Installation Guide

PowerAlert®
Element Manager

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1. Introduction

The PowerAlert Element Manager (PAEM) is a software application that facilitates configuration and maintenance of Tripp Lite LX Platform devices and certain Tripp Lite software solutions. PAEM contains a discovery engine to identify supported Tripp Lite solutions on the network. PAEM then leverages this information when performing the following functions:

• **Mass Configuration** – Concurrently applying a source configuration to multiple target devices

• **Mass Update** – Concurrently installing LX Platform firmware onto multiple LX Platform devices

1.1 System Requirements

• Personal computer with a supported operating system: Windows 7, 8 or 10; Windows Server 2008, 2012, 2016 or 2019

• CPU: 4 core 2.0 GHz or higher

• Memory: minimum of 1.5 GB

• Disk Space: minimum of 40 GB

• Ethernet network that supports the TCP/IP protocol

• Supported web browser: Google Chrome, Mozilla Firefox, Internet Explorer 10 or later, Safari

Note: Windows and Internet Explorer are trademarks of Microsoft Corporation. Safari is a trademark of Apple, Inc. Google Chrome is a trademark of Google LLC. Firefox is a trademark of The Mozilla Foundation.

1.2 Components

During PAEM installation, several 3rd party components will be loaded. Review the list and links below for information on the 3rd party components and licenses.

• **OpenJDK** - An open source Java platform implementation. Website: https://openjdk.java.net/

• **MongoDB** - MongoDB is a cross-platform, document-oriented database. Website: https://www.mongodb.com/

• **RabbitMQ** - RabbitMQ is a message broker that implements Advanced Message Queuing Protocol (AMQP). Website: https://www.rabbitmq.com/

• **YAJSW** - Yet Another Java Service Wrapper is an open source Java service wrapper for Windows. Website: http://yajsw.sourceforge.net/

• **Jasypt** - Password encryption. Website: http://www.jasypt.org/

• **OpenSSL** - Converting *.crt certificate to Java Keystore. Website: https://www.openssl.org/

• **Spring Boot Framework** - A web and microservices framework. Website: https://spring.io/projects/spring-boot

• **Erlang/OTP** - The Erlang runtime system and related components. Website: https://erlang.org/doc/

• **Angular** - A web application framework used for the PAEM user interface. Website: https://angular.io/

1.3 Compatibility

PAEM supports the following hardware and software products:

• Tripp Lite LX Platform devices, including WEBCARDLX, WEBCARDLXMINI, PDU3E-Series PDUs, PDU3XE-Series PDUs, LX Platform PDUs, SRCOOLNETLX and SRCOOLNET2LX

• Instances of PowerAlert Device Manager - Local (PADM-Local) - future

PAEM does NOT support the following hardware and software products:

• SNMPWEBCARD Platform devices, including SNMPWEBCARD, legacy PDUs and SRCOOLNET

• PowerAlert Local software (PAL)

• PowerAlert Network Management System Software (PANMS)

• Tripp Lite KVMs and IP Consoles

• Tripp Lite managed switches

• Non-Tripp Lite devices

2. Installation

1. Download the latest version of PowerAlert Element Manager from the Tripp Lite website at tripplite.com/products/management-software

2. Once downloaded, right click the PAEM.exe file and select **Run as administrator** (Figure 2-1). Without administrative rights, the application will not install correctly.

   Note: If a previous version of PAEM is already installed, the installer will attempt to uninstall it before installing the newer version.
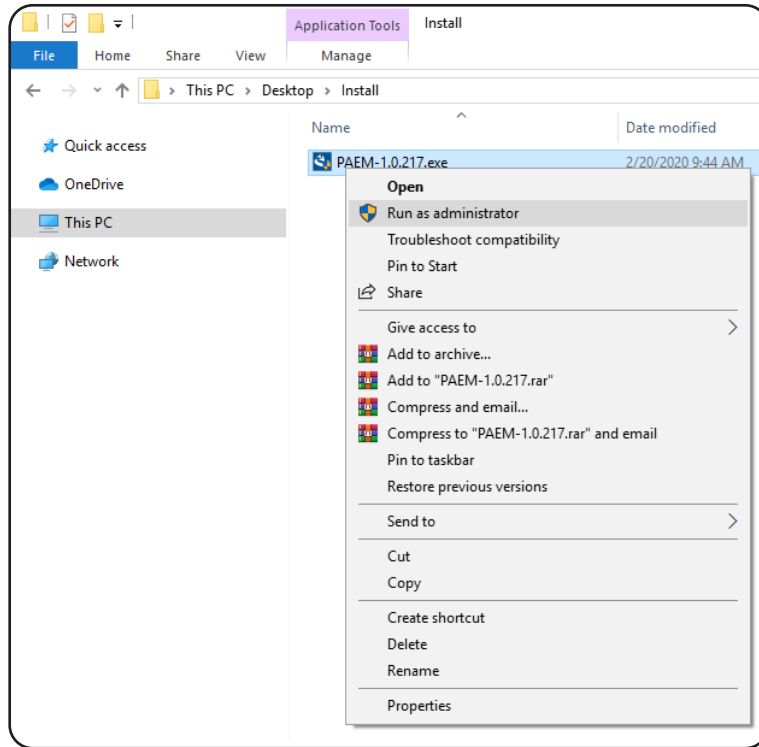

Figure 2-1: Run as administrator

3. At the User Account Control prompt (Figure 2-2), click **Yes**. The application will not install properly otherwise.
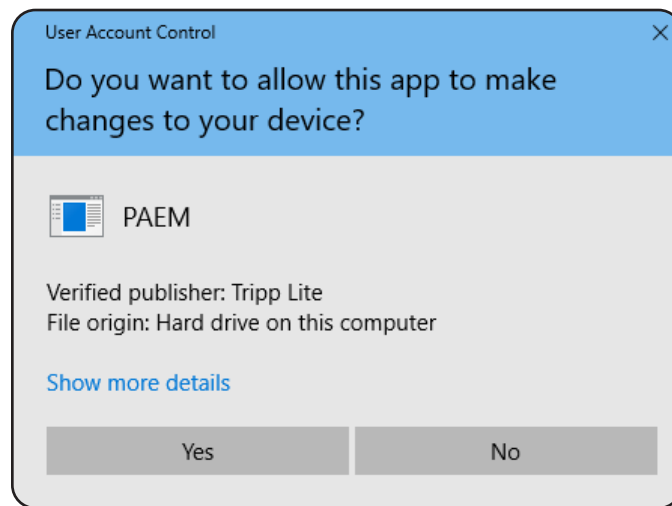
Figure 2-2: User Account Control

4. A dialog box appears identifying components that need to be installed (Figure 2-3). Click **Install** to start the process.
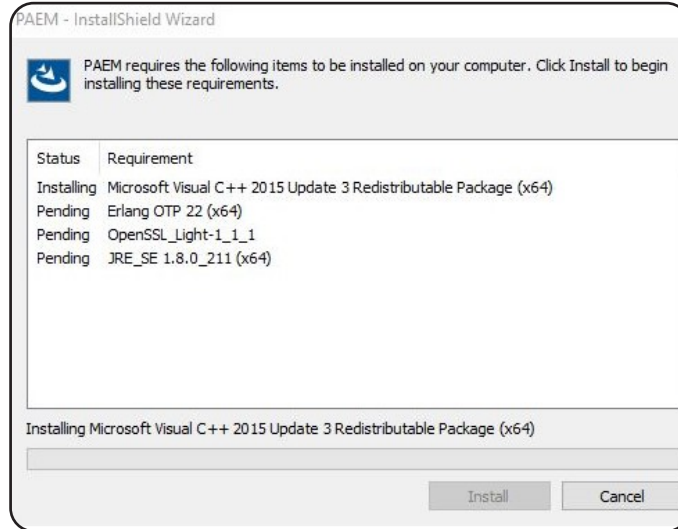
Figure 2-3: Installing required components

5. In the InstallShield Wizard welcome dialog box (Figure 2-4), click **Next** to proceed with the installation.
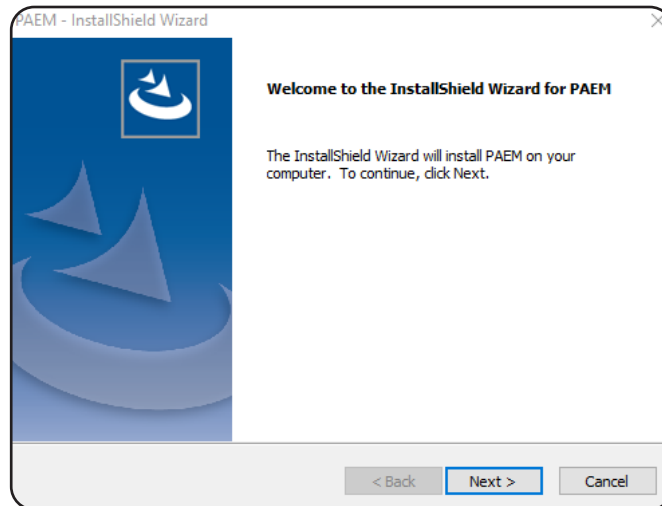

Figure 2-4: InstallShield Wizard

6. Review the End-User License Agreement, then click **Yes** to accept the terms of the agreement (Figure 2-5).
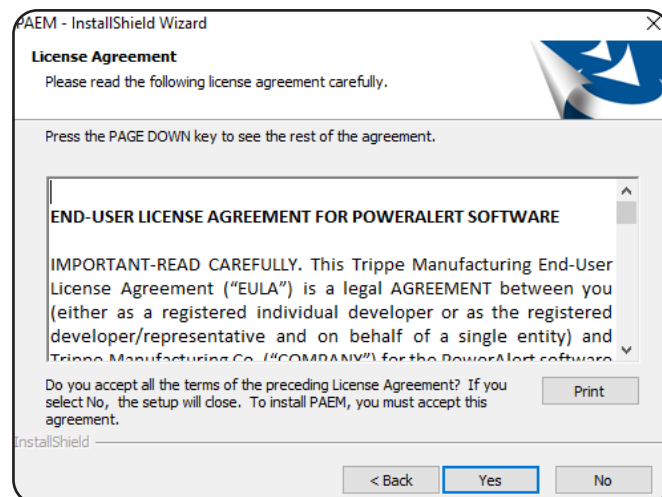

Figure 2-5: End User License Agreement

2. Installation

7. Three setup types are supported. Each is covered in the steps below.

7.1. **HTTP** – For the HTTP setup type, enter the HTTP port number, then click **Next**. The default port value is 8080.
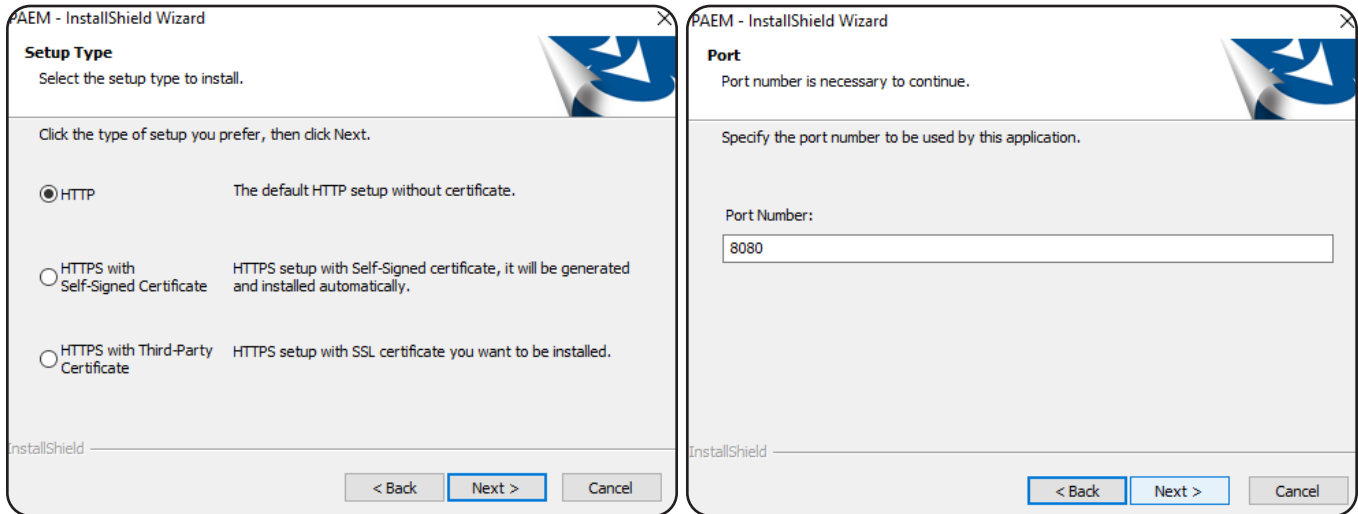
Figure 2.6: HTTP setup without Certificate

7.2. **HTTPS with Self-Signed Certificate** – This setup type automatically generates the certificate via Java Keystore. Enter the HTTPS port number, then click **Next**. The default port value is 4040.
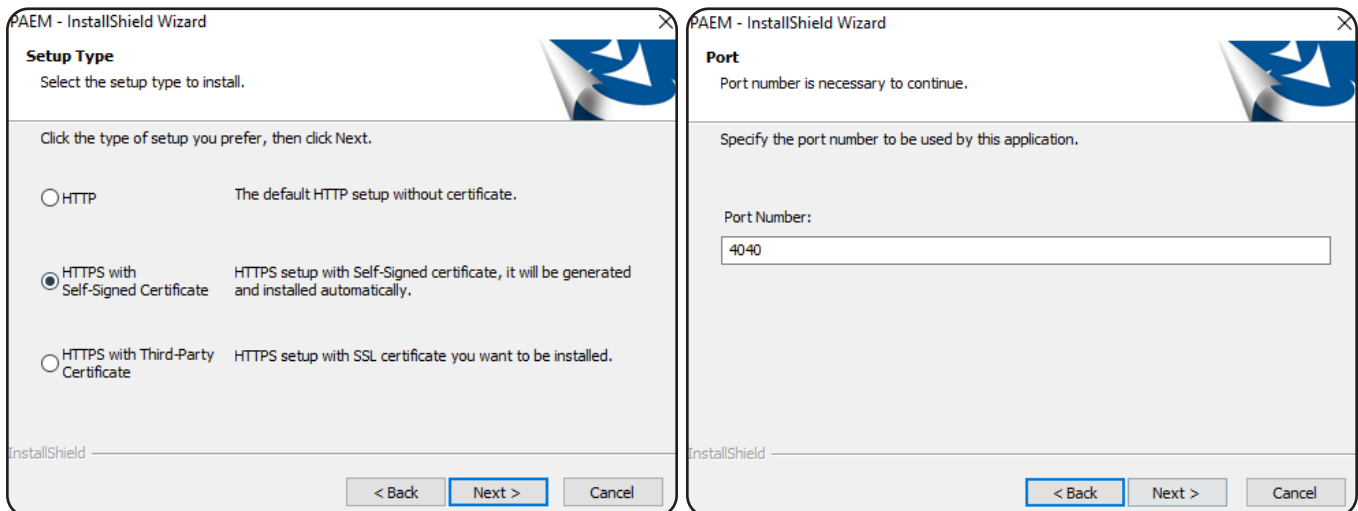

Figure 2-7: HTTPS setup with Self-Signed Certificate

7.3. **HTTPS with Third-Party Certificate** – Two options for Third-Party Certificates are available: Java Keystore and CRT Certificate. Click **Next** to make the selection.
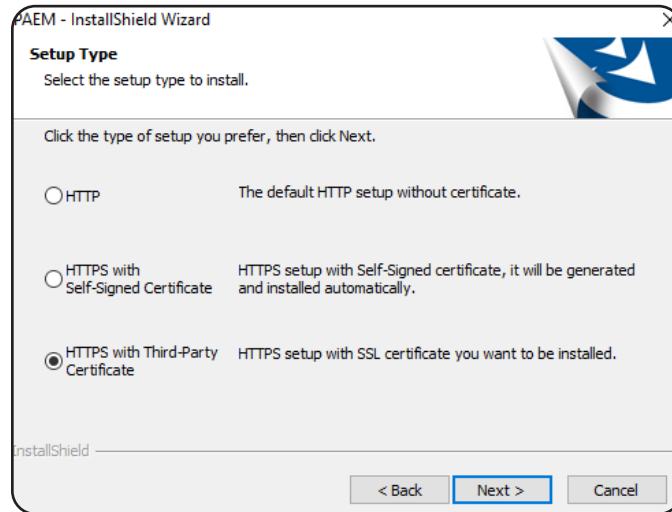

Figure 2-8: HTTPS Setup with Third-Party Certificate

7.3.1. **Java Keystore** – Select the Java Keystore option and click **Next**. Use the **Browse** button to select the Keystore file. Enter the Java Keystore Password, then click **Next**. Proceed to step 7.3.3.
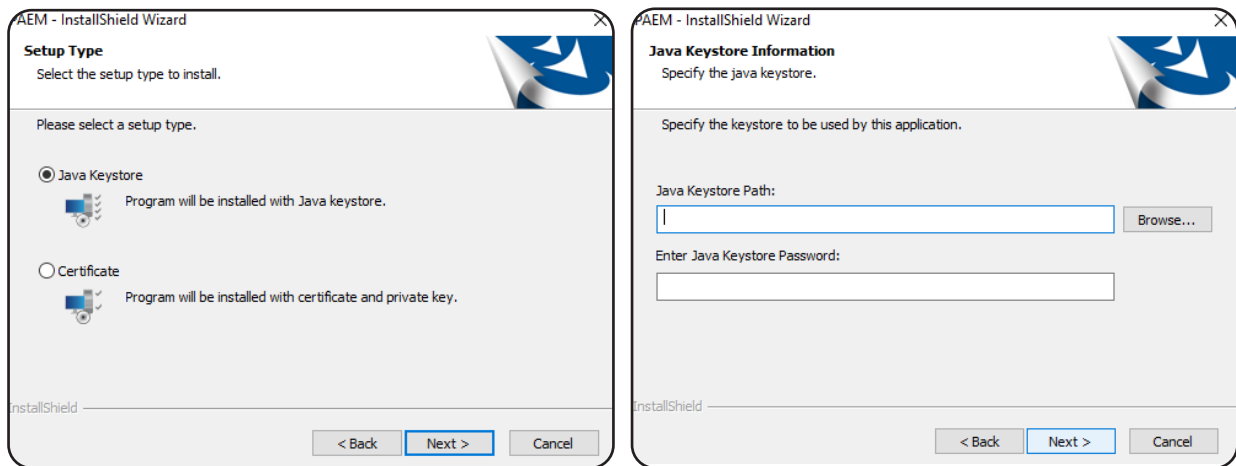

Figure 2-9: Java Keystore Setup

7.3.2. **Certificate** – Select the Certificate option and click **Next**. Use the **Browse** buttons to select the Certificate file and the Private Key file, then click **Next**.
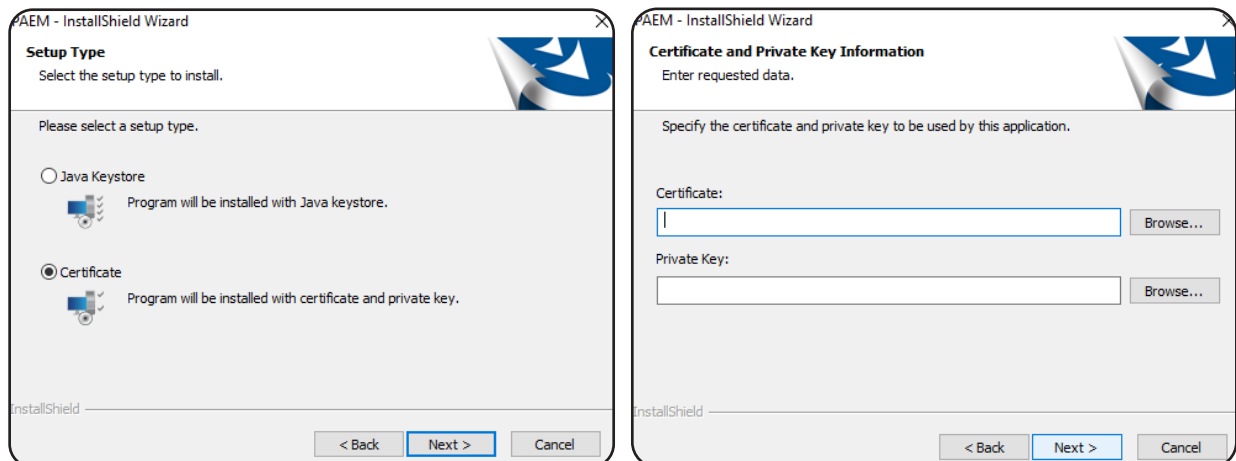

Figure 2-10: Certificate Installation

7.3.3 **Port** – Enter the HTTP port number, then click **Next**. The default port value is 4040. If the Keystore Password, Certificate or Private Key file are invalid/expired, an error message will appear.
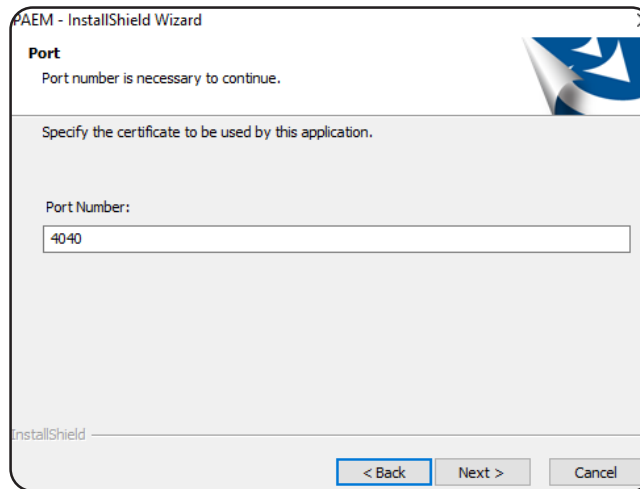

Figure 2-11: Specify the Port Number

8. By default, PAEM will be installed at **C:\Program Files\Tripp Lite\PAEM**. To specify a different location, click **Browse** and navigate to the desired location. Click **Next** to proceed.

   Note: *If entering a location path, do not use the following characters: < > : " / \ | ? * $ ^ ~*
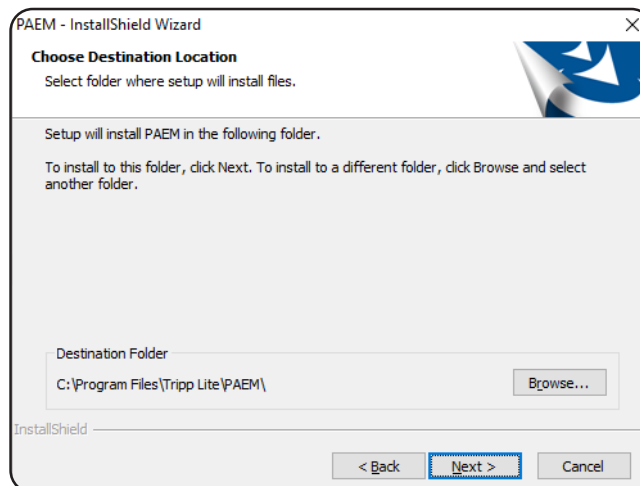
Figure 2-12: Choose Destination Location of Installed Application

9. Click **Install** to start the installation or **Back** to review the previous steps. When the installation has completed, click the **Finish** button.
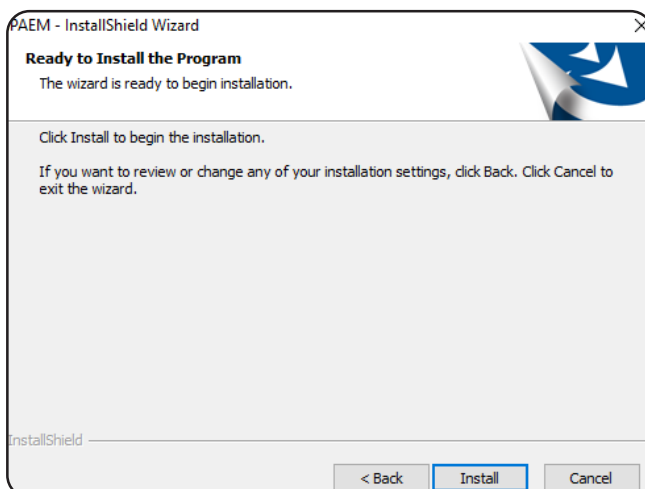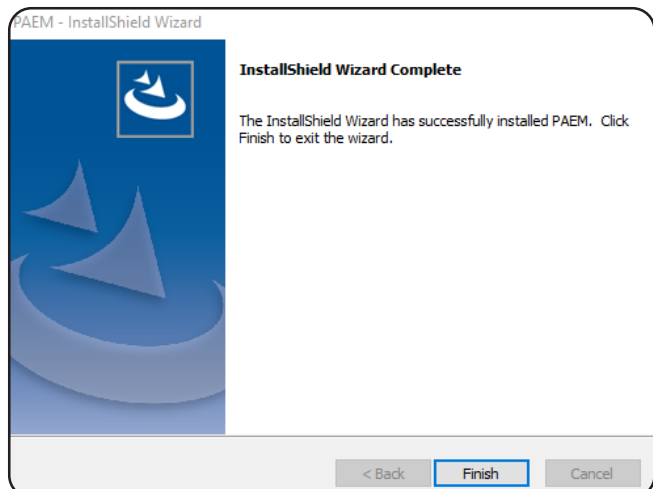

Figure 2-13: Ready to Install

Figure 2-14: Installation Complete

3. PAEM Maintenance

Use the steps in this section to modify the installation, including:

• Installation type (e.g., from HTTP to HTTPS with Third-Party Certificate)

• Port number

• SSL Certificate (replace an existing certificate)

IMPORTANT: Be sure to clear your browser cache before modifying the installation

1. Open **Control Panel** and select the **Program and Features** (or similar) item.
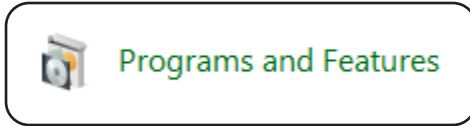

Figure 3-1: Control Panel > Programs and Features

2. In the "Uninstall or change a program" window that opens (Figure 3-2), right-click on the **PAEM** item and select the **Change** option.
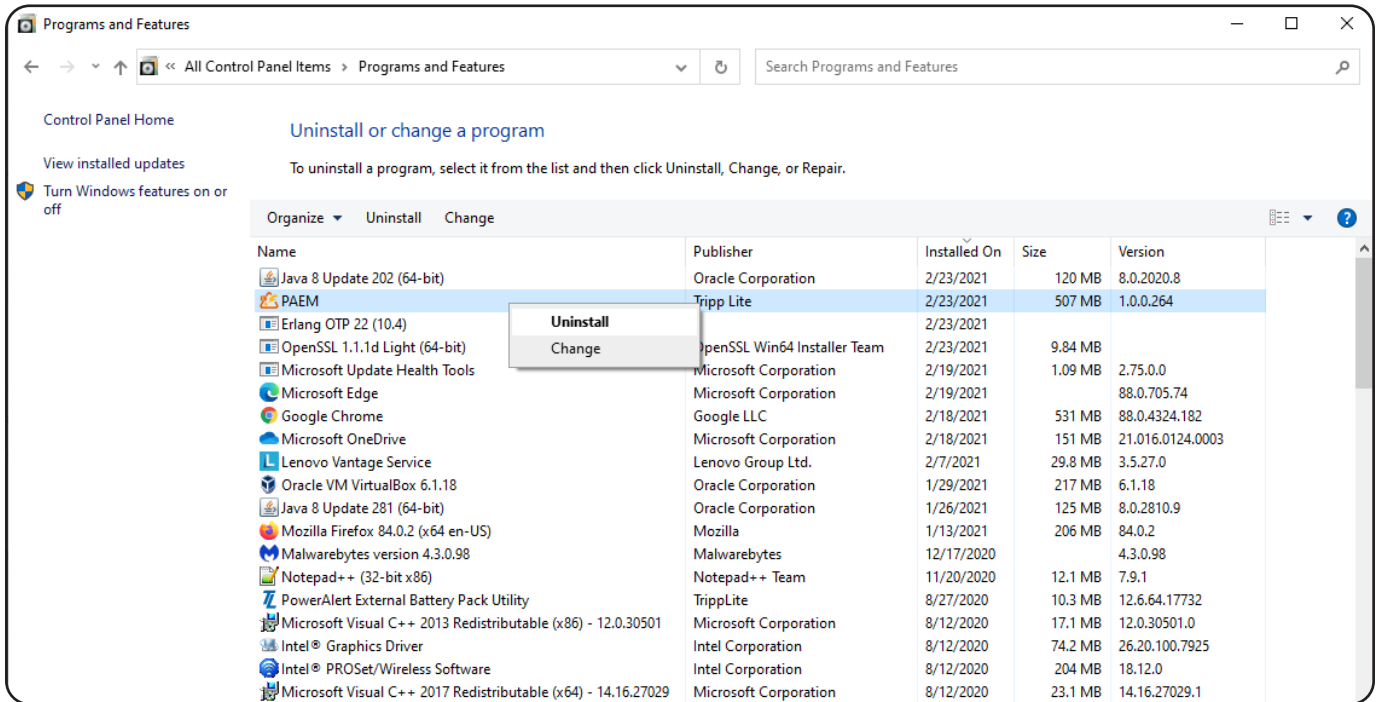

Figure 3-2: Uninstall or Change a Program

3. Select the **Modify** option (Figure 3-3), then follow the regular installation instructions as described in section **2 Installation**, starting with Step 7.
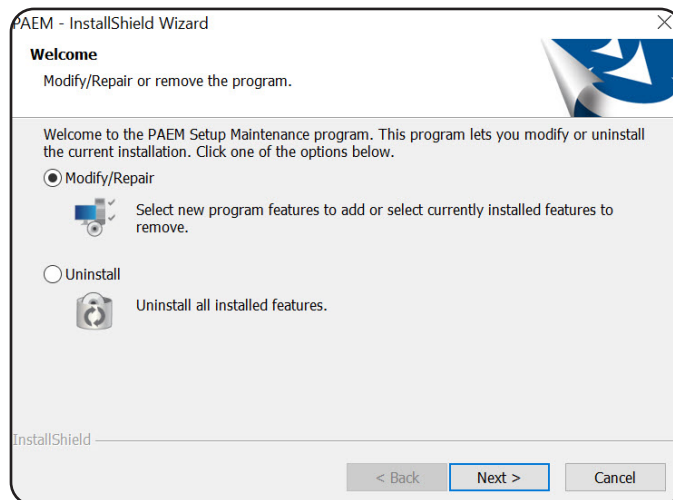

Figure 3-3: Modify the Installation

3. PAEM Maintenance

4. At the User Account Control prompt (Figure 3-4), click **Yes**. When the installation has completed, click the **Finish** button.
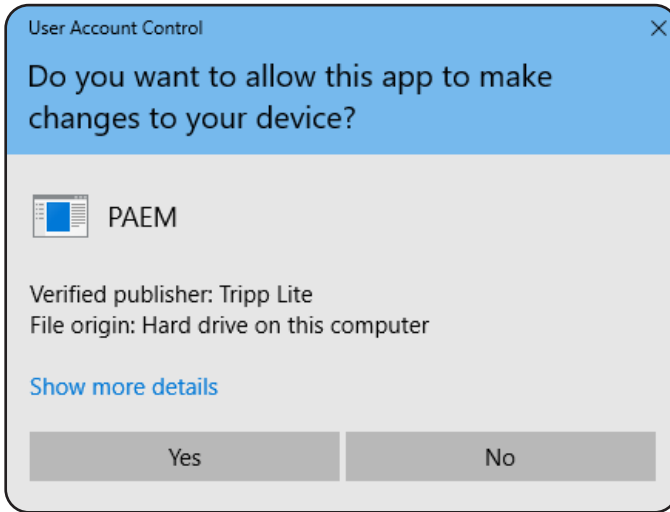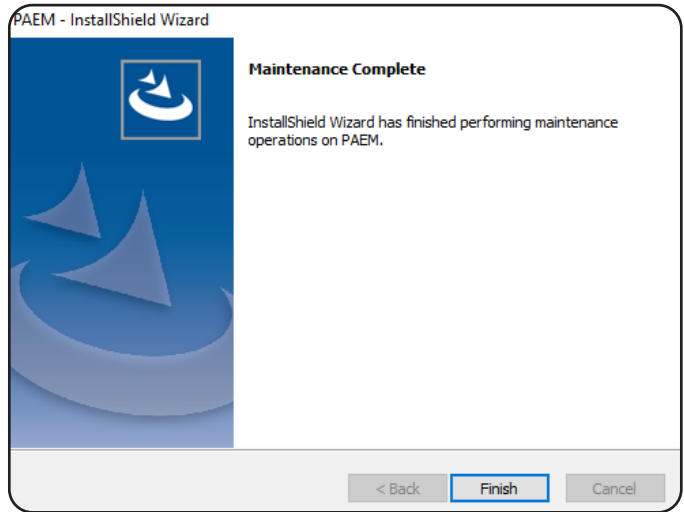

Figure 3-4: User Account Control

Figure 3-5: Maintenance Complete

4. Upgrade PAEM

1. To install a newer version of PAEM, run the downloaded executable file as an administrator. In the Setup window (Figure 4-1), click **Yes** to start the PAEM upgrade.
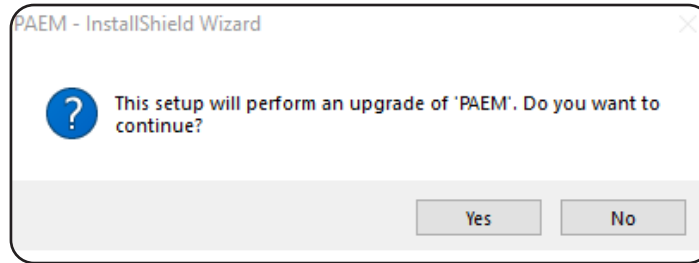

Figure 4-1: Begin installation of PAEM upgrade

2. If the update entails installation of a new component, a message will appear (Figure 4-2). Click **Install** to proceed. When the installation has completed, click the **Finish** button.
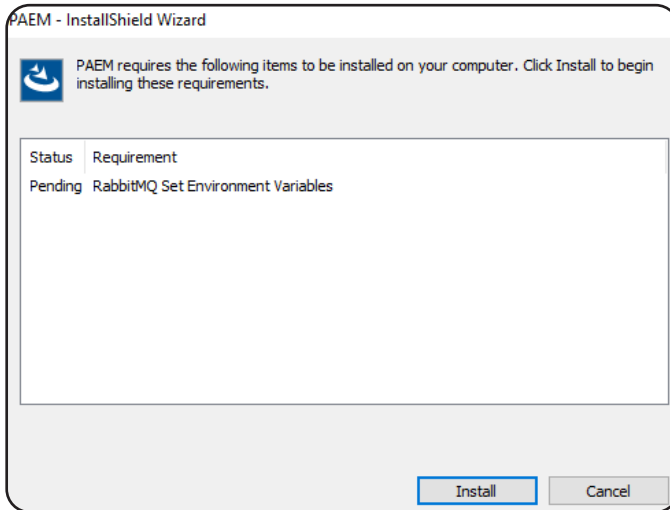

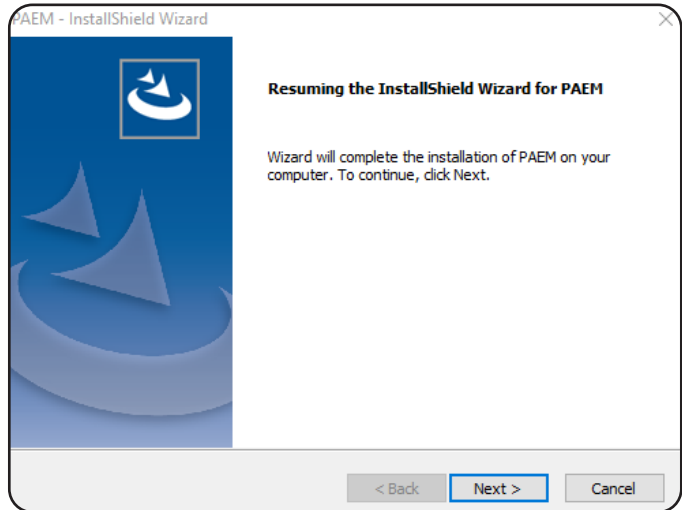*Figure 4-2: Installing Required Components*

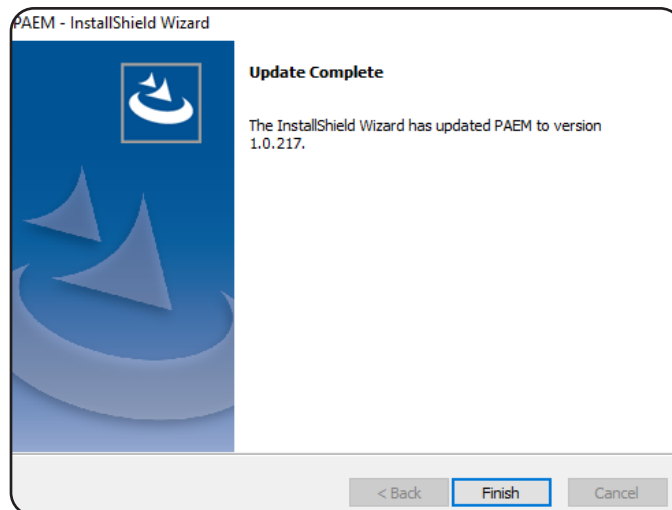

Figure 4-3: Begin Installation

Figure 4-4: Update Complete

5. Uninstall PAEM

1. To uninstall PAEM, administrator privileges are required. Open the **Control Panel** and select the **Programs and Features** (or similar) item. For **Windows 10** and **Server 2019** environments, proceed to section **5.1 Uninstall PAEM for Windows 10 and Server 2019**.
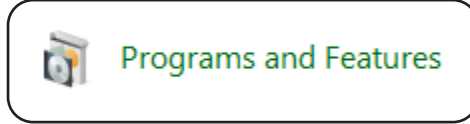

Figure 5-1: Control Panel > Programs and Features

2. In the "Uninstall or change a program" window that opens, right-click on the **PAEM** item and select the **Uninstall** option (Figure 5-2).
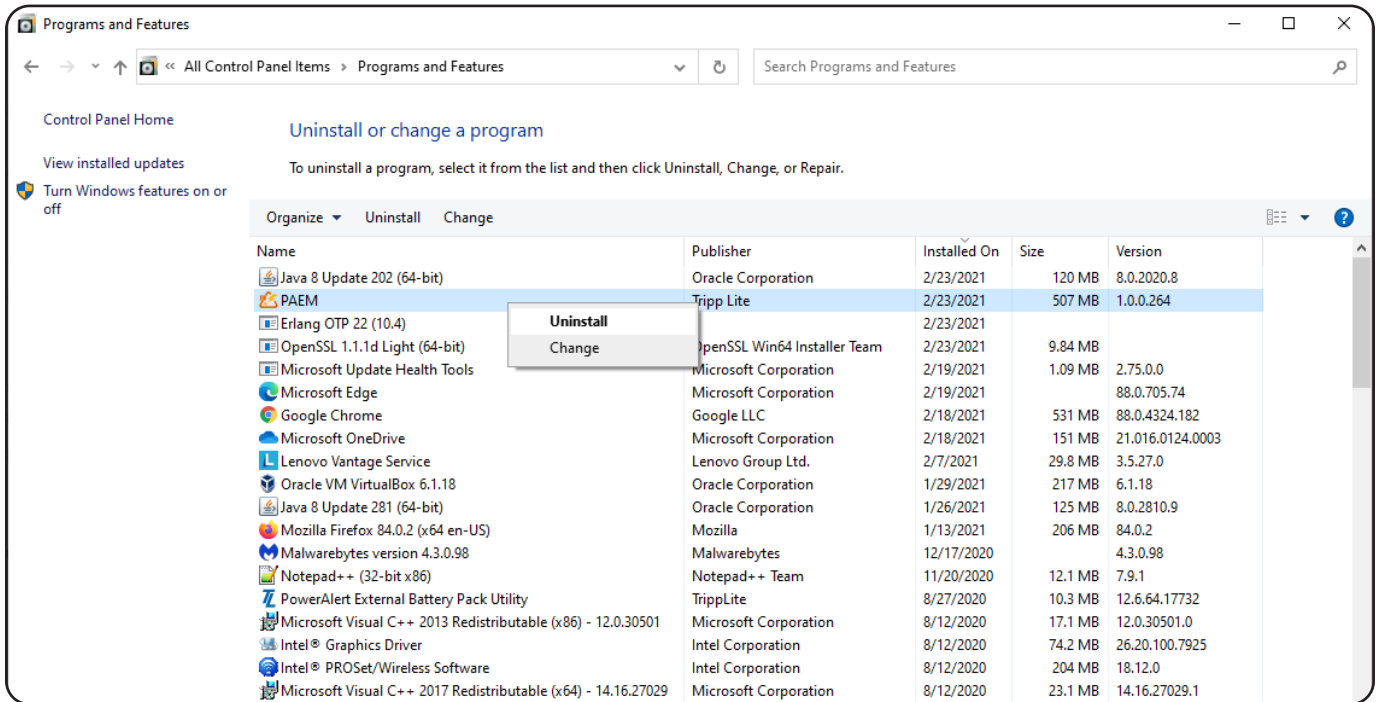

Figure 5-2: Uninstall or Change a Program
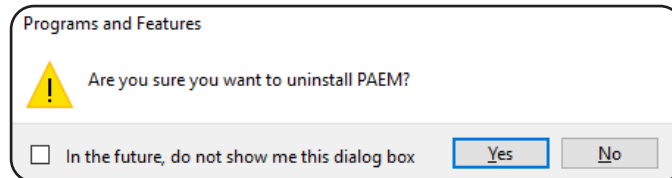
3. If prompted, click **Yes** (Figure 5-3).

Figure 5-3: Remove the Program

4. Click **Yes** in the next window to begin to uninstall the software (Figure 5-4). A window will display the progress.
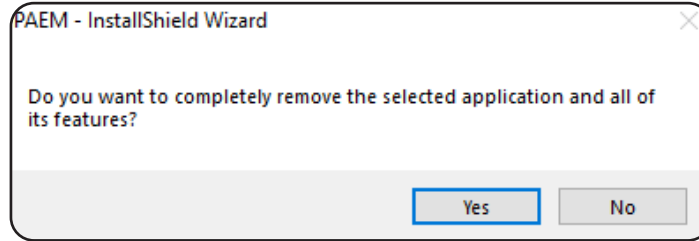

Figure 5-4: Uninstall Confirmation

5. To complete the uninstall, click the **Finish** button (Figure 5-5).
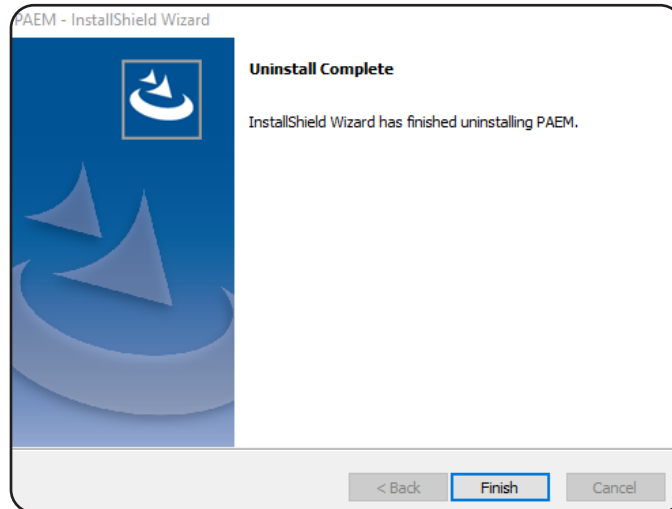

Figure 5-5: Uninstall Complete

Note: *PAEM will retain database information after it is uninstalled in order to facilitate a subsequent re-installation. This includes the most recent login password; re-installation of PAEM will use that most recent password. To revert to the default password, delete the **mongodb** folder prior to re-installing PAEM. The **mongodb** folder is located at C:\Program Files\TrippLite\PAEM or the location selected when PAEM was installed. To completely remove PAEM after uninstalling it, delete the PAEM folder.*
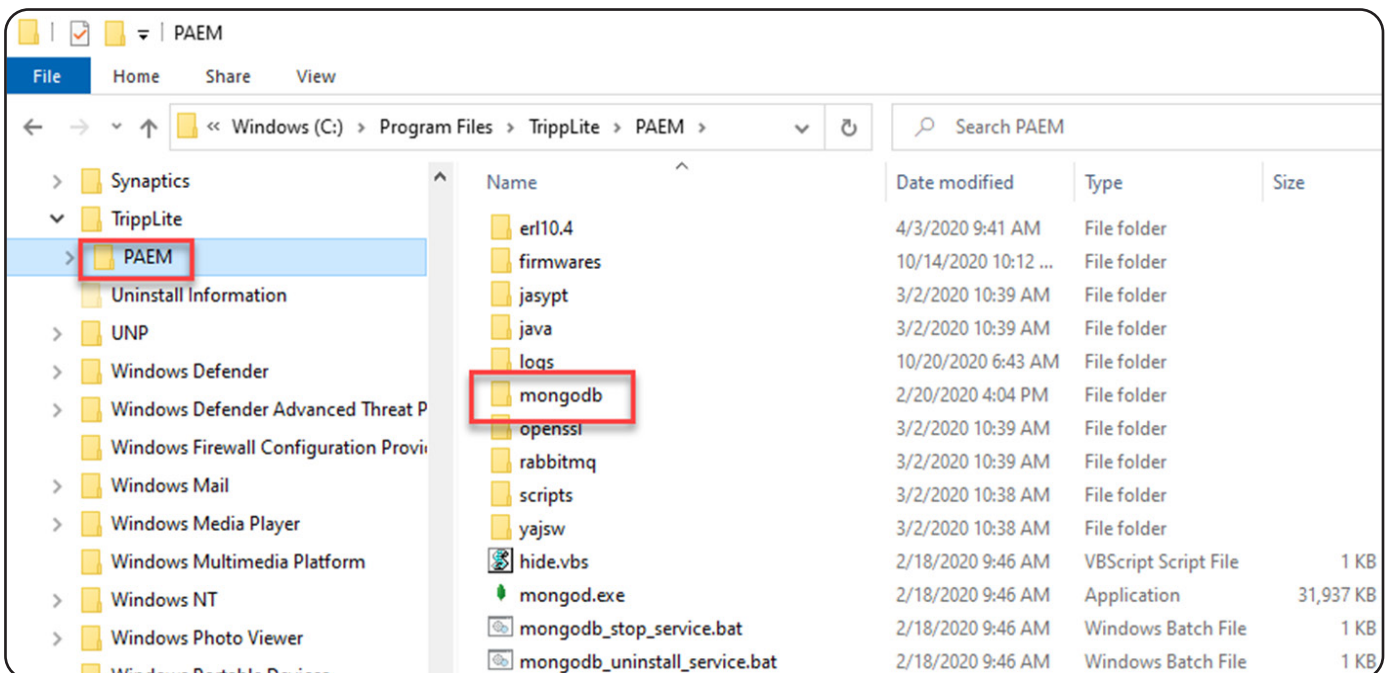
5. Uninstall PAEM

5.1 Uninstall PAEM for Windows 10 and Server 2019

1. Open the **Settings** App and select **Apps > Apps & features**.

Figure 5-6: Settings > Apps

2. Scroll down to the PAEM item. Click the **Uninstall** button followed by the confirmation **Uninstall** button (Figure 5-7).
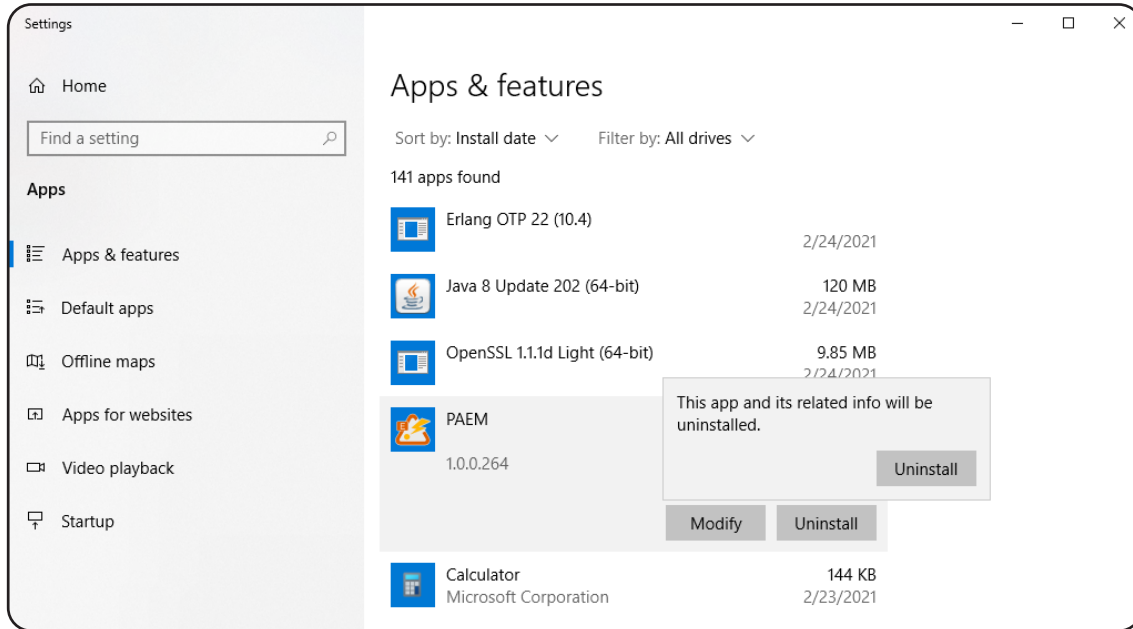

Figure 5-7: Apps & Features

3. A "Preparing to remove" window will appear followed by a User Account Control window. Click "**Yes**" to proceed (Figure 5-8).
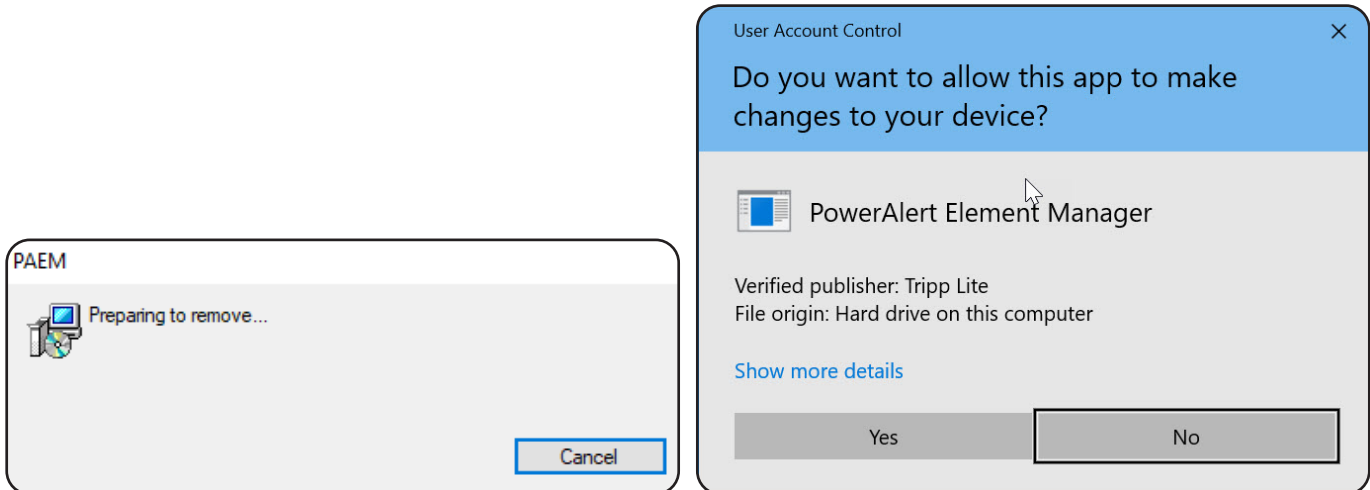

Figure 5-8: Uninstall or Change a Program

5. Uninstall PAEM

4. Click **Yes** in the next window to begin to uninstall the software (Figure 5-9). A window will display the progress.
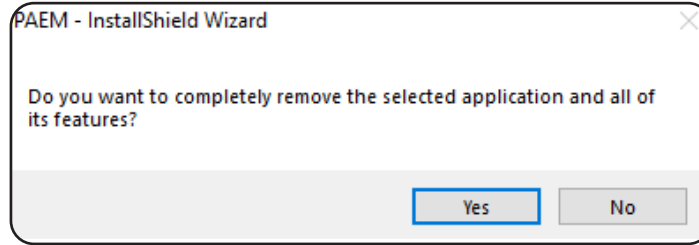

Figure 5-9: Uninstall Confirmation

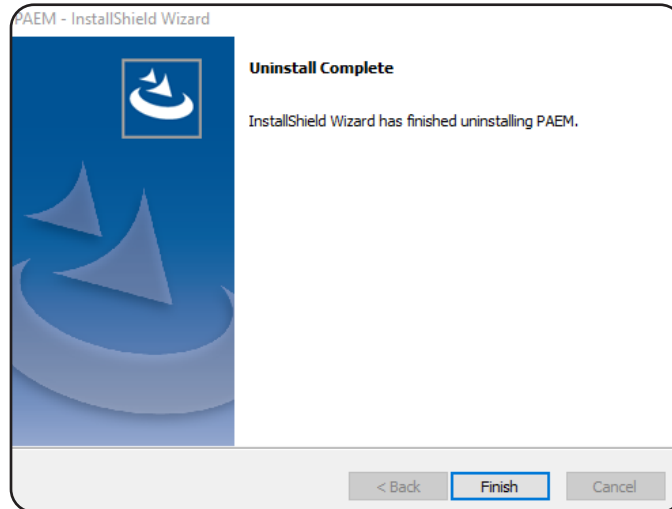5. To complete the uninstall, click the **Finish** button (Figure 5-10).

Figure 5-10: Uninstall Complete

6. Launch PAEM

1. To launch PowerAlert Element Manager, open a supported web browser. In the address bar, enter the IP address of the server on which PAEM is installed, followed by the configured port, e.g. http://192.168.1.1:8080 (Figure 6-1).
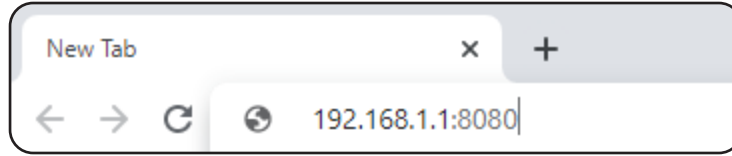

Figure 6-1: Accessing PAEM from a Web Browser

2. In the PAEM Login page that opens, enter the required login credentials (Figure 6-2). The default Login and Password are both **localadmin**.

Figure 6-2: PAEM Login Screen

Refer to the **PowerAlert Element Manager User Guide** for information on using PAEM.

7. Troubleshooting

HTTP/HTTPS Port Conflict

Upon entering an HTTP/HTTPS port number in step 7 of the Installation procedure, a "Port is busy" error message may appear (Figure 7-1). This indicates that the entered port is in use by another application. To resolve this issue, choose another port number or uninstall the application that is using that port, then continue with PAEM installation.
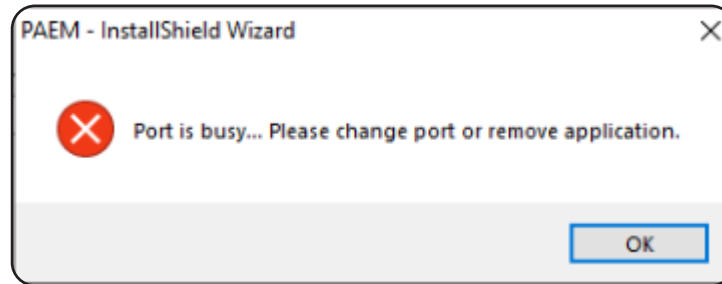

Figure 7-1: "Port is busy" Error Message

PAEM MongoDB Port Conflict

During installation, if a "PAEM MongoDB port is busy" error message appears (Figure 7-2), this indicates that another application is using MongoDB. To resolve this issue, follow the steps below.
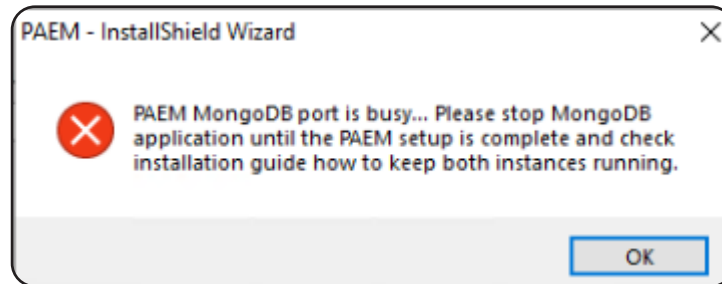

Figure 7-2: "PAEM MongoDB port is busy" Error Message

1. Stop the application's MongoDB service. Open the Services app on the host computer (enter "Services" in the Start menu search bar). Find the service bearing "MongoDB" in the name, and stop it by either clicking "Stop the service" in the left column.

2. Stop the PAEM MongoDB service. Enter "services" in the Start menu to open the Services app. Find "PAEM MongoDB" service and stop it.

3. Navigate to the PAEM installation folder (ex. C:\Program Files\Tripp Lite\PAEM) and edit "settings.yml" file using a text editor application, such as Notepad (Figure 7-3). Change the port number to 27018 or another desired value.
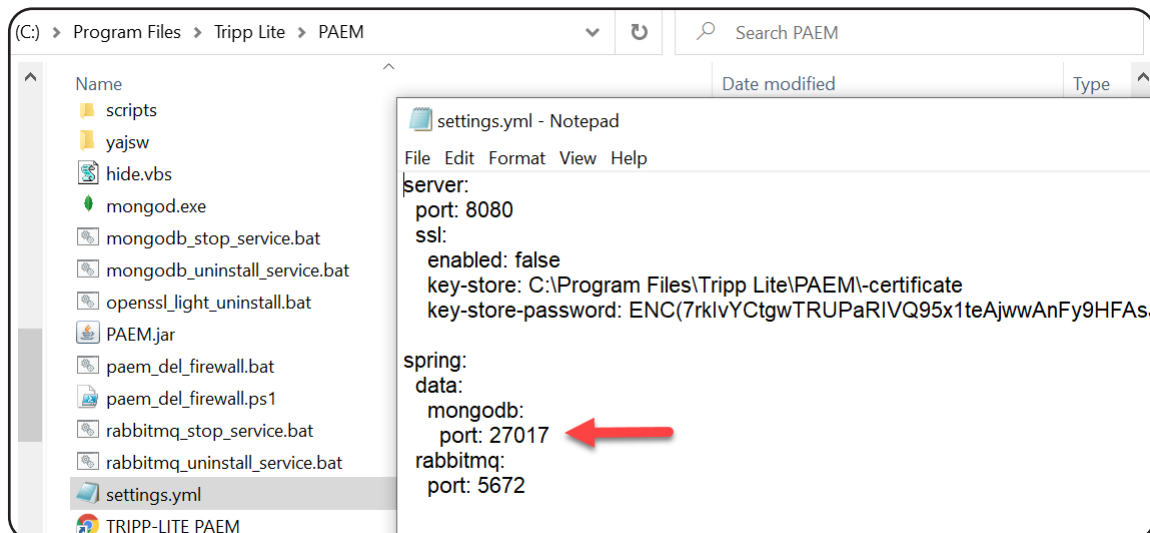

Figure 7-3: Editing the settings.yml File

4. Navigate to PAEM MongoDB installation folder (ex. C:\Program Files\Tripp Lite\PAEM\mongodb\Server\4.0) and edit "mongod.cfg" file using a text editor application, such as Notepad (Figure 7-4). Change the port number to 27018 or another desired value.
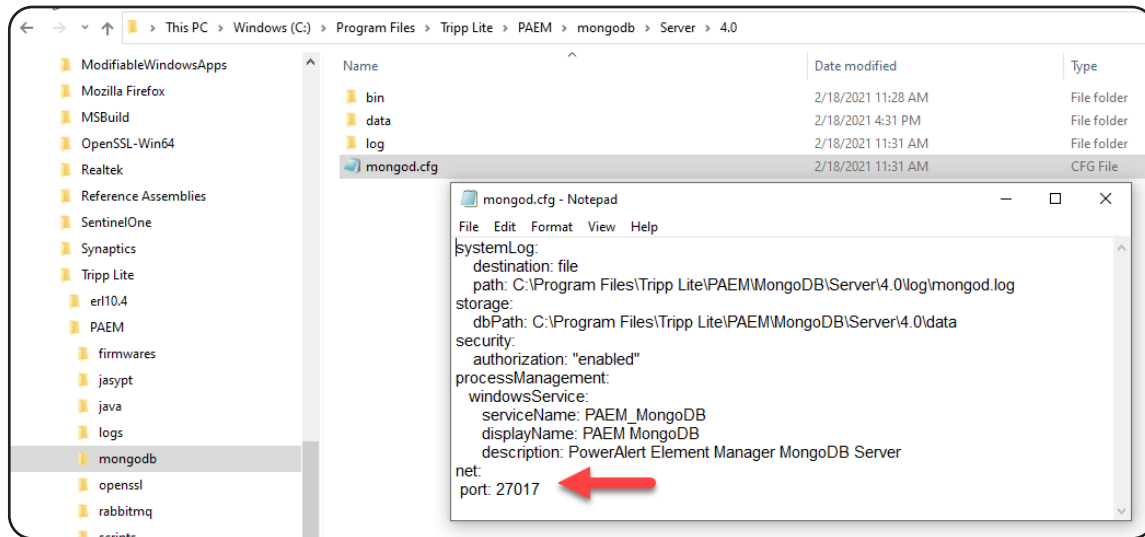

Figure 7-4: Editing the mongod.cfg File

5. Start PAEM MongoDB service. Open the Services app on the host computer (enter "Services" in the Start menu search bar). Find "PAEM MongoDB" and start it by clicking "Start the service" in the left column (Figure 7-5).
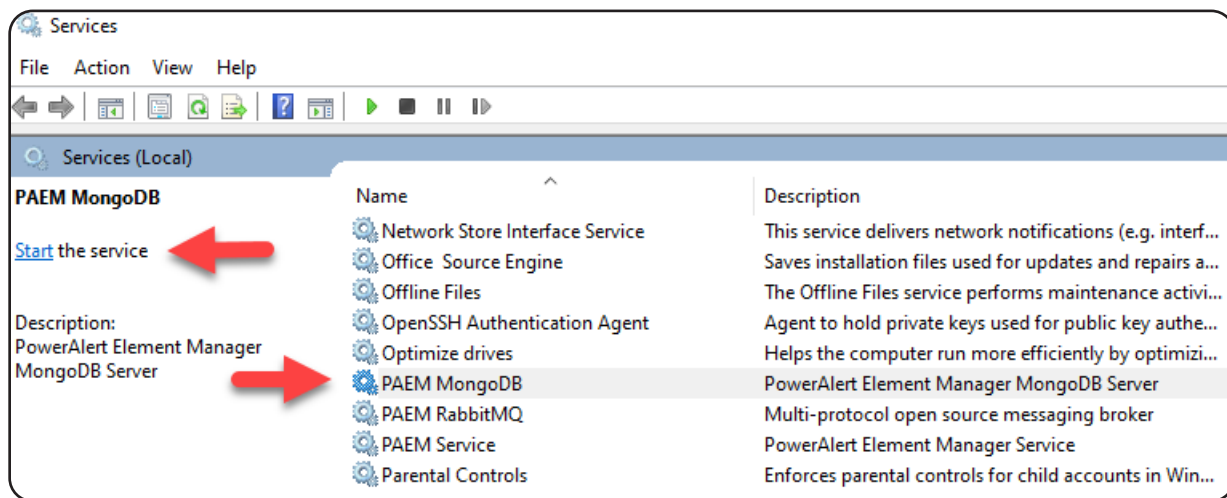

Figure 7-5: Starting the PAEM MongoDB Service

PAEM RabbitMQ Port Conflict

During installation, if a "PAEM RabbitMQ port is busy" error message appears (Figure 7-6), follow the steps below:
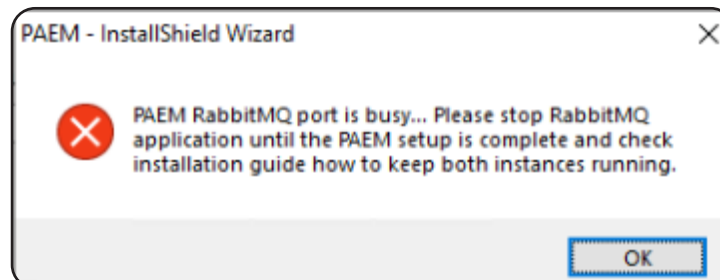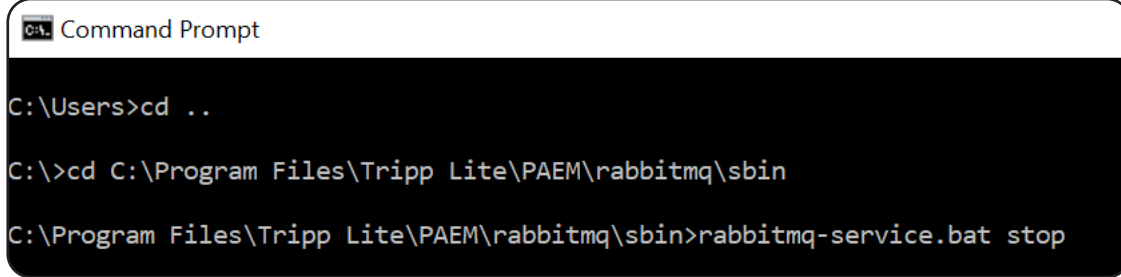

Figure 7-6: "PAEM RabbitMQ port is busy" Error Message

7. Troubleshooting

1. Stop the RabbitMQ service. As Administrator, open a Command Prompt (e.g. enter 'cmd' in the Start menu search bar) and navigate to rabbitmq\sbin (ex. "cd C:\Program Files\Tripp Lite\PAEM\rabbitmq\sbin"). At the prompt, enter "rabbitmq-service.bat stop" (Figure 7-7).

```
Command Prompt

C:\Users>cd ..

C:\>cd C:\Program Files\Tripp Lite\PAEM\rabbitmq\sbin

C:\Program Files\Tripp Lite\PAEM\rabbitmq\sbin>rabbitmq-service.bat stop
```

Figure 7-7: Stopping the RabbitMQ Service

2. Using File Explorer or similar Window application, navigate to the PAEM\rabbitmq\sbin folder. For example: C:\Program Files\Tripp Lite\PAEM\rabbitmq\sbin.

Right-click the "rabbitmq-defaults.bat" file and select Edit to open the file in Notepad. Edit the 23rd and 40th lines (Figure 7-8) as instructed below.

Default 23rd line:	set RABBITMQ_BASE=!APPDATA!\RabbitMQ
Change to:	set RABBITMQ_BASE=!APPDATA!\ PAEMRabbitMQ

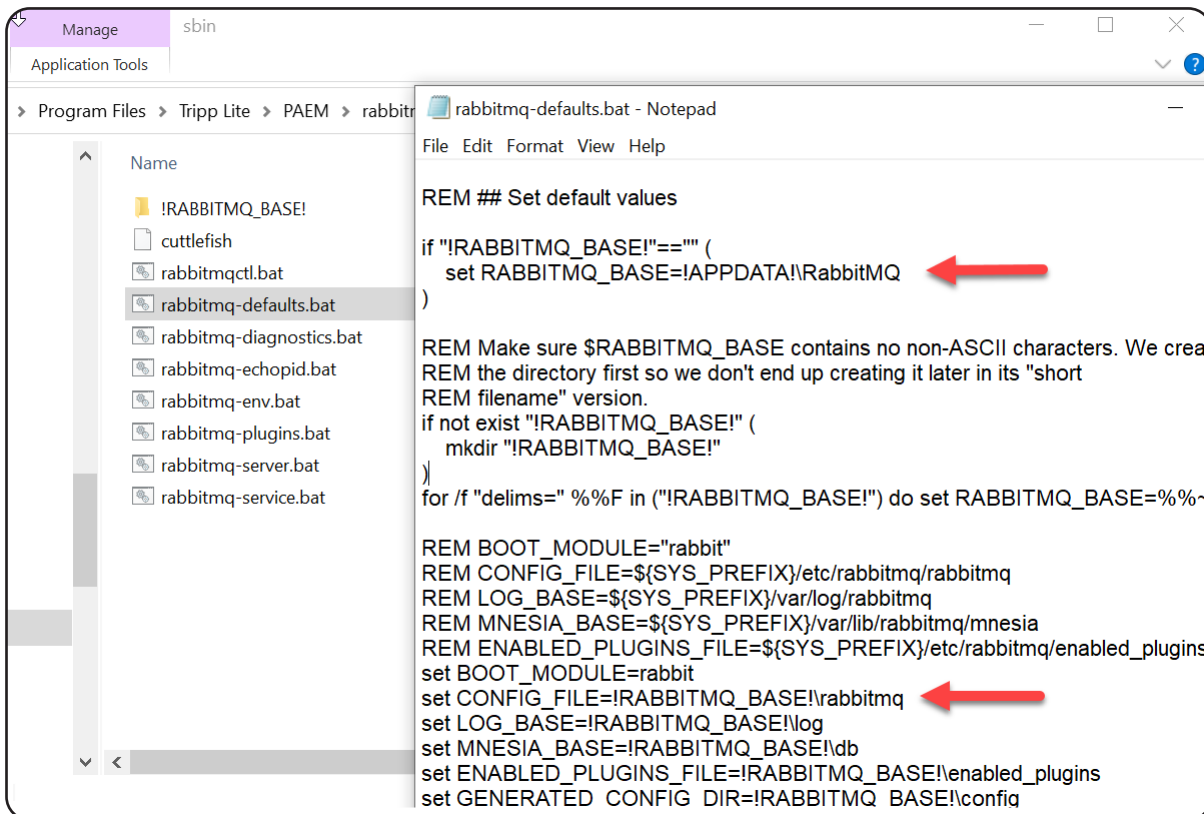|	
Default 40th line:	set CONFIG_FILE=!RABBITMQ_BASE!\rabbitmq
Change to:	set RABBITMQ_CONFIG_FILE=!RABBITMQ_BASE!\rabbitmq

Figure 7-8: Editing rabbitmq-defaults.bat

7. Troubleshooting

3. In the same "sbin" folder, right-click Edit the "rabbitmq-env.bat" file. Edit the 105th line (Figure 7-9) as well as the 151st line and 162nd lines (Figure 7-10) as instructed below.

Default 105th line:	set RABBITMQ_NODENAME=rabbit@!HOSTNAME!
Change to:	set RABBITMQ_NODENAME=PAEMrabbit@!HOSTNAME!

Default 151st line:	set RABBITMQ_NODE_PORT=5672
Change to:	set RABBITMQ_NODE_PORT=5673

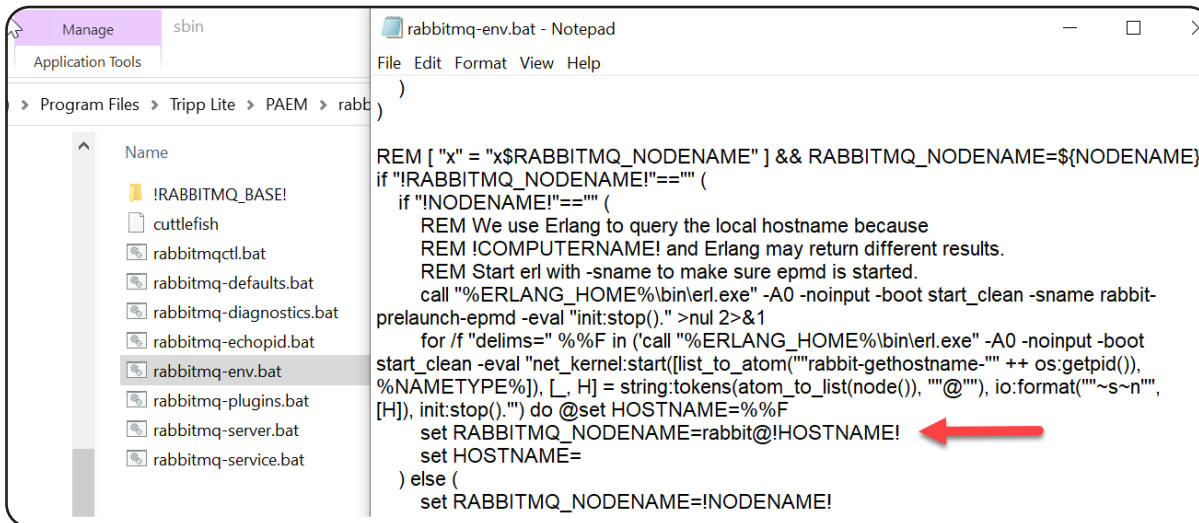|	
Default 162nd line:	set RABBITMQ_DIST_PORT=25672
Change to:	set RABBITMQ_DIST_PORT=25673

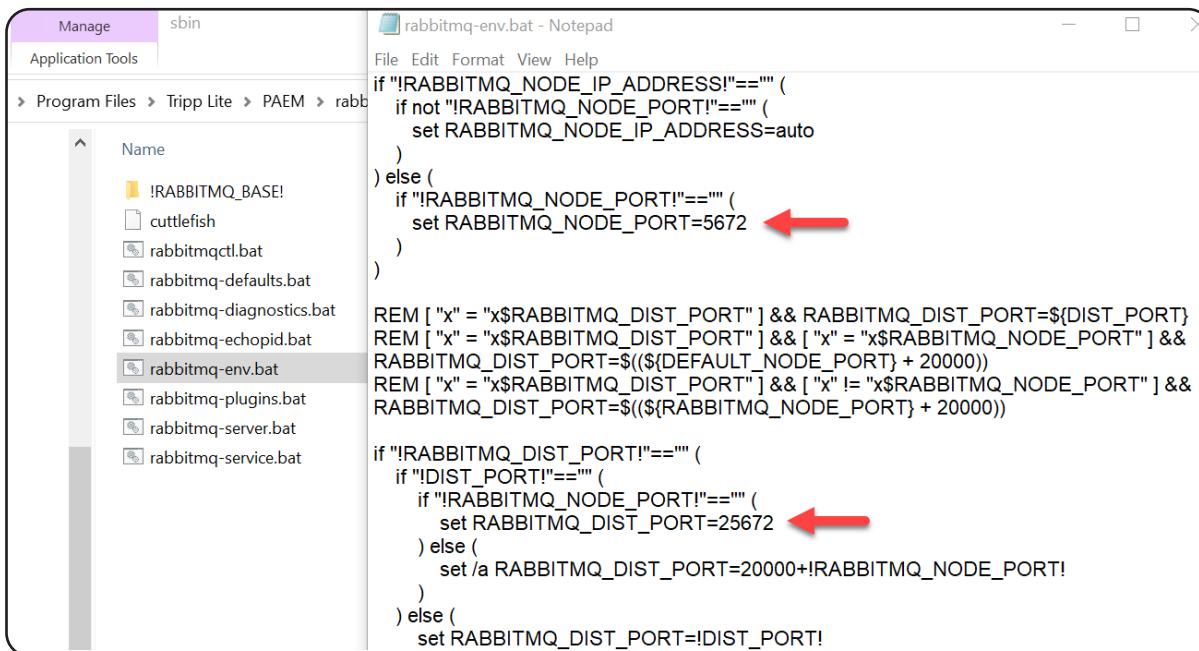*Figure 7-9: Editing line 105 of rabbitmq-env.bat*

Figure 7-10: Editing Lines 151 and 162 of rabbitmq-env.bat

4. Install the Management Plugin. In the same rabbitmq\sbin prompt location as Step 1, enter "rabbitmq-plugins.bat enable rabbitmq_management".

5. Change the AMQP and HTTP ports. Using Notepad, create a file named "rabbitmq.config" and copy the code below (matching the port change made in Step 3)

```
[
  {rabbit, [
      {tcp_listeners, [5673]}
    ]
  }
].
```

Place the file in the %APPDATA%\PAEMRabbitMQ folder
For example: C:\Users\Admin\AppData\Roaming\RabbitMQPAEM

6. At the rabbitmq\sbin prompt, enter the following sequence of commands:

   • **rabbitmq-service.bat remove** (this removes the PAEM RabbitMQ service)

   • **rabbitmq-service.bat install** (this installs the PAEM RabbitMQ service)

   • **rabbitmq-service.bat start** (this starts the PAEM RabbitMQ service)

7. Navigate to PAEM installation folder (ex. C:\Program Files\Tripp Lite\PAEM) and edit "settings.yml" file (Figure 7-11). Change rabbitmq port to 5673 or the value set in Step 3 and 5, above.
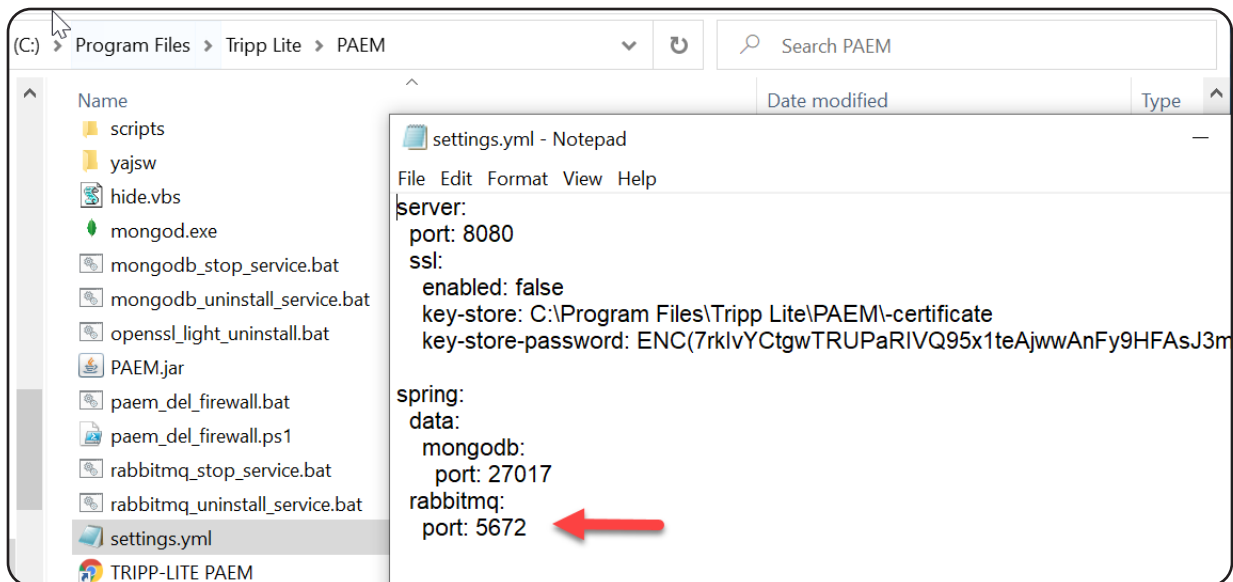

Figure 7-11: Editing settings.yml

8. Start PAEM service. Open the Services app on the host computer (enter "Services" in the Start menu search bar). Find and select "PAEM Service", then click "Start the service" in the left column (Figure 7-12). Check the application log for any errors (ex. C:\Program Files\Tripp Lite\PAEM\logs\application.log).
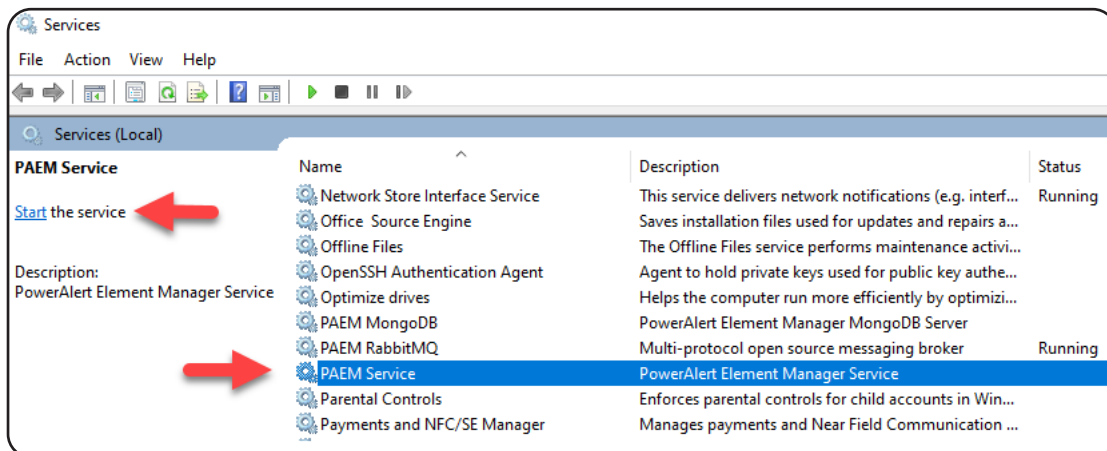

Figure 7-12: Starting the PAEM Service

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