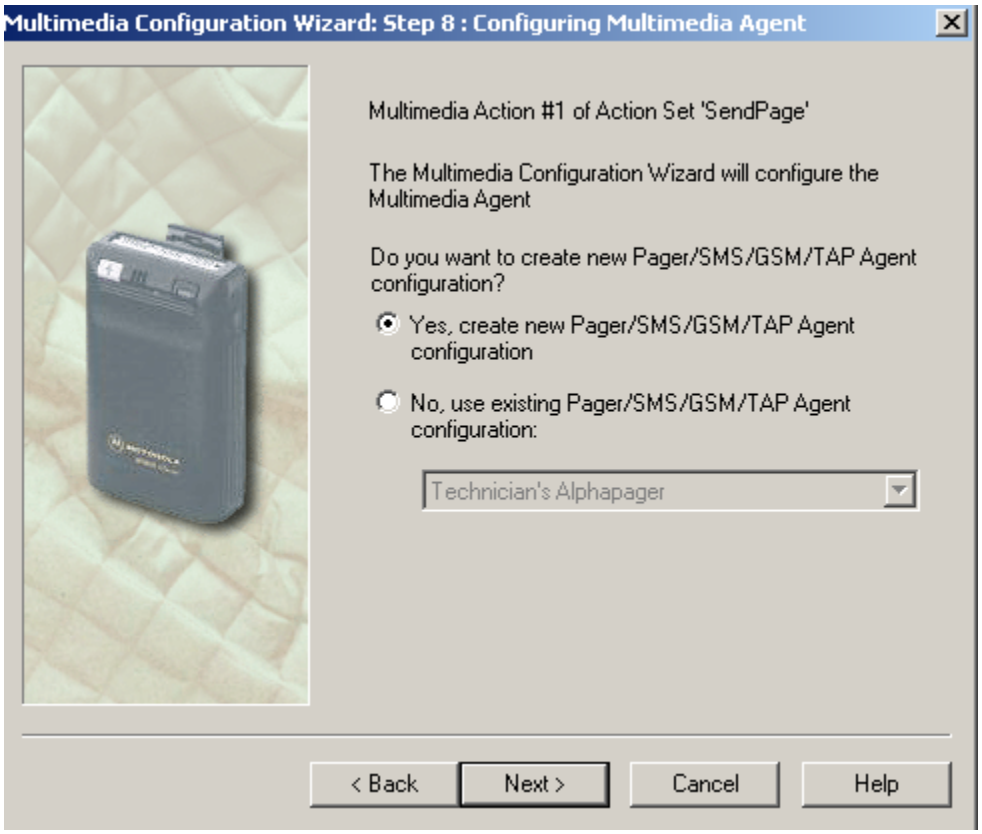


Figure A.27. Creating a New Pager Agent

Step 9

Step 9 of the wizard defines the Pager Agent settings.

First, enter a name to identify the pager recipient. This name will be used to identify this Pager Agent in the left-hand tree control under the Paging section once the wizard is complete.

Next, select whether the pager message will be sent via GSM/PCS (for SMS type paging, popular in Europe and other areas around the world) or Modem/ISDN (for TAP paging, popular in the US and around the world).

Select which paging service should be used from the drop-down list, as shown in **Figure A.28. Note:** If your paging service is not listed here, select one of the services provided anyway for now. Refer to **Section A.2** for information about how to add new paging services to the Multimedia configuration.

Finally, enter the Pager ID number associated with this person. This may or may not be the same ID that you would normally use when dialing a numeric beeper from a phone. Some paging services assign a different personal identification number (PIN) to pagers for use when alphanumeric messages are being sent via software (such as Multimedia) rather than just simple touch-tone keys on the phone. Contact your paging service provider for details.

Note: Please refer to **Chapter 4** for details about Pager Agent configuration settings.

Click **Next** to continue to Step 10.

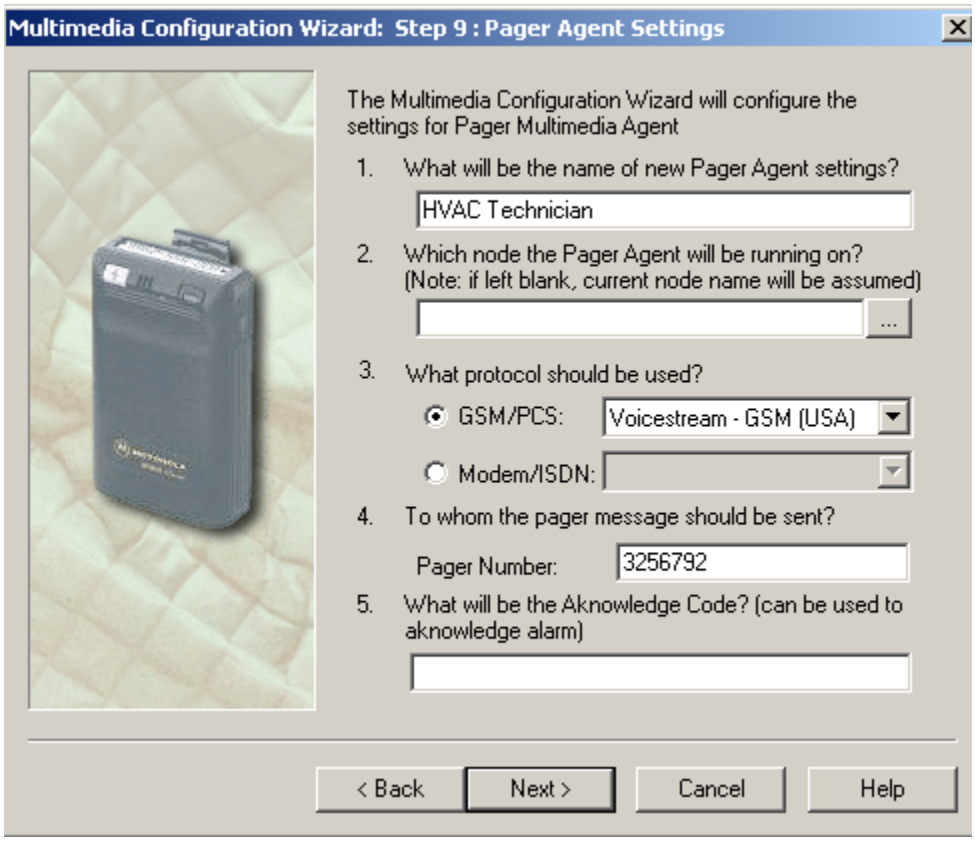


Figure A.28. Filling out the Pager Information

Step 10

A **Media Template** defined within Multimedia determines the actual message that gets sent to configured pagers. You can select whether the message includes the timestamp of the alarm, the tag name that generated the message, the actual alarm message itself, and many other parameters. Multimedia already comes with a template created for sending alphanumeric pager messages.

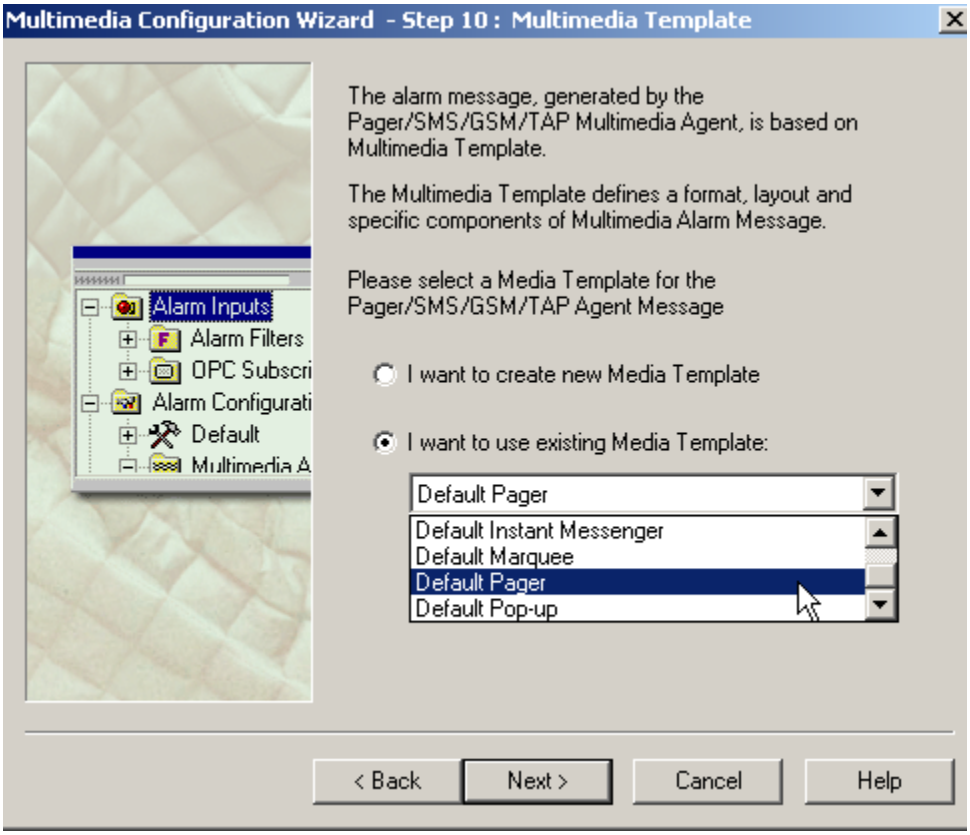


Figure A.29. Using the Alarms Template to Define the Message

For this example, simply select the option **I want to use existing Media Template.** Then, make sure the **Default Pager** template is selected from the drop-down list, as shown in **Figure A.29.**

Click **Next** to continue to Step 12.

Step 11

Step 11 (defining the media template) is skipped in this example, since an existing template was selected in Step 10 above. Please refer to **Chapter 5** for information about creating new media templates.

Step 12

Step 12 of the wizard permits you to define additional actions to be taken within this action set. As noted earlier, this can be used to have Multimedia also announce the same alarm message over a speaker, send e-mail messages, and more.

For purposes of this example, select **No, I don't want to add any more Actions to Action Set 'SendPage,'** as shown in **Figure A.30.**

Click **Next** to continue to Step 13.

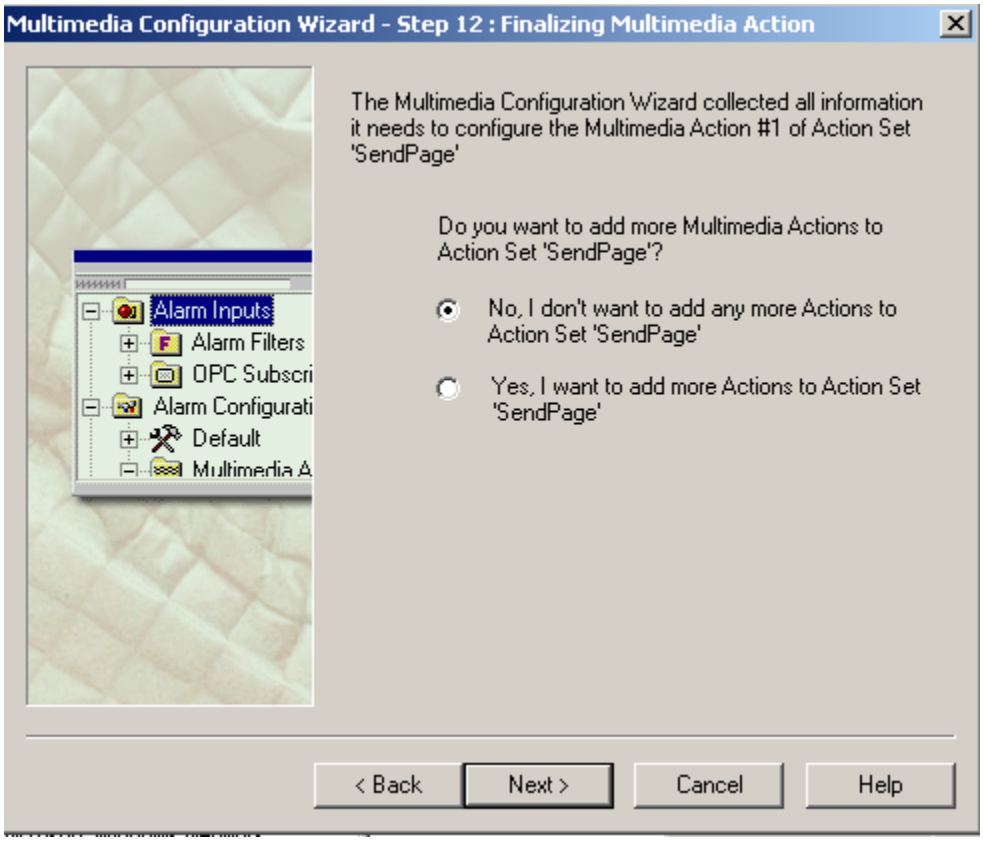


Figure A.30. Finalizing the Action Set

Step 13

The action set is now complete. The wizard now permits you to add additional action sets with different notification methods and recipients to be defined. For purposes of this example, select **No, I don't want to add any more Action Sets,** as shown in **Figure A.31.**

Click **Next** to continue to Step 14.

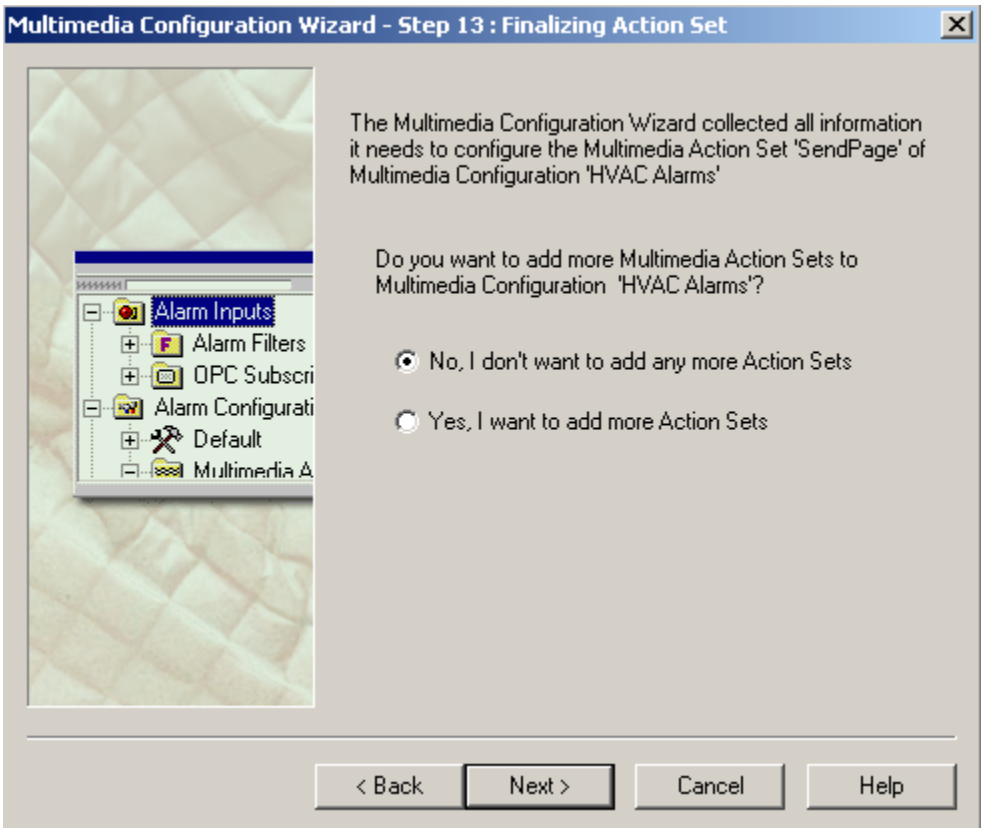


Figure A.31. Finalizing the Action Sets

Congratulations! The wizard is now complete. Click **Finish** to save the changes to your configuration, as shown in **Figure A.32.**

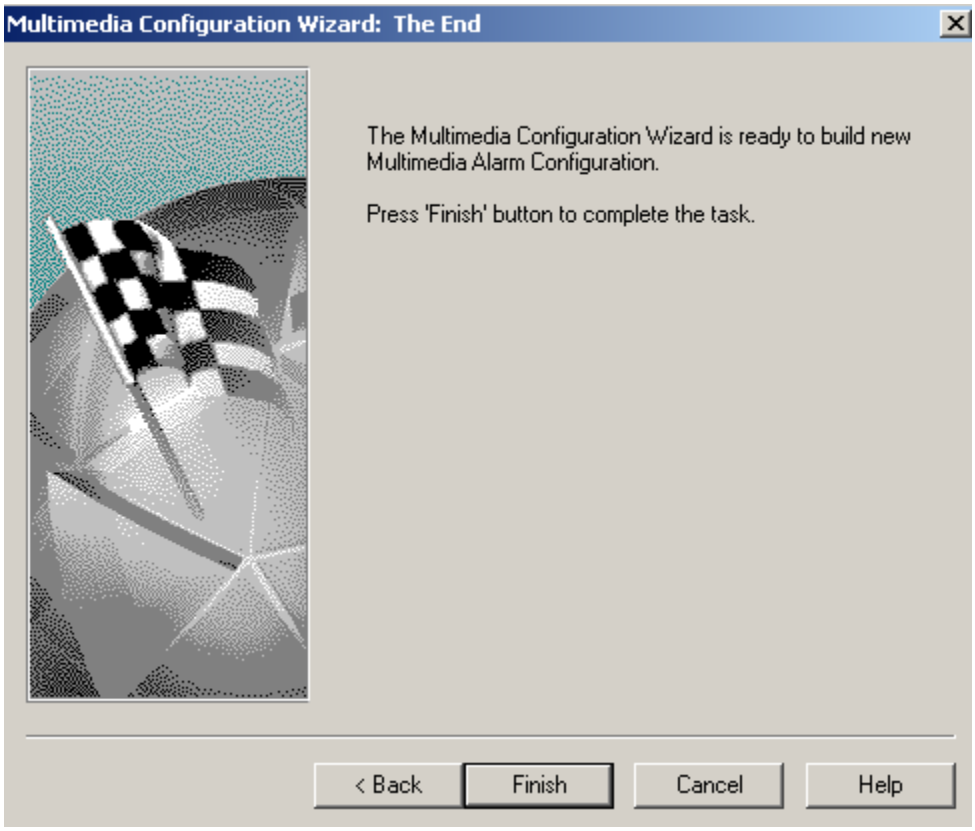


Figure A.32. Finished With the Wizard

A.6.1 Viewing the New Alarm Configuration

The configuration information is automatically saved to the .mdb database file (Microsoft Access database file). Expanding the **Alarm Configurations** folder in the left-hand tree control of the Configurator shows the newly added **HVAC Alarms** configuration, as shown in **Figure A.33.** Expanding that shows the **SendPage** action set just created using the wizard. Clicking on the **SendPage** item will show its details on the right-hand side of the window, as shown in Figure A.33.

In this action set, only one action is shown in the action set table: that of sending a message using the Default Pager media template to the HVAC Technician. And it only will do this for “Radiation Level” alarms.

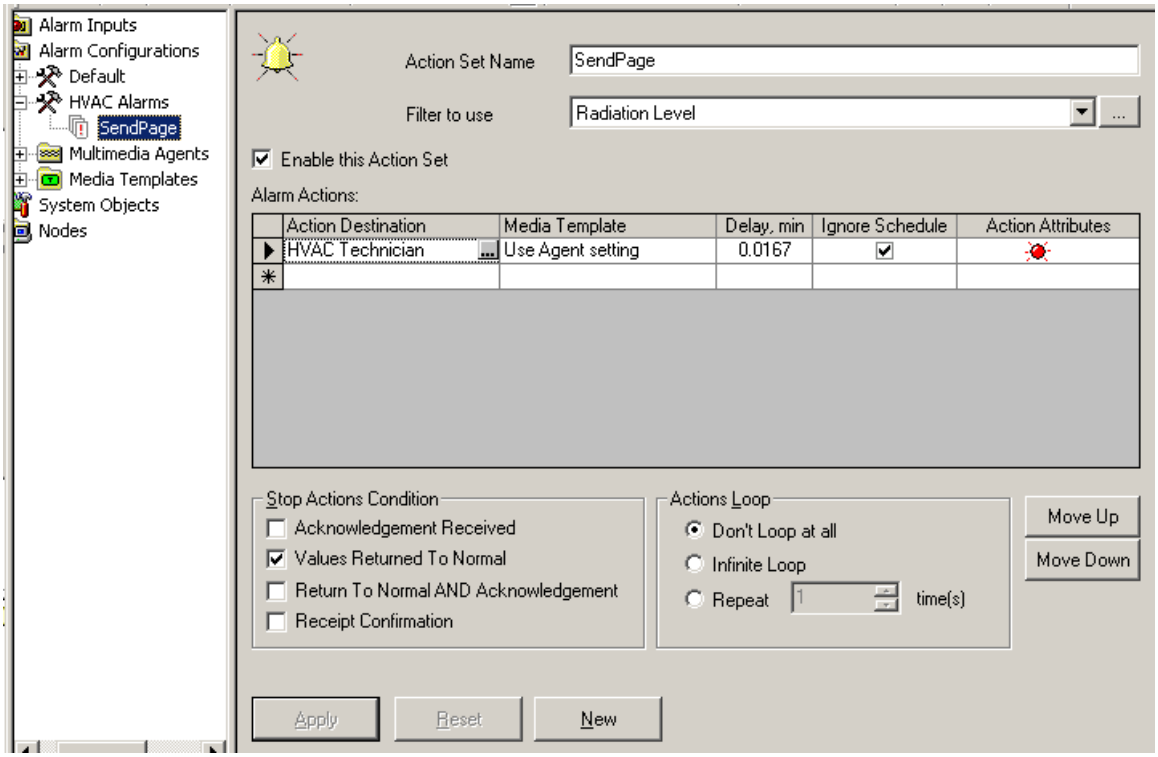


Figure A.33. Action Set Configuration Information

To view details on the configuration of the pager recipient configured in the wizard, expand the **Multimedia Agents** folder in the tree control, and then expand the **Pager/SMS/GSM/TAP** tree. Click on the **HVAC Technician** item, as shown in **Figure A.34.** Its details are then shown on the right-hand side of the display. Here you can see the paging number defined during the wizard, as well as the paging service selected.

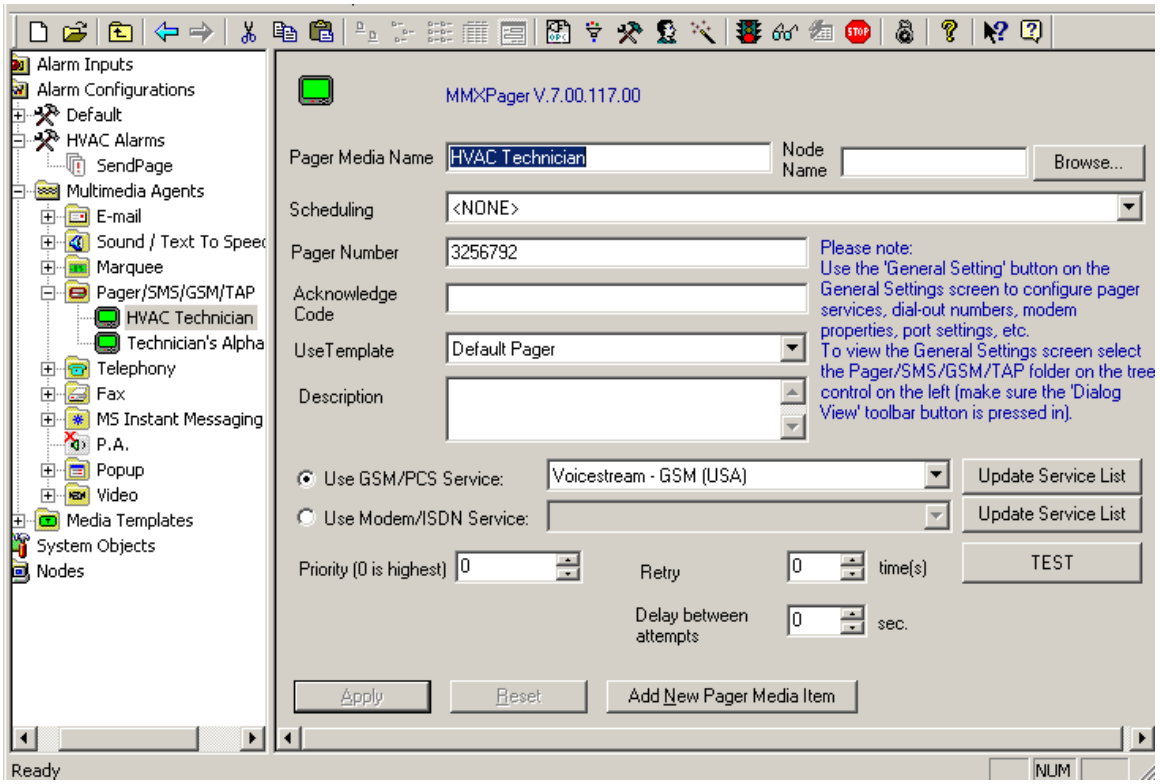


Figure A.34. Pager Configuration Information

The **TEST** button, shown in Figure A.34, can be used to verify that the paging service, modem, pager number, and other such parameters are correct before attempting to trigger pager messages based on actual alarms. It helps separate issues of alarm subscription versus pager setup when troubleshooting a system for the first time.

Other advanced options are available within Multimedia, including scheduling and roles. For example, you can assign a complex schedule (complete with vacation time, recurring patterns, excluded periods, etc) and have an action set use that schedule when determining whether someone should be notified. If you do assign a schedule to an agent, make sure the **Ignore Schedule** checkbox is NOT checked in the action set table. For details about configuring schedules and roles, please refer to **Chapter 6.**

A.6.2 Starting the Multimedia Server

To make the Multimedia Server use the setup information entered in the Configurator, the Server must be placed into "runtime" mode. To start/stop the server, click the stoplight button on the toolbar, as shown in **Figure A.35** and **Figure A.36,** (or choose **Start Multimedia Server** from the **Action** menu).



Figure A.35. Multimedia Server Toolbar Button – Server Stopped



Figure A.36. Multimedia Server Toolbar Button – Server Running

The Multimedia Configurator also offers a Monitor View for observing the triggering of multimedia actions by the Multimedia Server. To turn this on, either click on the Monitor button (looks like eye glasses) on the toolbar, or select **Monitor View** from the **View** menu.

A.7 Alarm Filters

As discussed in Step 5 of the Multimedia Configuration Wizard, the Multimedia Server receives all alarms subscribed to, and it uses alarm filters to narrow down the list to specify which subset of alarms will be used to initiate a multimedia action. For example, one filter could specify that only HI ALARMS will send a page, while another filter might specify that only high priority alarms will initiate the sending of a page.

Note: For details about creating alarm filters and expressions, please refer to **Chapter 2.**

A.7.1 Creating a New Filter

This section walks through how to add a new filter to your Multimedia configuration.

1. Expand the **Alarm Inputs** folder in the left-hand tree control of the Multimedia Configurator, and then expand the **Alarm Filters** folder. This shows all of the filters already defined in your system, as shown in **Figure A.37.**

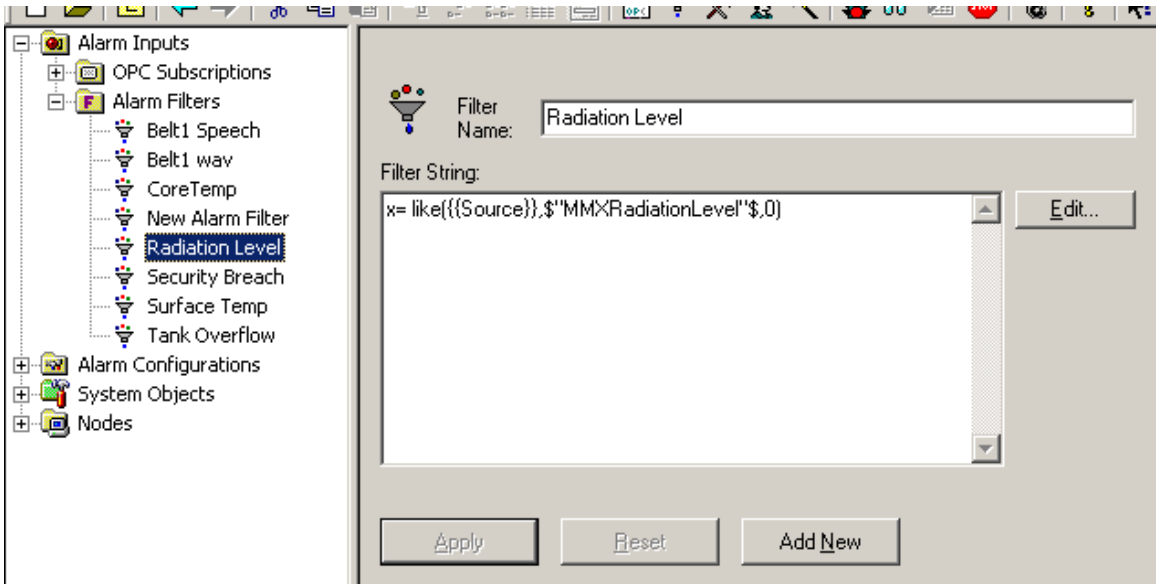


Figure A.37. Alarm Filters in the Multimedia Configurator

2. Right-click the **Alarm Filters** folder and select **New - Alarm Filter** from the pop-up menu (or select from the **Edit** menu). A new filter is inserted into the list.
3. Enter a name that adequately describes the alarm filter being created. For this example, we will set up an alarm filter that will trigger our **Send Page** action set only when an alarm with a Priority (Severity) greater than or equal to 500 occurs. So enter as the name: **Just Priorities (Severities) >= 500**.
4. Click the **Edit** button. The alarm filter **Edit Expression** dialog box appears, as shown in **Figure A.38.**

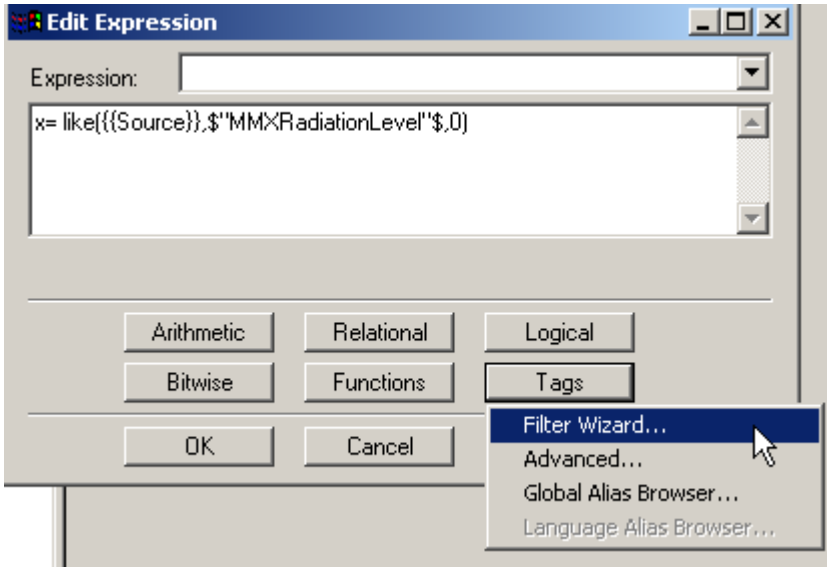


Figure A.38. Alarm Filter Expression Editor and Filter Wizard Selection

5. Click the **Tags** button, and then select **Advanced** from the pop-up menu, as shown in Figure A.38. This shows a listing of all possible alarm attributes for use in your filter.
6. Select **Severity** from the **Alarm Tag** window, as shown in **Figure A.39,** and then click **OK.** Note that the filter wizard then inserts into the Expression Editor workspace the necessary filter "code" of: ***{{Severity}}***

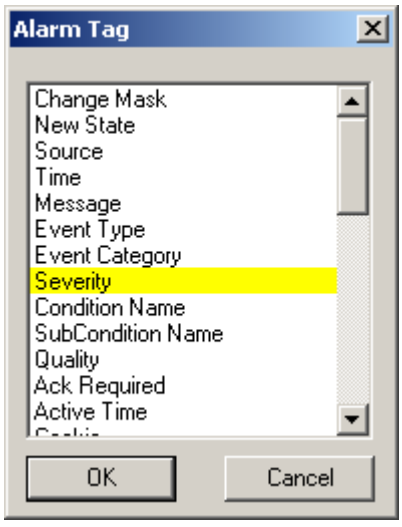


Figure A.39. Alarm Attributes for Use in Filters

7. To finish the filter, click on the **Relational** button and choose **>= Greater Than or Equal.** Next, type in **500.**

   Note: You did not necessarily have to click on all the buttons. You could have simply typed in the expression: **{{Severity}} >= 500** directly in the text field. However, using the buttons helps make sure the syntax is correct.

8. Click **OK** to complete this filter. (**Note:** The expression editor will add an "**x=** " in front of the expression to complete it for you). Your final alarm filter should appear as shown in **Figure A.40.**

9. Finally, click the **Apply** button to save this filter. It then gets placed alphabetically in the tree control, as shown in Figure A.40. It may now be used in the action set to limit which alarms will trigger the action(s).

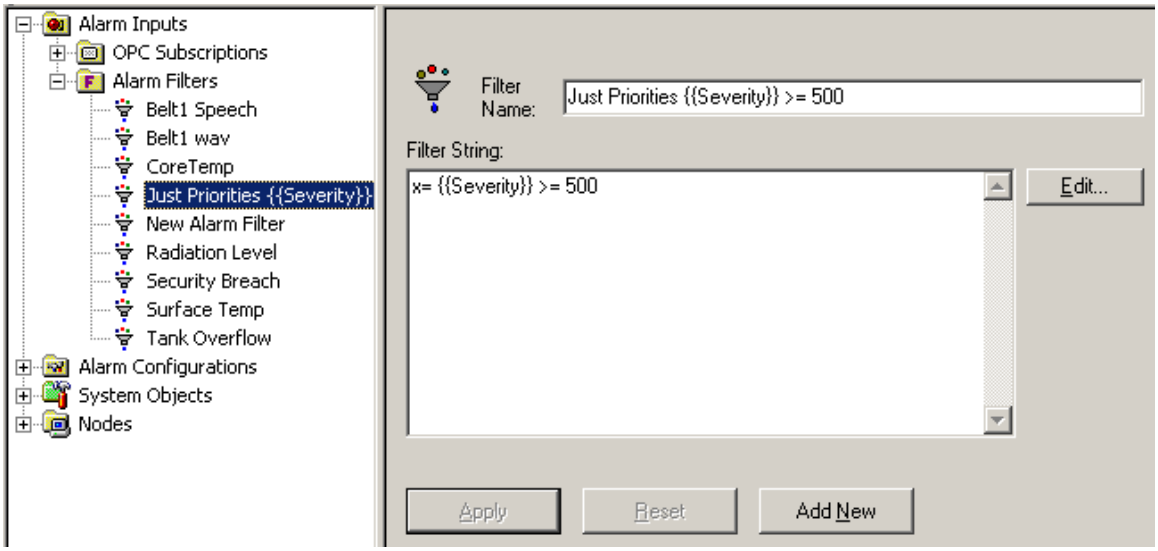


Figure A.40. Completed Alarm Filter

A.7.2 Using Alarm Filters

If you have a lot of alarm filters to create and use, you may elect to create them en-mass by first exporting an existing one (as a "template") by selecting **Export CSV** from the **File** menu. You can then use a spreadsheet, word processor, or

other tool to replicate and create more filters. Then simply re-import those filters into Multimedia.

If desired, you can remove all other references in the CSV file, and only work on the **#MMX_Filter** section. That way when you import that CSV file, only those filters are brought into your system.

The filters can then be applied to each action set defined in your Multimedia configuration.

A.8 Alarm Subscriptions

As mentioned earlier, the Multimedia Server subscribes to other alarm systems for current status information. Unless you are creating multiple subscriptions for many sites, or are networked to the machine running the OPC Alarm and Event server, the default subscriptions that were installed with Multimedia from CD should suffice.

However, if you need to create your own subscription to an alarm server, this section will walk you through the basics within the context of the Multimedia System. For complete details, you must consult the documentation that came with your alarming system. Also refer to **Chapter 2** for more information about creating subscriptions.

1. Expand the **Alarm Inputs** icon in the left-hand tree control of the Multimedia Configurator, and then expand the **OPC Subscriptions** folder. This shows all of the alarm subscriptions already defined in your system.

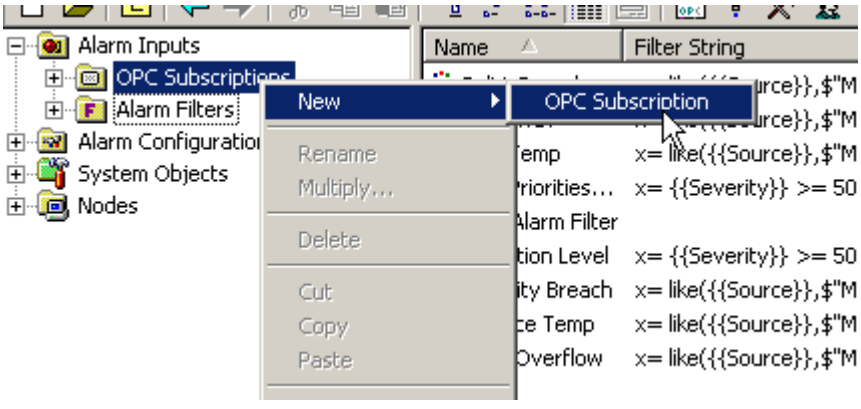


Figure A.42. Inserting a New Alarm Subscription

2. Right-click the **OPC Subscriptions** folder and select **New - OPC Subscription** from the pop-up menu, as shown in **Figure A.42** (or, select from the **Edit** menu). A new subscription is inserted into the list.
3. In the **Subscription Name** field, enter a name to identify the types of alarms coming from this alarm subscription (e.g., "All Alarms from Buildings 2 & 3"). This name will be used when you assign a subscription to an alarm configuration.
4. Click on the **Subscribe/Edit** button. This opens a **Subscriptions Properties** window for defining the alarm subscription, as shown in **Figure A.43.**

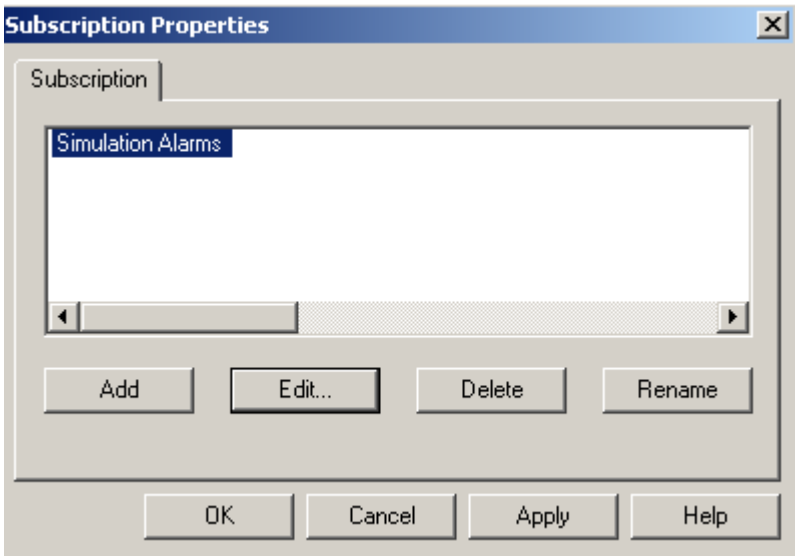


Figure A.43. Adding a New Subscription

5. Each alarm subscription can actually contain links to multiple OPC Alarm and Event servers (e.g., you may need to link into both the ICONICS Alarm and Event Server as well as the Modbus Server in order to get all alarms in your system).
6. To add a link, click the **Add** button. Give the new entry a name. (This name will not appear or be used anywhere else; it is just a way of identifying this OPC Alarm and Event Server link).
7. Click the **Edit** button. Another pop-up window appears, allowing you to define the specific OPC Alarm and Event subscription.

8. Click the **Browse** button and navigate to the appropriate OPC Alarm and Event server typically found in the “My Computer / Alarm & Event” path (unless you want to connect to a server on another PC on your network). Highlight the desired Alarm and Event server, as shown in **Figure A.44.**

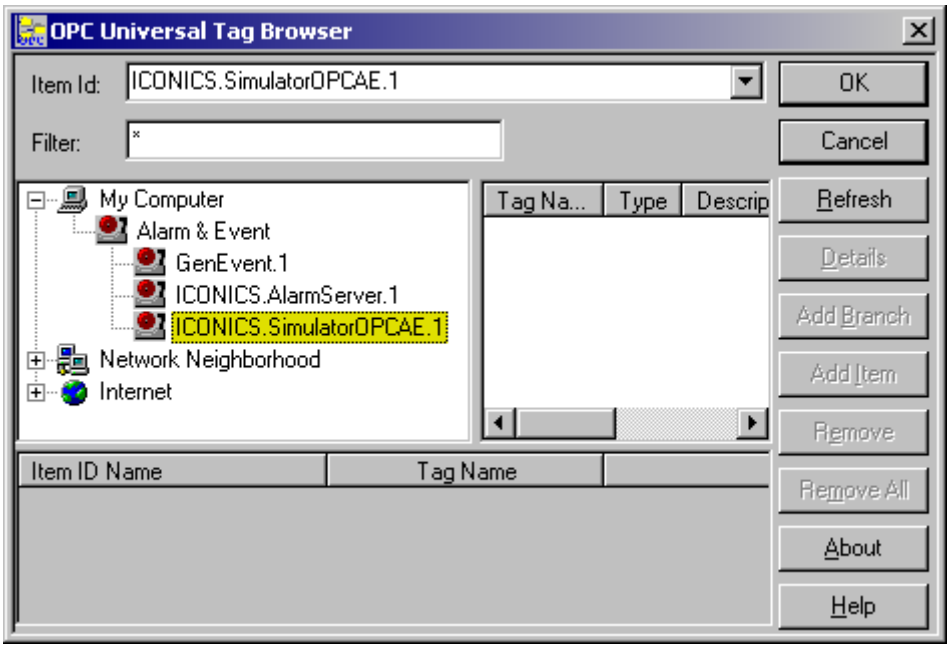


Figure A.44. Selecting an Alarm and Event Server

9. The selected server will now appear in the **Event Server** field of the **Event Subscription** dialog box, as shown in **Figure A.45.**

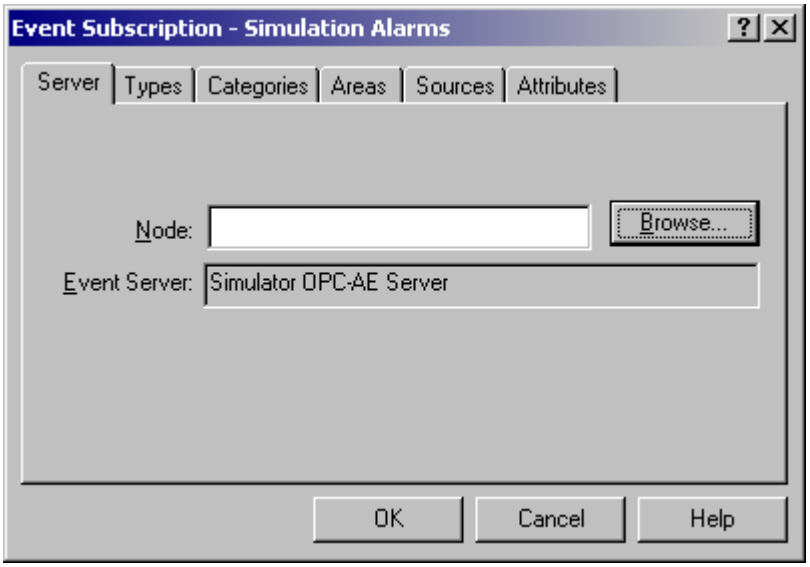


Figure A.45. Defining the Alarm and Event Subscription

While for this example it is not necessary to modify any of the details in any of the other tabs shown in this dialog box (hence all alarms will be delivered to Multimedia for notification), we will quickly go over two example settings that may prove useful.

10. First, click on the **Categories** tab. If no categories appear in the right-hand **Subscribed** list, then "all" categories are used. However, adding **Digital** to the list tells the OPC Alarm and Events server to deliver only those alarm messages to Multimedia. This is a "first-pass" filter on the server side. With this setup, none of the Analog Limit alarms will be sent to the Multimedia Server, freeing up the communication traffic. Again, do this only if you just want digital alarms (otherwise leave this blank to subscribe to "all" alarms).

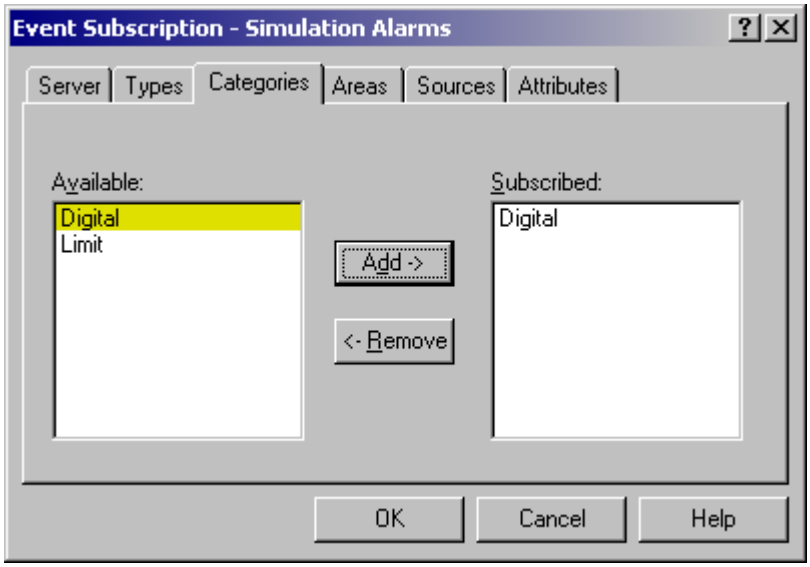


Figure A.46. Alarm Server Categories

11. Click on the **Attributes** tab, shown in **Figure A.47.** Here you can tell the OPC Alarm and Events Server to send additional information about each alarm. For example, in Figure 4.47 the **ACK COMMENT** field has been added as Attribute 1. This will permit any comments the operator added during the alarm acknowledgement process to also be available to your multimedia templates for the notification messages to be sent out.

Note: You must do this for each event category you are subscribed to in order for it to be available for each alarm type.

12. Click **OK** in the **Event Subscription** dialog box.

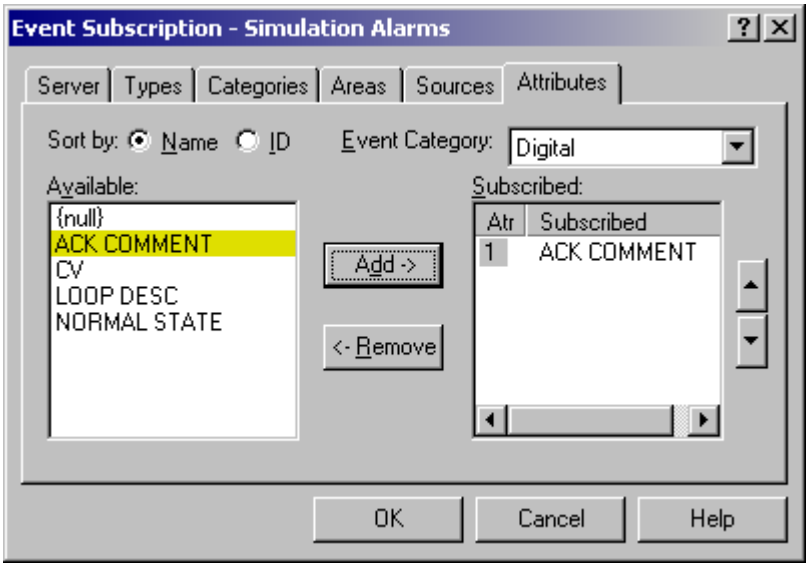


Figure A.47. Additional Attributes for Alarm Server

13. Click **OK** in the **Subscription Properties** dialog box to return to the Configurator screen.

14. Click **Apply** to save your changes to the database.

Note: To learn more about the additional subscription details found on the **Types, Categories, Areas, Sources** and **Attributes** tabs, please refer to **Chapter 2,** or consult the Alarm OPC Server's documentation.

A.9 Troubleshooting Pager Configurations

If you have any questions about the configuration of the Multimedia software, other than the OPC Alarm and Event subscription to third-party alarm servers themselves, please contact the ICONICS support center. In general, all questions related to the ICONICS AlarmWorX32 Multimedia software will probably fall into this category.

You may run into the scenario that Alarms do not appear to be triggering the multimedia notifications you have configured in the Multimedia Configurator.

If you have made sure the Multimedia Server is indeed running, and that the configuration you are using is the active database, then follow these simple steps to determine whether to contact a third-party vendor or ICONICS:

1. Take the OPC alarm subscription(s), and any alarm filters, defined in the Multimedia software and use those exact same configurations in the ICONICS AlarmWorX32 Viewer ActiveX window.
2. If the ICONICS AlarmWorX32 Viewer ActiveX window is successfully showing your alarm conditions, the problem probably lies within the configuration of the Multimedia software, and so you should contact the ICONICS technical support center. But before you do, please work through the flow chart troubleshooting guide shown in **Figure A.48.**
3. If the ICONICS AlarmWorX32 Viewer ActiveX window does NOT successfully show your alarms coming in, the problem is with the subscription itself, or possibly the OPC server and/or the hardware generating the alarms. If that is the case, ICONICS technical support cannot be of assistance, and you must first get this running with the help of your vendor's OPC Alarm and Event server technical support.

A.9.1 Troubleshooting Flow Chart

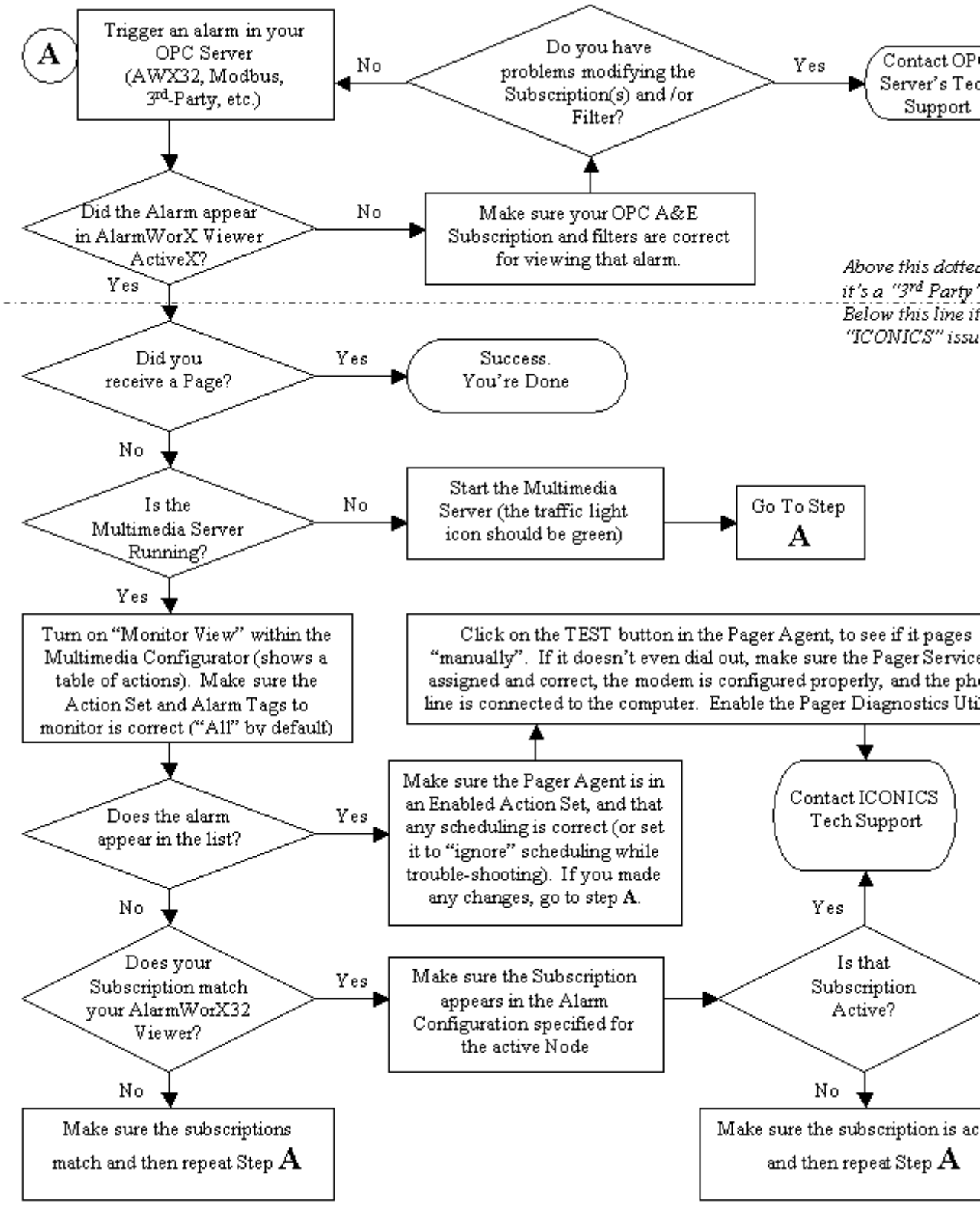

A
Trigger an alarm in your OPC Server (AWX32, Modbus, 3rd-Party, etc.)
No
Do you have problems modifying the Subscription(s) and /or Filter?
Yes
Contact OPC Server's Tec Support
Did the Alarm appear in AlarmWorX Viewer ActiveX?
No
Make sure your OPC A&E Subscription and filters are correct for viewing that alarm.
Yes
Above this dotted
it's a "3rd Party"
Below this line it
"ICONICS" issu
Did you receive a Page?
Yes
Success. You're Done
No
Is the Multimedia Server Running?
No
Start the Multimedia Server (the traffic light icon should be green)
Go To Step A
Yes
Turn on "Monitor View" within the Multimedia Configurator (shows a table of actions). Make sure the Action Set and Alarm Tags to monitor is correct ("All" by default)
Click on the TEST button in the Pager Agent, to see if it pages "manually". If it doesn't even dial out, make sure the Pager Service assigned and correct, the modem is configured properly, and the pho line is connected to the computer. Enable the Pager Diagnostics Uti
Does the alarm appear in the list?
Yes
Make sure the Pager Agent is in an Enabled Action Set, and that any scheduling is correct (or set it to "ignore" scheduling while trouble-shooting). If you made any changes, go to step A.
Contact ICONICS Tech Support
No
Yes
Does your Subscription match your AlarmWorX32 Viewer?
Yes
Make sure the Subscription appears in the Alarm Configuration specified for the active Node
Is that Subscription Active?
No
No
Make sure the subscriptions match and then repeat Step A
Make sure the subscription is ac and then repeat Step A

Figure A.48. Troubleshooting Flowchart

Appendix B: Advanced Telephony Settings

B.1 Overview of Phone Agents Configuration

To set the default settings for the **Phone Agents,** click on the **Phone** folder in the Multimedia Configurator, as shown in **Figure B.1.** If you do not see the **General Settings,** make sure that **Dialog View** is checked on the **View** menu. Please refer to **Chapter 4** and **Chapter 9** for information about general settings for the Phone Agents.

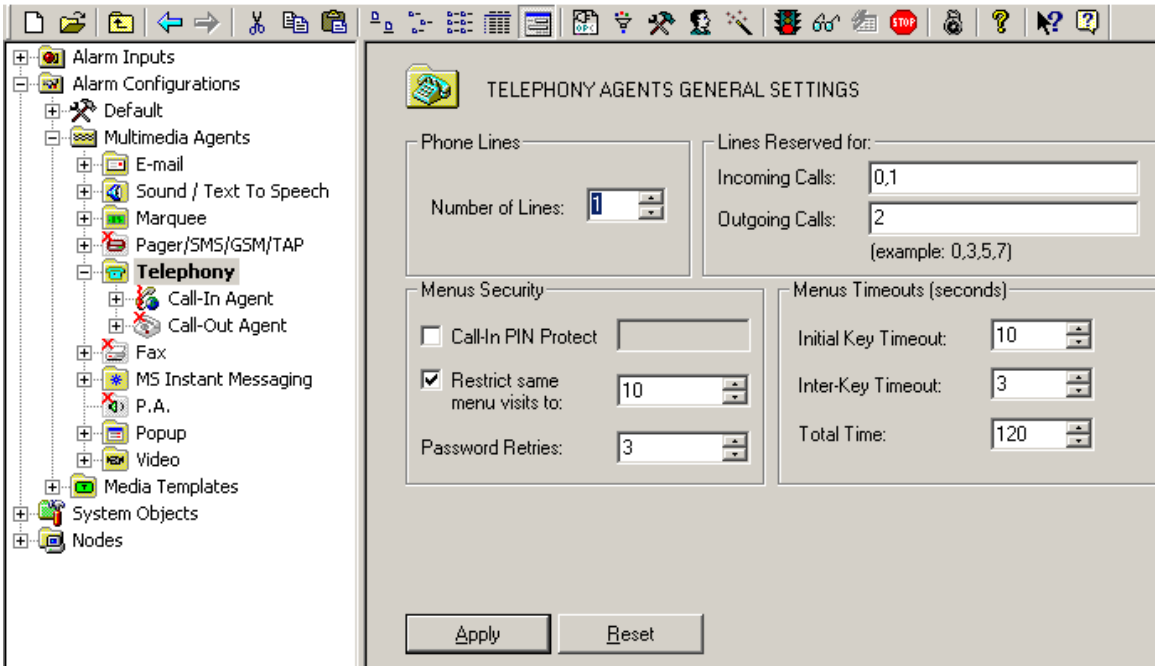


Figure B.1. Telephony Agents: General Settings

Dialogic Configuration

You must have a telephony card installed on the computer on which you are running the Phone Agents (both Call-in and Call-out). AlarmWorX32 Multimedia supports Intel® Dialogic® boards. **Dialogic boards do not work for Windows 98, so neither the Call-in Agent nor the Call-out Agent will work on Windows 98.** You also need to have an analog phone line connected to the board. (**Note:** Digital lines are not supported.) Only Dialogic boards are supported for the current version of AlarmWorX32 Multimedia. Please see **Appendix B** for information about installing and configuring Intel Dialogic boards. For more information about purchasing and installing Intel Dialogic boards, please visit the Intel Web site at www.intel.com/network/csp/products/index_vp.htm.

B.2 Creating Call-out Templates

The Multimedia Configurator provides a default media template for the Call-out Agent. To view this template, select **Alarm Configurations - Media Templates - Default Telephone** from the tree control. The telephone template field will be displayed in the right pane, as shown in **Figure B.2.**

You can create a new template for the Call-out Agent by right-clicking the **Media Templates** folder in the tree control and selecting **New - Media Template** from the pop-up menu. Select the **Phone** radio button in the template configuration field in the right pane, as shown in Figure B.2.

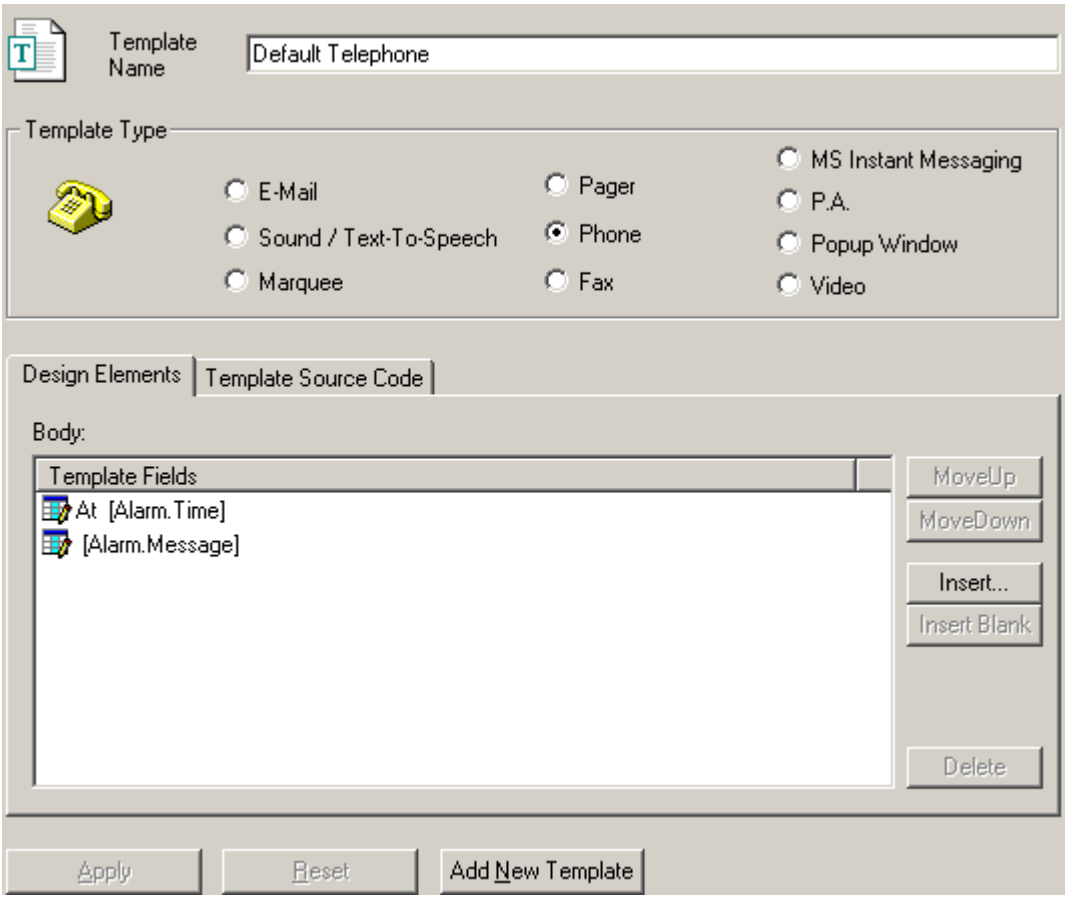


Figure B.2. Default Template for Call-out Agent

In the **Design Elements** tab of the template configuration dialog box, shown in Figure B.2, click the **Insert** button. This opens the **Template Definition Wizard** dialog box, shown in **Figure B.3,** which contains a list of available field types to add. (For a complete list of available field types, please refer to **Chapter 5.**) Choose a field type and select from the additional options under **Field Properties,** and then click **Insert.** If you wish to change the order of the fields or to delete a field, use the appropriate buttons to do so. The **Insert Blank** button will insert a line break.

Two field types—**Sound File** and **Delay**—are used specifically for the Phone Agent templates. (These field types may also be used for video and/or sound / text-to-speech templates.) The **Sound File** field type allows you to select or add a sound file to the phone template.

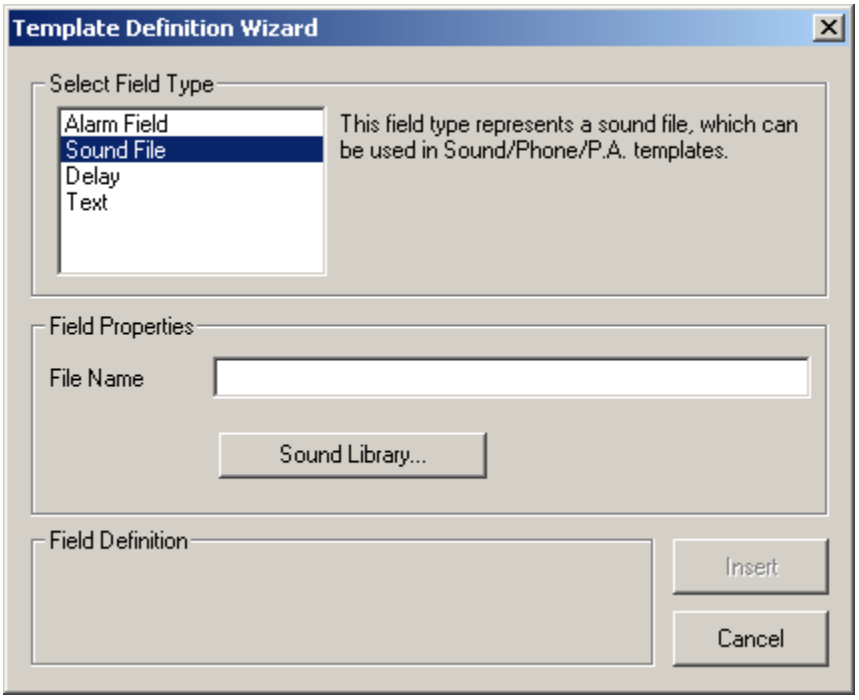


Figure B.3. Template Definition Wizard: Sound File

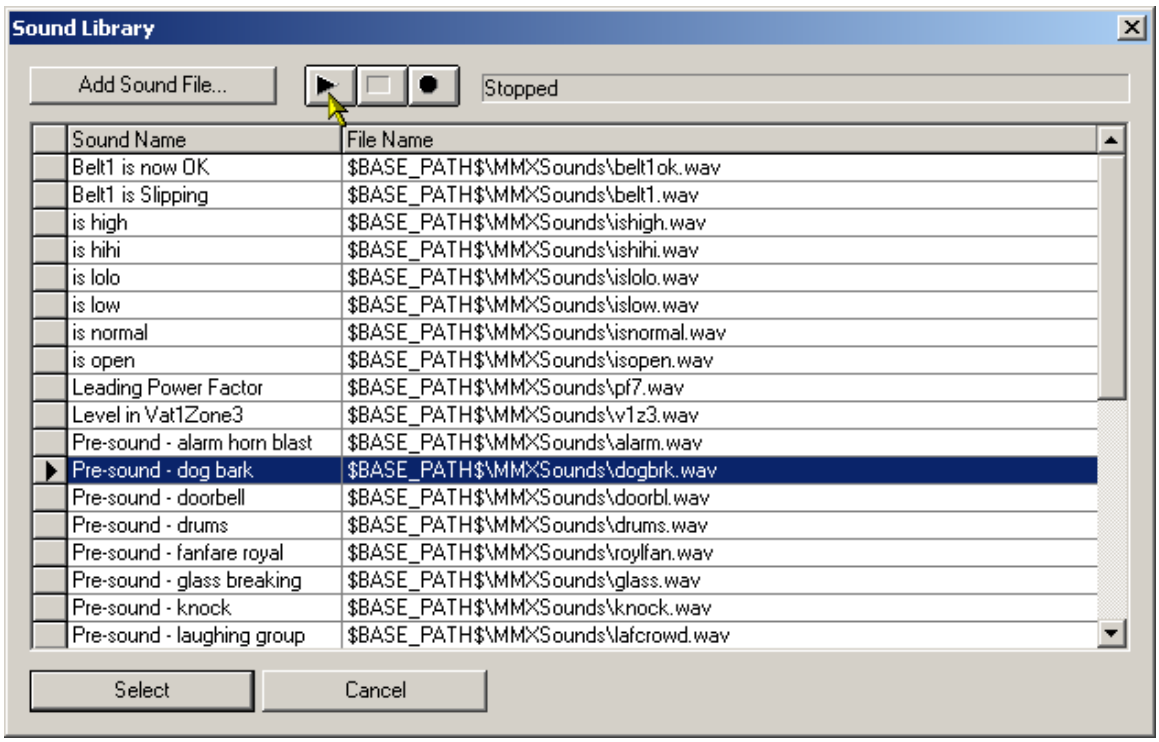


Figure B.4. Sound Library Dialog Box

Clicking on the **Sound Library** button opens the **Sound Library** dialog box, shown in **Figure B.4.** Click the **Add Sound File** button to browse for .wav and .mid files. Click **Open** to add the selected file to the Sound Library. To listen to a file, highlight the file and click the **Play** button, as shown in Figure B.4. To select an existing sound file from the Sound Library, highlight the entire row for that file, and then click the **Select** button. The selected sound file will appear under **Field Definition** in the **Template Definition Wizard** dialog box.

You can also set a delay for the templates by selecting the **Delay** field type in the **Template Definition Wizard** dialog box, as shown in **Figure B.5.** Under **Field Properties,** you can enter the delay time (in milliseconds) before the next template can be activated. Click the **Insert** button to add the delay to the list of template fields.

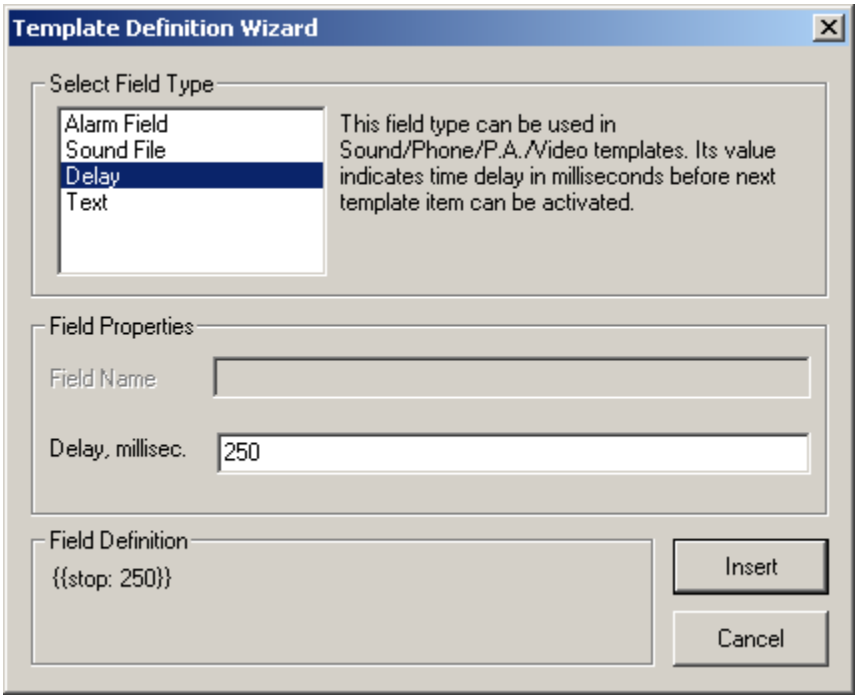


Figure B.5. Template Definition Wizard: Delay

All current template fields are displayed the **Design Elements** tab (see Figure B.3). The **Field Definition** for these template fields is also displayed in the **Template Source Code** tab, shown in **Figure B.6,** where you can manually edit a template field if desired.

Note: The **Template Source Code** tab is recommended for advanced users only. Do not modify any fields here unless you are absolutely sure of what you are doing. For more information about templates, please refer to **Chapter 5.**

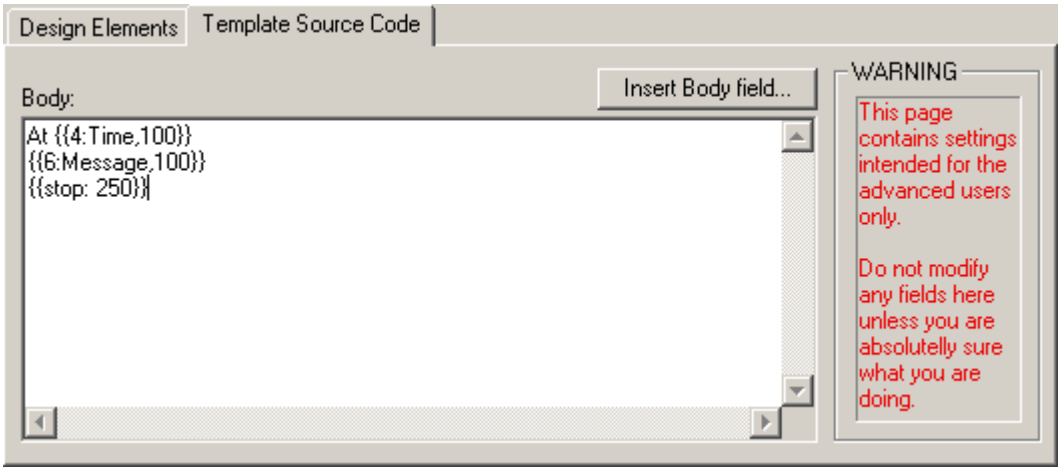


Figure B.6. Template Source Code Tab

To save the changes to your template, click the **Apply** button in the phone template configuration field. Now you can go to the Phone Agent configuration field under the **Multimedia Agents - Phone** folder in the tree control of the Configurator and select your template from the **Use Template** drop-down list, as shown in **Figure B.7.** Be sure to click the **Test** button to test your configuration.

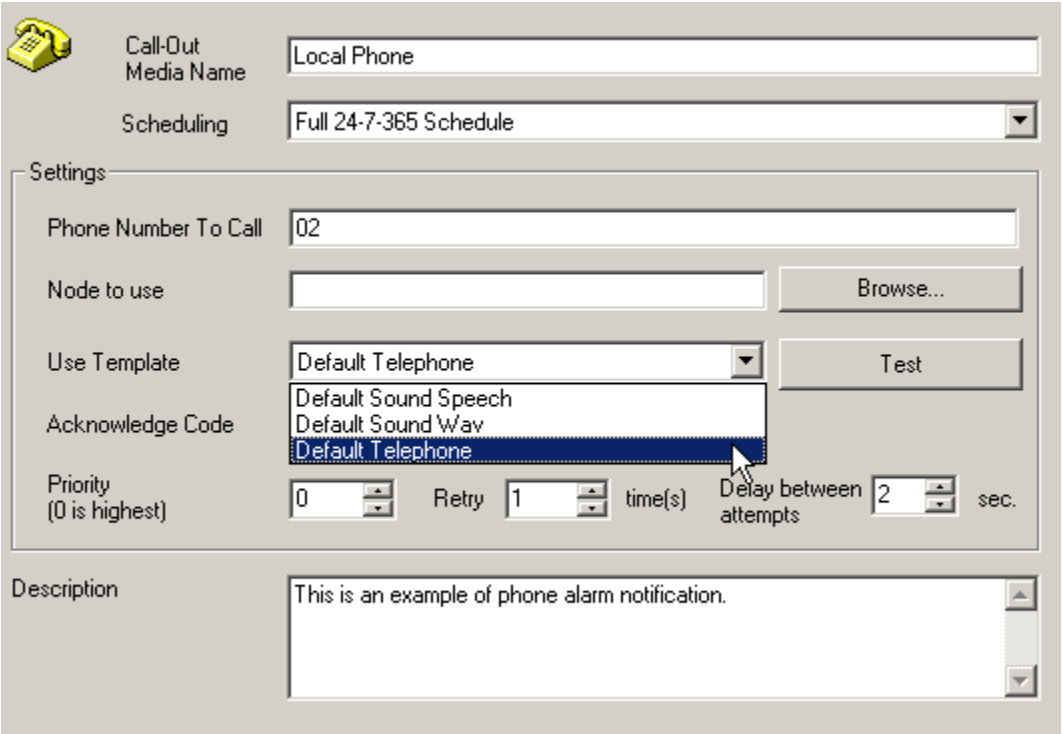


Figure B.7. Selecting the Template in the Telephony Agent Configuration

B.3 Intel Dialogic Boards

Generally, any Intel Dialogic telephony card will work with the Phone Agent. It requires the proper installation of Intel Dialogic System Release Version 5.1 software as well as proper card installation and configuration. The Phone Agent uses Topaz tools for working with Intel Dialogic System Release Version 5.1 software. Topaz components are embedded in the Phone Agent. The following Intel Dialogic telephony cards have been tested:

- D/4PCI (supports up to four phone lines)
- Dialog/4 ISA (supports up to two phone lines)
- ProLine/2V (supports up to two phone lines)

Note: For more information about purchasing and installing Intel Dialogic boards, please visit the Intel Web site at www.intel.com/network/csp/products/index_vp.htm.

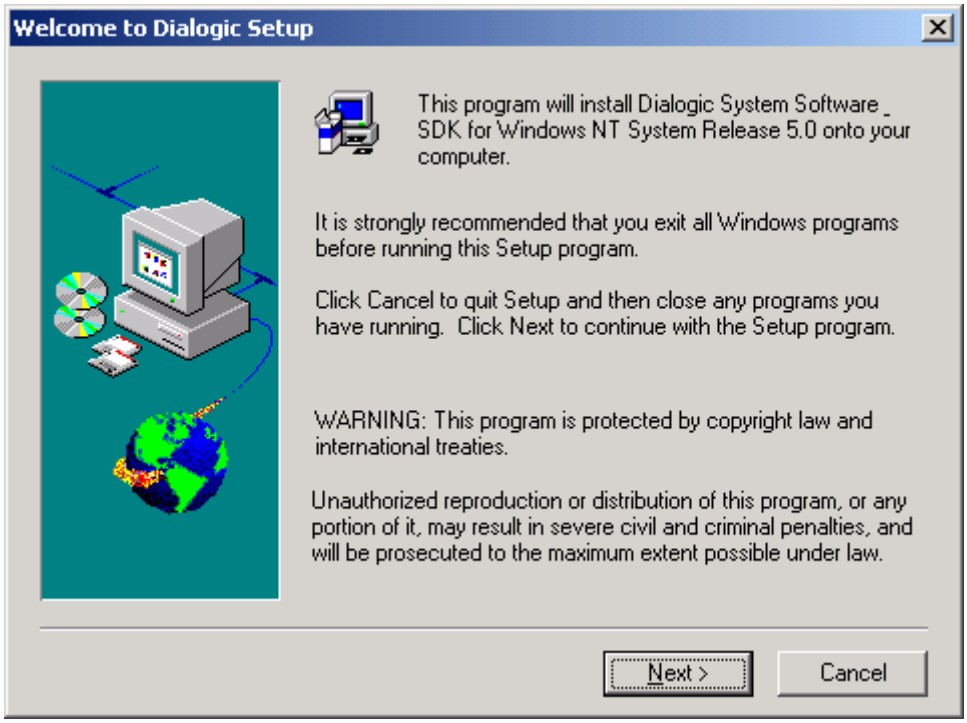


Figure B.8. Welcome to Dialogic Setup Installation Screen

B.3.1 Installing Intel Dialogic Boards

This section describes the procedure for installing Intel Dialogic System Release Version 5.1 software.

Note: Please refer to the Intel Dialogic help documentation for more information.

1. Insert the Intel Dialogic System Release Version 5.1 CD.
2. The **Welcome to Dialogic Setup** dialog box will appear, as shown in **Figure B.8.** Click the **Next** button to continue.
3. The **Registration** dialog box will appear. Enter your name and your company's name. Click the **Next** button to continue.

4. The **Setup Options** dialog box will appear. Select the **Typical** setup. Click the **Next** button to continue.
5. The **Destination Location** dialog box will appear, as shown in **Figure B.9.** Click the **Browse** button to select a directory for installation. Click **Next.**

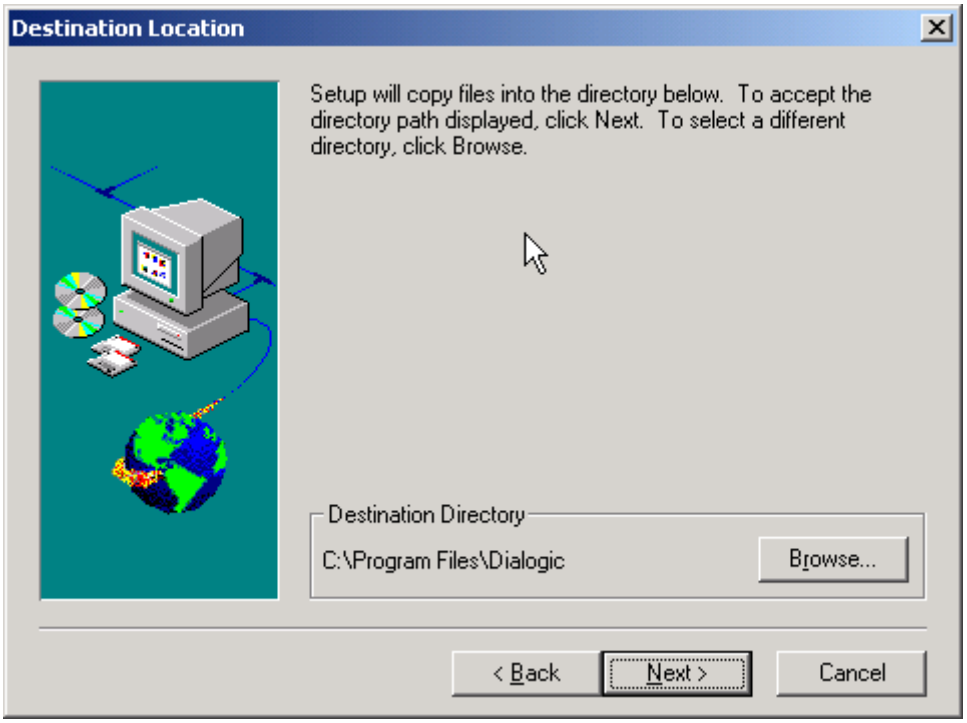


Figure B.9. Choosing a Location for the Installed Files

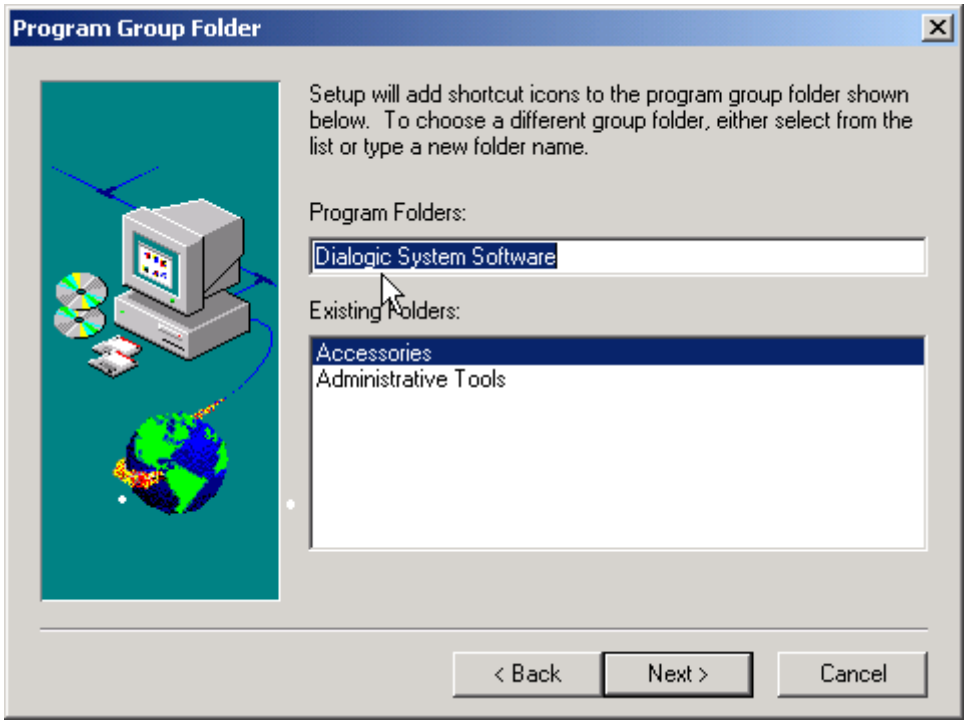


Figure B.10. Specifying the Program Group Folder

6. The **Program Group Folder** dialog box will appear, as shown in **Figure B.10.** Specify a program folder, and then click the **Next** button to continue.
7. The **Selecting Options Summary** dialog box will appear, listing the settings that you have chosen. To accept the settings, click the **Next** button.
8. The installation will now copy files to your system.
9. The **Selection** dialog box will appear, as shown in **Figure B.11.** Check the **View Release Guide** check box, and then click the **Next** button to complete installation.
10. The **Setup Complete** dialog box will appear. It is recommended that you restart your computer. Click the **Finish** button to complete the installation. Now you are ready to install and configure a telephony card.

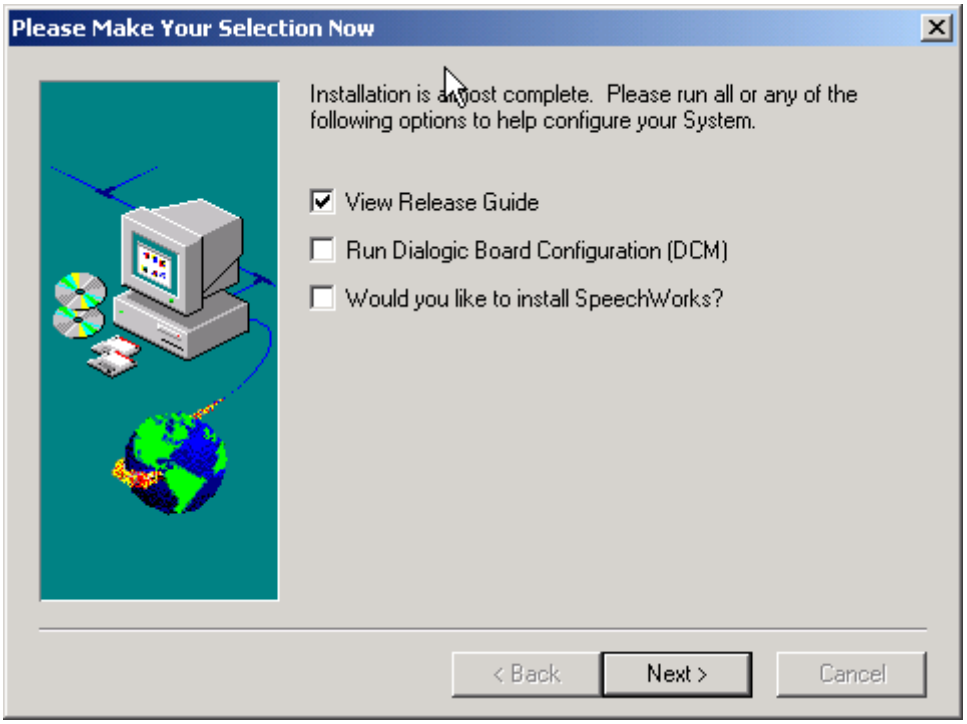


Figure B.11. Selection Dialog Box

B.4 Installing and Configuring Telephony Cards

This section covers the procedure for installing and configuring the Dialogic Proline/2V telephony card. (You can use other telephony cards if desired.) The following steps must be followed to ensure proper card installation and configuration. Click on the **Help** menu at any time to view the Dialogic help documentation.

1. Install the Intel Dialogic Proline/2V card as it described in the manual, which can be found inside the card package.
2. Start the **Dialogic Configuration Manager,** as shown in **Figure B.12.**

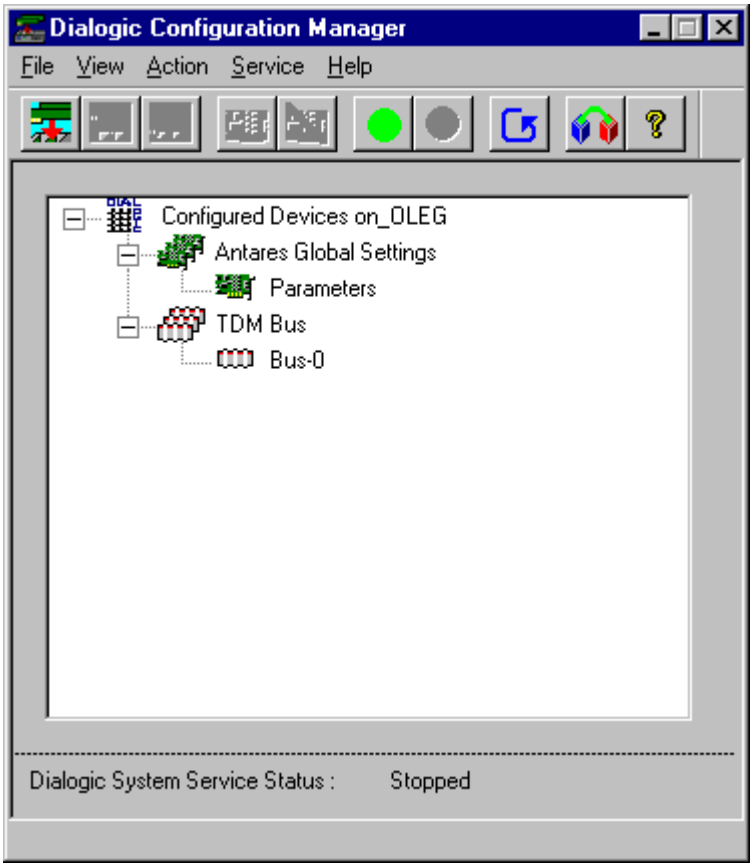


Figure B.12. Dialogic Configuration Manager

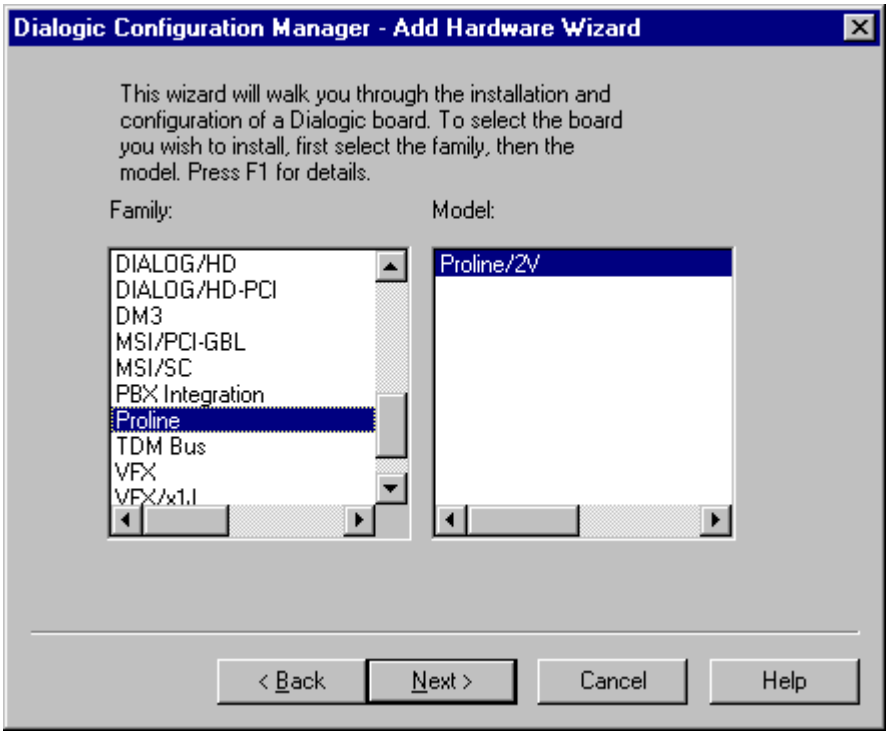


Figure B.13. Add Hardware Wizard: Choosing the Telephony Card

3. Select **Add Device** from the **Action** menu. This opens the **Add Hardware Wizard** dialog box, as shown in **Figure B.13.** Scroll down the list of cards under **Family** and select **Proline.** Then, under **Model,** select **Proline/2V.** Click the **Next** button to continue.
4. Enter a unique name for the board, as shown in **Figure B.14.** Click the **Next** button to continue.

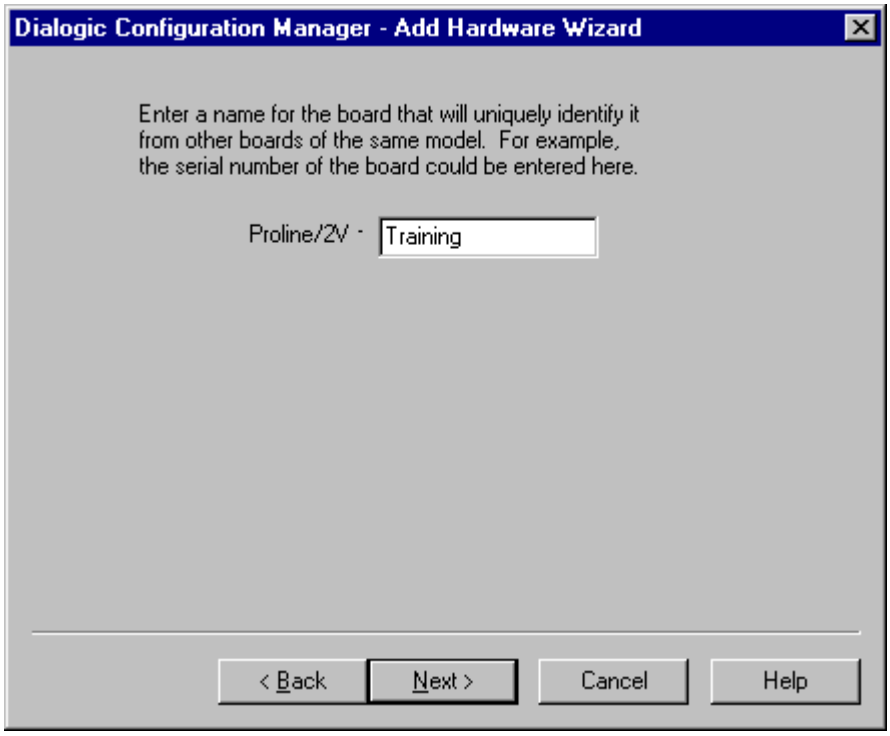


Figure B.14. Add Hardware Wizard: Naming the Board

5. This opens the **Properties** dialog box for the telephony card, as shown in **Figure B.15.** On the **System** tab, select the correct memory address from the **Parameter** field. In this case it is "d2000", as shown in Figure B.15. Also choose the same interrupt number that was chosen during the actual card installation.

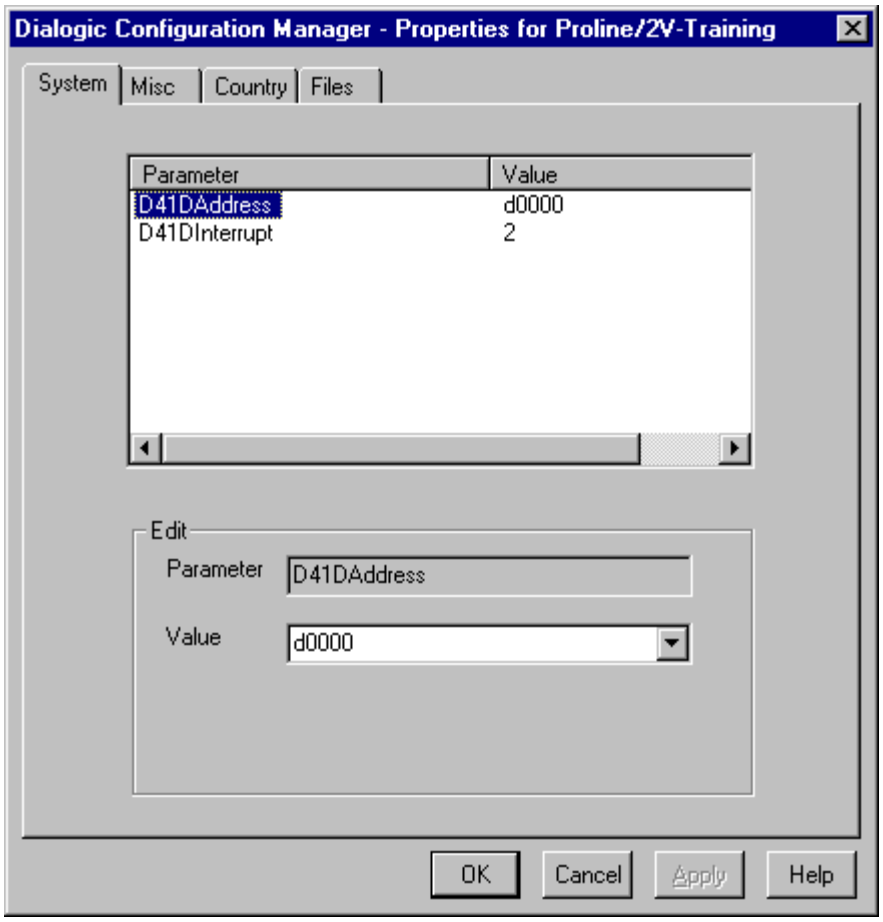


Figure B.15. Dialogic System Properties

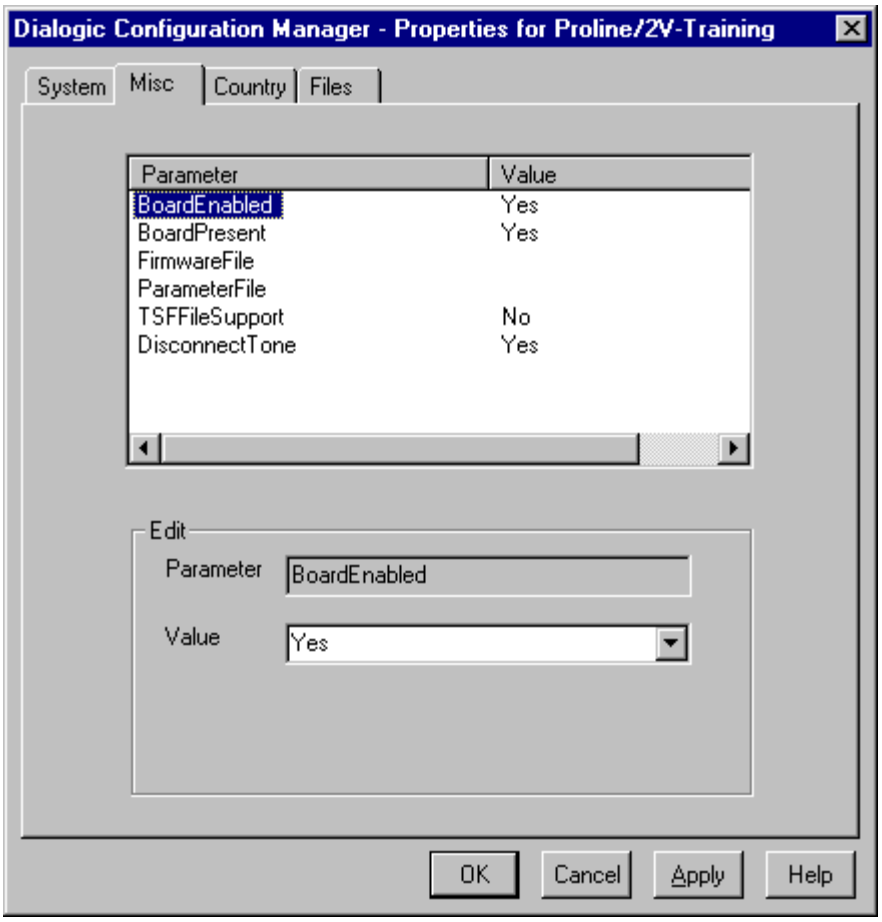


Figure B.16. Dialogic Miscellaneous Properties

6. Click on the **Misc** tab on the **Properties** dialog box, as shown in **Figure B.16.** Verify that the configured parameters are correct. Then click **Apply** and **OK.**
7. **Figure B.17** shows how a properly configured Proline/2V card looks. Now you are ready to start the service.

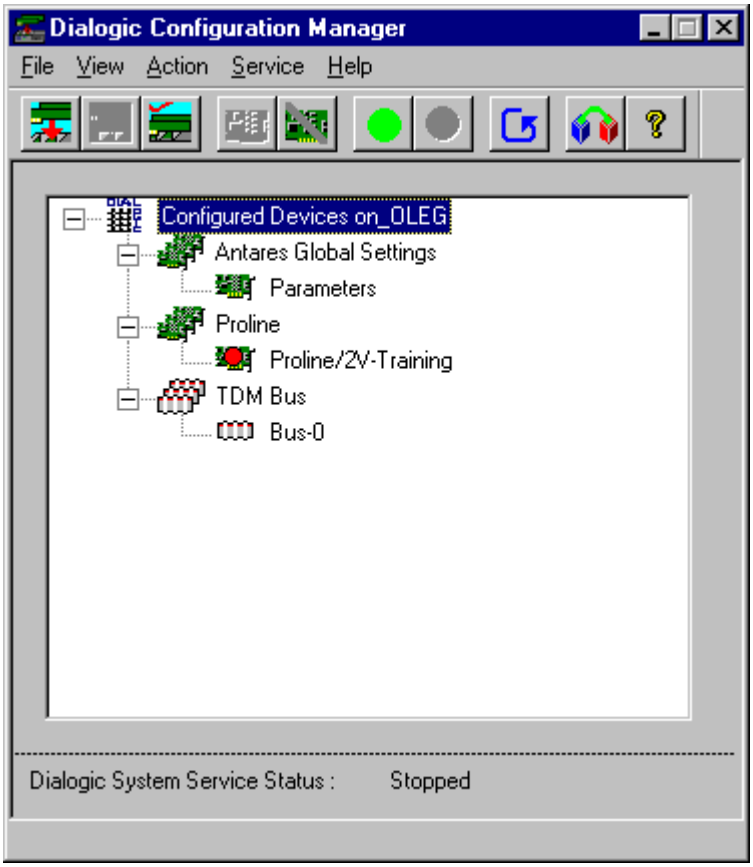


Figure B.17. Completed Card Configuration

8. To start the service, click the **Start Service** (green circle) button on the **Diagnostic Configuration Manager** toolbar. This will start the Proline/2V telephony card, as shown in **Figure B.18.** The Status box will indicate whether the telephony card started successfully. Now you are ready to start using the Phone Agent.

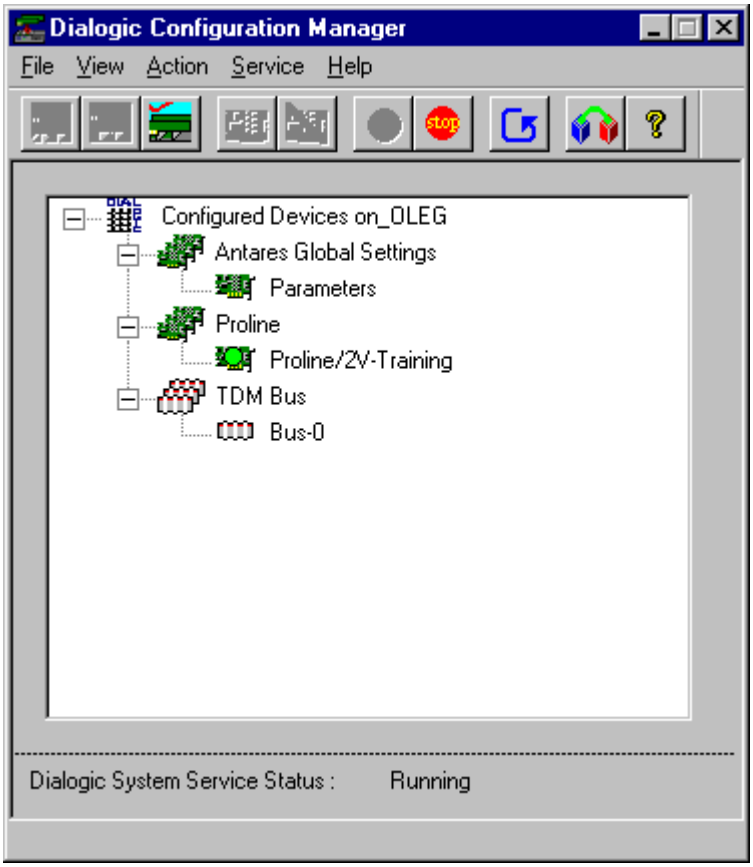


Figure B.18. Activated Telephony Card

B.5 Using the Dialogic Diagnostic Utility

The **Universal Dialogic Diagnostic Utility** (UDDU) provides diagnosis of telephony card failure or other problems.

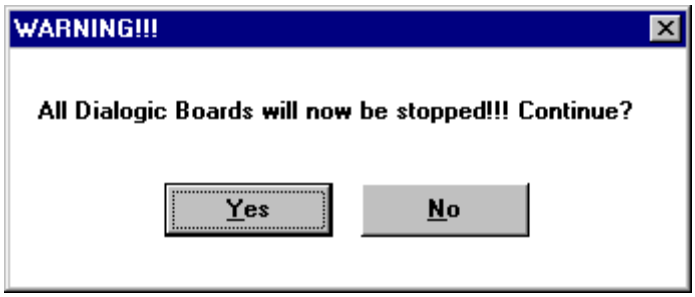


Figure B.19. Universal Dialogic Diagnostic Utility Warning

1. Go to "Program Files/Dialogic System Software/Universal Dialogic Diagnostics Utility" to start the UDDU. A message box will appear warning you that the UDDU is about to stop all configured and running Dialogic boards, as shown in **Figure B.19.** Click **Yes** to stop the Dialogic boards, in order for the UDDU to work properly. This opens the **Universal Dialogic Diagnostics** screen, shown in **Figure B.20.**

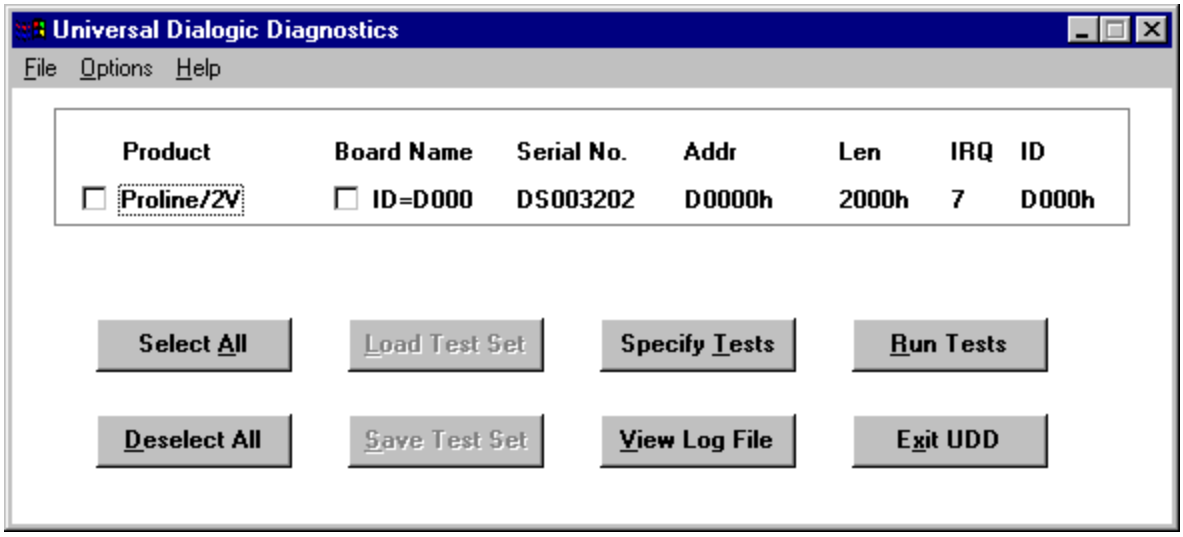


Figure B.20. Universal Dialogic Diagnostics Utility Screen

2. Check the **Proline/2V** check box, as shown in Figure B.20, and then click the **Specify Tests** button.

3. This opens the **Specify Tests** dialog box, shown in **Figure B.21.** Choose the appropriate tests from the list, and then click **OK.**
4. Click **Run Tests,** and then analyze the results. If you need any help, refer to the Dialogic help documentation.

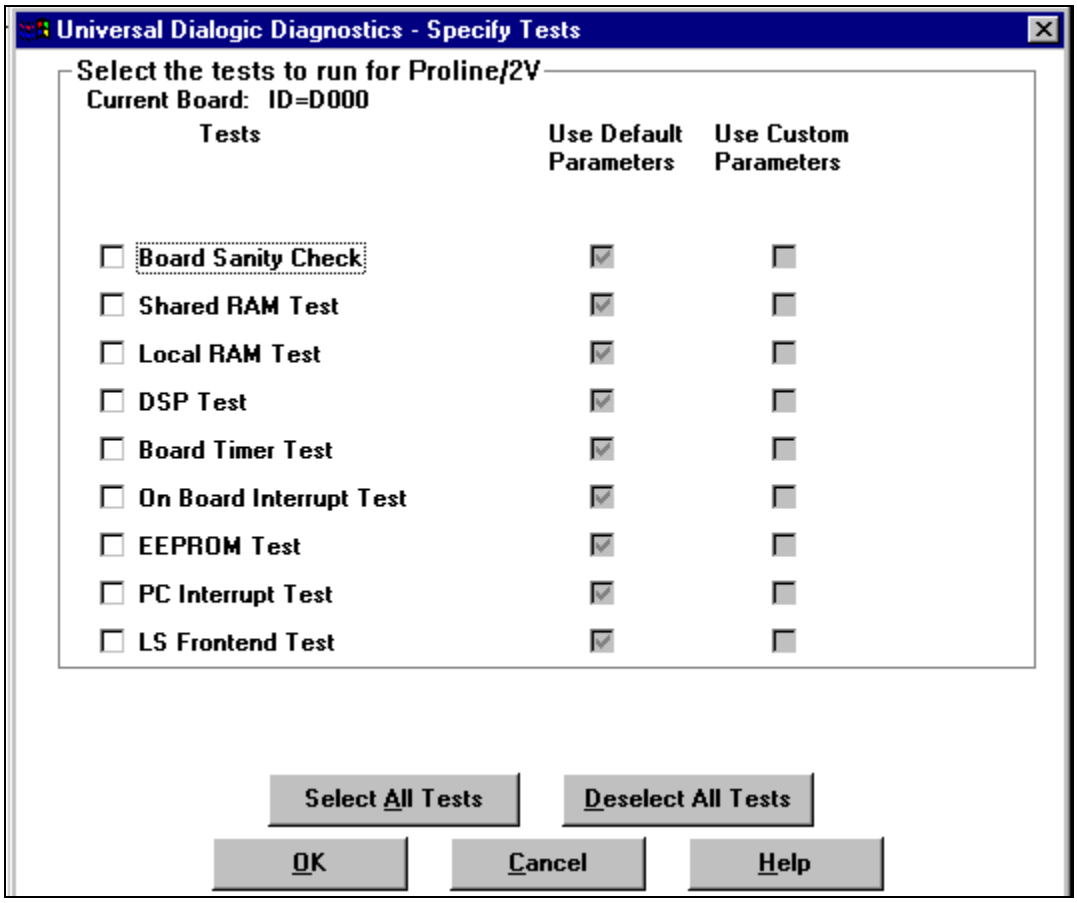


Figure B.21. Specifying Diagnostics Tests for the Card

Note: It is a good idea to test the Dialogic card has been installed and configured. Dialogic provides several sample applications that can be used for this purpose. The Voice Horoscope program is a good starting application. To launch it, select **Start > Programs > Dialogic System Software > Dialogic Sample Programs > Voice Horoscope.** Once the program is launched, select

Channels > Open. The program is now ready to receive phone calls. If the Dialogic card is correctly installed, you should hear a response to a call.

Appendix C: Advanced Video Settings

C.1 Configuring a Video Capture Device

The Multimedia Video Agent allows you to send a video or a video snapshot to a computer providing alarm information. The general settings for video agents may vary depending on which device is used. General settings will only function if you have a video capture device (Web camera) installed on your computer. If no video capture device is found, you will get an error message informing you that the application could not find any video capture devices.

If you are using a remote node for video capture, you will have to go to the remote node and change the settings for video capture on that node. If there is no Multimedia Configurator installed on your video capture node, then you can run the "bin/'MMXSnapshot.exe" to set the general settings.

Although many different kinds of video capture devices can be used with the Video Agent, we will use the Logitech® QuickCam® video camera here as an example configuration. This example assumes that the Logitech QuickCam software has already been installed on the system. Once the video capture device is installed, go to the **Alarm Configurations - Multimedia Agents - Video** folder on the tree control of the Multimedia Configurator. Click on the **General Settings** button, as shown in **Figure C.1.** If you do not see the **General Settings** button, make sure that **Dialog View** is checked on the **View** menu.

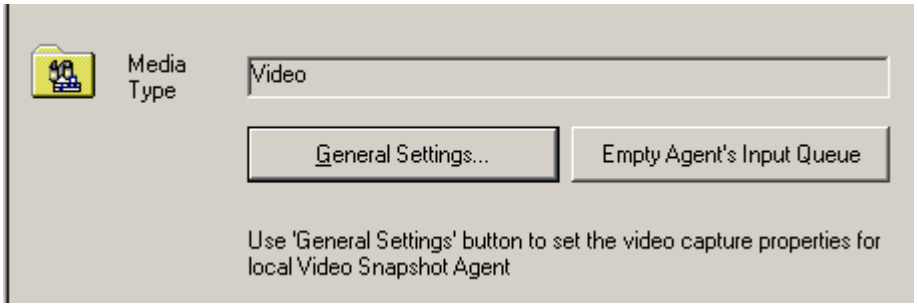


Figure C.1. Video Agent: General Settings

C.1.1 SnapShot Configuration

Clicking **General Settings** opens the **Snapshot Configuration** dialog box, shown in **Figure C.2.** The **Snapshot Configuration** dialog box contains the following options.

Display

Clicking the **Display** button in the **Snapshot Configuration** dialog box allows you to choose display properties for the video capture device. In this case, the display properties are not supported by Logitech QuickCam, so a message appears as shown in **Figure C.3.**

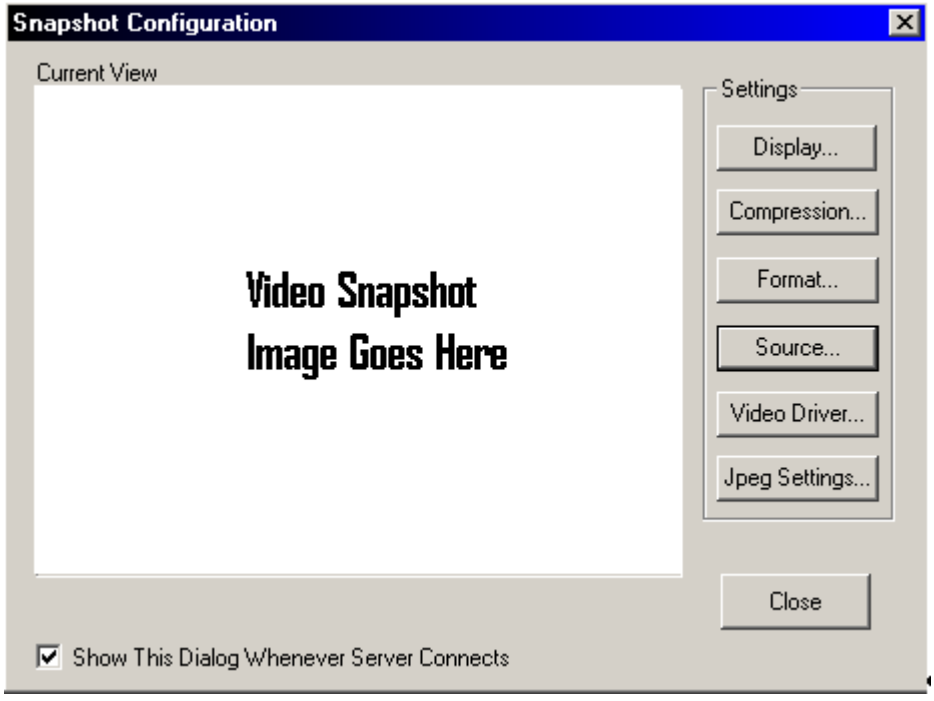


Figure C.2. Snapshot Configuration Dialog Box



Figure C.3. Display Properties Not Supported

Compression

Clicking the **Compression** button in the **Snapshot Configuration** dialog box allows you to choose a component to use if you wish to compress the video files, as shown in the **Video Compression** dialog box in **Figure C.4.**

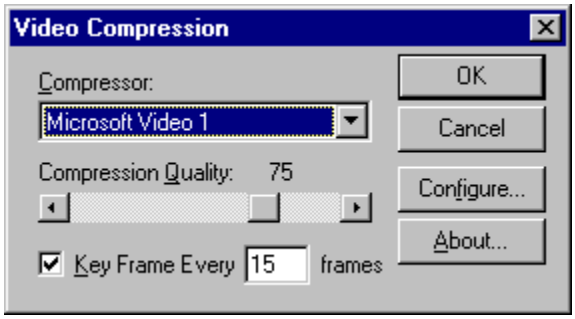


Figure C.4. Video Compression Setup

Format

Clicking the **Format** button in the **Snapshot Configuration** dialog box allows you to set options such as color, mirror, flip, and size, as shown in **Figure C.5.** Choose the desired settings, and then click **OK.**

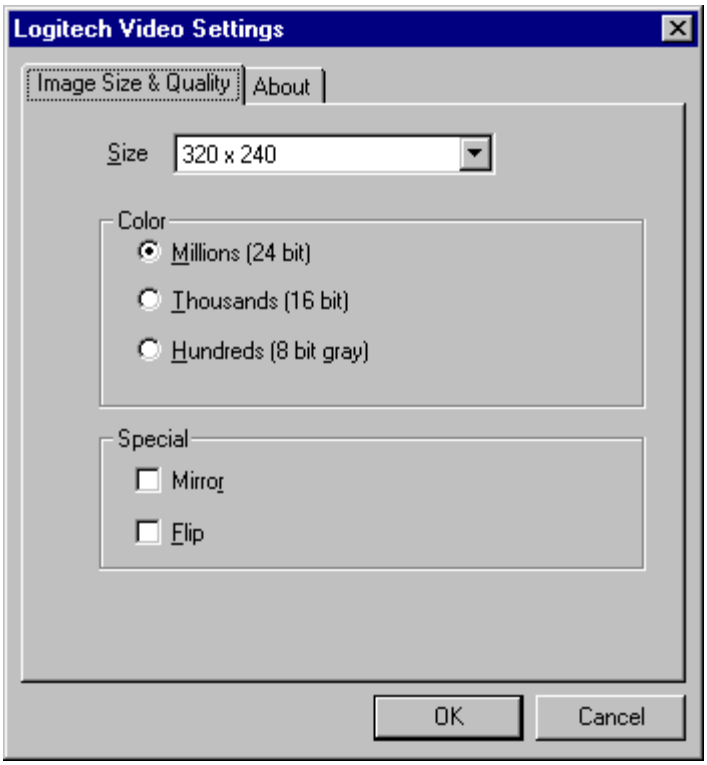


Figure C.5. Video Settings: Format

Source

Clicking the **Source** button in the **Snapshot Configuration** dialog box allows you to configure hardware settings based on the video driver you choose to use. As shown **in Figure C.6,** you can specify the brightness, hue, quality, exposure time, and light sensitivity.

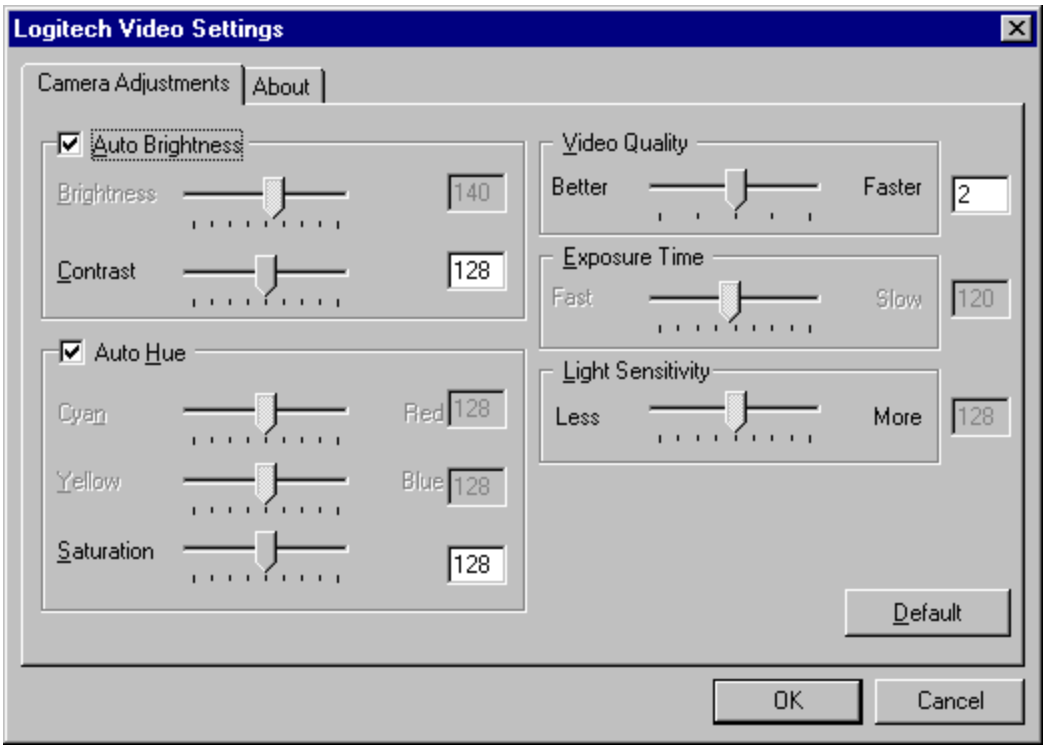


Figure C.6. Video Settings: Source

Video Driver

Clicking the **Video Driver** button in the **Snapshot Configuration** dialog box opens the **Video Capture Selection** dialog box, shown in **Figure C.7.** Select the video capture driver from the drop-down list.

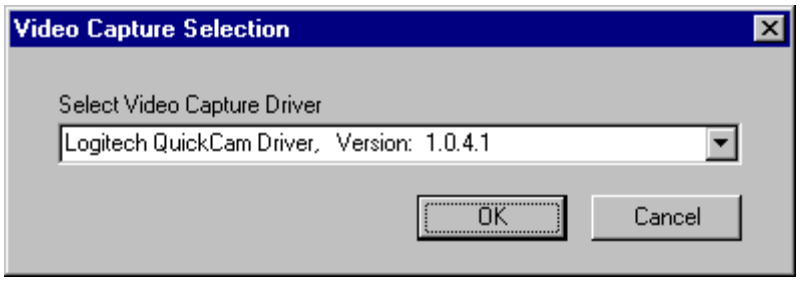


Figure C.7. Video Capture Driver Selection

JPEG Settings

Clicking the **Jpeg Settings** button in the **Snapshot Configuration** dialog box allows you to select the quality level and the option to display in color or grayscale for snapshots, as shown in **Figure C.8.**

Note: For details about Video Agent configuration fields, refer to **Chapter 4.**

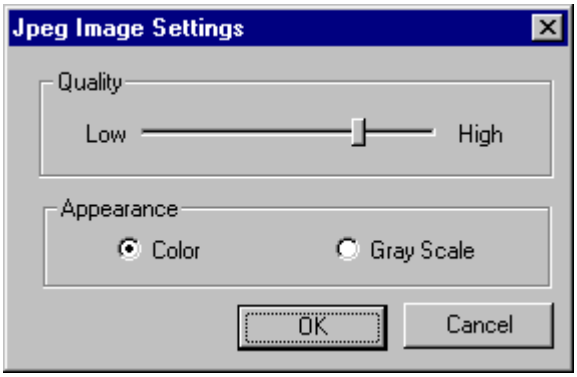


Figure C.8. Jpeg Image Settings for Video Camera

C.2 Creating Video Templates

The Multimedia Configurator provides a default template for the Video Agent. To view this template, select **Alarm Configurations - Media Templates - Default Video** from the tree control. The video template field will be displayed in the right pane, as shown in **Figure C.9.**

You can create a new template for the Video Agent by right-clicking the **Media Templates** folder in the tree control and selecting **New - Media Template** from the pop-up menu. Select the **Video** radio button in the template configuration field in the right pane, as shown in Figure C.9.

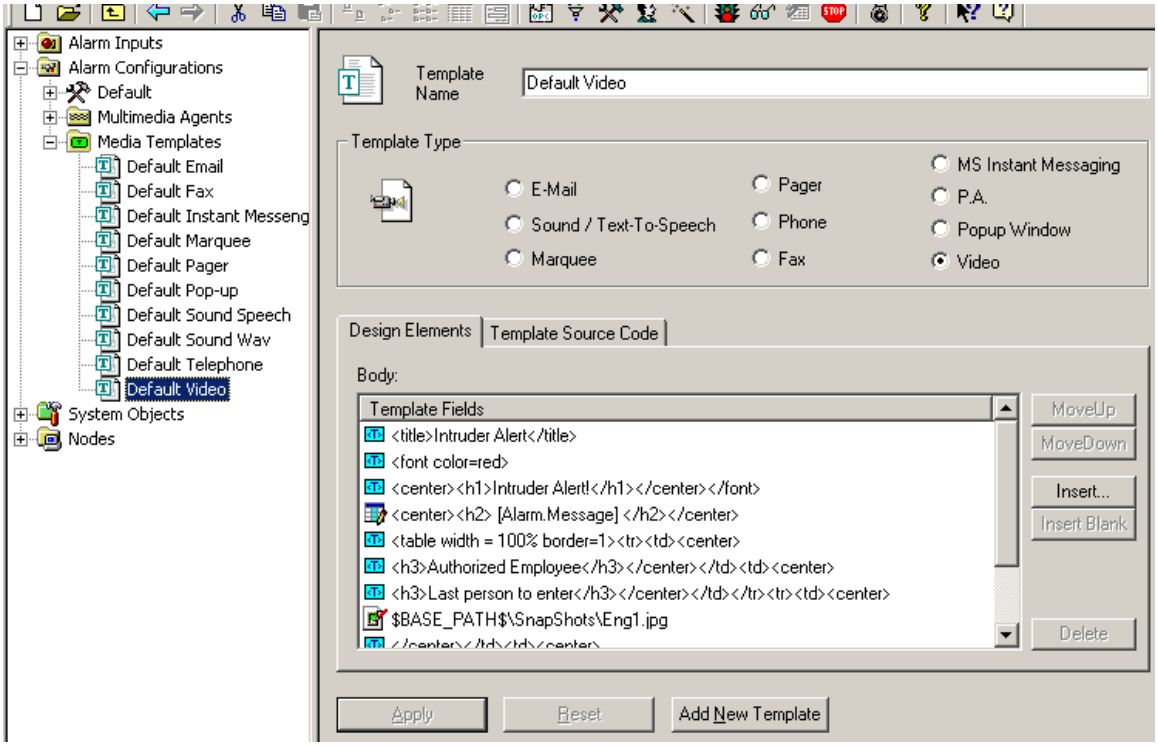


Figure C.9. Default Template for Video Agent

In the **Design Elements** tab of the template configuration dialog box, shown in Figure C.9, click the **Insert** button. This opens the **Template Definition Wizard** dialog box, shown in **Figure C.10,** which contains a list of available field types to add. (For a complete list of available field types, please refer to **Chapter 5.**) Choose a field type and select from the additional options under **Field Properties,** and then click **Insert.** If you wish to change the order of the fields or to delete a field, use the appropriate buttons to do so. The **Insert Blank** button will insert a line break.

Three field types—**SnapShot Capture, Picture File,** and **Video File**—are used specifically for the Video Agent templates. (**Picture File** and **Video File** field types may also be used for popup templates.)

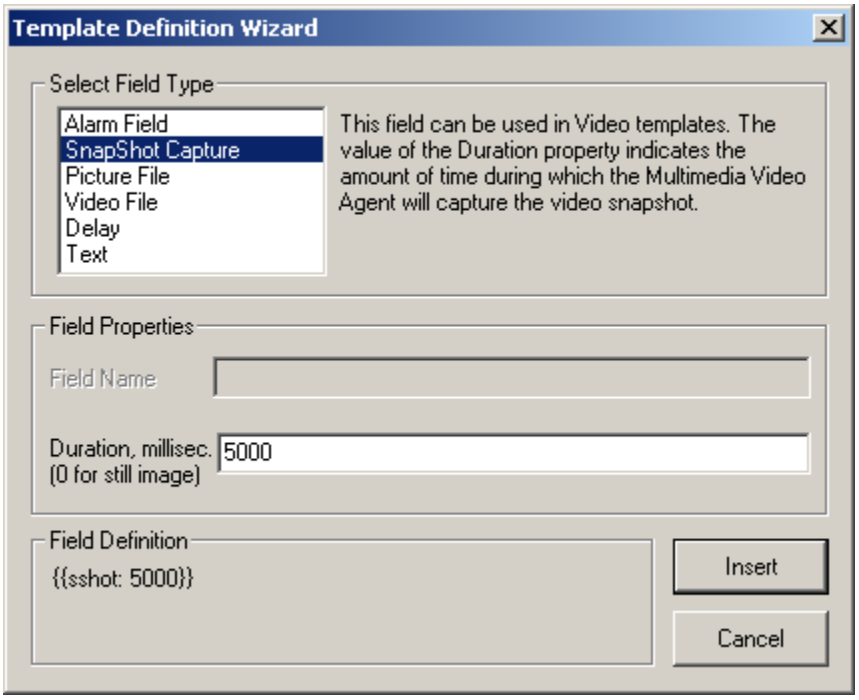


Figure C.10. Template Definition Wizard: SnapShot Capture Field

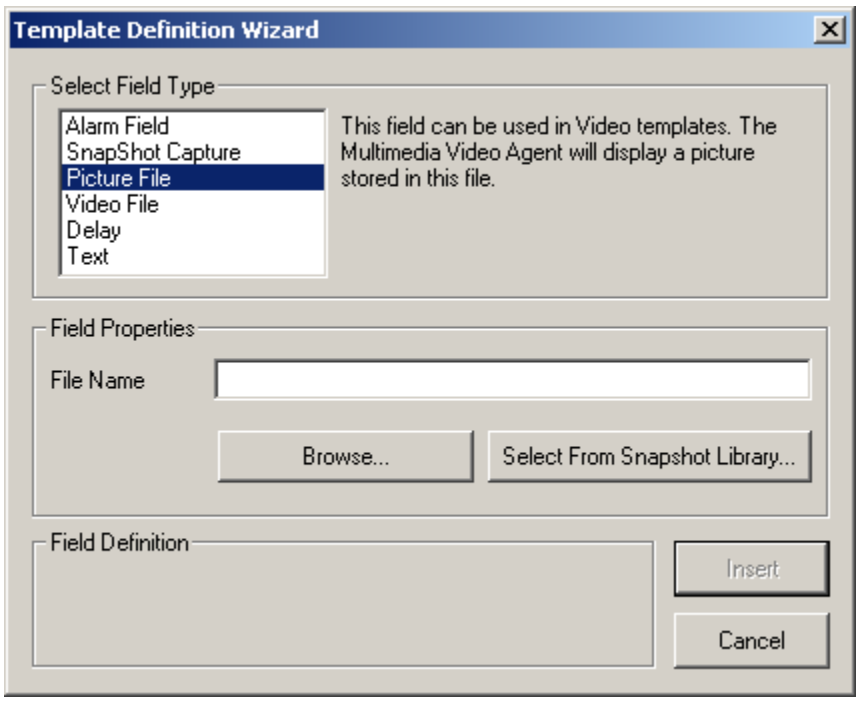


Figure C.11. Template Definition Wizard: Picture File Field

SnapShot Capture

In the **SnapShot Capture** field type in the **Template Definition Wizard** dialog box, you can set the amount of time (in milliseconds) during which the Video Agent will capture the video snapshot, as shown in **Figure C.10.**

Picture Files

In the **Picture File** field type in the **Template Definition Wizard** dialog box, shown in **Figure C.11,** you can choose a picture file (.jpg, .jpeg, .gif) for the Video Agent to display. Click the **Browse** button to select a file. You can also click the **Select From Snapshot Library** button to choose from a list of existing picture files.

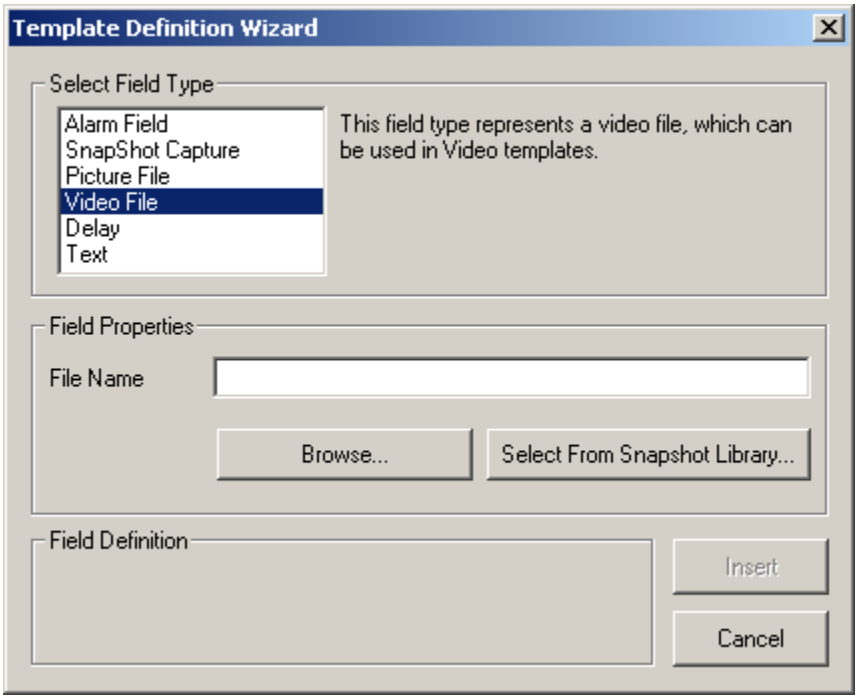


Figure C.12. Template Definition Wizard: Video File Field

Video Files

The **Video File** field type in the **Template Definition Wizard** dialog box, shown in **Figure C.12,** is similar to the **Picture File** field. You can choose a video file (.avi, .mpg, .mpeg, .mov) for the Video Agent to display. Click the **Browse** button to select a file. You can also click the **Select From Snapshot Library** button to choose from a list of existing video files.

This opens the **Snapshot Library,** shown in **Figure C.13.** To view an image in the Snapshot Library, highlight the row of that image, and then click the **Play/Show** button. You can also add existing images to the Snapshot Library by clicking the **Add Snapshot** button. This allows you to browse for an image to add. Select the image file, and then click **Open.**

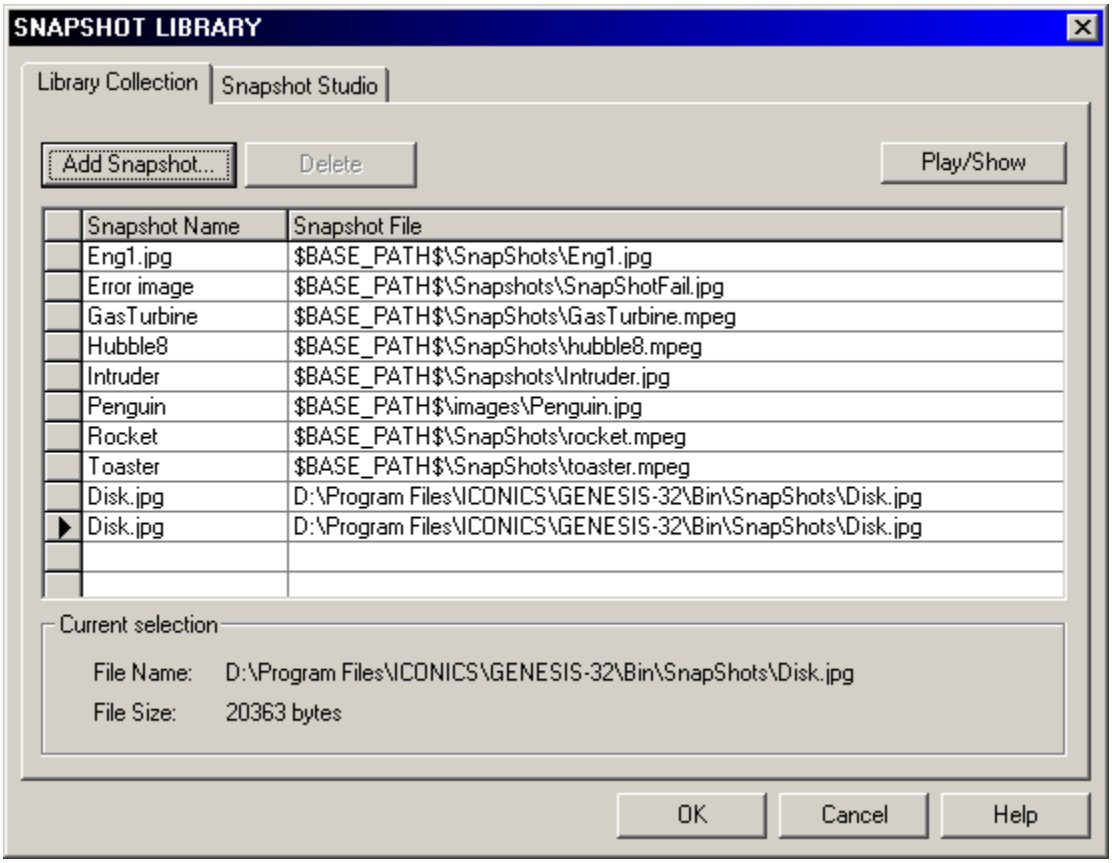


Figure C.13. Snapshot Library: Library Collection

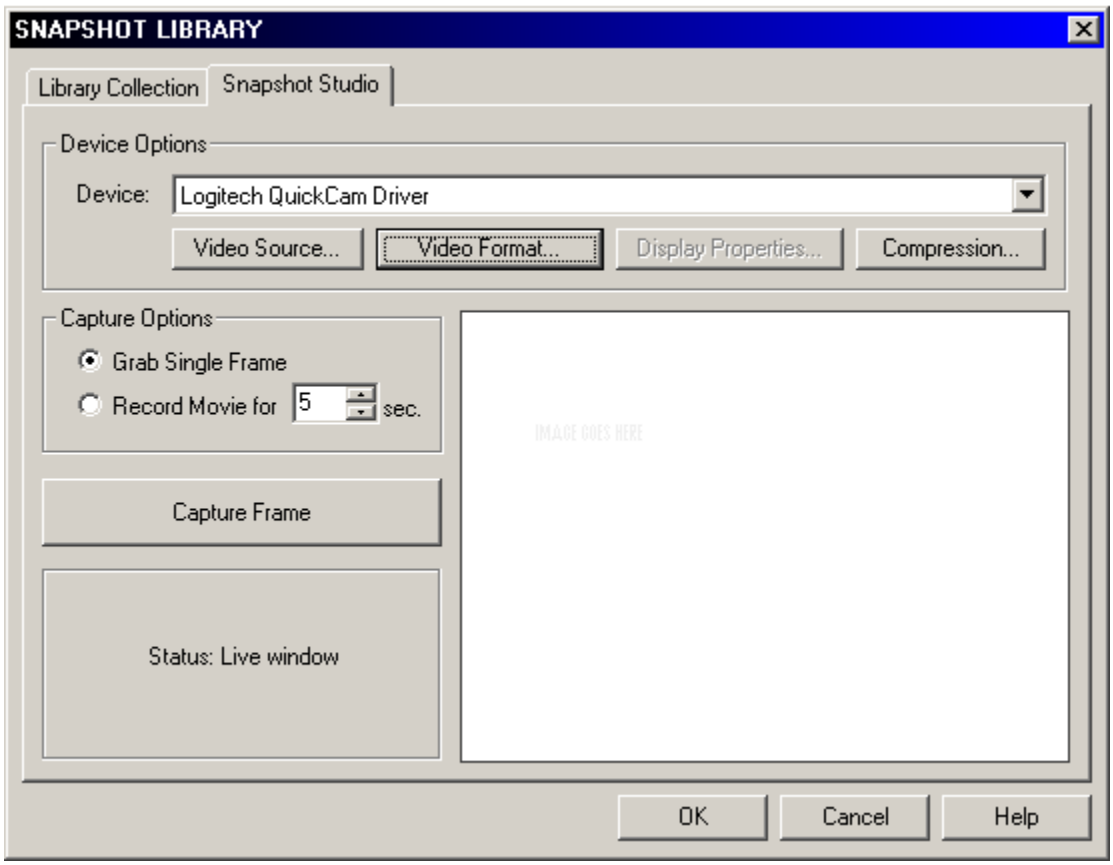


Figure C.14. Snapshot Library: SnapShot Studio

To add a brand new image to the Snapshot Library, click on the **Snapshot Studio** tab, as shown in **Figure C.14.** Select the appropriate video capture device from the **Device Options** field. You may also adjust the **Video Source, Video Format**, or **Compression** (as described above). The **Capture Options** field allows you to capture a single picture frame or to record a movie for a specified duration (in seconds).

After all settings are configured, click the **Capture Frame** button. This captures the image shown in the window to the right. Save the captured picture or movie in .jpg or .avi format, respectively. Then you can add this snapshot to the library and use it later for video template modifications.

Delay

You can also set a delay for the templates by selecting the **Delay** field type in the **Template Definition Wizard** dialog box, as shown in **Figure C.15.** Under **Field Properties,** you can enter the delay time (in milliseconds) before the next template can be activated. Click the **Insert** button to add the delay to the list of template fields.

All current template fields are displayed in the **Design Elements** tab (see Figure C.9). The **Field Definition** for these template fields is also displayed in the **Template Source Code** tab, shown in **Figure C.16,** where you can manually edit a template field if desired. You can also add HTML code to the template.

Note: The **Template Source Code** tab is recommended for advanced users only. Do not modify any fields here unless you are absolutely sure of what you are doing. Refer to **Chapter 5** for information about HTML commands for video templates.

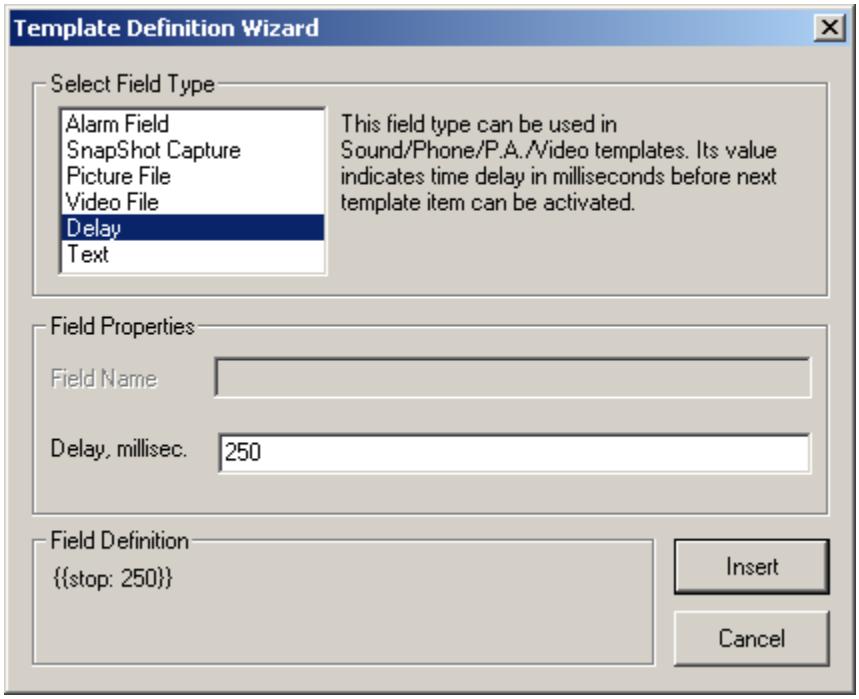


Figure C.15. Template Definition Wizard: Delay

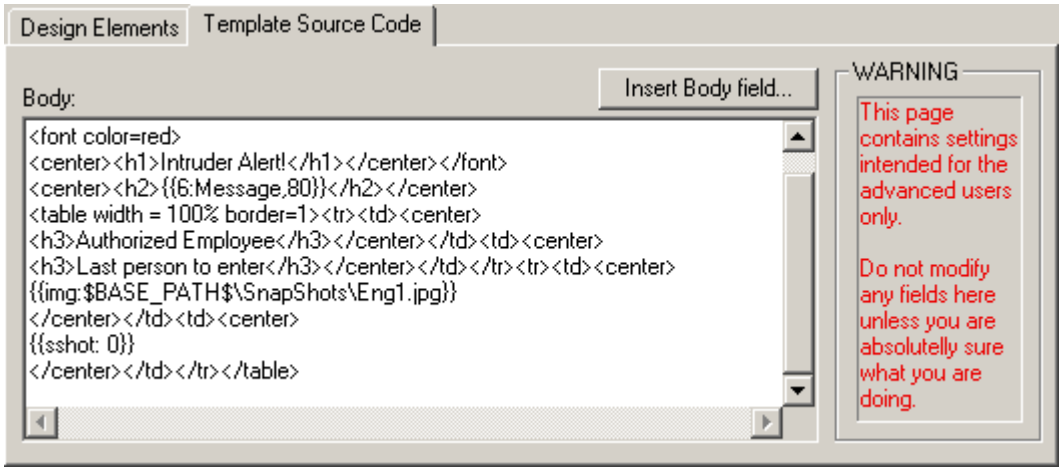


Figure C.16. Template Source Code Tab

To save the changes to your template, click the **Apply** button in the video template configuration field. Now you can go to the Video Agent configuration field under the **Multimedia Agents - Video** folder in the tree control of the Configurator and select your template from the **Use Template** drop-down list, as shown in **Figure C.17.** Be sure to click the **Test** button to test your configuration.

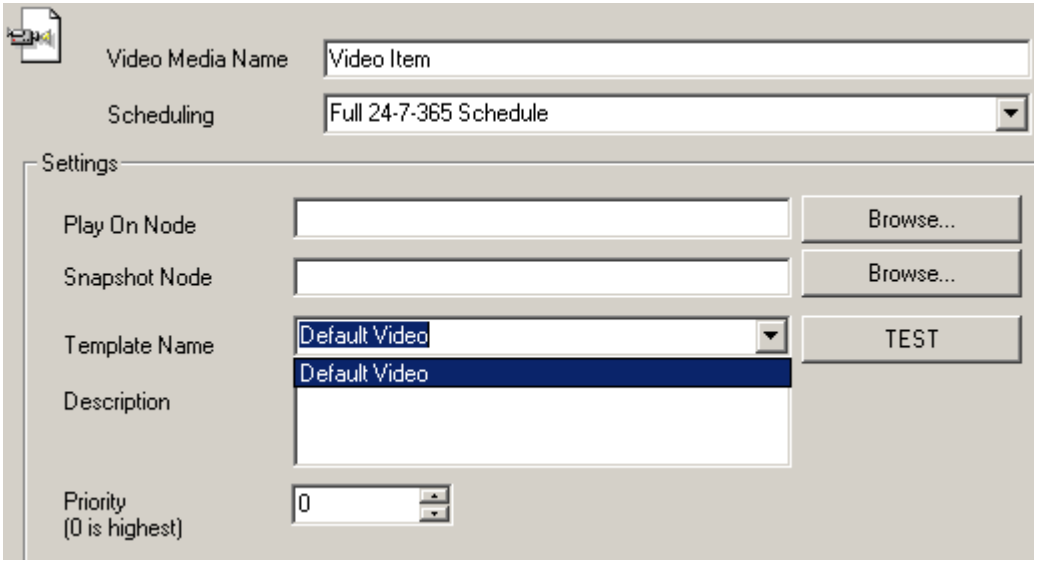


Figure C.17. Selecting the Template in the Video Agent Configuration

Appendix D: Upsizing Databases

D.1 Introduction to Database Upsizing

You can upsize your ICONICS AlarmWorX32 Multimedia databases from Microsoft Access (.mdb) to MSDE, allowing you to take advantage of the powerful relationship database technology in MSDE. MSDE supports databases up to 2 GB with up to five concurrent users. This appendix provides instructions for upsizing databases from Microsoft Access to MSDE.

Though the default Multimedia configuration database is a Microsoft Access database ("AWXMMX32.mdb" file), both the Multimedia Configurator and the Multimedia Server are designed to work with SQL Server databases as well.

In some cases (heavy alarm flow, etc.) the transition to a SQL Server database is required to make use of the better memory management, database security, robustness, and higher performance of SQL Server or MSDE.

D.2 Using Universal Data Link Files

The Multimedia Configurator connects to a SQL database by using the Microsoft Universal Data Link file (.udl). Files of this type contain OLE DB connection information that allows the application to create and manage connections to OLE DB databases.

D.2.1 Creating a Universal Data Link File

To create Universal Data Link file:

1. Open Windows Explorer.
2. Select the folder in which you want to save the .udl file. Right-click in the right (results) pane, and select **New - Text Document** from the pop-up menu.
3. From the **Tools** menu, select **Folder Options.** On the **View** tab of the **Folder Options** dialog box, shown in **Figure D.1,** clear the **Hide file extensions for known file types** check box, and then click **OK.**

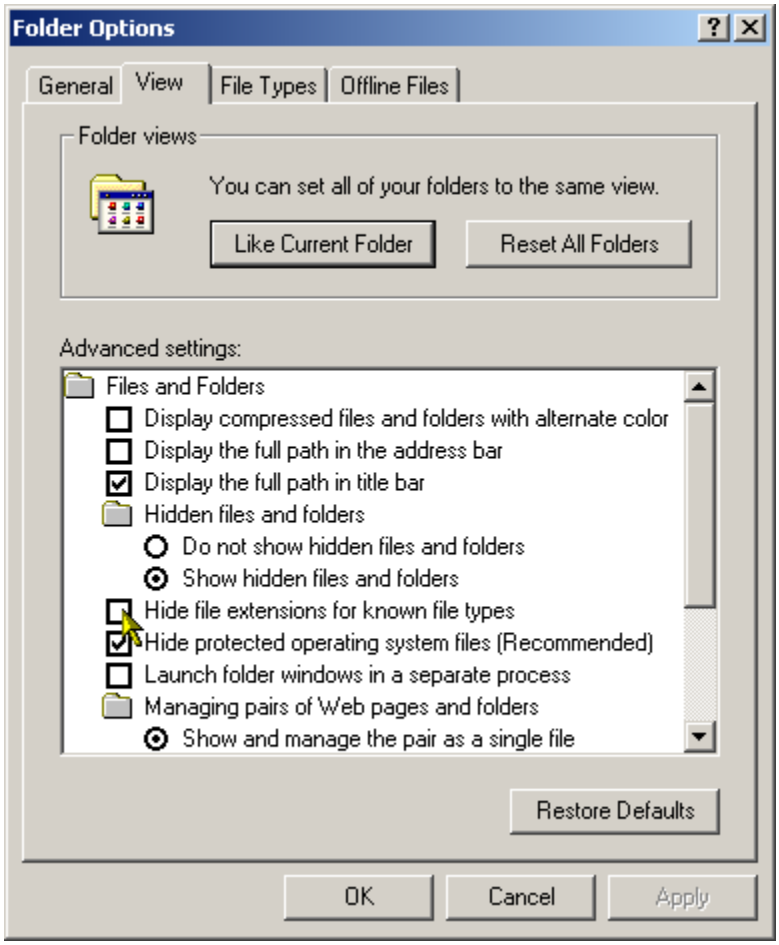


Figure D.1. Windows Explorer: Folder Options Dialog Box

4. Right-click on the text file you created in step 2 above, and then click **Rename.** Type the new file name using the .udl file extension. Press **Enter.** A warning may appear, explaining that changing file extensions may cause files to become unusable. Disregard this warning. You can store .udl files anywhere on your system or network.

5. Double click on the .udl file in Windows Explorer to display the **Data Link Properties** dialog box. On the **Provider** tab, shown in **Figure D.2,** select **Microsoft OLE DB Provider for SQL Server.**

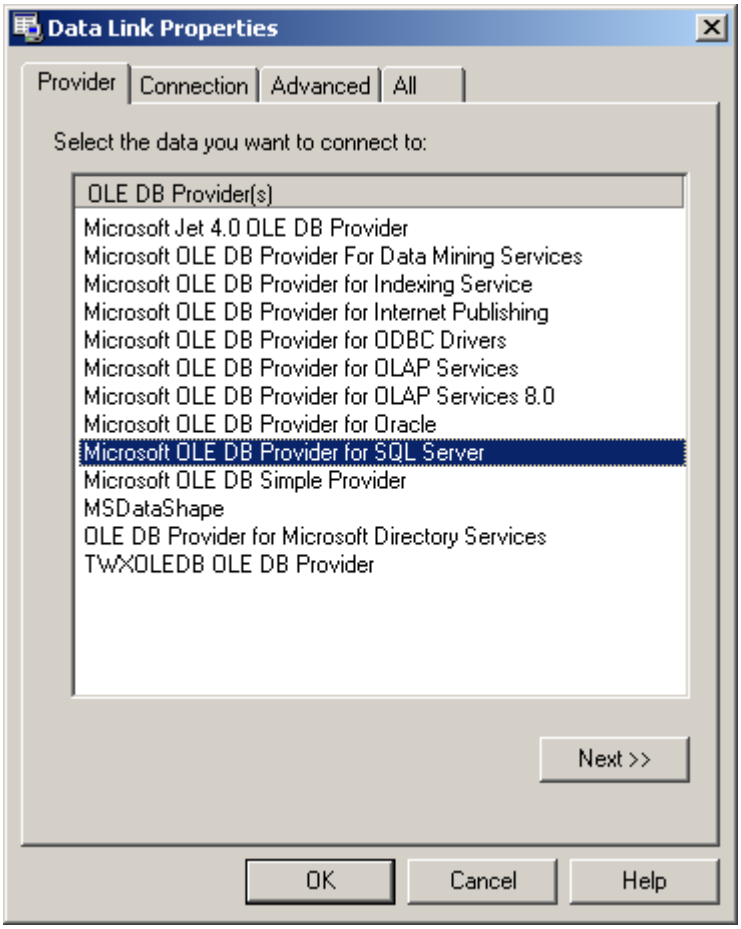


Figure D.2. Data Link Properties Dialog Box: Provider Tab

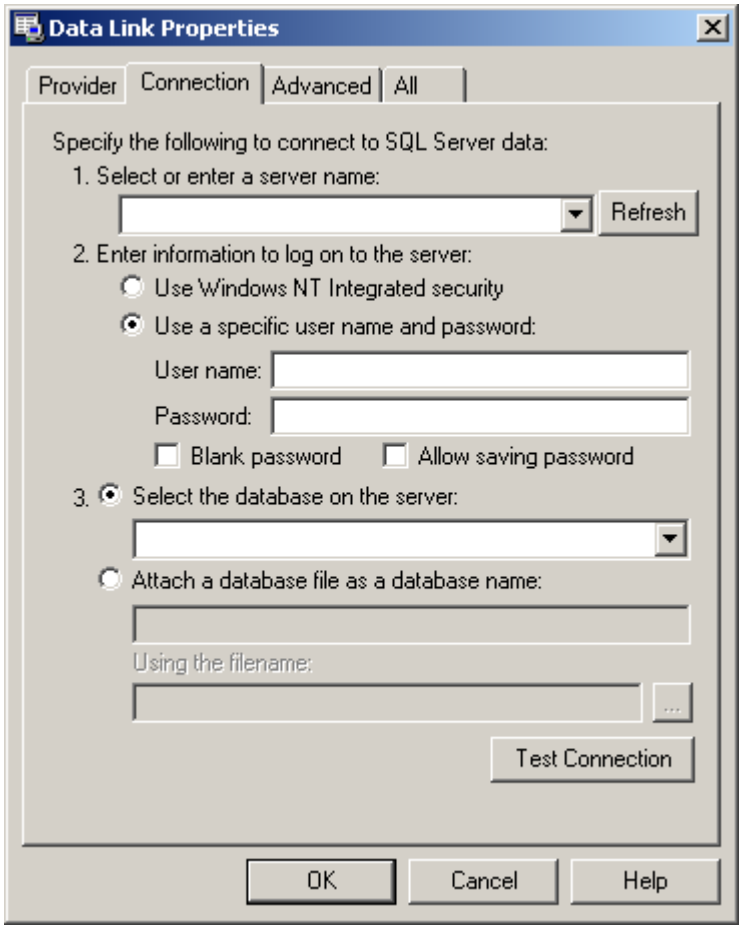


Figure D.3. Data Link Properties Dialog Box: Connection Tab

6. In the **Connection** tab, shown in **Figure D.3,** specify the SQL Server name, user name, password, and database name. Click **OK** to save OLE DB connection information in the .udl file.

D.3 Using the Microsoft Access Upsizing Wizard

Microsoft Access 2000 installs a powerful Upsizing Wizard that allows you to upsize any existing .mdb database to SQL Server. Use the following procedure to upsize the Multimedia configuration database using the Upsizing Wizard:

1. Run Microsoft Access 2000 and open the Multimedia configuration database file. The default database file is GENESIS-32\Bin\"AWXMMX32.mdb".
2. From the **Tools** menu, select **Database Utilities - Upsizing Wizard,** as shown in **Figure D.4.** At this point, Access may give you the option to install the wizard. Follow the installation steps, and then run the Upsizing Wizard from the **Tools** menu.

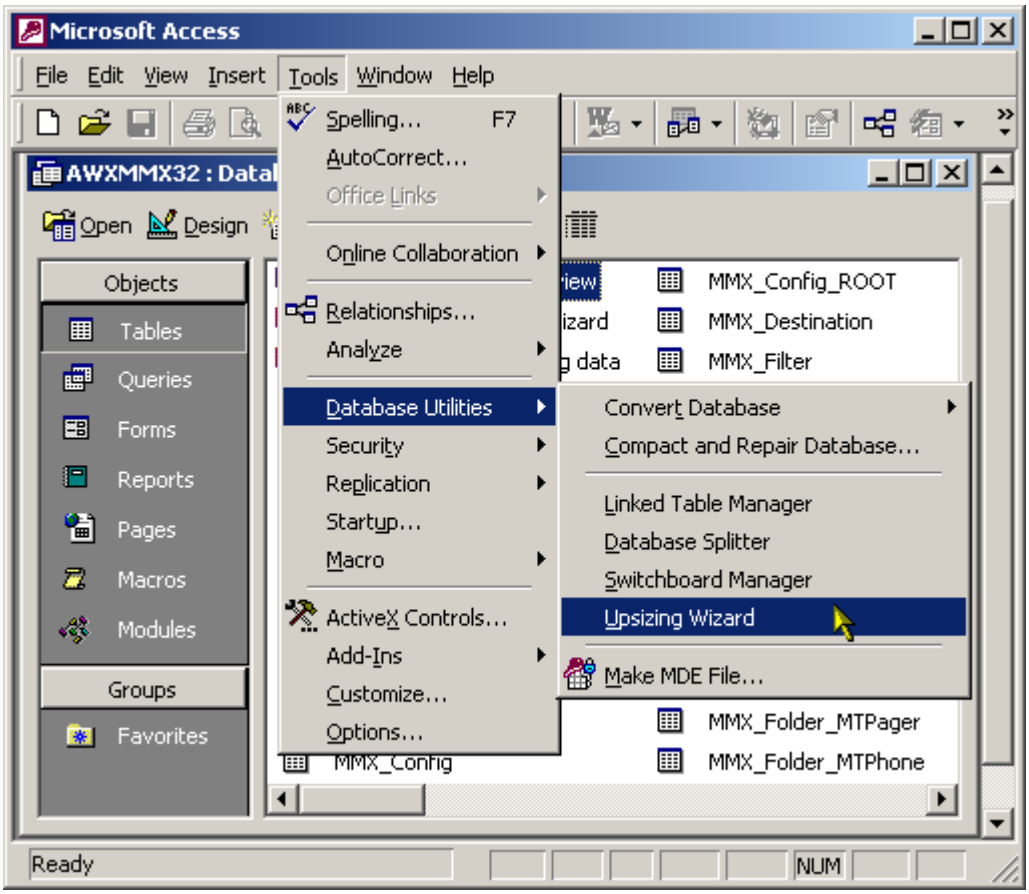


Figure D.4. "AWXMMX32.mdb" Database File

3. Select the **Create New Database** option, and then click **Next.**
4. Make sure your SQL Server is up and running. Select a server name from the SQL Server drop-down list. Specify the **Login ID** and **Password** of the SQL Server database administrator. Provide a name for the new SQL Server database. Click **Next** to continue.
5. Use the **>>** button to bring all entries from the **Available Tables** list box into **Export to SQL Server** list box. Click **Next** to continue.
6. In the **Table Attributes** group, check **Indexes, Validation Rules, Defaults,** and **Table Relationships.** Select the **Use triggers** radio button. In the **data options,** group select **No, never** for the table timestamp fields, and uncheck the **only create the table structure** check box. Click **Next** to continue.
7. Click **Finish.** When the wizard finishes, close Microsoft Access.

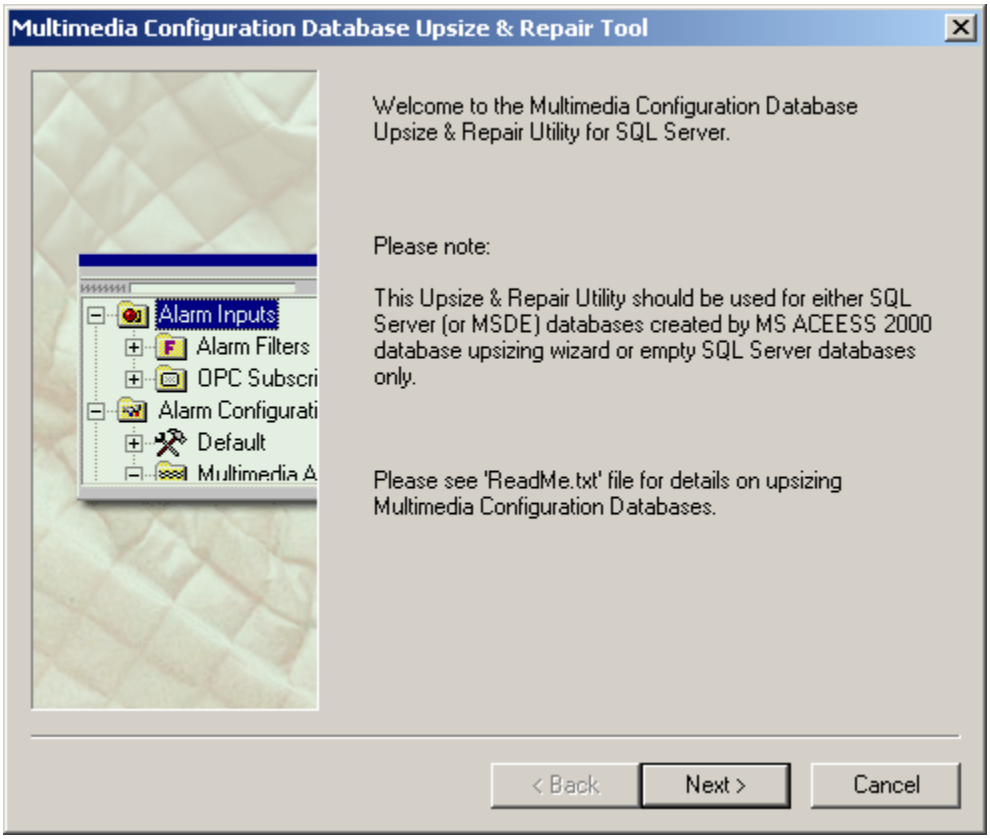


Figure D.5. Multimedia Upsize and Repair Tool: Step 1

D.3.1 Using the Multimedia Upsize and Repair Tool

Now run the Multimedia configuration database **Upsize and Repair Tool** to verify the table structure of the newly created SQL Server database. The Upsize and Repair Tool will also fix some triggers and index problems that were skipped by the Microsoft Access Upsizing Wizard. The Upsize and Repair Tool is located on the ICONICS Product CD under the "Tools/MMX_SQLUpsizing" folder. Open the "MMXSqlRepair.exe" file in this folder.

1. When "MMXSqlRepair.exe" loads, click the **Next** button at the bottom of the dialog box, as shown in **Figure D.5.**
2. Click the **Log On SQL Server** button to connect to the upsized database (the one created by the Access Upsizing Wizard), as shown in **Figure D.6.** Provide the administrative login name and password. When a connection to the SQL Server database is established, the traffic light indicator turns green, and the **Next** button becomes enabled. Click the **Next** button to continue.

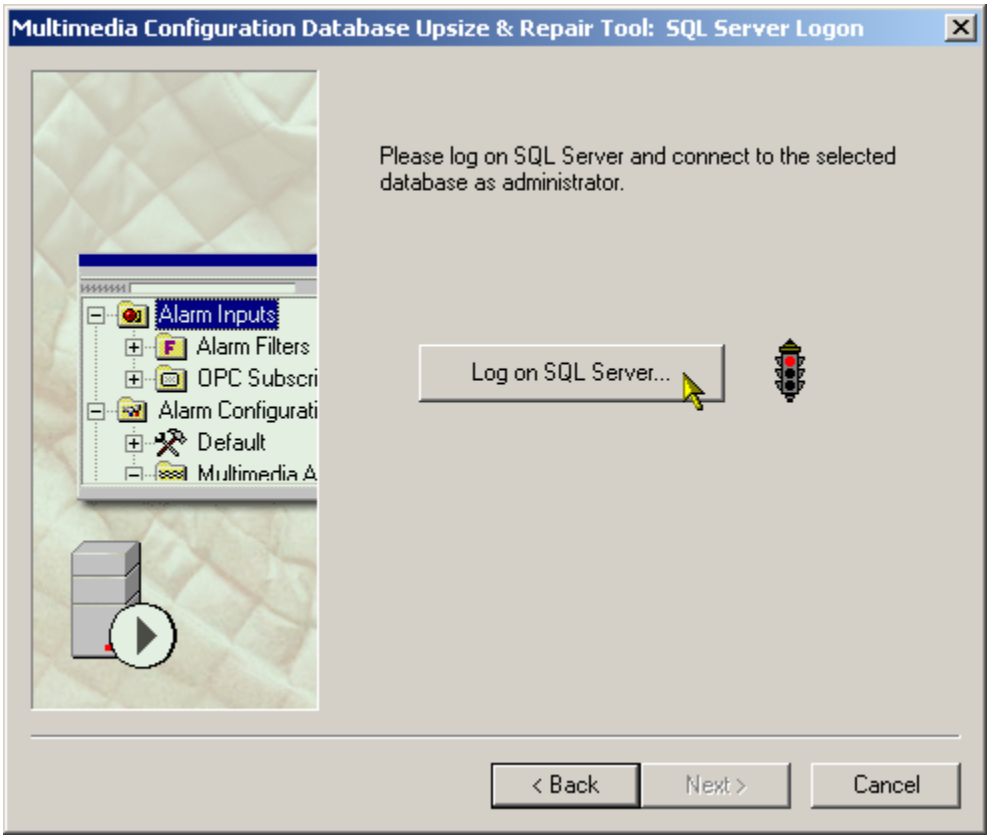


Figure D.6. Multimedia Upsize and Repair Tool: Step 2

3. Click the **Go!** button to start the verification and repair processes. If the Upsize and Repair Tool discovers that any table is missing, it will create that table and provide default data.
4. When the Upsize and Repair Tool finishes, it will prompt you to create a Universal Data Link (.udl) file. If for any reason the Upsize and Repair Tool fails to write the .udl file, the file can be created manually, as described in the "Creating a Universal Data Link File" section above.
5. Start the AlarmWorX32 Multimedia Configurator, and select **Open** from the **File** menu. Browse to the folder where you created the .udl file. Open the .udl file as you would open a regular .mdb database file. The Multimedia Configurator will recognize the connection information and connect to the upsized configuration database. Select **Make Active** from the **File** menu. If the Multimedia Server is already running, click the **Server Update** button on the toolbar.

D.4 Upsizing an Existing Microsoft Access Database

You can upsize an existing Microsoft Access (.mdb) Multimedia database by exporting a .csv file. This upsizing method does not require installation of Microsoft Office 2000.

1. Start the Multimedia Configurator and open the .mdb configuration database that you want upsize. Select **Export CSV** from the **File** menu, and choose the .csv file for temporary storage of configuration data, as shown in **Figure D.7.** Click **OK.**
2. Use the ICONICS MSDE Manager Tool to create a new empty SQL Server (or MSDE) database.

   Note: The MSDE Manager (MSDE Manager.exe) is installed in the GENESIS32/Bin directory during GENESIS32 installation. If you have a stand-alone AlarmWorX32 Multimedia installation, you will need to install the MSDE Manager manually by running the GENESIS32 installation and selecting the TrendWorX32 component from the list of components to install.
3. Run the Multimedia Configuration Database Upsize and Repair Tool ("MMXSqlRepair.exe") on the database created in step 2 above.
4. Click the **Next** button at the bottom of the form.
5. Click the **Log On** button to connect to the newly created database. Provide the administrative login name and password. When a connection to the SQL or MSDE database is established, the traffic light indicator turns green, and the **Next** button becomes enabled. Click **Next.**

6. Click the **Go!** button. When the Upsize and Repair Tool finds that no tables exist in the database, it will create the proper table structure with the necessary relationship data.

7. When the Upsize and Repair Tool finishes, it will prompt you to create a Universal Data Link file. If for any reason the Upsize and Repair Tool fails to write the .udl file, the file can be created manually, as described in the "Creating a Universal Data Link File" section above.

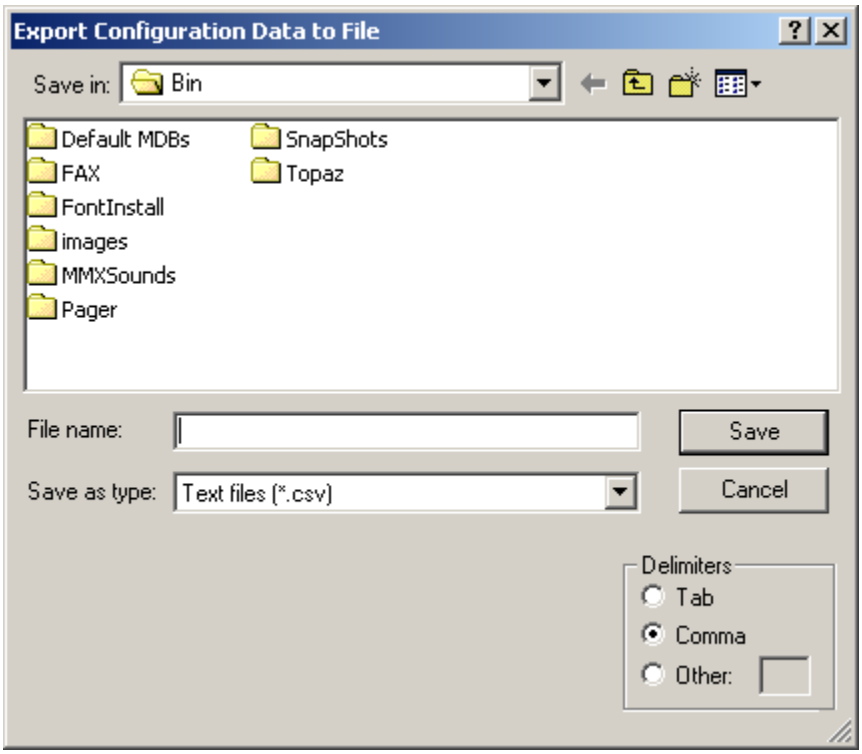


Figure D.7. Exporting Configuration Data to a .csv File

8. Start the AlarmWorX32 Multimedia Configurator, and select **Open** from the **File** menu. Browse to the folder where you created the .udl file. Open the .udl file as you would open a regular .mdb database file. The Multimedia Configurator will recognize the connection information and connect to the newly created database. You will see only top level (folder) items in the Configurator's tree control at this point.

9. Select **Import CSV** from the **File** menu, and browse to the folder where you saved the .csv file in step 1 above, as shown in **Figure D.8.** Make sure you use the same delimiter option that was used while exporting the .csv file. Check all check boxes in the **Import Settings** group.

10. Open the .csv file you saved file in step 1 above. The exported data will be copied to the currently edited database. Select **Make Active** from the **File** menu. If the Multimedia Server is already running, click the **Server Update** button on the toolbar.

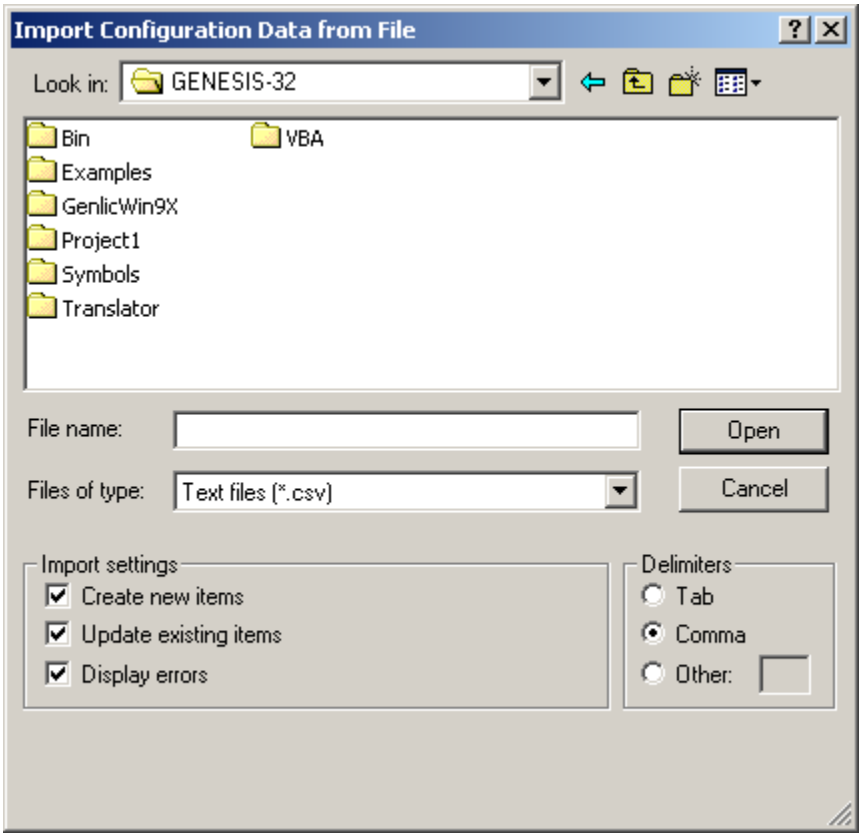


Figure D.8. Importing Configuration Data From a .csv File

D.5 Auto-Starting the SQL Service

When upsizing databases, you must set the SQL service to auto-start:

1. Double click on the SQL Server icon in the system tray to open the SQL Server Service Manager, as shown in **Figure D.9.**
2. Make sure that **Auto-start service when OS starts** check box is checked.
3. Close the SQL Server Service Manager dialog.

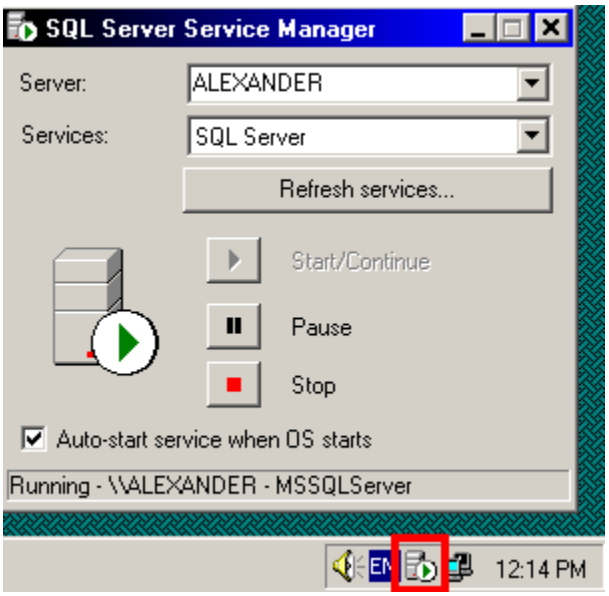


Figure D.9. Auto-Start Enabled for SQL Service

Appendix E: Instant Messaging and E-mail

E.1 Installing MSN Messenger Service

The Instant Messaging Agent allows you to send and acknowledge alarm and event information using MSN® Messenger Service. In order to use the Instant Messaging Agent, you must download and install the MSN Messenger Service from the MSN Web site at http://messenger.msn.com/.

1. When the download is completed, run the "mmssetup.exe" file and follow the instructions provided by the installation wizard.

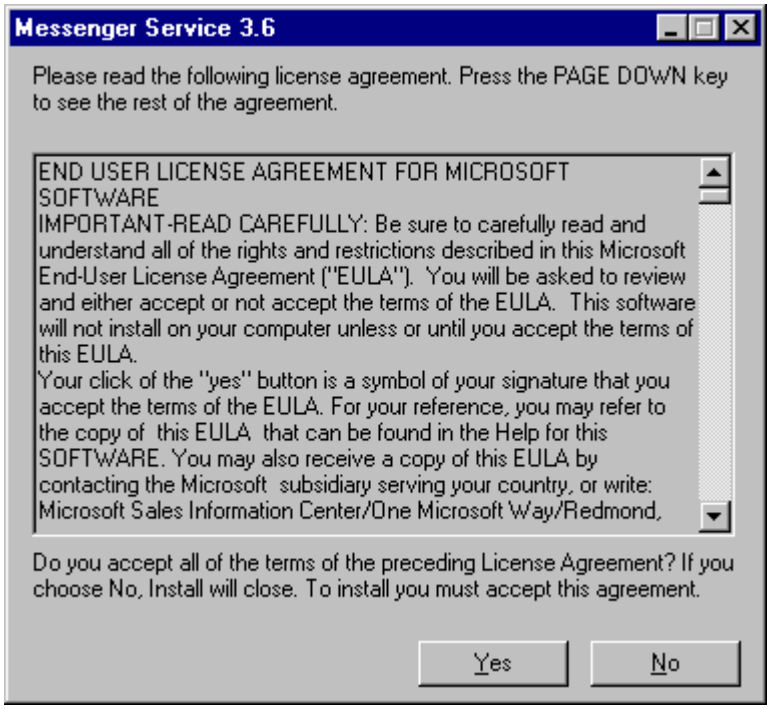


Figure E.1. Messenger Service License Agreement

2. Read the Messenger Service 3.6 License Agreement, as shown in **Figure E.1.** If you agree with the terms, click the **Yes** button to continue. The installation will copy files to your system.
3. You will have to restart your computer before the new settings will take effect. The installation will ask you if you want to restart the computer. Click the **Yes** button.
4. When your computer restarts, the MSN Messenger Service Welcome screen will appear, as shown in **Figure E.2.** Click the **Next** button to continue.



Figure E.2. MSN Messenger Service Welcome Screen

5. The next screen will ask you to sign in using a Microsoft Passport, as shown in **Figure E.3.** If you have a Hotmail user account with Microsoft, you can use that account as your Passport. If you do not have a Passport, click the **Get a Passport** Button. This will take you to the MSN Messenger Service Web site, where you can sign up for a Passport. Enter the required information in the user profile fields, and follow the instructions provided.

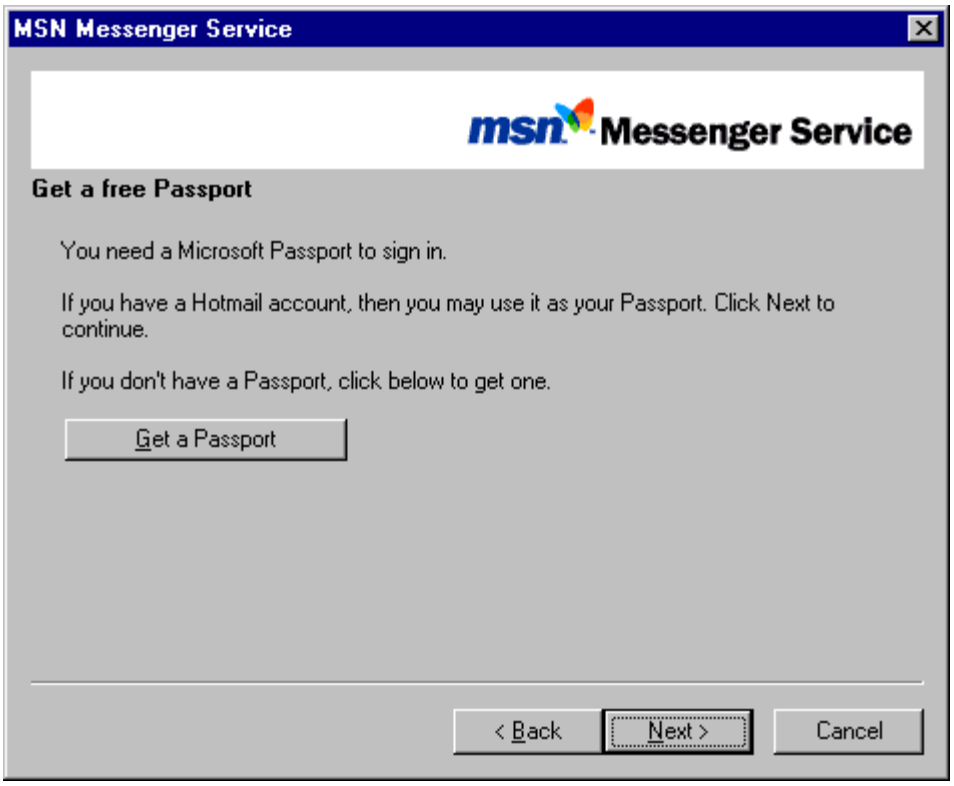


Figure E.3. Signing up for a Passport

6. Once you have established a Passport, you will be asked to provide your Passport for the installation, as shown in **Figure E.4.** Enter your **Sign-in name** and **Password.** Click the **Next** button to continue.

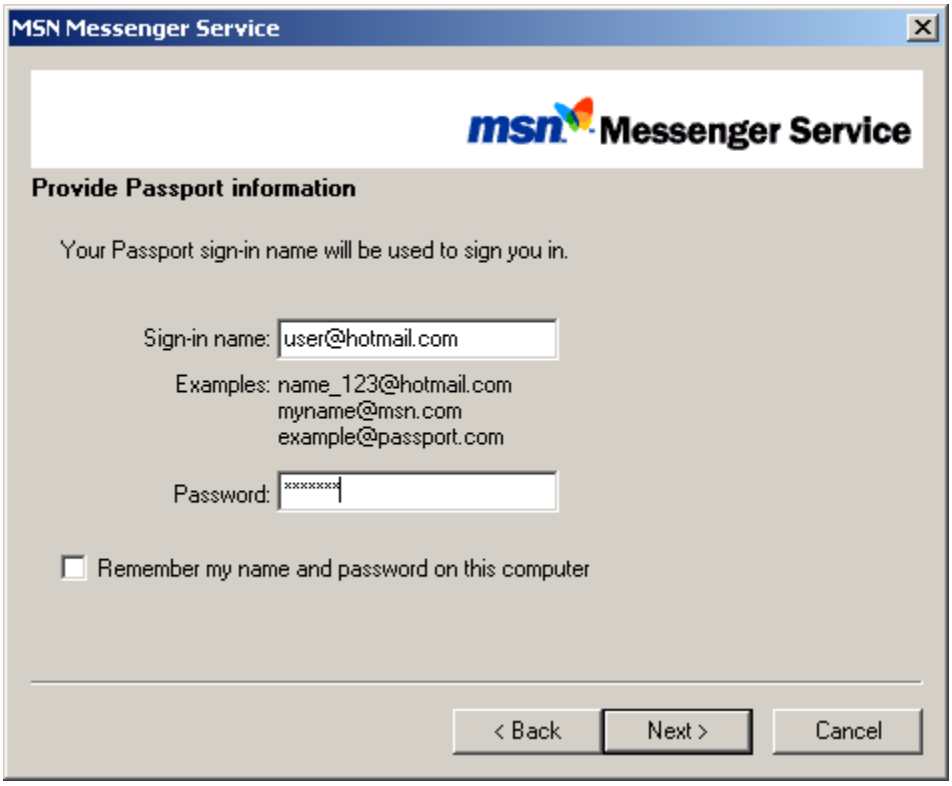


Figure E.4. Entering Your Passport Information

7. A dialog box will appear informing you that the setup is complete. Click the **Finish** button to sign in to MSN Messenger Service.

E.2 Configuring MSN Messenger Service

Once you have signed in, the MSN Messenger Service dialog box will open, as shown in **Figure E.5.** Select **Options** from the **Tools** menu. This opens the **Options** dialog box, shown in **Figure E.6.**

Note: To get more information, you can view the MSN Messenger Service help documentation at any time by selecting **Help Topics** from the **Help** menu.



Figure E.5. Messenger Service Dialog Box

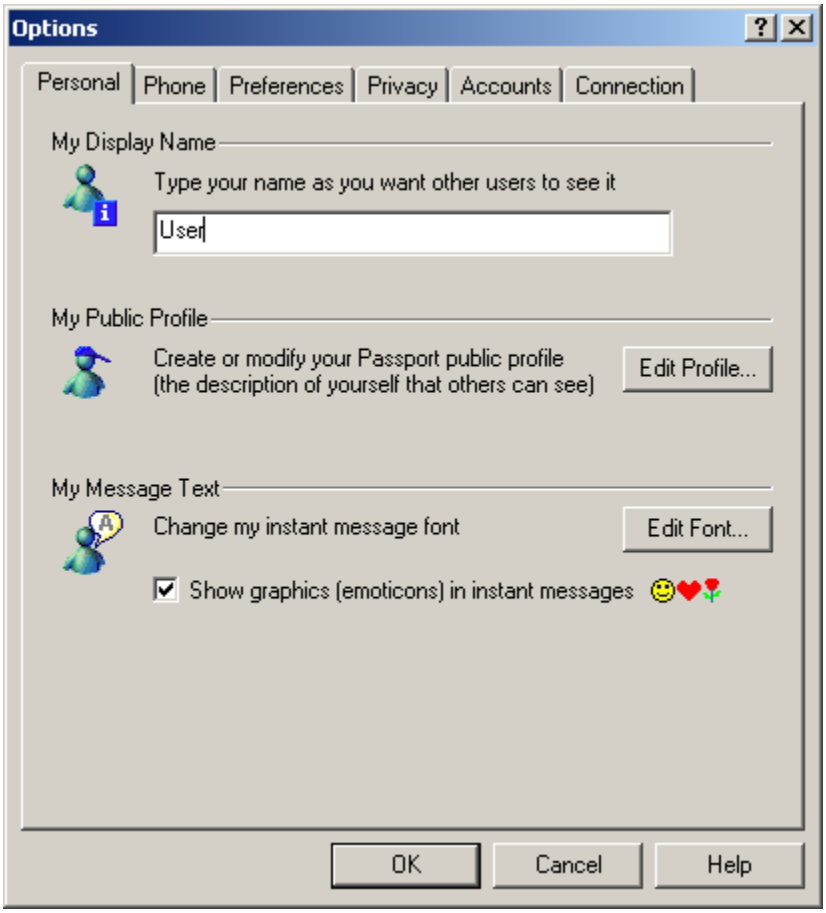


Figure E.6. Messenger Options: Personal Tab

In the **Personal** tab of the **Options** dialog box, enter the name that you want to use, as shown in Figure E.6. You can also edit your user profile and change the font of your message text. Click the **Help** button for additional information.

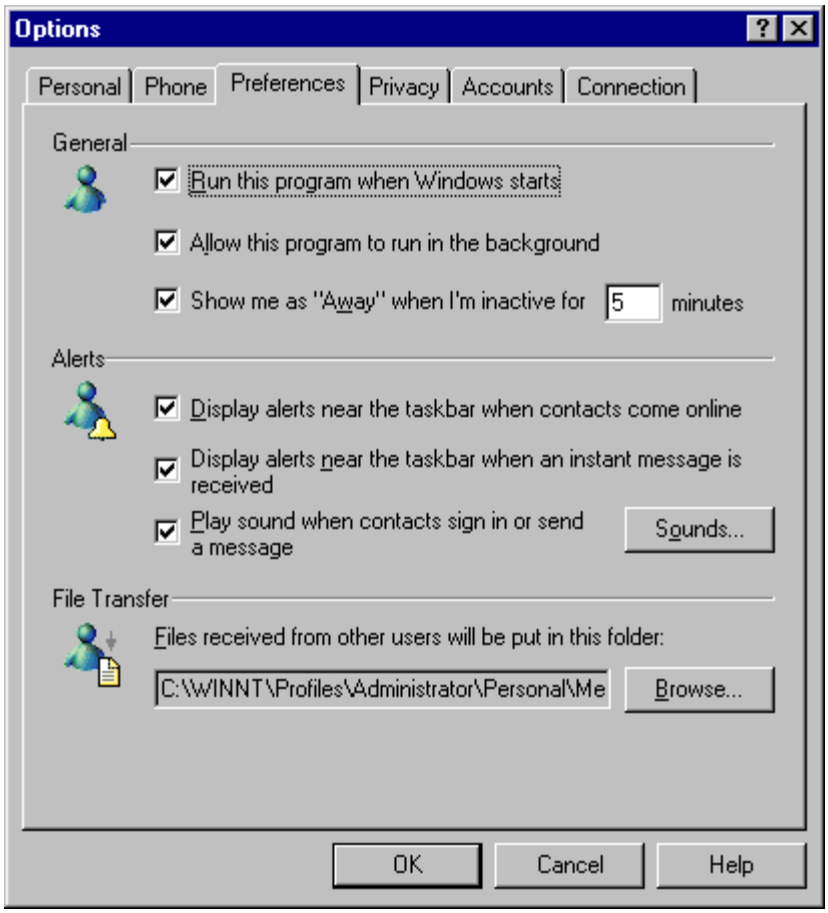


Figure E.7. Messenger Options: Preferences Tab

In the **Preferences** tab of the **Options** dialog box, you can configure the general settings and determine how you are alerted when you receive a message, as shown in **Figure E.7.** By clicking the **Browse** button, you can also select the folder in which incoming files will be stored. Click the **Help** button for additional information as needed. Click **OK** when you are finished.

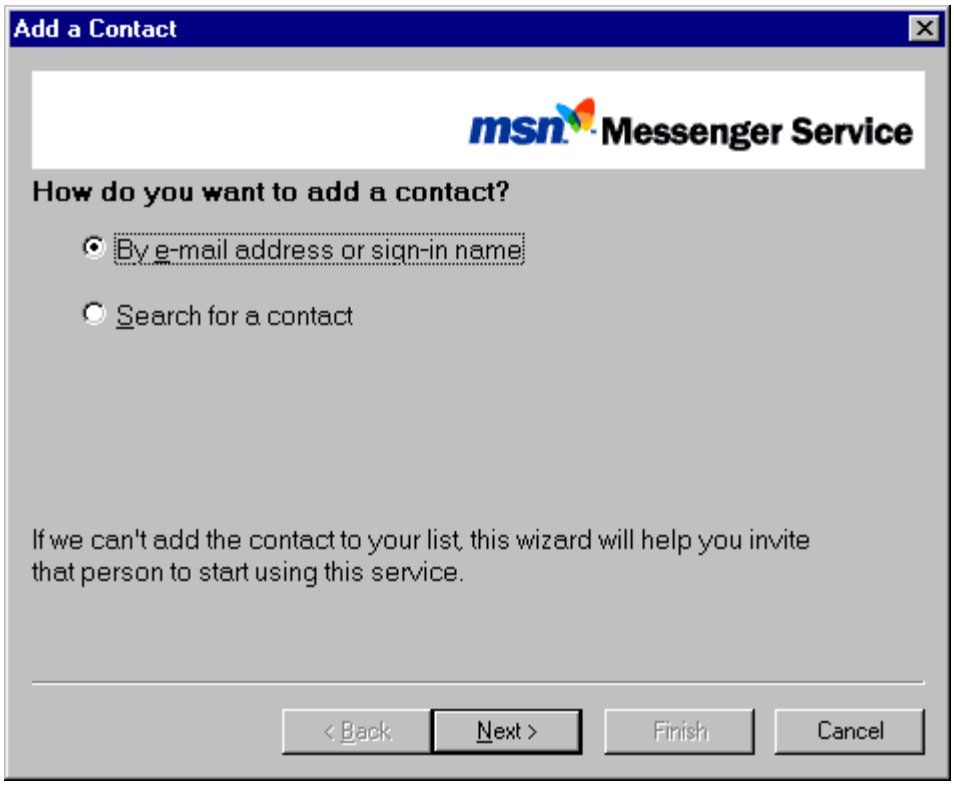


Figure E.8. Adding a New Contact to MSN Messenger Service

The changes to your settings will take effect the next time you sign in to MSN Messenger Service. To add a new contact to MSN Messenger Service, select **Add a Contact** from the **File** menu. This will open a wizard that enables you to configure a new contact, as shown in **Figure E.8.** Click the **Next** button to continue.

Enter the complete e-mail address of the contact you would like to add, as shown in **Figure E.9.** Click the **Next** button to continue. A dialog box will appear informing you that e-mail address of the contact you entered has been added to your list of contacts. Click the **Finish** button to close the **Add a Contact** wizard. The contact will be added to the MSN Messenger Service screen.

For information on how to acknowledge alarms using the MSN Messenger Service, see the "Acknowledging Alarms" section below.

Note: For the Instant Messaging Agent to work, MSN Messenger Service must be installed and running on the computer on which the Instant Messaging Agent is installed. The user name specified in the **Send To** field of the Instant Messaging Agent configuration in the Multimedia Configurator must also be an existing contact in the server computer's messaging client that is currently online.

Note: Adding e-mail contacts to MSN Messenger is for instant messaging only. It does not affect the e-mail contacts you have configured for the E-mail Agent in the M-Alarm Multimedia Configurator.

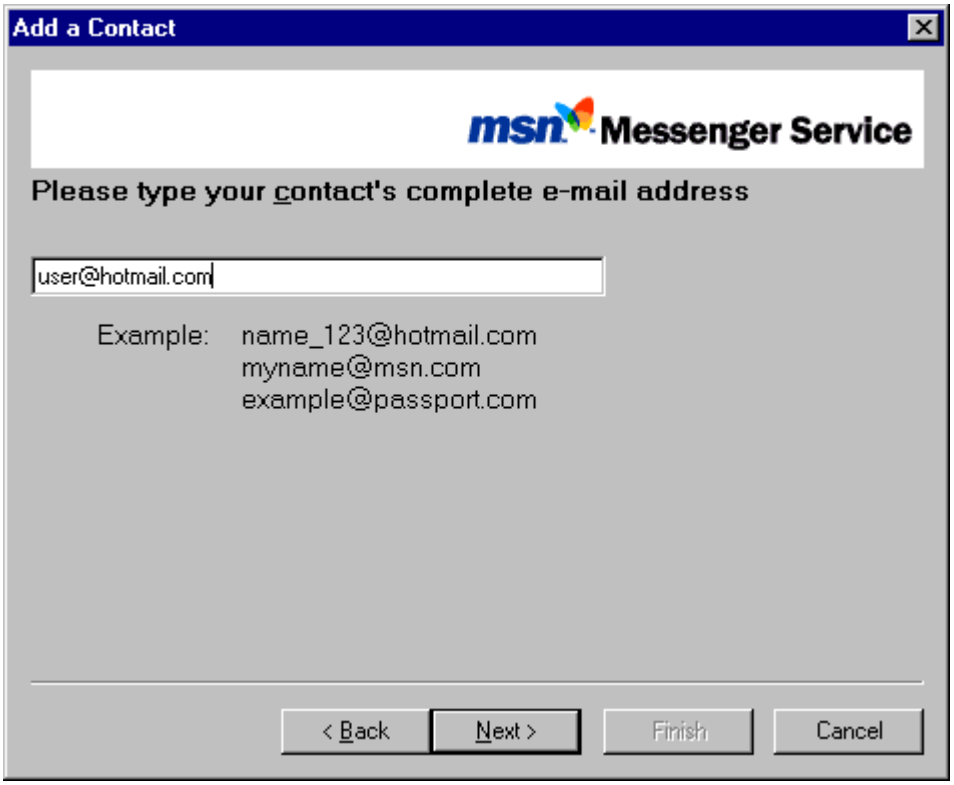


Figure E.9. Entering the Contact's E-mail Address

E.3 Creating Instant Messaging Templates

When configuring the Instant Messaging Agent in the Multimedia Configurator, you must select a template to apply to that agent. Templates allow you to configure design elements, including what and how much information to display when presenting an alarm. You can use or modify any one of the default templates or create a new template.

The Multimedia Configurator provides a default template for the Instant Messaging Agent. To view this template, select **Alarm Configurations - Media Templates - Default Instant Messenger** from the tree control. The instant messenger template field will be displayed in the right pane, as shown in **Figure E.10.**

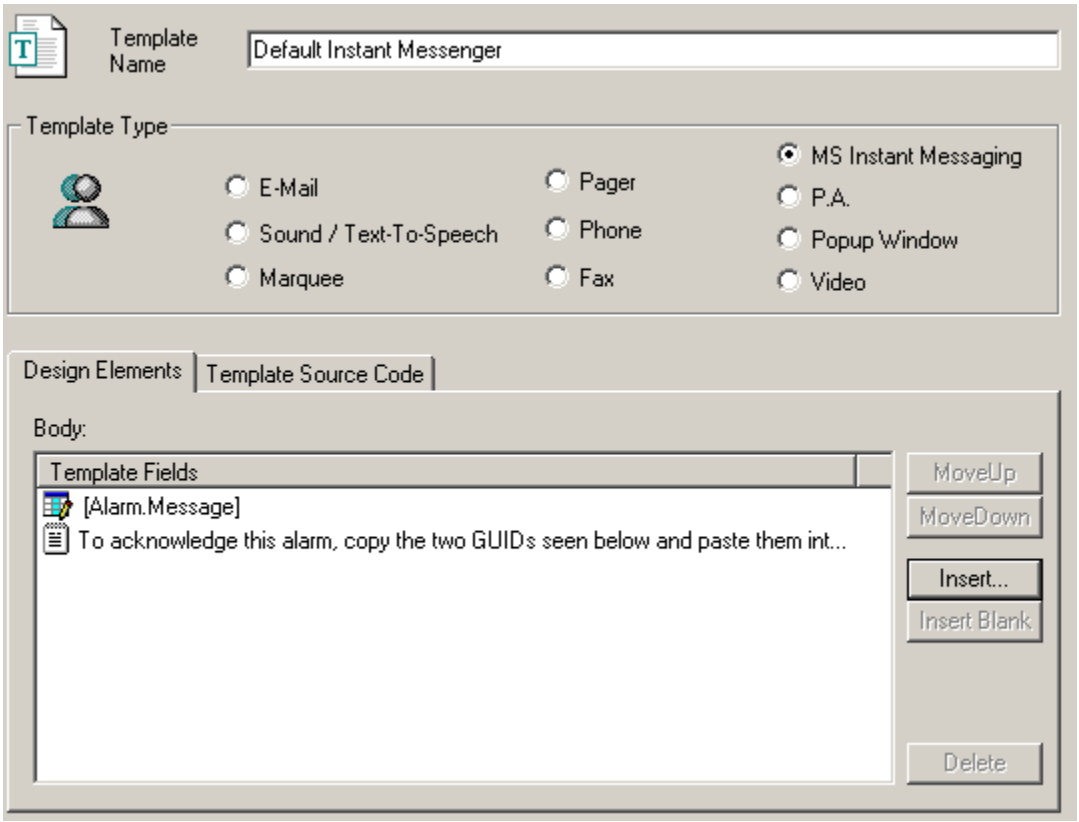


Figure E.10. Default Template for Instant Messaging Agent

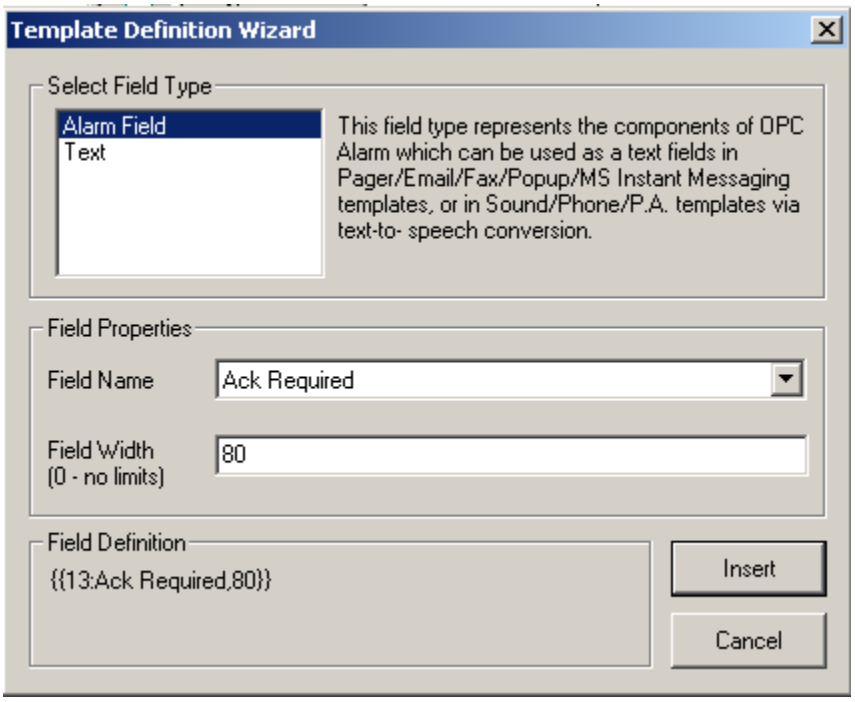


Figure E.11. Template Definition Wizard

You can create a new template for the Instant Messaging Agent by right-clicking the **Media Templates** folder in the tree control and selecting **New - Media Template** from the pop-up menu. Select the MS Instant Messaging radio button in the template configuration field in the right pane, as shown in Figure E.10.

In the **Design Elements** tab of the template configuration dialog box, shown in Figure E.10, click the **Insert** button. This opens the **Template Definition Wizard** dialog box, shown in **Figure E.11,** which contains a list of available field types to add. (For a complete list of available field types, please refer to **Chapter 5.**) Choose a field type and select from the additional options under **Field Properties,** and then click **Insert.** If you wish to change the order of the fields or to delete a field, use the appropriate buttons to do so. The **Insert Blank** button will insert a line break.

All current template fields are displayed in the **Design Elements** tab (see Figure E.10). The **Field Definition** for these template fields is also displayed in the **Template Source Code** tab, shown in **Figure E.12,** where you can manually edit a template field if desired.

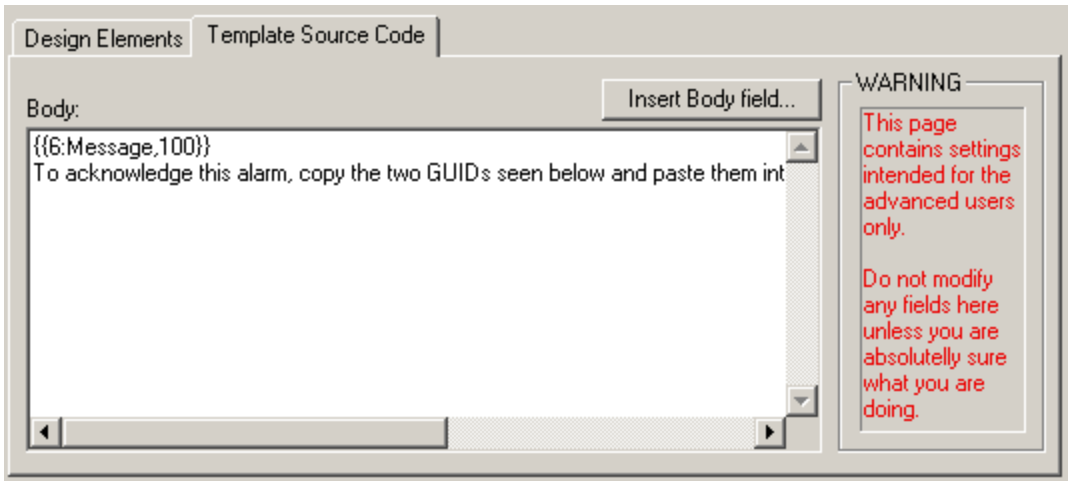


Figure E.12. Template Source Code Tab

Note: The **Template Source Code** tab is recommended for advanced users only. Do not modify any fields here unless you are absolutely sure of what you are doing.

For information about how to acknowledge alarms using the MSN Messenger Service, see the "Acknowledging Alarms" section below.

E.4 Creating E-mail Templates

The E-mail Agent allows you to send and acknowledge alarm and event information using an e-mail message. When configuring the E-mail Agent, you must select a template to apply to that agent. Templates allow you to configure design elements, including what and how much information to display when presenting an alarm. You can use or modify any one of the default templates or create a new template.

The Multimedia Configurator provides a default template for the E-mail Agent. To view this template, select **Alarm Configurations - Media Templates - Default E-mail** from the tree control. The e-mail template field will be displayed in the right pane, as shown in **Figure E.13.**

You can create a new template for the E-mail Agent by right-clicking the **Media Templates** folder in the tree control and selecting **New - Media Template** from the pop-up menu. Select the **E-mail** radio button in the template configuration field in the right pane, as shown in Figure E.13.

In the **Design Elements** tab of the template configuration dialog box, shown in Figure E.13, click the **Insert** button. This opens the **Template Definition Wizard** dialog box, shown in **Figure E.14,** which contains a list of available field types to add. (For a complete list of available field types, please refer to **Chapter 5.**) Choose a field type and select from the additional options under **Field Properties,** and then click **Insert.** If you wish to change the order of the fields or to delete a field, use the appropriate buttons to do so. The **Insert Blank** button will insert a line break.

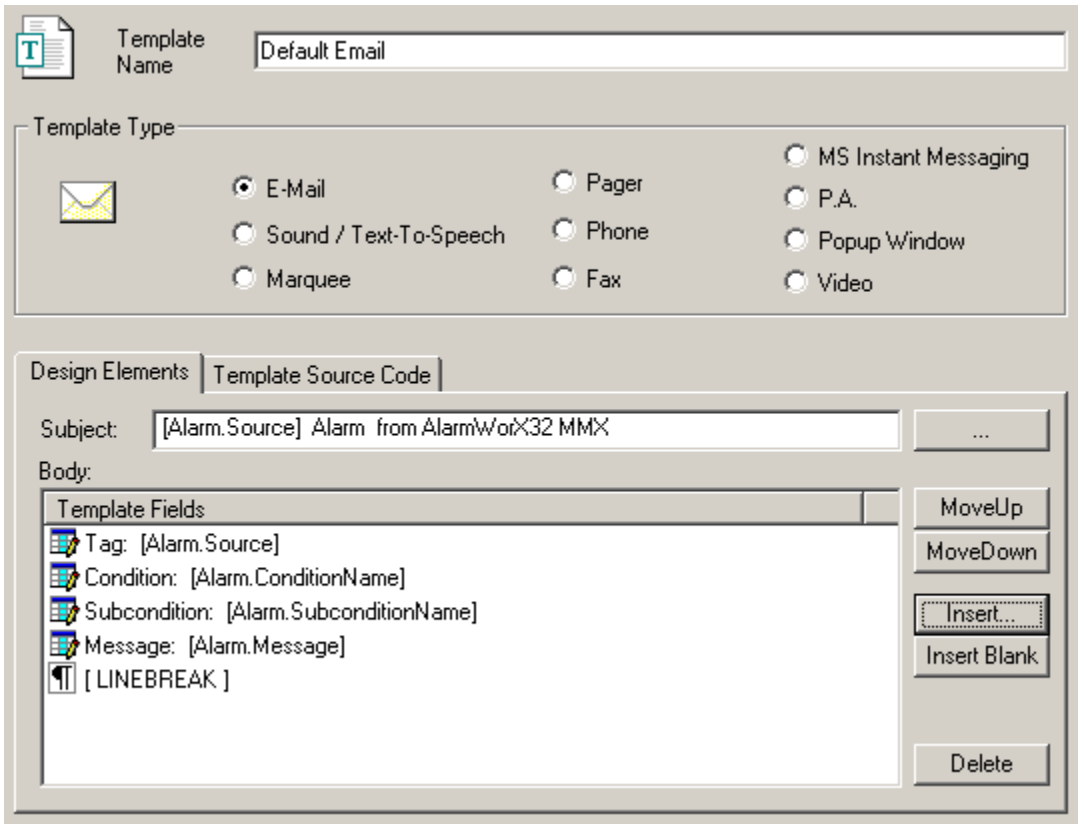


Figure E.13. Default Template for E-Mail Agent

The **Template Definition Wizard** dialog box gives you the option of sending files as attachments to e-mail messages, as shown in Figure E.14. Click the **Browse** button to choose a file to attach. Select the file and then click **OK.** The file pathway will appear in the **Field Definition** section.

All current template fields are displayed in the **Design Elements** tab (see Figure E.13). The **Field Definition** for these template fields is also displayed in the **Template Source Code** tab, shown in **Figure E.15,** where you can manually edit a template field if desired.

Note: The **Template Source Code** tab is recommended for advanced users only. Do not modify any fields here unless you are absolutely sure of what you are doing.

For information about how to acknowledge alarms using e-mail, see the "Acknowledging Alarms" section below.

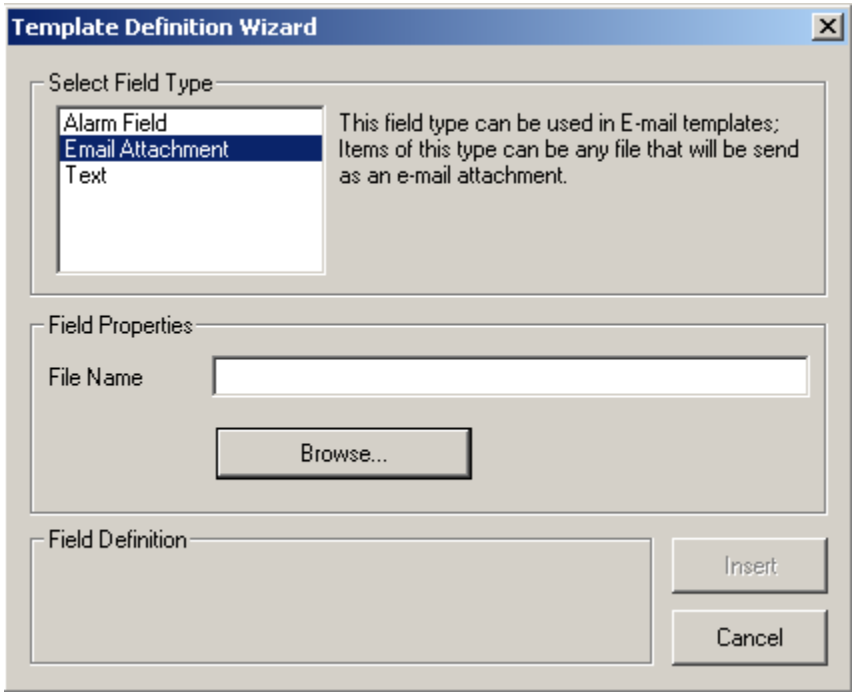


Figure E.14. Template Definition Wizard

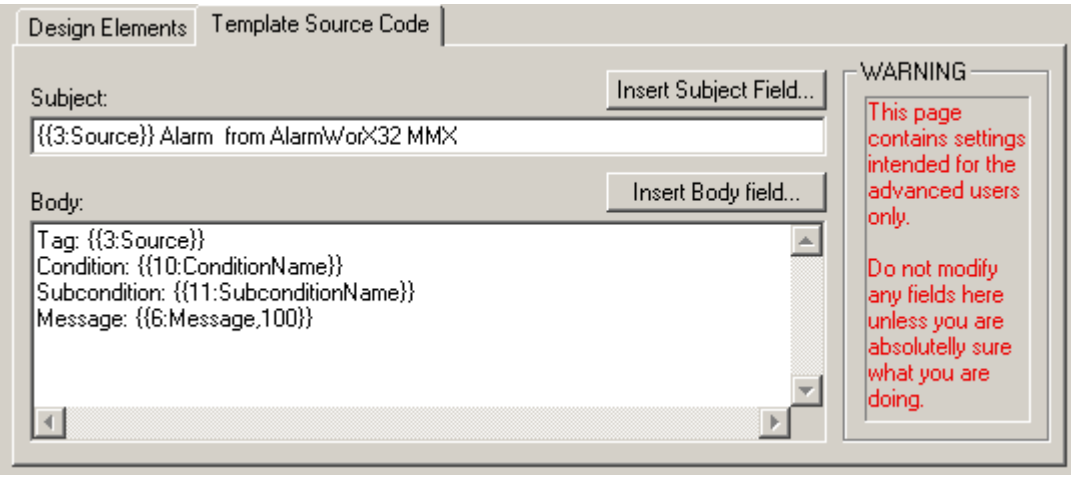


Figure E.15. Template Source Code Tab

E.5 Acknowledging Alarms Using E-mail and Instant Messaging

You can acknowledge alarms using the Instant Messaging Agent and E-mail Agent by referencing the Acknowledge Code, or PIN, that you specified in the configuration for each agent. (For details about configuration fields for the Instant Messaging Agent and the E-mail Agent, please refer to **Chapter 4.**) For example, in the configuration field for the Instant Messaging Agent shown in **Figure E.16,** the **Acknowledge Code** is "12345."

Once your alarm configuration is complete and the Multimedia Server is started, you can use this code to acknowledge alarms sent by the Multimedia Server. The Multimedia Server sends messages based on the templates you created for the Instant Messaging Agent and the E-mail Agent.

For the Instant Messaging Agent, the Multimedia Server sends alarms via the MSN Messenger Service. For the E-mail Agent, the Multimedia Server sends alarms via e-mail messages using, for example, Microsoft Outlook. An example alarm message is shown below.

```
4/8/01 9:50:57 AM
Tag: BugsAttack
Condition: Limit
Subcondition: HI
Message: Too many Bugs
```

```
||3d6efc37-79d8-11d4-846d-00104b6fd496||
||bb7ee6fa-2c1d-11d5-8146-0050da1bf676||
```

This alarm message is based on the following multimedia template:

```
{{4:Time,80}}

Tag: {{3:Source}}
Condition: {{10:ConditionName}}
Subcondition: {{11:SubconditionName}}
Message: {{6:Message,100}}
```

Each alarm message includes one or more Global Unique Identifiers, or GUIDs. A **GUID** is a string of characters surrounded by the symbol '**||**', as shown in the example above. In this case, the Multimedia Server included the following two GUIDs:

3d6efc37-79d8-11d4-846d-00104b6fd496

bb7ee6fa-2c1d-11d5-8146-0050da1bf676

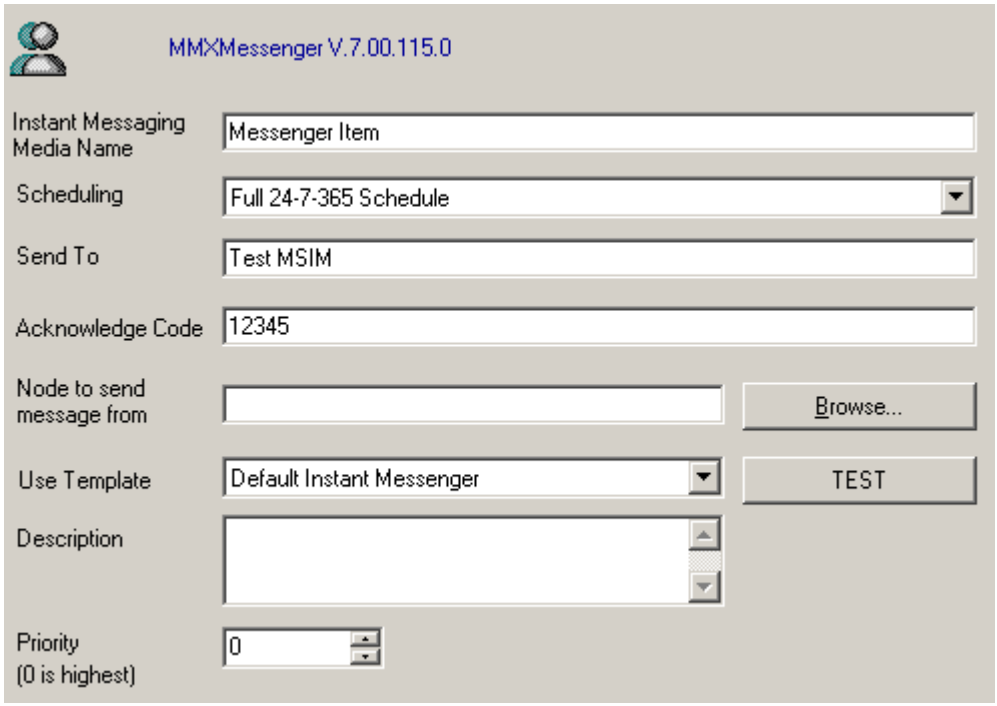


Figure E.16. Configuration Field for Instant Messaging Agent

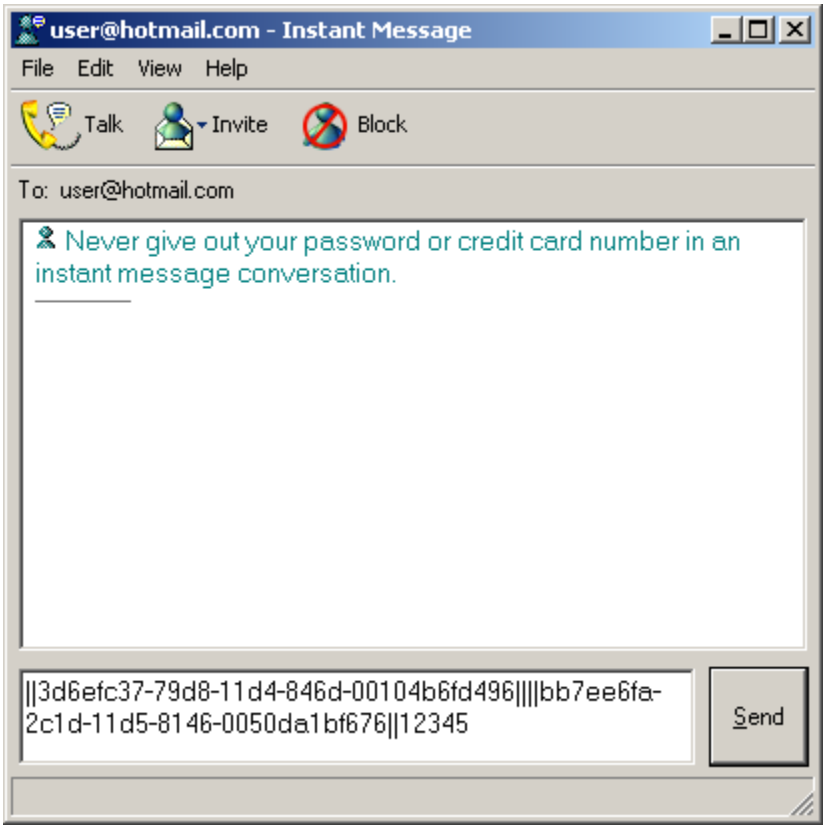


Figure E.17. Acknowledging an Alarm Using MSN Messenger Service

To acknowledge the alarm in MSN Messenger Service, copy and paste the two GUIDs into the "Send" field and append the Acknowledge Code, or PIN, to them, as shown in **Figure E.17.** In this example, the Acknowledge Code is "12345." Click the **Send** button to send the alarm acknowledgement back to the Multimedia Server.

For the E-mail Agent, the method for acknowledging alarms in e-mail messages is similar to the method described above. When the E-mail Agent receives an alarm e-mail message from the Multimedia Server, you can acknowledge the alarm by replying to the e-mail message. As described above, copy and paste the GUIDs into the body of the e-mail reply and append the Acknowledge Code, or PIN, to the GUIDs.

E.6 Modifying E-mail Support

The Email agent uses HKEY_LOCAL_MACHINE\SOFTWARE\ICONICS\Awx32\AWXMMX32\MMXMail \ReadDelete registry setting for modifying e-mail acknowledge support.

ReadDelete = 1 – Prompts the E-mail Agent to read all inbox e-mails. e-mails are marked read. No e-mails are deleted. This mode is good for development and testing purposes.

ReadDelete = 2 - Prompts the E-mail Agent to read all inbox e-mails. e-mails are marked read. Deletes all read e-mails. Provides improved operation times and should be used with a deployed system requiring acknowledge support.

ReadDelete = 3 - Prompts the E-mail Agent to read all inbox e-mails. E-mails are marked read. Deletes all e-mails with acknowledge string. Used when the e-mail agent shares the e-mail account with another application. Not recommended for a deployed system.

ReadDelete = 4 – E-mail Agent does not read any e-mails. This mode disables the acknowledge string and acknowledge support. This mode is ideal for deployed systems not making use of e-mail acknowledge support.

Occasionally the E-mail Agent will trigger the following dialog message:

“Either there is no default mail client or the current mail client cannot fulfill the messaging request. Please run Microsoft Outlook and set it as the default mail client.*Microsoft Outlook“

This message is set by the Windows operating system. It can be disabled by modifying the following registry value from:

HKEY_LOCAL_MACHINE\SOFTWARE\Clients\Mail\ PreFirstRun

to

HKEY_LOCAL_MACHINE\SOFTWARE\Clients\Mail\ PreFirstRun1.

In addition the registry value

HKEY_LOCAL_MACHINE\SOFTWARE\Clients\Mail\ (Default)

Display the name of the default e-mail application. The default e-mail application can be modified by either changing the registry string or using Microsoft Internet Explorer (specifically **Tools** > **Internet Options > Programs > Email).**

The E-mail Agent will only operate on e-mail messages in the e-mail programs default folder. For example, a reply with an acknowledge code will only be seen if sent to the default e-mail programs folder (Inbox for Microsoft Outlook). If you set up your e-mail program to reroute your mail to other various folders, the E-mail Agent might not read the incoming e-mail message.

Note: You must have a MAPI-compliant third-party e-mail program on the computer from which you are sending e-mails. Microsoft® Outlook is an example of a MAPI-compliant third party e-mail program. Microsoft Outlook Express can also be used and can be downloaded for free from Microsoft. However, unlike Outlook, Outlook Express will only work with POP3 e-mail servers. It is not necessary to have the e-mail program actively running on a Windows NT or Windows 2000 operating system. It is, however, necessary to have the e-mail program actively running on a Windows 98 operating system. Outlook 2002 and Outlook Express version 6 require additional security settings in order for the E-mail Agent to work properly. For more information, go to http://www.microsoft.com/office/ork/xp/appndx/appa11.htm.