nVent
RAYCHEM

Supervisor Standard Edition

Installation Manual
Heat-Tracing Controller Configuration and Monitoring Software

CONTENTS

SECTION 1 – INTRODUCTION

1.1 WELCOME

The nVent RAYCHEM Supervisor heat-tracing controller configuration and monitoring software provides a graphical user interface for nVent RAYCHEM communications and controller products. The software supports the Elexant Series controllers, nVent RAYCHEM NGC series controllers, 780 Series/GCC-9000 Group Communications Controllers, nVent RAYCHEM T2000 AC 2000+ alarm/communications interface cards, nVent RAYCHEM 910/915/920 Heat Trace Controllers and/or legacy nVent RAYCHEM Controllers (except the nVent RAYCHEM 200N) using the Modbus protocol.

The software allows the user to configure and monitor any nVent RAYCHEM controller which has the appropriate communications interface installed from one central location. The software also incorporates advanced features such as data logging and trending, batch and recipe processing, scheduled events, etc.

Please refer to the nVent RAYCHEM Supervisor Operations Manual (H57576) for more information on features and capabilities.

1.2 VITAL INFORMATION

Important: All information, including illustrations, is believed to be reliable. Users, however, should independently evaluate the suitability of each product for their particular application. nVent makes no warranties as to the accuracy or completeness of the information, and disclaims any liability regarding its use.

nVent's only obligations are those in the nVent Standard Terms and Conditions of Sale for this product, and in no case will nVent or its distributors be liable for any incidental, indirect, or consequential damages arising from the sale, resale, use, or misuse of the product. Specifications are subject to change without notice. In addition, nVent reserves the right to make changes—without notification to Buyer—to processing or materials that do not affect compliance with any applicable specification.

1.3 USER RESPONSIBILITIES

The performance, reliability and safety of your heat-tracing system depend on proper design, selection and installation. The nVent RAYCHEM Supervisor program will help you configure and monitor a system that meets your requirements, but it is only a tool. It assumes that your input is accurate, that you are familiar with heat-tracing system design and configuration, and that you will ensure that all components of the heat-tracing system are installed, maintained and used as intended. The configuration of the nVent RAYCHEM Supervisor program should be reviewed by a knowledgeable engineer to ensure it is appropriate for your application. Additional information relating to safety, design and installation is contained in Design Guides, Installation Manuals, Data Sheets, and other literature available from nVent. Be sure to consult these documents as needed.

1.4 SAFETY WARNINGS

There are important safety warnings shipped with our products and printed in our literature. Be sure to read and follow them to reduce the risk of fire, shock or personal injury. If you have any questions, contact your local Representative or nVent directly.

1.5 TECHNICAL SUPPORT

In North America, contact nVent directly at:
North America
nVent
7433 Harwin Drive
Houston, TX 77036
Tel   +1.800.545.6258
Fax +1.800.527.5703
Thermal.TechSupport@nVent.com

Or for other parts of the world, contact nVent at:
Europe, Middle East, Africa
nVent
Romeinse straat 14 3001 Leuven
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Fax +32 16 21 36 04

The software allows the user to configure and monitor any nVent RAYCHEM controller installed in the field which has the appropriate communications interface installed from one central location. The software also supports alarm monitoring, with the ability to acknowledge and clear alarms.

2.1 SYSTEM REQUIREMENTS

The nVent RAYCHEM Supervisor Standard software is designed to run in a networked environment using one or more computers. The software is composed of three components, and it is assumed that all computers are networked together on a corporate intranet. Implementation details of this type of networking environment are beyond the scope of this document. The three components of the software are:

•   nVent RAYCHEM Supervisor Parent Server

•   nVent RAYCHEM Supervisor Client

•   SQL Database

The nVent RAYCHEM Supervisor Client provides the user interface and can be installed on any computers that require user interaction with the system. Once the nVent RAYCHEM Supervisor Parent Server and nVent RAYCHEM Supervisor Client(s) are installed, multiple users can access the nVent RAYCHEM Supervisor EHT system from different client computers simultaneously.

The requirements (hardware and software) that need to be met in order to run nVent RAYCHEM Supervisor are outlined in the following sections.

2.1.1 TYPICAL SYSTEM ARCHITECTURES

Versions of nVent RAYCHEM Supervisor prior to 2.4, used the Microsoft SQL Server Desktop Edition (MSDE) as the database engine. By default, this version of nVent RAYCHEM Supervisor uses Microsoft SQL Server Express, which is an updated version of MSDE. If you are upgrading a prior version of nVent RAYCHEM Supervisor, this version will detect the existing MSDE installation and continue to use it. If you are installing a new instance of nVent RAYCHEM Supervisor, then Microsoft SQL Server 2008 Express will automatically be installed.

While many nVent RAYCHEM Supervisor system architectures are possible, they will generally fall into one of two types described below. Please note that this installation manual discusses the nVent RAYCHEM Supervisor Standard installation only. For nVent RAYCHEM Supervisor Enterprise installation, refer to the Installation Manual for nVent RAYCHEM Supervisor Enterprise (H57989).

• Single User (Client). This type of installation will typically use the SQL Express database ("Standard") version of nVent RAYCHEM Supervisor.
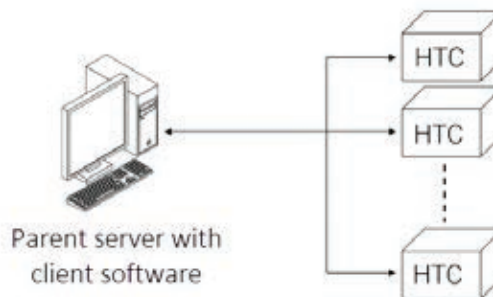

Figure 2.1.1 Typical single Parent, single client system

• Single Parent Server, Multiple Users (Clients). This architecture may be SQL Express based as long as the number of simultaneous users is limited to a maximum of four.

Due to SQL Express database limitations, no performance guarantees can be made in all situations with this many Users. For example, if several data trending or batch jobs are being run simultaneously, only one or two Users may be able to connect without impacting system performance.

Applications that require more users or the ability to have a larger number of batch/trending/configuration jobs must use the SQL-based Enterprise version of nVent RAYCHEM Supervisor.
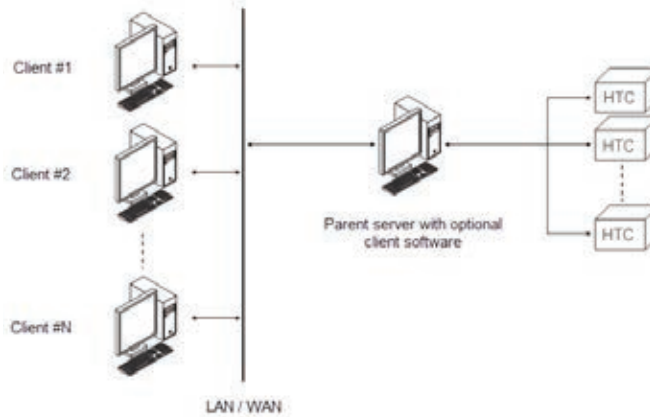

Figure 2.1.2 Typical single Parent, multiple client system

2.1.2 NVENT RAYCHEM SUPERVISOR PARENT SERVER

To effectively use the software, the following configuration is required:

- A Quad core, 2.0 GHz CPU. For large systems, where multiple Child Servers are to be used, consider the use of higher speed CPU's with more processing cores and / or processing threads within the Parent Server computer for greater performance. Consult nVent Applications Engineering for guidance
- 4 gigabytes of free disk space (HDD or SSD)
- 8 gigabytes of RAM
- Field Device connectivity, such as Ethernet or Serial RS-485 (type and quantity depend on device communication architecture)
- A mouse, or other compatible pointing device
- A display with a minimum 800x600 resolution
- Standard configurations using Microsoft SQL Express: Windows 7, 8, or 10, either 32 or 64 bit
- Multi-User / Multi-Server Capable configurations using MS SQL Server: Microsoft Windows Server 2012 through 2019, and Windows 7, 8, or 10, either 32 or 64 bit
- Microsoft .NET Framework version 4.0
- Network connectivity

2.1.3 NVENT RAYCHEM SUPERVISOR CLIENT

The following configuration applies to Client computer(s):

- A Quad core, 2.0 GHz CPU
- 2 gigabytes of free disk space (HDD or SSD)
- 4 gigabytes of RAM
- A mouse, or other compatible pointing device
- A display with a minimum 800x600 resolution
- Windows 7, 8, or 10, either 32 or 64 bit
- Microsoft .NET Framework version 4.0
- Network connectivity

nVent RAYCHEM Supervisor's Standard installation wizard will install the nVent RAYCHEM Supervisor Standard software on your PC's hard disk drive. You must already have Windows XP, Windows Server 2003, 2008, 2012, 2014, or 2016, Windows Vista SP1, Windows 7, Windows 8, or Windows 10 installed on your computer.

Note: To install Windows, follow the installation procedure provided by Microsoft. Familiarity with the Windows environment is highly recommended, and it is assumed throughout this manual. Knowledge of the Windows environment will make this program easier to use and understand.

If you are upgrading an existing nVent RAYCHEM Supervisor installation which is version 1.30 or earlier, please refer to Section 15.3 "Converting nVent RAYCHEM Supervisor Databases" in the *nVent RAYCHEM Supervisor Operations Manual* (H57576) for information on how to convert your existing database.

Note: Components should be installed in the order in which they are presented in this document.

3.1 QUICK START GUIDE

The following provides a brief outline of the installation process. Detailed instructions may be found in each of the sections that are referenced within the individual steps:

3.1.1 nVent RAYCHEM Supervisor STANDARD INSTALLATIONS:

1. Setup the Parent Computer:
   A. Start the nVent RAYCHEM Supervisor Standard Setup wizard and it will install the nVent RAYCHEM Supervisor Client and nVent RAYCHEM Supervisor Parent Server software plus other required components onto your computer.
   B. When the installation is complete, click the nVent RAYCHEM SupervisorClient Shortcut on your desktop to start the nVent RAYCHEM SupervisorClient software.
2. Setup any Client Computers (optional):
   A. Start the nVent RAYCHEM Supervisor Client Setup wizard and it will install the nVent RAYCHEM Supervisor Client software plus other required components to your computer (see Section 2.1).
3. Convert an existing database (optional):
   A. If you are upgrading from a previous version of nVent RAYCHEM Supervisor, PyroMaster, or TraceMaster software, you may import some of the system setup information into the new software (see Sections 15-3 through 15-5 in the nVent RAYCHEM Supervisor Operating Instructions manual as appropriate).
4. Activate and Register your new software (see Section 4).

Note: Other required components includes any of the following: Microsoft Windows Installer 4.5, Microsoft.NET Framework 4.0, Microsoft SQL Server 2008 Express Edition, and SAP Crystal Reports Runtime Engine.

3.2 INSTALLING NVENT RAYCHEM SUPERVISOR

To start the nVent RAYCHEM Supervisor Installation wizard, insert the "nVent RAYCHEM Supervisor" CD into the drive. Double click on the nVent RAYCHEM SupervisorStandardSetup.exe file in the main disc directory. The nVent RAYCHEM Supervisor Standard Setup Wizard screen will appear. You must click "Accept" to accept the nVent RAYCHEM Supervisor Program License Agreement to continue with the installation.
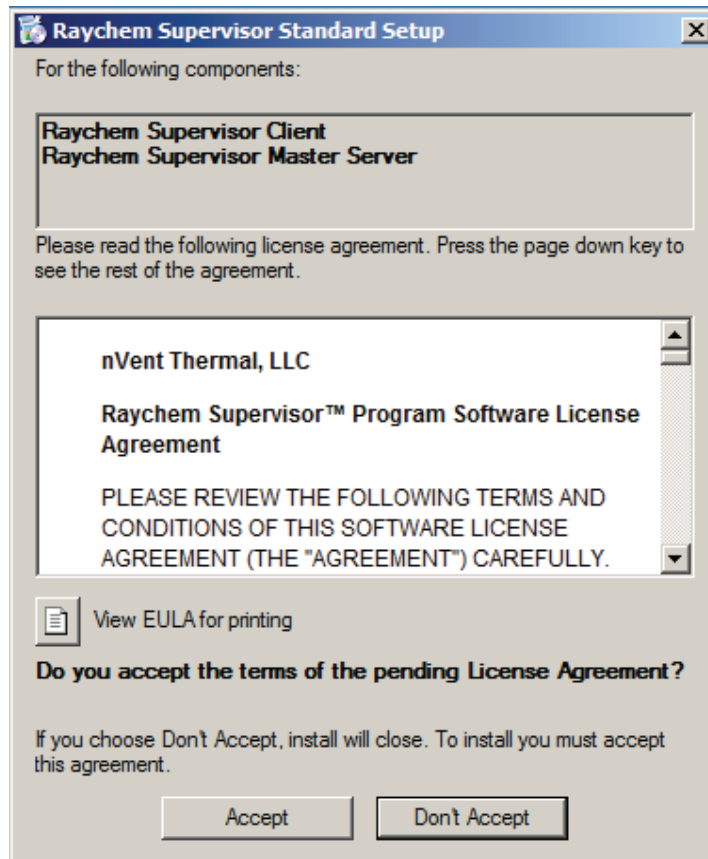
Figure 3.2.1 nVent RAYCHEM Supervisor Standard Setup screen

Once you accept the license agreement, the installation wizard determines what components are missing on your computer and prompts you to install them. Click "Install" to begin the installation.
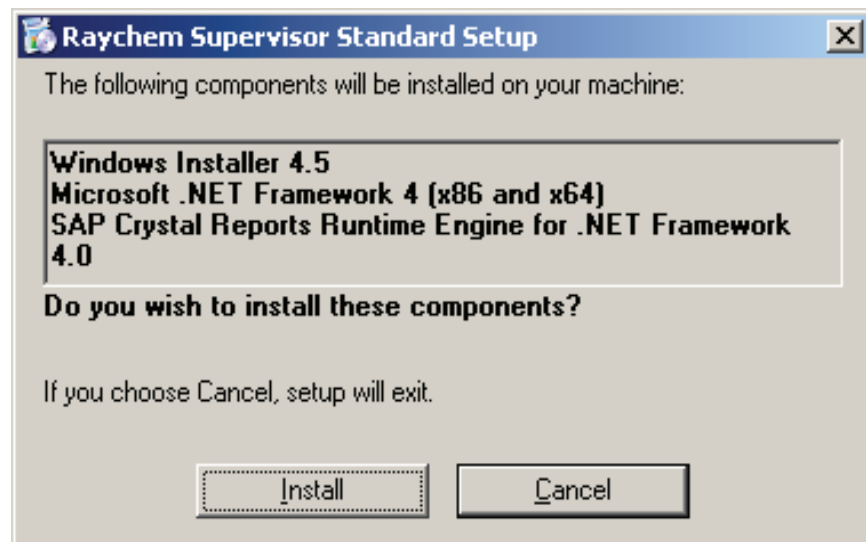

Figure 3.2.2 nVent RAYCHEM Supervisor Standard Setup screen showing the components to install

The installation wizard will install each component in the sequence it is listed in the setup screen. In the example above, the Microsoft Windows Installer 4.5 will be installed first.
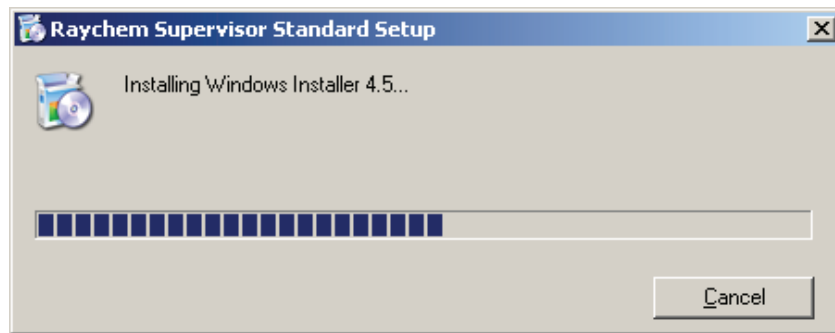
Figure 3.2.3 Microsoft Windows Installer 4.5 installation in progress

Some components will require a reboot of the computer. When prompted to reboot, click "Yes". Once the computer reboots, the installation will continue where it left off.
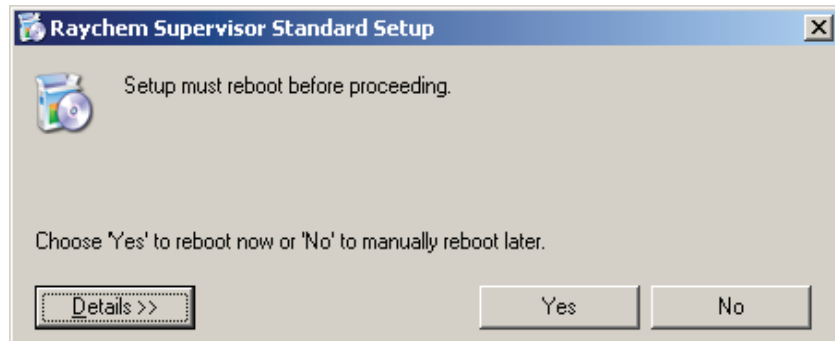

Figure 3.2.4 nVent RAYCHEM Supervisor Standard Setup screen prompting to reboot your computer

The installation wizard continues with the installation of the Microsoft.NET Framework 4.0, the Microsoft SQL Server 2008 Express, and the SAP Crystal Reports Runtime Engine. It will take some time to install these components since they provide extensive functionalities and therefore are quite large in size. Please note that you will be required to reboot again after the Microsoft.NET Framework 4.0 is installed.
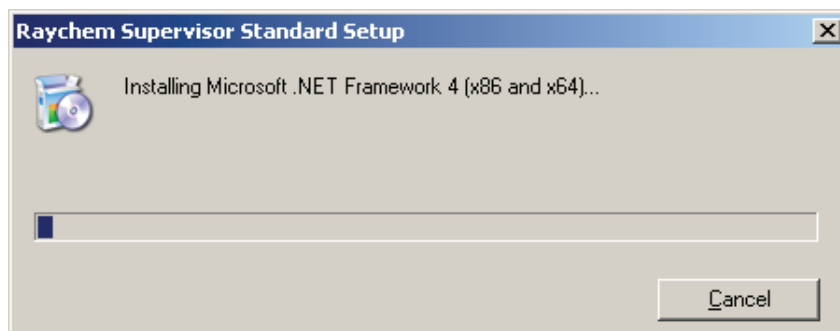

Figure 3.2.5 Microsoft.NET Framework 4.0 installation in progress
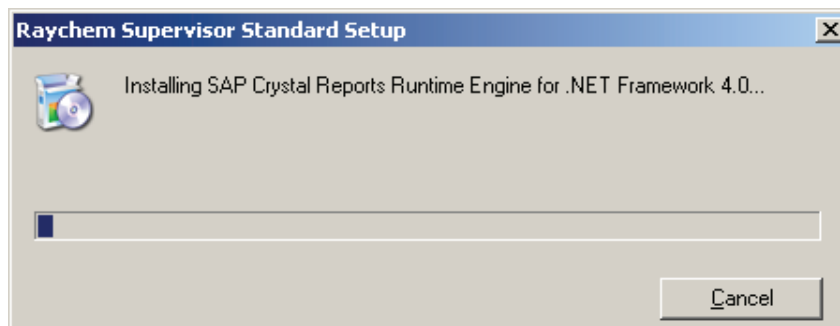

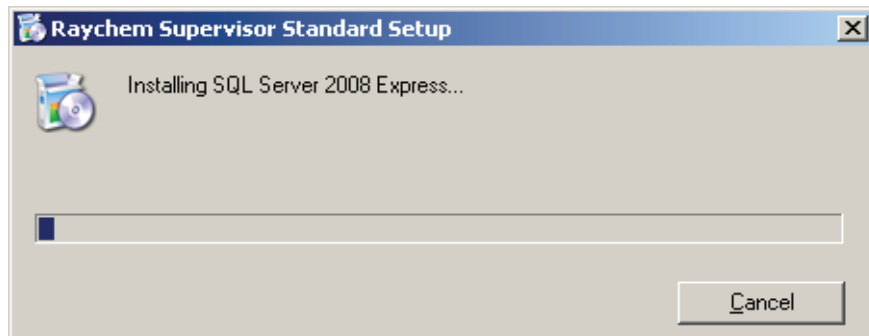**Figure 3.2.6 SAP Crystal Reports Runtime Engine installation in progress**

Figure 3.2.7 Microsoft SQL Server 2008 Express installation in progress

After all the required components are installed, the nVent RAYCHEM Supervisor Client will be installed, followed by the nVent RAYCHEM Supervisor Parent Server.
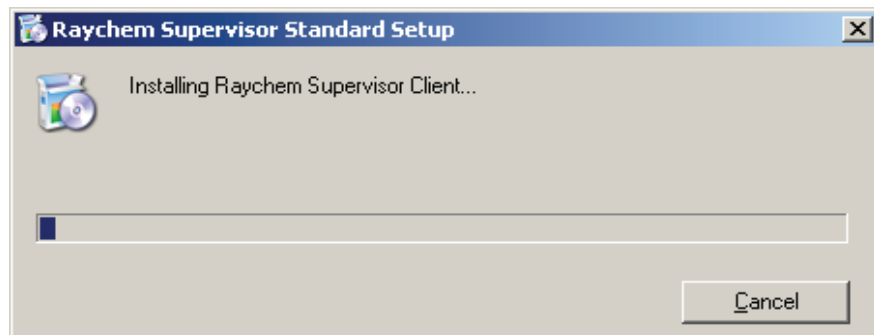

Figure 3.2.8 nVent RAYCHEM Supervisor Client installation in progress
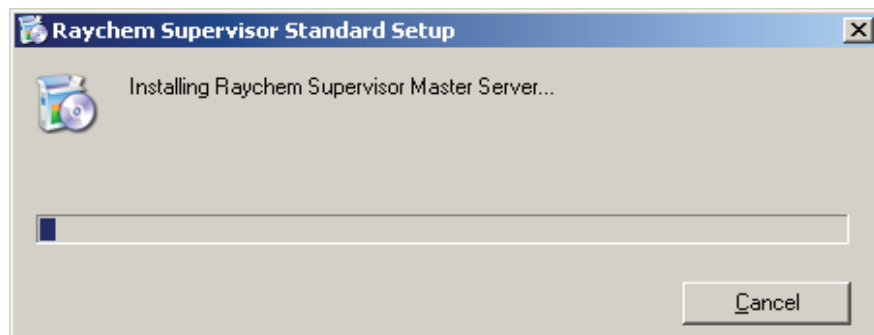

Figure 3.2.9 nVent RAYCHEM Supervisor Parent Server installation in progress

For the nVent RAYCHEM Supervisor Parent Server Installation, there are several screens that might require user input. These screens include choosing the SQL Server you want to use as the nVent RAYCHEM Supervisor database, and if you are installing over an existing nVent RAYCHEM Supervisor installation, you have to choose an existing system database option. For the remainder of the setup screens, you can simply click "Next" to continue.

The installation wizard will automatically fill in a default SQL Server name which you can use. However you can edit the name if you wish, but you must use a valid SQL Server name.
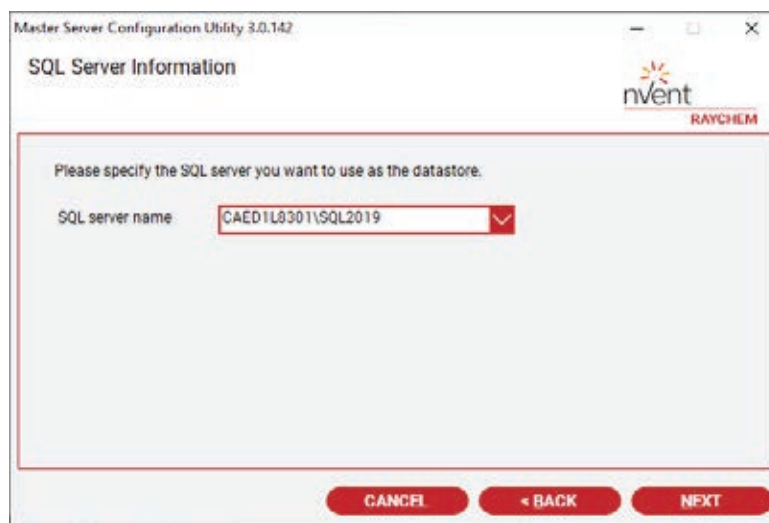
Figure 3.2.10 Select a SQL Server for nVent RAYCHEM Supervisor Parent Server screen

The Select an Existing System Database Options screen will appear only if an existing nVent RAYCHEM Supervisor installation exists. You must choose an option other than "None of the above" to continue.
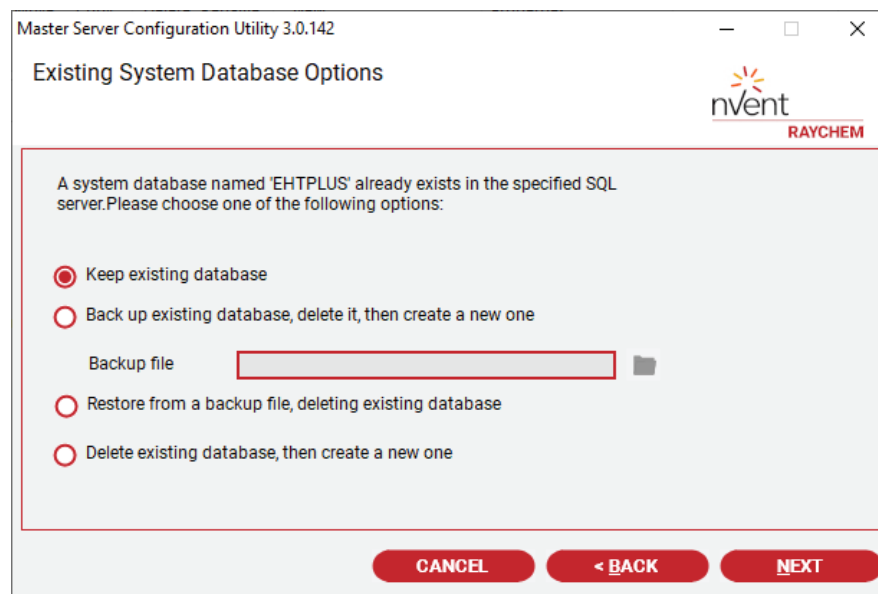

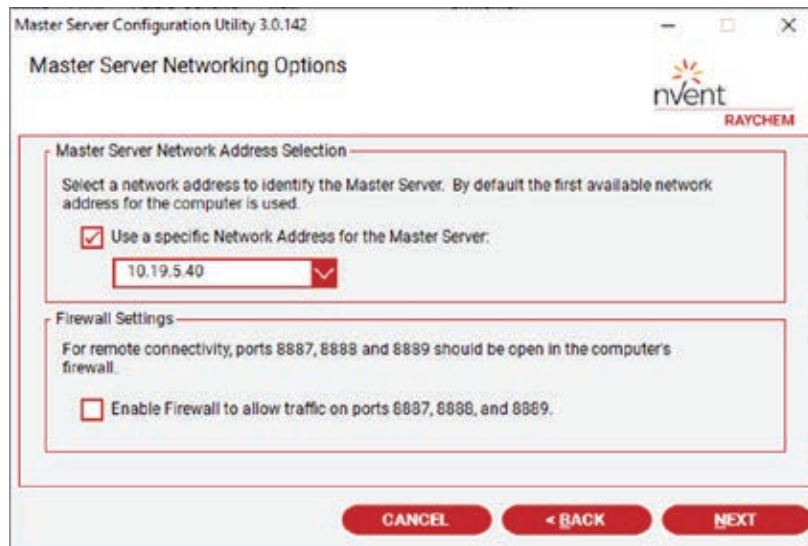Figure 3.2.11 Select an Existing System Database Option screen

Figure 3.2.12 Parent Server Networking Options

There are network specific options that can affect the operations of the nVent RAYCHEM Supervisor Parent Server, therefore select the options that are appropriate for your application.

Click "Next" to continue.

After you click "Next" on the last confirmation screen, the installation will continue until completion. If errors occur during the installation, please refer to section Appendix B - Troubleshooting on how to correct the problem; otherwise the Installation Complete screen will display. Make sure the checkbox for the "Restart nVent RAYCHEM Supervisor Parent Server for the new configuration to take effect" is checked, then click "Close" to exit the installation.
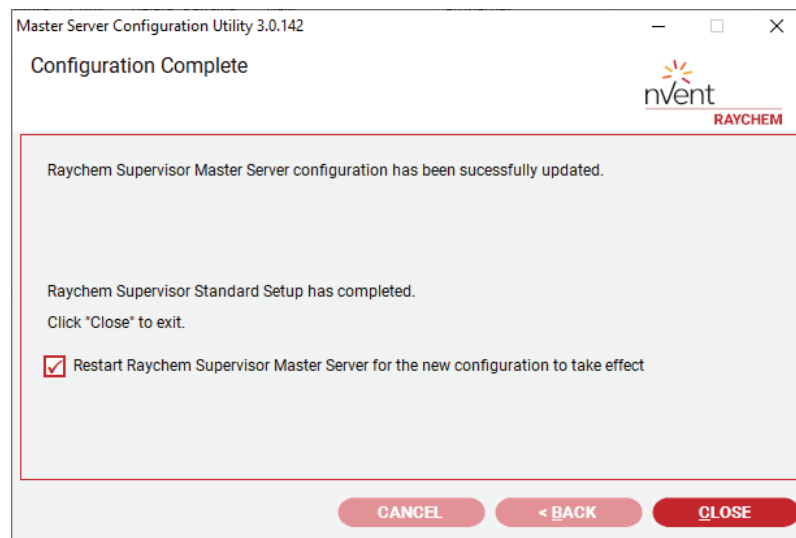

Figure 3.2.13 Installation Complete screen

You can now start the nVent RAYCHEM Supervisor Client software by double-clicking on the nVent RAYCHEM SupervisorClient icon on your desktop.

Figure 3.2.14 nVent RAYCHEM Supervisor Client Icon

3.3 UNINSTALLING MICROSOFT SQL SERVER 2008 EXPRESS

You may remove Microsoft SQL Server 2008 Express from your computer system by following these steps:

1. Click the START button, then Select Control Panel.
2. Double-Click Add/Remove Programs.
3. In the list of installed programs, select Microsoft SQL Server 2008. Click on the Remove button.
4. Follow the instructions that appear on the screen.
5. Once this has been completed, you must also delete the Microsoft SQL Server 2008 Express folder found in C:\Program Files\Microsoft SQL Server\MSSQL10.SQLEXPRESS.
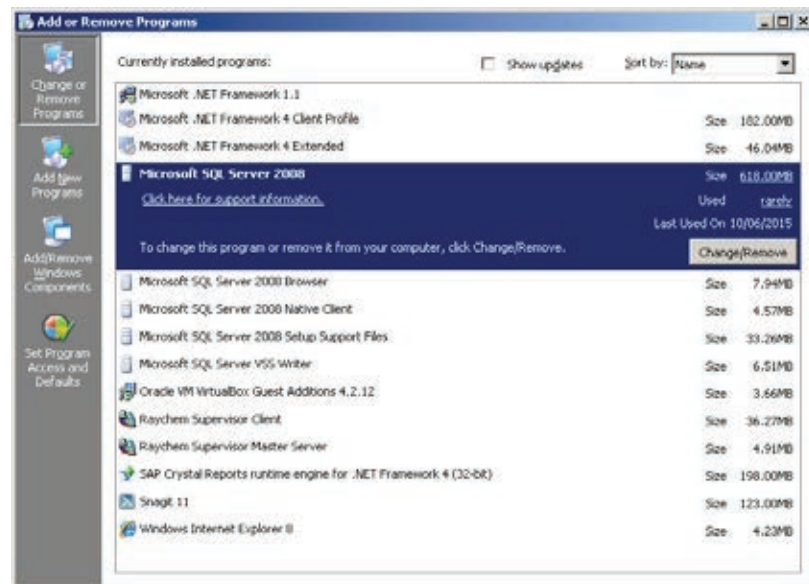

Figure 3.3.1 Remove Microsoft SQL Server 2008 Express

3.4 UNINSTALLING NVENT RAYCHEM SUPERVISOR

Prior to removing any nVent RAYCHEM Supervisor components from your computer system, back up your nVent RAYCHEM Supervisor database. (Refer to Section 15.2.1 in the *nVent RAYCHEM Supervisor Operations Manual* (H57576) for instructions on the proper backup procedure.)

3.4.1 UNINSTALLING NVENT RAYCHEM SUPERVISOR PARENT SERVER

You may remove nVent RAYCHEM Supervisor Parent Server from your computer system by following these steps:

1. Click the START button, then Select Control Panel.
2. Double-Click Add/Remove Programs.
3. In the list of installed programs, select nVent RAYCHEM Supervisor Parent Server. Click on the Remove button.
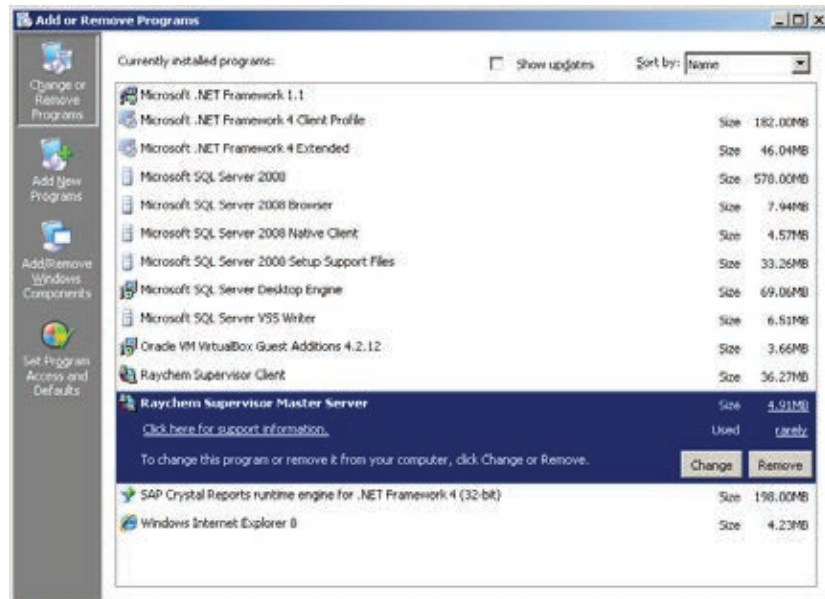4. Follow the instructions that appear on the screen.

Figure 3.4.1 Remove nVent RAYCHEM Supervisor Parent server

3.4.2 UNINSTALLING NVENT RAYCHEM SUPERVISOR CLIENT

You may remove nVent RAYCHEM Supervisor Client from your computer system by following the following steps:

1. Click the START button, then Select Control Panel.
2. Double-Click Add/Remove Programs.
3. In the list of installed programs, select nVent RAYCHEM Supervisor Client. Click on the Remove button.
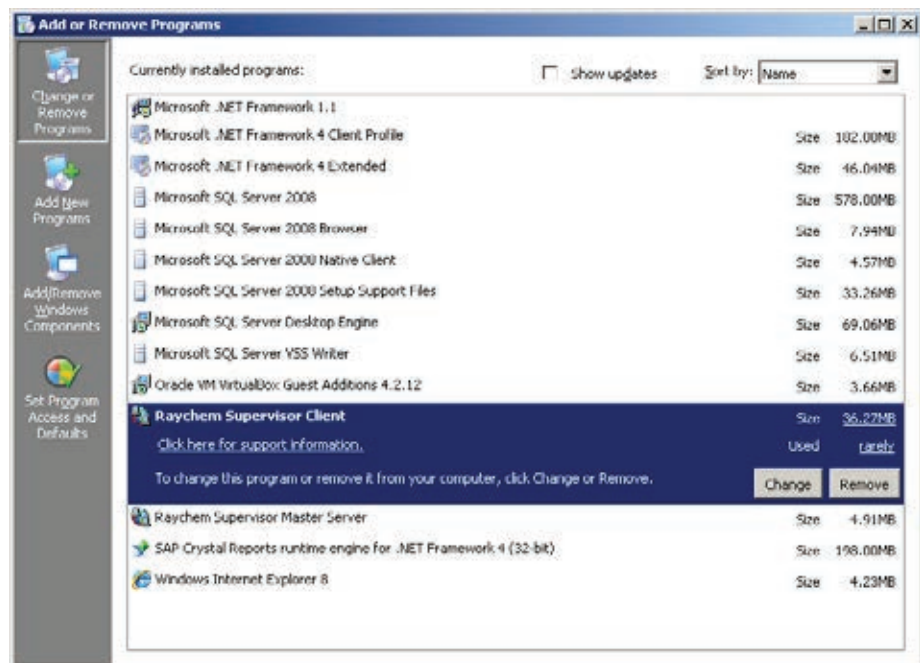4. Follow the instructions that appear on the screen.

Figure 3.4.2 Remove nVent RAYCHEM Supervisor client

SECTION 4 – SOFTWARE ACTIVATION AND REGISTRATION

Please refer to Section 15 in the nVent RAYCHEM Supervisor Operations Manual, H57576.
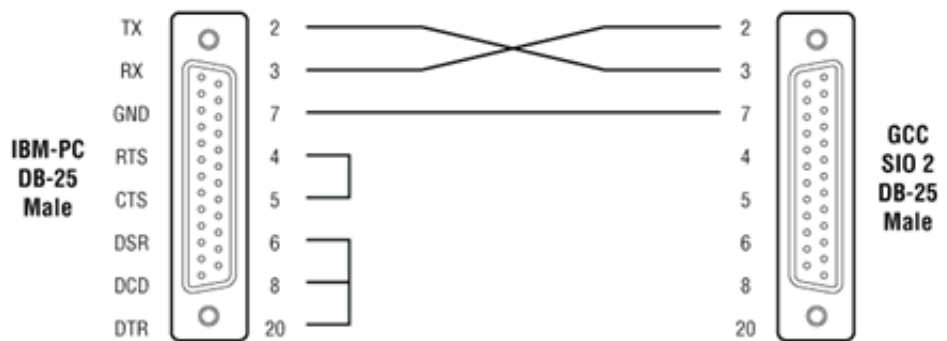
APPENDIX A – 780 SERIES/GCC-9000 CABLING

Refer to the 780 Series/GCC-9000 manual for an explanation regarding wiring of the HTC communications, alarm and relay ports. The communications between the Parent computer and the 780 Series/GCC-9000s may be accomplished using either RS-232 or RS-485, depending on the circumstances. If you are connecting multiple 780 Series/GCC-9000s to the nVent RAYCHEM Supervisor software, you will need to use the RS-485 port and associated wiring to accomplish this.
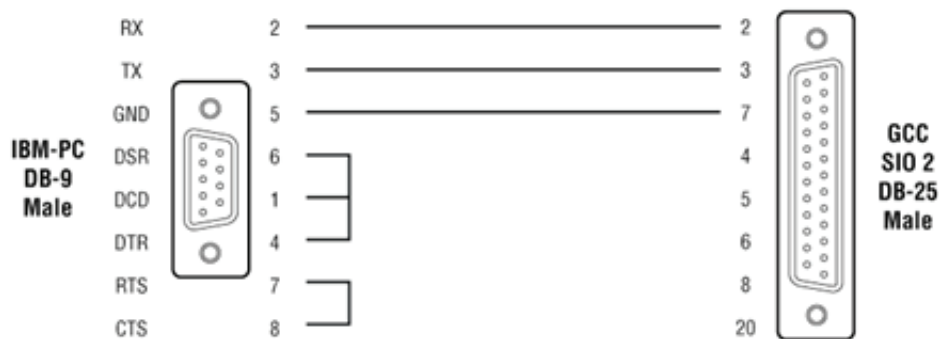
A-1 RS-232 COMMUNICATIONS TO A 780 SERIES/GCC-9000

Communications to the 780 Series/GCC-9000 may be established via an RS-232 cable plugged into the 780 Series/GCC-9000's SIO#2 port and to one of the serial (COM) ports of your computer. The required cable wiring is shown below.

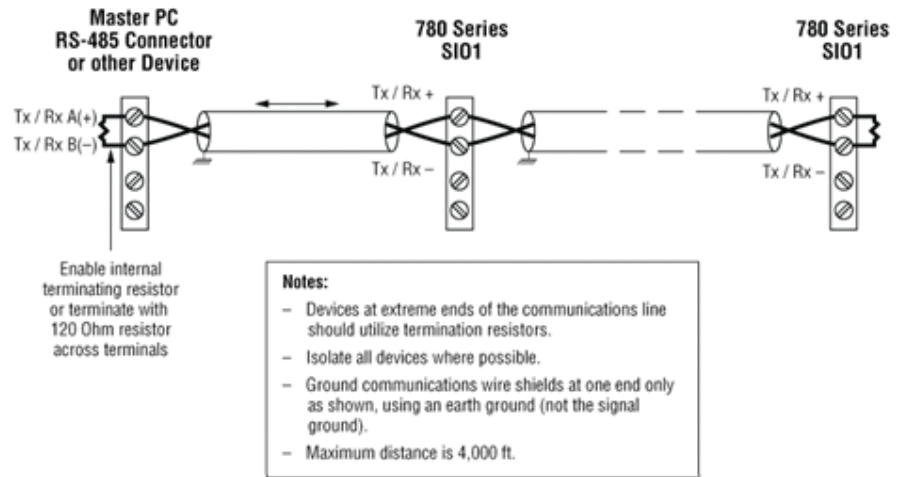Personal computer 25-pin male to GCC RS-232C

Personal computer 9-pin male to GCC RS-232C

A-2 RS-485 COMMUNICATION TO A 780 SERIES/GCC-9000

The wiring between the Parent computer and a 780 Series/GCC-9000 using the RS-485 port is accomplished using either a 2-wire or a 4-wire connection and an RS-485/RS-232 converter plugged into the computer's serial (COM) port.

780 Series
SIO1 Wiring Diagram
(2-Wire RS-485)

The following chart shows typical distances that may be achieved using the RS-485 communications port. These distances are based on using a 4-wire, 26-AWG shielded twisted pair. Note that speed and distances will depend on actual operating conditions.

Speed	Distance
1200 bps	4.00 miles (6.4 km)
2400 bps	3.00 miles (4.8 km)
4800 bps	2.30 miles (3.7 km)
9600 bps	1.70 miles (2.7 km)

The RS-485 converter may be an internal card that plugs into one of your computers' empty slots, or an external device that connects to one of the existing serial ports via a cable. It is strongly recommended that you use an isolated-type interface to protect the computer from any voltage transients that may be introduced into the field wiring.

A-3 780 SERIES / GCC-9000 RS-485 JUMPER SETTINGS
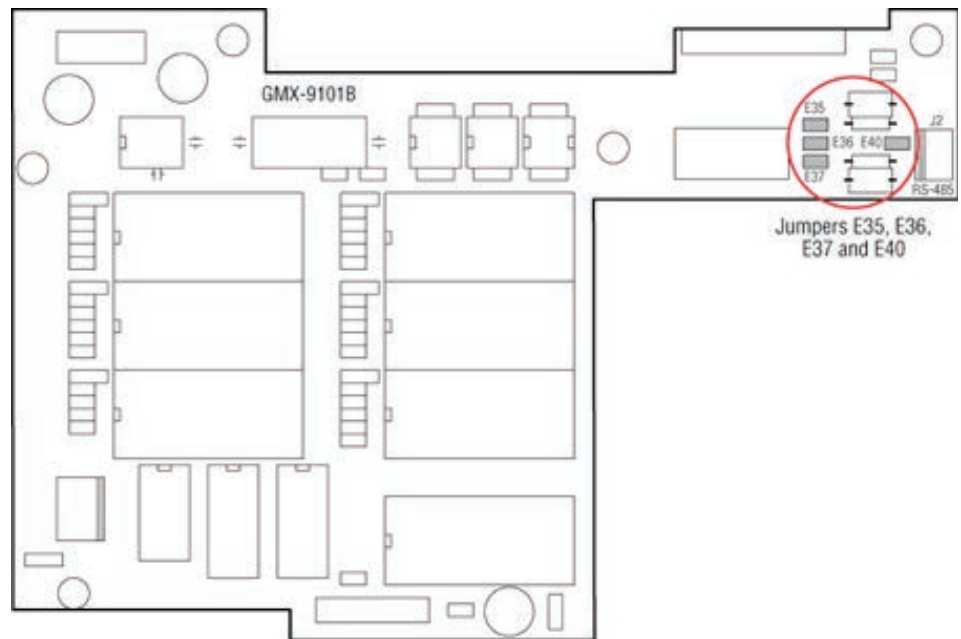
Preparation

1. Power down the GCC and unplug its line cord.
2. Remove the four screws holding down the GCC's cover.
3. Identify the four jumpers on the drawing below.
4. Check to see if the existing jumper settings are acceptable.

Note: Static electricity can destroy electrical components! Ground one hand by touching the metal case prior to handling the jumpers.

Jumpers E35, E36,
E37 and E40

For 2 Wire RS-485 Operation

1. Install jumpers E36 and E40 and use Tx+ and Tx- terminals to connect the RS-485 wiring.
2. Install jumper E35 for the termination resistor if this is the last (or furthest) GCC.

For 4 wire RS-485 Operation

1. Remove jumpers E36 and E40, if present, and use all four terminals Tx+, Tx-, Rx+, and Rx- to connect the RS-485 wiring.
2. Remove jumper E35 and install jumper E37 for the termination resistor if this is the last GCC on the RS-485 communications bus.

B-1 INSTALLATION ERRORS

Cannot install Parent Server due to database error

• Ensure that the Microsoft SQL Server is properly installed and running on the computer where you are installing nVent RAYCHEM Supervisor.

• Verify that the Parent Server name has been typed in correctly.

• If nVent RAYCHEM Supervisor Parent Server does not install, ensure that there is no MSSQL file in the folder C:\Program Files\Microsoft SQL Server. This may be left over from a previous installation and will prevent the installation from completing.

Install error 1604 encountered installing Crystal Reports Runtime Engine

• Try running the installation setup again. This might happen if the installation setup files are stored in a network drive instead of the local drive.

Unexpected Installation errors encountered

If there are unexpected errors encountered during the installation, check that the Windows Operating system meets the minimum software requirement needed to install nVent RAYCHEM Supervisor. Upgrade to the latest version if possible.

B-2 COMMUNICATION ERRORS

Communication Failures

When nVent RAYCHEM Supervisor is connected to GCCs and HTC-direct controllers using a 2-wire RS-485 configuration make sure that the Tx Delay setting for each GCC and HTC-direct controller is set to at least 0.06 seconds. This will ensure that the GCC or HTC-direct devices do not start to transmit a reply until nVent RAYCHEM Supervisor has turned off its driver.

B-3 OTHER ERRORS

Some text does not display properly in the "Help About" screen

• If you are using McAfee Virus Scan software, you may have to disable the "Buffer Overflow Protection" option in the McAfee setup to eliminate this problem.

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