

MDS PulseNET

Network Management System

Version 2.2

*An Enterprise Management Tool for GE MDS Products
and other IP-Connected Devices*

MDS 05-6138A01, Rev. B
FEBRUARY 2011



Digital Energy
MDS

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Manual Revision and Accuracy

This manual was prepared to cover a specific version of our product. Accordingly, some screens and features may differ from the actual version you are working with. While every reasonable effort has been made to ensure the accuracy of this guide, product improvements may also result in minor differences between the manual and the product shipped to you. If you have additional questions or need an exact specification for a product, please contact our Customer Service Team using the information at the back of this guide. In addition, manual updates can often be found on the GE MDS Web site at www.gemds.com.

Installation and Setup Guide

February 2011

Version 2.2

Table of Contents

Before Installing MDS PulseNET	7
What Is MDS PulseNET?	7
Planning Your Installation.....	8
Embedded Database.....	8
Hardware Requirements and Guidelines	8
Installing PulseNET	9
Preparing to Install	9
Installing PulseNET	10
<i>To Install PulseNET</i>	10
PulseNET Server Start Up Page	16
“ Logging in to PulseNET ” on page 24Next Steps.....	17
Importing a Network Security Certificate	17
Uninstalling PulseNET.....	18
Installing PulseNET FAQ.....	19
Running PulseNET	21
Starting and Stopping PulseNET.....	21
Starting PulseNET	21
Running PulseNET as a Windows Service.....	22
Stopping PulseNET	24
Logging in to PulseNET.....	24
Running PulseNET FAQ	25
Index	27

Before Installing MDS PulseNET

This guide provides instructions for installing and starting MDS PulseNET.

This chapter provides you with setup information.

Important Before you begin, consult the *PulseNET Release Notes*. That document contains important information about any late-breaking changes, as well as known and resolved issues.

What Is MDS PulseNET?

MDS PulseNET (PulseNET) is a software application used for monitoring devices in Industrial Communications (IC) networks. Each device PulseNET monitors serves a specific function in the network. These functions include acting as a bridge, router, access point, remote, etc. The devices are widely dispersed geographically and operate with very limited bandwidth restrictions.

PulseNET is intended for small to mid-scale operations with a need to monitor a maximum of 500 devices. For larger networks, GE MDS recommends the PulseNET Enterprise version.

Planning Your Installation

Before you install PulseNET, ensure that you have the information you need, such as port numbers and the server name.

The following are the main stages involved in installing and configuring PulseNET:

Stage 1: Install and configure the PulseNET server.

Stage 2: Start the PulseNET server and log in.

Embedded Database

The lifecycle of the embedded database matches that of the PulseNET server. If the server is stopped or started, the embedded database is automatically stopped or started.

Hardware Requirements and Guidelines

The hardware requirements to run PulseNET can vary, depending on the number of devices being monitored.

For the current hardware requirements, consult the *Release Notes*.

Running PulseNET requires:

- The PulseNET server
- The PulseNET database repository

Installing PulseNET

This chapter provides the instructions for installing or upgrading PulseNET 2.2.

Note PulseNET should be installed on a dedicated machine.

Preparing to Install

The requirements for installing PulseNET are:

- A machine to host PulseNET. PulseNET should run on a dedicated machine because it must process and store large volumes of data.
 - Note** Ensure that a host name resolution and reverse lookup are confirmed prior to installing PulseNET.
- Administrator or root access to the machine.
- An administrator password for PulseNET. The user name and the default password (admin/admin) for the account can initially be used to log in to the browser interface and to use command-line interface options with root or administrator privileges. It is strongly recommended that you change the default password for this account.
- On Linux platforms, a user account on the machine where you are installing PulseNET.
- The IATEMPDIR or TEMP environment variable must be set to a location with sufficient space for installer self-extraction to meet the requirements described in the document available at:
<http://support.installshield.com/kb/view.asp?articleid=Q000054>
- If you are installing PulseNET on Linux, the PulseNET installer and PulseNET server must be able to write to the directory where the MySQL socket is installed.

By default, the MySQL socket is installed in the */tmp* directory (which is world-writable on Linux).

- If you are installing PulseNET on Linux, you must define the IPv4 entry for *localhost* in the */etc/hosts* file prior to installing PulseNET. If you do not do so, the installer cannot start the embedded database and the installation fails.

To prevent the installation from failing, add the following IPv4 entry for *localhost* in the */etc/hosts* file prior to installing PulseNET:

```
127.0.0.1 localhost.localdomain localhost
```

- If you are installing PulseNET on 64-bit Linux platforms, the 32-bit version of *libgcc*.rpm* must be installed for the PulseNET installer to run.
- Flexera Software, makers of the InstallAnywhere tool, recommend that you install as Administrator or use an account that is part of the Administrator group.

Installing PulseNET

Once all system requirements are in place, you are ready to install PulseNET. The installer prompts you to input data, and provides you with progress feedback during the installation process.

The PulseNET installation process consists of the same basic steps for all supported platforms.

To Install PulseNET

Start the installation process by initiating the executable included on the PulseNET install media. Each installation screen includes a **Previous** button, allowing you to go back and adjust the information you have specified.

Step 1: Introduction

The Introduction screen provides an overview of the mechanics of the installation interface. Click **Next** after reading the contents of the Introduction screen.

Step 2: Transaction Product Agreement

- 1 Read the Transaction Product Agreement statement, and accept or decline the terms of the agreement.

- 2 If you select **I accept the terms of the License Agreement**, click **Next**.

Step 3: Choose Install Folder

- 1 Choose the location where you want to install PulseNET. You can accept the default location or click the **Browse** button to navigate to another location.
- 2 Click **Next**.

Step 4: Choose Installation Type

- 1 Choose **Upgrade** if you are upgrading your PulseNET installation. Otherwise, choose **New Install**.

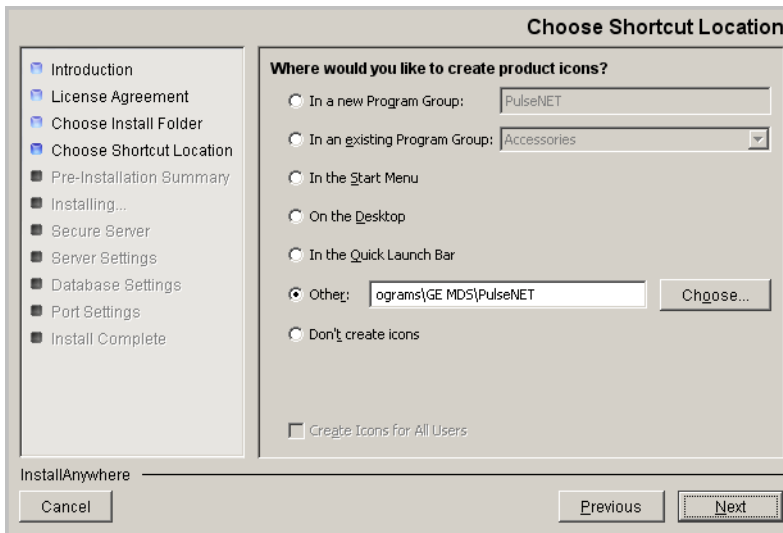
If you choose **Upgrade**, go to [Step 7: Pre-Installation Summary](#). For Steps 5 and 6, PulseNET uses the parameters you configured when you installed the previous version.

- 2 Click **Next**.

Step 5: Choose Shortcut Location

- 1 Choose the location where you want to create product icons. There are several options displayed:
 - **In a new Program Group:** Type the name of the group in the field.
 - **In an existing Program Group:** Use the menu to select an existing program group.
 - **In the Start Menu**
 - **On the Desktop**
 - **In the Quick Launch Bar**
 - **Other** (default): Browse your system for a shortcut location. Click the **Choose** button to enable the browser.
 - **Don't create icons**

Select the **Create Icons for all Users** check box to create shortcuts for all PulseNET users.



- 2 Click **Next**.

Step 6: PulseNET Service

- 1 If you want to have PulseNET run as a Windows service (recommended), select **Enable PulseNET as a Service**.
Note This is not an option if you are installing PulseNET on Linux.
- 2 Click **Next**.

Step 7: Pre-Installation Summary

- 1 Review the installation information.
- 2 If you are satisfied with the parameters of your installation, click **Install**.
To make changes to the installation parameters, click **Previous**.

Step 8: Installing PulseNET 2.2

PulseNET installs files into the specified directory.

Step 9: Secure Server (HTTPS Only)

- 1 To run PulseNET in secure mode (HTTPS) only, select the **Secure Server (HTTPS Only)** check box.

Note To set up PulseNET to use HTTPS, you must also generate a key pair (security certificate) into the PulseNET keystore. For information about how to do this, see ["Importing a Network Security Certificate"](#) on page 17.

- 2 Click **Next**.

Switching to Secure Mode (HTTPS) After the PulseNET Installation

If you choose not to run PulseNET in secure mode and then at some point after the PulseNET installation you want to run PulseNET in secure mode, follow the steps below.

Note You must have the administrator role to perform the following steps.

To toggle HTTPS mode on or off after the PulseNET installation:

- 1 Ensure that the PulseNET Server is installed and running.
- 2 In the Command Prompt window (Windows) or the terminal window (Linux), switch to HTTPS mode using the following command:

```
fglcmd.bat -usr admin -pwd <adminpassword> -cmd HTTPS:Toggle  
-Mode enable
```

or

Switch out of HTTPS mode using the following command:

```
fglcmd.bat -usr admin -pwd <adminpassword> -cmd HTTPS:Toggle  
-Mode disable
```

- 3 Stop and then restart the PulseNET server. For instructions on how to stop and start the PulseNET Server, see ["Starting and Stopping PulseNET"](#) on page 21.

Note When in HTTPS mode, the user must access the server using port 8443. When not in HTTPS mode, the user can access the server using either port 8080 (HTTP) or port 8443 (HTTPS).

Step 10: PulseNET Ports Configuration

- 1 Configure the server ports. The PulseNET Ports Configuration screen displays default ports that you can assign.
- 2 If you want to revert to the default values, click **Defaults**.
- 3 Click **Next**.

Note If there are any port assignment conflicts, an error message dialog box appears. You can either click **Review Ports** if you want to return to the PulseNET Ports Configuration screen to configure the conflicting port(s), or choose **Ignore and Continue** to continue with the installation without resolving the port conflicts. Choose one of these options to continue.

The screenshot shows the 'Ports Configuration' dialog box. On the left is a sidebar with a list of steps: Introduction, License Agreement, Choose Install Folder, Choose Shortcut Location, Pre-Installation Summary, Installing..., Secure Server, Server Settings, Database Settings, Port Settings, and Install Complete (which is currently selected). The main area contains the text 'Please enter the port assignments.' followed by a table of port assignments:

Cluster Multi-cast Port:	45566
HTTP Port:	8080
HTTPS Port:	8443
JNDI RMI Port:	1098
JNDI JNP Port:	1099
JRMP Invoker Port:	4444
Pooled Invoker Port:	4445
Unified Invoker Port:	4448
Corba ORB Port:	3528

Below the table is a 'Defaults' button. At the bottom of the dialog are 'Cancel', 'Previous', and 'Next' buttons. The 'Next' button is highlighted with a dotted border.

Step 11: Install Complete

Click **Done** to complete the installation process.

PulseNET Server Start Up Page

If you installed PulseNET as a service, on startup PulseNET launches the PulseNET Server Start Up page in a Web browser.

If you don't see the status below or status hasn't been updated in a while, please click [here](#) to refresh.

MDS PulseNET Server Start Up

Status: Cartridges enabled: Core-Compatibility-5_5_9

Services started: 173
Cartridges enabled: 9

Main Services	Other Services
<input checked="" type="checkbox"/> Action	<input type="checkbox"/> Cartridge StartUp Spring Bootstrap
<input checked="" type="checkbox"/> Agent Manager	<input type="checkbox"/> Nitro Dym Data Source Deployer
<input checked="" type="checkbox"/> Alarm	<input checked="" type="checkbox"/> (action=migrate_agent)
<input checked="" type="checkbox"/> Cartridge	<input checked="" type="checkbox"/> (action=migrate_data)
<input checked="" type="checkbox"/> Cartridge StartUp	<input checked="" type="checkbox"/> (action=migrate_dcim)
<input checked="" type="checkbox"/> Database Lifecycle	<input checked="" type="checkbox"/> (deployer=CDIDeployer)
<input checked="" type="checkbox"/> Denotation	<input checked="" type="checkbox"/> (handler=AdapterExtension)
<input checked="" type="checkbox"/> Diagnostic	<input checked="" type="checkbox"/> (handler=AgentAdapter)
<input checked="" type="checkbox"/> Federation Connection Manager	<input checked="" type="checkbox"/> (handler=Branding)
<input checked="" type="checkbox"/> Incident	<input checked="" type="checkbox"/> (handler=Cartridge)
<input checked="" type="checkbox"/> Licensing	<input checked="" type="checkbox"/> (handler=CcdRecording)
<input checked="" type="checkbox"/> Query	<input checked="" type="checkbox"/> (handler=CommandLine)
<input checked="" type="checkbox"/> Registry	<input checked="" type="checkbox"/> (handler=FMigrationBaseline)
<input type="checkbox"/> Remote Access	<input checked="" type="checkbox"/> (handler=Installer)
<input checked="" type="checkbox"/> Rule	<input checked="" type="checkbox"/> (handler=JBoss)
<input checked="" type="checkbox"/> Schedule	<input checked="" type="checkbox"/> (handler=Jar)
<input checked="" type="checkbox"/> Scripting	<input checked="" type="checkbox"/> (handler=Localization)
<input checked="" type="checkbox"/> Security	<input checked="" type="checkbox"/> (handler=MonitoringPolicy)
<input checked="" type="checkbox"/> Topology Loader	<input checked="" type="checkbox"/> (handler=OnlineHelp)
<input checked="" type="checkbox"/> Topology Persistence	<input checked="" type="checkbox"/> (handler=PersistentCartridgeLifecycle)
<input checked="" type="checkbox"/> Web Server	<input checked="" type="checkbox"/> (handler=SpringJar)
	<input checked="" type="checkbox"/> (handler=TestError)
	<input checked="" type="checkbox"/> (handler=TopologyTypes)
	<input checked="" type="checkbox"/> (handler=WCF)
	<input checked="" type="checkbox"/> (handler=WcfJar)
	<input checked="" type="checkbox"/> Action Thread Pool
	<input checked="" type="checkbox"/> Adapter Config Provider
	<input checked="" type="checkbox"/> Adapter Registry
	<input checked="" type="checkbox"/> Agent Adapter Tasks Quartz Scheduler
	<input checked="" type="checkbox"/> Agent Aware Credential Client Manager
	<input checked="" type="checkbox"/> Agent Config Diagnostic Service
	<input checked="" type="checkbox"/> Agent Config Provider
	<input checked="" type="checkbox"/> Agent Event Producer
	<input checked="" type="checkbox"/> Agent Framework Monitor
	<input checked="" type="checkbox"/> Agent Lifecycle Manager
	<input checked="" type="checkbox"/> Agent Management Quartz Scheduler
	<input checked="" type="checkbox"/> Aggregate Alarm Notification Monitor
	<input checked="" type="checkbox"/> Distributed Persistence Cache
	<input checked="" type="checkbox"/> Dynamic Model
	<input checked="" type="checkbox"/> Dynamic Model Quartz Scheduler
	<input checked="" type="checkbox"/> Dynamic Property Monitor
	<input checked="" type="checkbox"/> Email Alarm Notifier
	<input checked="" type="checkbox"/> Email Sender
	<input checked="" type="checkbox"/> Env Complexity Estimator
	<input checked="" type="checkbox"/> Event
	<input checked="" type="checkbox"/> Extension Registry
	<input checked="" type="checkbox"/> FSM Alarm Filter
	<input checked="" type="checkbox"/> Federation Config
	<input checked="" type="checkbox"/> Federation MBean Monitor
	<input checked="" type="checkbox"/> Foglight-XML Config AgentTransformer
	<input checked="" type="checkbox"/> FoglightMigration
	<input checked="" type="checkbox"/> Groovy Data Source Manager
	<input checked="" type="checkbox"/> HA Membership
	<input checked="" type="checkbox"/> Health Check
	<input checked="" type="checkbox"/> High Freq Internal JVM Monitor
	<input checked="" type="checkbox"/> High Freq MBean Monitor
	<input checked="" type="checkbox"/> Historic Data Cache
	<input checked="" type="checkbox"/> Installer Repository
	<input checked="" type="checkbox"/> Load Estimator
	<input checked="" type="checkbox"/> Localization
	<input checked="" type="checkbox"/> Log Monitor
	<input checked="" type="checkbox"/> Low Freq Internal JVM Monitor
	<input checked="" type="checkbox"/> Low Freq MBean Monitor
	<input checked="" type="checkbox"/> Memory Load Sensor
	<input checked="" type="checkbox"/> Metric Export
	<input checked="" type="checkbox"/> Metric Handler
	<input checked="" type="checkbox"/> Monitor Quartz Scheduler
	<input checked="" type="checkbox"/> Nitrogen Data Transform Factory
	<input checked="" type="checkbox"/> Observation Index Cache
	<input checked="" type="checkbox"/> Observation Imbalancer
	<input checked="" type="checkbox"/> Oracle Database Monitor
	<input checked="" type="checkbox"/> Persistence
	<input checked="" type="checkbox"/> Persistence Config
	<input checked="" type="checkbox"/> Persistence Policy Quartz Scheduler

This page provides information about the status of PulseNET as it starts up, such as:

- The number of services that have started and internal cartridges that are enabled.
- The latest status of PulseNET as it starts.
- A list of the PulseNET services that are starting. As shown in the image above, services listed in grey have not yet started, services listed next to a blue circle are starting, and services listed next to a green square with a check mark have started.
- A link to the PulseNET login page (once startup is complete). Click the link to access the PulseNET login page. For instructions on how to log in to PulseNET, see the *PulseNET Quick Start Guide*.

The information on the page is updated as PulseNET starts. The page also includes a link that allows you to refresh the page.

[“Logging in to PulseNET”](#) on page 24 **Next Steps**

Start the PulseNET Management Server by following the instructions in [“Starting and Stopping PulseNET”](#) on page 21.

To log in to PulseNET, refer to [“Logging in to PulseNET”](#) on page 24.

Importing a Network Security Certificate

To set up PulseNET to use HTTPS, you must generate a key pair (security certificate) into the PulseNET keystore. This allows PulseNET to communicate through the HTTPS protocol. You need to delete the existing certificate shipped with PulseNET before generating a new key pair. Use the `keytool` utility shipped with PulseNET to create, import, and export certificates. This utility can be found in:

```
<pulsenet_home>\jre\bin\keytool
```

There are two keystores used by PulseNET:

- The built-in Tomcat keystore located at:

```
<pulsenet_home>\server\default\conf\tomcat.keystore
```

 (default password: nitrogen)
- The PulseNET keystore located at:

```
<pulsenet_home>\jre\lib\security\cacerts
```

 (default password: changeit)

To import a certificate:

- 1 Delete the existing `tomcat` key from the `tomcat.keystore` directory using the following command:

```
<pulsenet_home>\jre\bin\keytool -keystore <pulsenet_home>\server\default\conf\tomcat.keystore -storepass nitrogen -delete -alias tomcat
```

- 2 Create a new key under the `tomcat` alias using the following command:

```
<pulsenet_home>\jre\bin\keytool -keystore <pulsenet_home>\server\default\conf\tomcat.keystore -storepass nitrogen -genkey -alias tomcat
```

- 3 Generate a Certificate Signing Request (CSR) using the following command:

```
<pulsenet_home>\jre\bin\keytool -keystore <pulsenet_home>\server\default\conf\tomcat.keystore -storepass nitrogen -certreq -alias tomcat -file <your_request_file.csr>
```

This file must be signed by Certification Authority (CA).

- 4 Once you have the certificate signed, import it back to the *tomcat.keystore* using the following command:

```
<pulsenet_home>\jre\bin\keytool -keystore <pulsenet_
home>\server\default\conf\tomcat.keystore -storepass
nitrogen -import -trustcacerts -alias tomcat -file <your_
converted_certificate>
```

You are prompted to specify the keystore password.

- 5 Type `nitrogen`.

Uninstalling PulseNET

You can uninstall PulseNET using the uninstaller utility for your platform. The uninstaller can be found in *<pulsenet_home>/forge-uninstaller*.

The default mode for the uninstaller is the graphical user interface (GUI) mode. The PulseNET uninstaller can be run from the command line by using console mode. Console mode is only available for Linux.

To uninstall PulseNET:

- 1 Stop the PulseNET Server using the appropriate method:
 - To stop a PulseNET Server that is not running as a Windows service, follow the instructions in “[Stopping PulseNET](#)” on page 24.
 - To stop a PulseNET Server that is running as a Windows service, follow the instructions in “[Running PulseNET as a Windows Service](#)” on page 22.
- 2 If PulseNET is installed as a Windows service, remove the service by navigating to *<pulsenet_home>\bin* and executing the following command:

```
fms.exe -r
```

or

```
fms.exe --remove-service
```

Alternatively, you can navigate to and click the **Remove Service For PulseNET Enterprise** shortcut.

- 3 Navigate to the *<pulsenet_home>/forge-uninstaller* directory of your PulseNET installation and run the `uninstall` script that is appropriate for your platform.

Follow the instructions in the console to uninstall PulseNET.

Alternatively, you can navigate to and click the **Uninstall PulseNET** shortcut.

Note Uninstalling does not affect the registry, shortcuts, or services.

- 4 After uninstalling, you can safely delete the `<pulsenet_home>` directory. It is recommended that you do so, since certain directories within it are not removed by the uninstaller.
- 5 After uninstalling, you should manually remove the PulseNET shortcuts. Then, if you re-install PulseNET, you will have just one set of shortcuts.

Installing PulseNET FAQ

PulseNET generated the following error during installation: "Embedded DB Error: Failed to startup embedded database". Why does this error appear?

If you are installing PulseNET on Linux, the installer cannot start the embedded database and the installation fails if you do not define the IPv4 entry for *localhost* in the */etc/hosts* file prior to installing PulseNET.

To prevent the installation from failing, add the following IPv4 entry for *localhost* to */etc/hosts* prior to installing PulseNET:

```
127.0.0.1 localhost.localdomain localhost
```

on page 27on page 27

Running PulseNET

The instructions in this chapter assume that you have already installed PulseNET. If you have not, see “[Installing PulseNET](#)” on page 9 for installation instructions.

Note On 64-bit Linux platforms, the 32-bit version of *libgcc*.rpm* must be installed for PulseNET to run.

Starting and Stopping PulseNET

The following sections describe how to start and stop PulseNET.

Starting PulseNET

The following section describes how to start the PulseNET from the command line or from a Windows shortcut and lists additional commands for use when starting or running PulseNET.

To start PulseNET from the command line:

- Navigate to the directory `<pulsenet_home>\bin` and execute the following command:

```
fms
```

To start PulseNET from a Windows shortcut:

- Depending on where you installed the startup icon, choose **Start > Programs > GE MDS > PulseNET 2.2 > Start PulseNET** or double-click the **Start PulseNET** icon on the desktop.

When PulseNET starts successfully, the following message appears in the command window:

PulseNET startup completed.

Additional Commands:

Command	Represents	Description
-s	start	Starts PulseNET (this is assumed if no command is specified).
-n	name	Provides a unique name for this instance of PulseNET.
-j	jvm-argument	Sets an option to be passed directly to the Java VM. Can be used to set more than one VM option.
-v	version	Displays the version number for this program and exits.
-h	help	Shows this information and exits.

Note The PulseNET Agent Manager starts automatically with the Server. When that happens, WARN messages like the following are expected to appear in the PulseNET Agent Manager's log file:

- Could not find an acceptable JRE in
 <pulsenet_home>\fglam\jre
- The path <pulsenet_home>\fglam\jre does not exist or is
 not a directory

These WARN messages can safely be ignored.

Running PulseNET as a Windows Service

After the installation is completed, you can install PulseNET as a Windows service either from the **Start** menu or the command line.

Note The procedures below assume that you have installed the program shortcuts in the default location.

Using the Start Menu Options

To install or remove PulseNET service from the Start menu:

- Choose **Start > Programs > GE MDS > PulseNET 2.2 > Windows Service > Install Service For PulseNET** (or **Remove Service For PulseNET**).

To start or stop PulseNET service from the Start menu:

- Choose **Start > Programs > GE MDS > PulseNET 2.2 > Windows Service > Start Service For PulseNET** (or **Stop Service For PulseNET**).

Using the Command Line

From the command line, navigate to `<pulsenet_home>\bin` and execute the following command to install PulseNET as a Windows service:

```
fms.exe -i
```

or

```
fms.exe --install-service
```

Additional Commands:

In addition to the additional commands listed in “[Starting and Stopping PulseNET](#)” on page 21, the following commands are available for the PulseNET Windows service.

Command	Represents	Description
-b	start-service	Start the PulseNET Windows service
-r	remove-service	Stop and remove the PulseNET Windows service

Stopping PulseNET

The following section describes how to stop PulseNET.

To stop PulseNET:

Do one of the following:

- Type **Ctrl-C** on the command window in which PulseNET started.
- Navigate to the directory `<pulsenet_home>\bin` and execute the following command:
`fms -q`
- Depending on where you installed the startup icon (Windows), choose **Start > Programs > GE MDS > PulseNET 2.2 > Stop PulseNET** or double-click the **Stop PulseNET** icon on the desktop.

When the server has stopped successfully, the **Start PulseNET** command window closes.

Logging in to PulseNET

Note PulseNET must be running before you can log in.

To log in to PulseNET from the GUI:

- 1 Depending on where you installed the program icons, choose **Start > Programs > GE MDS > PulseNET 2.2 > PulseNET Console**.
- 2 Enter a valid username and password and click **Login**.

To log in to PulseNET using a Web browser:

- 1 Open a Web browser and type the following:

```
http://<hostname>:<port>
```

Where `<hostname>` is the name of the machine where PulseNET is installed and `<port>` is the http port specified during installation (the default is 8080).

- 2 Enter a valid user name and password and click **Login**.

Running PulseNET FAQ

Why do I see an extra process named Quest Process Runner when I run PulseNET?

On Linux, PulseNET uses the Quest Common Process Runner to run processes such as the embedded MySQL database and command actions.

On Windows, PulseNET starts the Quest Common Process Runner (*qcn_runner.exe*) but does not use it to launch new processes.

Why does the error message “cannot restore segment prot after reloc: Permission denied” appear when I start PulseNET?

Newer Linux distributions have enabled new kernel security extensions from the SELinux project at the NSA (National Security Agency). SE Linux is an NSA project to improve the security of Linux through Mandatory Access Control (MAC). These extensions allow finer-grained control over system security. However, SELinux also changes some default system behaviors, such as shared library loading, which can be problematic to third-party programs.

If you see the error message “cannot restore segment prot after reloc: Permission denied” when you start PulseNET, your SELinux configuration is preventing IDL from launching.

To rectify this issue, you can perform one of the following workarounds:

- Change the default security context for PulseNET by issuing the command:

```
chcon -t texrel_shlib_t <pulsenet_home>/jre/lib/i386/*.so
chcon -t texrel_shlib_t <pulsenet_home>/jre/lib/i386/server/
*.so
```

- Disable SELinux altogether by setting it to `disabled` in your `/etc/sysconfig/selinux` file:

```
SELINUX=disabled
```

For more information about SELinux, consult your Linux distribution vendor.

I am running PulseNET with a MySQL database. When I try to start PulseNET, it fails to start and a SQL exception appears in the logs. Why does this happen?

If you encounter this problem, the cause might be that the MySQL database file *my.cnf* has been made world-writable.

Do not make the MySQL database file *my.cnf* world-writable, for example by issuing the command `chmod a+w <pulsenet_home>/mysql/my.cnf`. PulseNET and the database cannot start if there is world access to the configuration file *my.cnf*.

If I stop PulseNET by closing the Command Prompt window, an error appears when I start it up again. How do I restart PulseNET?

It is recommended that you do not use this method to stop PulseNET. However, if you do use this method, follow the workaround listed below.

- 1 Stop the database manually before restarting PulseNET.
- 2 Remove the stale *.pid* file that is located in the *state* directory. The logs or the console output inform you which *.pid* file to remove when you restart PulseNET.

Index

A

administration

- default user name and password 9

administrator

- access 9

D

devices

- limit 7

I

industrial communications 7

installation

- requirements 9

L

logging in

- to PulseNET 24

N

network security certificate

- importing 17

P

password

- administrator 9

PulseNET

- uninstalling 18

- What is it? 7

R

running

- PulseNET 21

S

server

- starting 21

- stopping 24

U

uninstalling

- PulseNET 18

user account

- administrator 9

W

Windows

- service, from the command line 23

- service, installing PulseNET as a 22

IN CASE OF DIFFICULTY...

If you have problems, comments or questions pertaining to the MDS PulseNET application, please contact GE MDS using one of the methods listed below:

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