

Chapter 7

INTRODUCTION

The PressureMAP software provides users who have access to an Ethernet network supporting TCP/IP with the ability to remotely log into the MAP System via a network connection, with up to 32 users connected to PressureMAP via the Local Area Network (LAN) at any one time. Alarm Centers can also be configured so that any user with a LAN login can receive alarms via the mail function of the network.

The Network Administration portion of MAP System Administration allows the System Administrator to manage the Ethernet LAN connection, network printing, the SMTP (Simple Mail Transfer Protocol) mail server, and serial port resources. It includes options to view the current configuration, perform diagnostics, connect or disconnect the network, set and clear a Gateway IP (Internet Protocol) address, configure the SMTP mail server, and start or stop mail delivery. PressureMAP Version 27 and above systems running the Linux operating system will also have the ability to set or change the MAP System Host Name and configure the name server (DNS).

Anyone who knows the System Administration Password has access to the entire MAP System, except for Network Administration and User Management. Because Network Administration is such a powerful utility, a separate password is required to access it.

This section provides both an introduction to the Network Administration Program and an easy-to-follow series of procedures for quick reference. It includes an overview of the TCP/IP LAN structure and information on program and system operation functions that are crucial to understanding PressureMAP Network Administration. The procedures detail the operation of Network Administration, illustrating all of the pertinent screens and menus.

General Information

While the Network Administration Program is very similar in design and operation to the rest of the MAP System, some new concepts and functions are introduced. These new elements, as well as standard MAP procedures, are explained in detail in this section.

Network Administration Password

A password is required to access the Network Administration Menu. This particular password is changed by modifying the Fixed Class User ID account named "netadm."

Default Option

At many of the prompts, a default option will appear in square brackets. A default option is a value or entry that is preprogrammed into the system. The default option may be selected by pressing <Return>.

Time Default

After there has been no user input for a specified amount of time, the MAP program will back out of some menus and display the previous screen. This process will continue until the

program backs up to the MAP Programs Menu. This feature is included because only one user at a time can access Network Administration. The time default limit may be modified using the Set Idle Logout Time function of the System Administration Menu.

The Ethernet Address

Two types of addresses are needed to access a TCP/IP LAN. The Ethernet address is the unique, six-byte physical address of an Ethernet card. This address is commonly called the Ethernet address of the computer (host) in which the card is installed. The three, high-order bytes of the Ethernet address contain a unique value assigned by the manufacturer of the Ethernet card. This value is sometimes called the host identification code. These three bytes are printed, in hexadecimal, on the Ethernet address PROM located on the card.

The IP Address

The IP (Internet Protocol) address is a four-byte numeric value that identifies the network and computer containing the Ethernet card on the LAN (Local Area Network). The computer (also referred to as a node) needs an IP address in order to communicate with other IP nodes. The four-byte IP address is divided into two parts: network and local host. This division can be done in three ways, which corresponds to three address classes. Most TCP/IP network installations use Class C, but some larger installations might need to use Class B. All screen examples used in this section use the Class C address.

BINARY (32 BIT)	11010111101001010000101101101111			
BINARY (OCTAL)	11010111	10100101	00001011	01101111
DECIMAL (OCTAL)	215	165	11	111
CORRESPONDING IP ADDRESS (IN STANDARD NOTATION)	215.165.11.111			

TABLE 7-1: CLASS C IP ADDRESS

The Class A Address

The first type of address, called a "Class A Address," consists of a one-byte network number and a three-byte local host number. The three-byte local host number is shown in the example as a trio of three Xs (XXX.XXX.XXX). The highest order bit of the network number is set to 0, with valid address ranges from 1.0.0.1 through 126.255.255.254, and with 16,777,216 available hosts per network. An example of a Class A network number is 89.XXX.XXX.XXX.

The Class B Address

The second type of address, called a "Class B Address," consists of a two-byte network number and a two-byte local host number. The two-byte local host number is shown in the example as two sets of three Xs (XXX.XXX). The two highest order bits of the network number are set to 10, with valid address ranges from 128.0.0.1 through 191.255.255.254, and with 65,534 available hosts per network. An example of a Class B network number is 139.80.XXX.XXX.

The Class C Address

The third type of address is the one most often used. It is called a "Class C Address," and consists of a three-byte network number and a one-byte local host number. The one-byte local host number is shown in the example as a group of three Xs (XXX). The three highest-order bits of the network number are set to 110, with valid address ranges from 192.0.0.1 through 222.255.255.254, and with 254 available hosts per network. An example of a Class C network number is 215.175.44.XXX.

Gateway Address

A gateway provides interconnections among two or more networks, routing data packets among them, accepting data that arrives over one network connection, and routing data out over another connection. Except for destinations on directly attached networks, hosts pass all IP data to gateways which route the data on toward its final destination. A data packet travels from gateway to gateway until it reaches a gateway that attaches directly to the network with the IP address of the data's the final destination.

The Netmask Setting

IP addresses are assigned so that all computers connected to one physical network have the same network number. The netmask setting is used to remove the network number from the IP address, leaving only the local host number. (Refer to the previous section on the IP Address for an explanation of the three classes of IP addresses.) The chief advantage of masking the network number is that it keeps the size of the routing table small, and makes routing decisions more efficient. When all of the hosts are physically connected to one network, the router does not need to know the network portion of the IP address. Only the local host portion of the address is needed to make routing decisions.

Each netmask consists of binary ones (decimal 255) to mask the network number and binary zeroes (decimal 0) to retain the local host number of the IP address. An example of a netmask setting for a Class C address is 255.255.255.0.

The Broadcast Address

Since all data sent by a TCP/IP LAN moves through all of the computers in the network path, a host only processes the data that include the host computer's IP address in the data header. However, there may be times when you want to send a message to all computers on a particular network. Setting a Broadcast Address for your computer allows messages to reach all of the computers in the network path. A Broadcast address masks the local host number of the IP address with either binary ones (decimal 255) for networks using RFC-919 (UNIX Operating System Standard) or binary zeroes (decimal 0) for networks that have machines running 4.2BSD systems or earlier BSD versions. Examples for both types of Broadcast addresses for a Class C address are 132.147.11.255 and 132.147.11.0.

Subnet

A subnet enables several local networks to appear as a single network to off-site hosts. Subnets are most often used when:

- You want to use a single route to external gateways.

- You want the ability to administer IP addresses locally. For example, your company may have a PressureMAP System subnet, an engineering subnet, and an administrative subnet, each administered by a different administrator who has control of IP addresses in a given range.
- You want to reduce the amount of network traffic each host sees. Setting up subnets, each separated by a gateway host, limits local subnet data packets to those that are either destined for or sent from a local host. In this way, the overall network traffic each host on the subnet sees is reduced.

When a subnet is created, a segment of the host portion of the IP address is used as the subnet address. For example, to partition a Class C address, you might partition the first three (high order) bits of the fourth byte to represent the subnet, with the last five bits representing the host. This scheme allows for up to eight subnets of 30 hosts each, with a total of 240 hosts.

The netmask for the hosts on these subnets is 255.255.255.224. The last byte, 224, is the decimal notation of the binary number 11100000, which masks the subnet portion of the address. Examples of possible subnets for the Class C network 215.165.11.XXX, and the associated broadcast addresses are shown in the following table.

<u>SUBNET</u>	<u>HOSTS</u>	<u>BROADCAST ADDRESS</u>
215.165.11.0	.1-.30	215.165.11.31
215.165.11.32	.33-.62	215.165.11.63
215.165.11.64	.65-.94	215.165.11.95
215.165.11.96	.97-.126	215.165.11.127
215.165.11.128	.129-.158	215.165.11.159
215.165.11.160	.161-.190	215.165.11.191
215.165.11.192	.193-.222	215.165.11.223
215.165.11.224	.225-.254	215.165.11.255

TABLE 7-2: CLASS C SUBNET AND BROADCAST ADDRESSES

INTRODUCTION TO THE SMTP MAIL SERVER

The MAP System is able to deliver Dispatch Alarms to specified users of the LAN, which is connected to the MAP System using a SMTP (Simple Mail Transfer Protocol) mail server. All of the "mailed" Alarms are routed to a single destination machine (i.e. mail server), which is set up and maintained separately from the MAP System. When a mail server Alarm Center is added in the AlarmMAP portion of the MAP software, the keyword MAIL and the name or alias of the user who is to receive the alarms will need to be entered into the Alarm Center Information screen.

When an alarm is sent via mail, the Subject Line, which is the quick identifier used by most mail packages, will contain information to identify the message to the user (type of message, message identifiers such as task # or message id). The subject information will notify the user that they are receiving a mail alarm, the Task # of the alarm, and the system number of the MAP System that sent the alarm. This line will use the format: "PMAP ALARM <task #> [<sys #>]." A subject line might look like this: "PMAP ALARM 234001 [0222]".

In AlarmMAP Data Entry, the keyword "MAIL" that is used to specify a mail center cannot be entered as an Alarm Center until the basic Ethernet LAN Network software has been enabled and

the SMTP mail server has been set up via Network Administration. If everything has been set up, but the mail server hasn't been started, you will be given a warning but still be allowed to enter the keyword "MAIL." AlarmMAP will check to verify that the mail system is configured and active before sending any mail.

The Returned and Invalid Mail Checker

The MAP Schedule will check and log all mail that is undeliverable (returned), unexpected (mail to a local user), or unable to be sent (network or mail system is off), to one of three types of log files. Mail that is returned will be logged to the ***Returned Mail Log File***. All other mail intended for the MAP System but cannot be recognized as returned mail will be logged to the ***Unexpected Mail Log File***. The ***Mail Messages Not Sent*** log file will be used when high priority mail can't be sent due to a network or mail server problem. All of these logs can be accessed and viewed using the View MAP Data Files option of the User Initiated Operations Menu.

System Errors

When the mail server is off, all new alarms that fail to be sent will cause a Four Star System Alarm to be created. The contents of the high priority mail message will be logged to the "Mail Messages Not Sent" log file, which can be accessed and viewed using the View MAP Data Files option of the User Initiated Operations Menu.

When mail is returned or considered by the MAP System as invalid, one of the following System Alarms/Dispatches will be posted for 26 hours. An explanation for each error number can be found in the System Error List, Appendix 3 of the MAP Operations Manual.

ERROR 844	Priority mail (ALARM) returned, delivery failed	****
ERROR 845	Returned mail found (To:login name)	**
ERROR 846	Unexpected mail detected (From:name@machine)	**
ERROR 847	Priority mail (ALARM) not sent, mail/network off	****
ERROR 848	Low priority mail waiting, mail/network turned off	*

ACCESSING THE NETWORK ADMINISTRATION MENU

Access to Network Administration is limited to one user at a time. If more than one user tries to access Network Administration at the same time, the error message, ***sorry, someone else is currently running that program*** will appear on the screen.

All of the Network Administration functions are performed by accessing the Network Administration Menu. The following procedure describes how to find that menu, starting at the Systems Options Menu, shown in SCREEN 7-1.

```
System Options                                MAP Series XX.XX.XX
05/10/2012 16:57                            System Studies Incorporated
-----

System Options
-----
1. Select MAP Program
2. Select MAP Data Entry
3. System Administration
4. Language Selection
Q. Quit

Choice?
```

SCREEN 7-1: SYSTEM OPTIONS MENU

Procedure:

1. Select option **3**, "System Administration," followed by **<Return>**. You should see the System Administration Password prompt.
2. Type in the "System Administration Password" followed by **<Return>**. (The password will not show on the screen.) A correct password entry will produce the System Administration Menu.
3. Select option **19**, "Network Administration," followed by **<Return>**. The password prompt will display.
4. Type in the Network Administration Password followed by **<Return>**, and the Network Administration Menu will appear. Please note that the options displayed on this menu vary, depending upon whether certain capabilities, such as the Data Export utility, have been enabled. (The PressureMAP Data Export Protocol is explained in Appendix 3 of this section.)

Without any special capabilities enabled, PressureMAP systems running Linux will provide six Network Administration options, as shown in SCREEN 7-2.

```
Network Administration                        MAP Series XX.XX.XX
05/10/2012 14:33                            System Studies Incorporated
-----

Network Administration
-----
1. Configure Basic Ethernet LAN Connection
2. Configure the SMTP Mail Server
3. Configure Serial Resources
4. Set or Change the MAP System Host Name
5. Configure the Name Server (DNS)
6. Configure the Time Server (NTP)
7. Configure System Status Viewer
Q. Quit

Choice?
```

SCREEN 7-2: NETWORK ADMINISTRATION MENU

NETWORK ADMINISTRATION PROCEDURES

The explanations below describe what is required to configure PressureMAP to work on a Local Area Network. Screen samples have been provided to assist the System Administrator during the configuration process.

Configure Ethernet LAN Connection

The first Network Administration Menu option, Configure Basic Ethernet LAN Connection is used to view the basic Ethernet LAN configuration, connect and disconnect the MAP System to/from the Ethernet LAN, set and clear the Gateway IP Address, and perform Ethernet LAN Diagnostics. Press **1** <Return>, and the Basic Ethernet LAN Configuration Menu, SCREEN 7-3, displays.

```
Basic Ethernet LAN Configuration                                MAP Series XX.XX.XX
05/10/2012 17:02                                             System Studies Incorporated
-----
Basic Ethernet LAN Configuration
-----
 1. View Basic Ethernet LAN Configuration
 2. Connect the MAP System to the Ethernet LAN
 3. Disconnect the MAP System from the Ethernet LAN
 4. Set the Gateway IP Address
 5. Clear the Gateway IP Address
 6. Perform Ethernet LAN Diagnostics
 Q. Quit

Choice?
```

SCREEN 7-3: BASIC ETHERNET LAN CONFIGURATION MENU

When you have brought up the Configure Basic Ethernet LAN Connection Menu, refer to the topic segments that follow for the appropriate procedures.

VIEW BASIC ETHERNET LAN CONFIGURATION

This menu option shows the current configuration of the network connection. The screen that is displayed will vary depending upon on whether or not the MAP System is currently connected to the network.

Procedure:

1. From the Basic Ethernet LAN Configuration Menu, select "View Basic Ethernet LAN Configuration." Press **1** <Return>.

SCREEN 7-4 shows an example of what is displayed on Linux operating systems when the MAP System is connected to the Ethernet LAN.

```

View Basic Ethernet LAN Configuration                                MAP Series XX.XX.XX
05/10/2012 17:05                                                System Studies Incorporated
-----
                        Current Ethernet LAN Status
                        -----

Connection Status:          Connected

Internet Address:          215.165.11.111
Ethernet Address:          0.160.20.119.12.106
Gateway IP Address:        215.165.11.100

Netmask:                   255.225.225.0
Broadcast Address:         215.165.11.255

Hit <Return> to continue.

```

SCREEN 7-4: ETHERNET LAN INSTALLED AND CONNECTED

- The connection status indicates that the MAP System is connected to the network. There are only two possible status conditions, connected and disconnected. If the Ethernet LAN is not installed, **Disconnected**, **Ethernet LAN Package not enabled** is displayed. Contact System Studies Technical Support for help on installing the Ethernet LAN package
 - The next two groupings specify the Internet, Ethernet, Gateway, Netmask and Broadcast addresses that are currently loaded on the Ethernet card.
2. Press **<Return>** to exit the screen and return to the Basic Ethernet LAN Configuration Menu.

CONNECT THE MAP SYSTEM TO THE ETHERNET LAN

The next option of the Basic Ethernet LAN Configuration Menu, "Connect the MAP System to the Ethernet LAN," is provided so the Network Administrator can change the Internet address used by the MAP computer as the need arises. If the MAP software is moved to a backup system, the Internet address may need to be reconnected (Disconnected, then Connected) to reflect the configuration of the backup computer.

Procedure:

1. From the Basic Ethernet LAN Configuration Menu, select "Connect the MAP System to the Ethernet LAN." Press **2 <Return>**. You will see the following prompt:


```

Do You Wish To Connect the MAP System to the Ethernet LAN?
Y(es), N(o)

```
2. If you wish to continue with the network connection, enter **Y**. To return to the Basic Ethernet LAN Configuration Menu, enter **N**.
3. After answering Y to connect the network, and the network package is installed, you will see the following message:

```

Enter Internet Address (XX.XX.XX.XX or <Return> to quit):

```


- If you wish to continue with the network connection, enter the address. The default address, if available, will be shown in the square brackets. If the system has never had an Internet address, the default will be template XX.XX.XX.XX. The Internet address consists of four positive integer values in the range 0-255, separated by periods. A valid Internet address for the MAP System should be obtained from the LAN administrator.

If **<Return>** is entered at the prompt, the program will return to the Basic Ethernet LAN Configuration Menu.

- Enter the Internet address, and press **<Return>**. You will be asked to verify the Internet address you have just entered. You will see a prompt similar to the one below.

```
The system will reboot automatically if you accept XX.XX.XX.XX.
XX.XX.XX.XX specified, is this correct? Y(es), N(o), Q(uit)
```

If the address is correct, enter *Y*. On systems using the UNIX operating system, you will see:

```
Enter Netmask Address (XX.XX.XX.XX or <Return> for default
[XXX.XXX.XXX.X]):
```

Enter the netmask address and **<Return>**, or just **<Return>** to accept the default for your network class, which is shown in square brackets. You will see:

```
XX.XX.XX.XX specified, is this correct? Y(es), N(o), Q(uit)
```

If the address is correct, enter *Y*. Now, the standard MAP System shutdown procedures will be started. You will see:

```
Internet Address XX.XX.XX.XX installed. Configuration stored...
No other users logged in, rebooting...
```

At the end of the 60 second logout period, the system will reboot, and the new Internet address will be loaded. If the address you have entered is incorrect, enter *N*. You will be returned to step 3 to re-enter the Internet address.

DISCONNECT THE MAP SYSTEM FROM THE NETWORK

This option of the Basic Ethernet LAN Configuration Menu is provided so the Network Administrator can disconnect the MAP System from the Network. For example, if the MAP software is to be moved to a backup system, the MAP System first needs to be taken off the Network. When the software is loaded onto the backup computer, the Internet address may need to be reconnected (Disconnected, then Connected) to reflect the configuration of the backup computer.

Procedure:

- From the Basic Ethernet LAN Configuration Menu, select "Disconnect the MAP System from the Network." Press **3 <Return>**. You will see the following prompt:

```
Do You Wish to Disconnect the MAP System from the Ethernet LAN?
Y(es), N(o)
```

2. If you wish to continue with the network disconnection, enter **Y**. To return to the Basic Ethernet LAN Configuration Menu, enter **N**. If the Network package is not installed, you will be returned to the Basic Ethernet LAN Configuration Menu regardless of your answer.
3. After answering Y to disconnect the Network, you will see the following messages:

```
Internet Address XX.XX.XX.XX removed. Configuration stored.
```

```
System will reboot, please log off now...
```

4. Press **<Return>** to exit to the Basic Ethernet LAN Configuration Menu.

SET THE GATEWAY IP ADDRESS

The Gateway function of the MAP software has the intelligence to connect a remote LAN to the LAN which has the MAP System. This option of the Basic Ethernet LAN Configuration Menu is provided so the Network Administrator can change the Gateway address used by the MAP computer as the need arises. For example, if the MAP software is moved to a backup system, the Gateway address will need to be changed to reflect the configuration of the backup computer.

The Gateway IP (Internet Protocol) address can be configured even if the network is not installed or connected (i.e. the local host IP address is not set). It is possible that after the local host IP address is set, the network addresses will not match. If this is the case, the Gateway IP address will not be loaded, but it will be listed in the "Stored Ethernet LAN Configuration" portion of the Current Ethernet LAN Status table.

Procedure:

1. From the Basic Ethernet LAN Configuration Menu, select "Set Gateway IP Address." Press **4** **<Return>**. You will see the following prompt:

```
Do You Wish To Set Gateway IP Address? Y(es), N(o)
```

2. If you wish to continue, enter **Y**. To return to the Basic Ethernet LAN Configuration Menu, enter **N**. The current Gateway IP Address will display, if applicable. After entering Y, you will see the following message:

```
Enter New Gateway IP Address (XX.XX.XX.XX or <Return> to quit):
```

3. If you wish to continue, enter the address, followed by **<Return>**. The address consists of four positive integer values in the range 0-254, separated by periods. A valid Internet address for the Gateway should be obtained from the LAN Administrator.

If only **<Return>** is entered at the prompt, the program will return to the Basic Ethernet LAN Configuration Menu. Alternatively, if an existing Gateway IP address is present, the **<Return>** entry will accept the default value.

4. You will be asked to verify the Internet address you have just entered. You will see a prompt similar to the one that follows.

```
XX.XX.XX.XX specified, is this correct? Y(es), N(o), Q(uit)
```

If the address is correct, enter **Y**. On Linux operating systems, you will see:

```
Shutting down interface eth0:           [ OK ]
Shutting down loopback interface:      [ OK ]
Setting network parameters:           [ OK ]
Bringing up loopback interface:       [ OK ]
Bringing up interface eth0:           [ OK ]
```

```
Gateway IP Address 10.1.0.12 installed. Configuration stored.
```

If the address you have entered is incorrect, enter **N**. You will be returned to step 3 to re-enter the Internet address that the Gateway should use.

If you enter a Gateway IP address with a network address that differs from the local host, you will see the following:

```
The gateway at IP address 1.2.3.4 has a different network address
than the MAP system. The gateway must be part of the same network
that the MAP system is on (89.XX.XX.XX).
```

```
Enter New Gateway IP Address (XX.XX.XX.XX or <Return> to quit):
```

The message will contain the network address for the MAP System to help you enter the correct number. The example above shows that the MAP System is on a class A network with a network address of 89. If the MAP System were on a class B network the network address would be defined in the first 2 bytes, (89.80.XX.XX). For a class C network, the first 3 bytes would be shown, 89.80.44.XX.

In the event that the local host IP address is not set, you can enter any value you like. It is possible that after the local host IP address is set, the network addresses will not match. If this is the case, the Gateway IP address will not be loaded, but it will be listed in the "Stored Ethernet LAN Configuration" portion of the Current Ethernet LAN Status table, which is Option 1 of the Basic Ethernet LAN Configuration Menu.

CLEAR THE GATEWAY IP ADDRESS

The next option of the Basic Ethernet LAN Configuration Menu will remove the Gateway IP address from the Ethernet LAN Configuration. If the Gateway IP needs to be reconnected at any time, the Internet address for the Gateway will need to be entered.

Procedure:

1. From the Basic Ethernet LAN Configuration Menu, select "Clear the Gateway IP Address." Press **5 <Return>**. You will see the following prompt:

```
Do You Wish To Clear the Gateway IP Address? Y(es), N(o)
```

2. If you wish to clear the Gateway IP address, enter **Y**. To return to the Basic Ethernet LAN Configuration Menu, enter **N**. A PressureMAP system running Linux will display the following data after you enter Y to clear the Gateway:

```

Gateway IP entry XX.X.X.X removed. Configuration stored.
Shutting down interface eth0:                [ OK ]
Shutting down loopback interface:            [ OK ]
Setting network parameters:                  [ OK ]
Bringing up loopback interface:              [ OK ]
Bringing up interface eth0:                  [ OK ]

```

Hit <Return> to continue.

If you wish to clear the Gateway IP address, enter **Y**. To return to the Basic Ethernet LAN Configuration Menu, enter **N**. After answering Y to clear the Gateway, you will see the following message:

```
System will reboot, please log off now...
```

3. Press <Return> to exit to the Basic Ethernet LAN Configuration Menu.

PERFORM ETHERNET LAN DIAGNOSTICS

The last option of the Basic Ethernet LAN Configuration Menu performs two functions. It first performs file permission checks on the network files and, second, it checks the network connections.

Procedure:

1. From the Basic Ethernet LAN Configuration Menu, select "Perform Ethernet LAN Diagnostics." Press **6** <Return>. You will see the following prompt:

```
Do You Wish to Perform Ethernet LAN Diagnostics? Y(es), N(o)
```

2. If you wish to continue with the diagnostics program, enter **Y**. To return to the Basic Ethernet LAN Configuration Menu, enter **N**.

If the networking is not enabled, you will see the following message:

```
** The "localhost" entry is not in /var/map/MAPHOSTS **
Call System Studies Incorporated for technical support.
```

Hit <Return> to continue.

SCREEN 7-5 shows an example of what is displayed when a MAP System using a Linux operating system has valid LAN connections for its configuration. Note that the items listed include printers configured (host name), mail server, and other network connections. The specific connections listed will vary for individual systems.

```
Perform Ethernet LAN Diagnostics                                MAP Series XX.XX.XX
05/10/2012 08:49                                             System Studies Incorporated
-----

Checking permissions on network specific files...

One Moment Please...

The system is connected to the network (IP address = 10.1.0.156).

Gateway is configured (IP address = 10.1.0.1).

Checking connection to Loopback Device (127.0.0.1):           Connected
Checking connection to Network Card (10.1.0.156):             Connected
Checking connection to scosysv (10.1.0.156):                  Connected
Checking connection to digi_A (10.1.0.157):                   Connected
Checking connection to hp_jet (10.1.0.150):                    Connected
Checking connection to Gateway (10.1.0.1):                     Connected

Ethernet LAN diagnostics complete.

Hit <Return> to continue.
```

SCREEN 7-5: ETHERNET LAN DIAGNOSTICS DISPLAY

3. Press **<Return>** to exit the screen and return to the Basic Ethernet LAN Configuration Menu.

Configure the SMTP Mail Server

The MAP System is able to deliver Dispatch Alarms via email using SMTP (Simple Mail Transfer Protocol). All of the mailed alarms are routed to a single destination machine (i.e., mail server), which is set up and maintained separately from the MAP System. When an email Alarm Center is added in the AlarmMAP portion of the MAP software, the keyword MAIL, followed by the name (or alias) of the user who is to receive the alarms, will need to be entered into the *Phone number:* field of the Alarm Center Information screen. A more detailed description regarding the use of email addresses as Dispatch Alarm centers is provided in the *PressureMAP System Data Entry Manual*, page 12-9.

The second main function of the Network Administration Menu, “Configure the SMTP Mail Server,” provides the following options: set and clear the SMTP Mail Server address, start and stop the SMTP Mail delivery, Set Mail Sender Name and perform SMTP Mail diagnostics. Beginning in PressureMAP Version 27 and for Linux operating systems only, it is possible to select a mail server name via either an IP address or DNS lookup. In order to use DNS lookup, you will also need to Configure the Name Server. This function is described on page 7-26.

To select one of the SMTP mail server configuration options, enter **2 <Return>** from the Network Administration Menu (SCREEN 7-2). You will now see the SMTP Mail Configuration Menu, SCREEN 7-6. Each menu option is described in the procedures sections that follow.

```

SMTP Mail Configuration                                MAP Series XX.XX.XX
05/10/2012 17:52                                    System Studies Incorporated
-----
SMTP Mail Configuration
-----
1. Set the SMTP Mail Server Address
2. Clear the SMTP Mail Server Address
3. Start SMTP Mail Delivery
4. Stop SMTP Mail Delivery
5. Set Mail Sender Name
6. Perform SMTP Mail Diagnostics
Q. Quit

Choice?

```

SCREEN 7-6: SMTP MAIL CONFIGURATION MENU

SET THE SMTP MAIL SERVER IP ADDRESS

This option of the SMTP Mail Configuration Menu is provided so the Network Administrator can change the Internet address of the SMTP (Simple Mail Transfer Protocol) mail server as the need arises. If you are using a Linux operating system and have set up a domain name service, as described at the end of this chapter, you can simply select DNS Lookup. Please note that this option can only be selected if the Ethernet LAN is configured.

Procedure:

1. From the SMTP Mail Configuration Menu, select "Set the SMTP Mail Server IP Address." Press **1** <Return>. If the network package is installed, you will see the current mail server name, address (if any), and mail server delivery interval, followed by the prompt:

```

Do you wish to change the STMP mail server configuration?
Y[es], N[o]

```

2. If you wish to change the mail server configuration, enter **Y** and <Return>. Enter **N** <Return> if you do not need to make any changes.

If you entered Y, you will see:

```

Enter the SMTP mail server name:

```

3. Enter the name (maximum 60 characters in length), and press <Return>. The mail server name is the machine name through which the "mailed" alarms will be routed. The default name, if available, will be shown in square brackets. To accept the default, press <Return>.

After entering the SMTP mail server name, you will be asked the following:

```

Enter the IP address (or 'DNS' for dynamic lookup):

```

4. Enter either the IP address or the letters "DNS" (if you have set up a domain name service). Press <Return>. A valid address for the mail server can be obtained from the LAN Administrator. Any existing, default entry (IP address or DNS) will be shown in square brackets. To accept the default, press <Return>.

After entering the SMTP mail server address, you will be asked the following:

Enter the server delivery interval, seconds:

5. Enter the desired mail delivery interval and press **<Return>**. The system default value is 600 seconds. The value entered must be between 120 and 1200. The default interval will be shown in square brackets. To accept the default, press **<Return>**.
6. You will be asked to verify the information that you have just entered. You will see a prompt similar to the one below:

```
Is      [NAME](e.g. mailbox.yourcompany.com)
        [XX.XX.XX.XX](IP Address) or [DNS Lookup]
        delivery interval [XXX] correct? Y[es], N[o], Q[uit]
```

If the requested information is correct, enter **Y**. You will see:

```
The mail system has been configured.
Hit <Return> to continue.
```

If the name or address you have entered is incorrect, enter **N**. You will be returned to step 1 to re-enter the mail server name and address.

CLEAR THE SMTP MAIL SERVER IP ADDRESS

The second option of the SMTP Mail Configuration Menu will remove the mail server address information from the Ethernet LAN Configuration. If the mail server needs to be reconnected at any time, a new Internet address for the mail server will need to be entered.

Procedure:

1. From the SMTP Mail Configuration Menu, select "Clear the SMTP Mail Server Address." Press **2 <Return>**. You will see the following prompt:

```
Do You Wish To Clear the SMTP Mail Server Address? Y(es), N(o)
```

2. If you wish to clear the mail server address, enter **Y**. To return to the previous menu, enter **N**.
3. After answering Y to clear the mail server, you will see the following message:

```
SMTP Mail Server entry (XX.XX.XX.XX) removed. Configuration Stored.
Hit <Return> to continue.
```

4. Press **<Return>** to return to the SMTP Mail Configuration Menu.

START SMTP MAIL DELIVERY

The next option of the SMTP Mail Configuration Menu will start the SMTP mail server. If there is already mail in the queue, a prompt will be displayed asking if the mail should be deleted before starting the mail delivery program.

Procedure:

1. From the SMTP Mail Configuration Menu, select "Start the SMTP Mail Delivery." Press **3 <Return>**. You will see the following prompt:

You Wish To Start the SMTP Mail Delivery? Y(es), N(o)

2. If you wish to start the SMTP mail server, enter **Y**. To return to the SMTP Mail Configuration Menu, enter **N**.

If you answer Y to start the mail server, you will see the following message:

```
The system will reboot automatically if the mail delivery system is
started.
```

```
Are you sure you want to start the mail delivery system? Y(es), N(o)
```

If there is queued mail, you will also see this prompt:

```
Do you want to delete all old mail that has been queued for delivery
prior to starting the SMTP Mail Delivery System? Y(es), N(o)
```

3. If you wish to delete the mail before starting the SMTP mail server, enter **Y**. To start the mail server, and deliver any mail in the queue, enter **N**.

If you entered **Y**, you wish to delete the old mail, you will see:

```
All old mail has been deleted.
```

```
The mail delivery system has been started.
```

```
Hit <Return> to Reboot..
```

4. Press the **<Return>** key to reboot the MAP System, and start the SMTP mail server.

If the mail server has been turned off for more than a day, it is recommended that all of the mail (alarms) in the queue be deleted. When the mail server is off, all new high priority outbound messages (alarms) will cause a Four Star System Alarm to be created. The contents of the high priority mail message will be logged to the "Mail Messages Not Sent" log file, which can be accessed and viewed using the View MAP Data Files option of the User Initiated Operations Menu. The procedures for viewing these alarms are in Section 7 of the PressureMAP Operations Manual.

Note: If the mail (alarms) in the queue are not deleted before restarting the mail server, the alarms will be sent. These old alarms could cause quite a bit of confusion to the people receiving them.

STOP SMTP MAIL DELIVERY

This option of the SMTP Mail Configuration Menu will stop the SMTP mail server. It should be used if the Ethernet LAN is down, or if the MAP software is being moved. If there is already mail in the queue, stopping the mail delivery system will cause all queued mail to be removed from the mail queue. Any high priority mail that is removed will be logged to the Mail Messages Not Sent log file, which can be accessed and viewed using the View MAP Data Files option of the User Initiated Operations Menu. A Four Star System Alarm will also be posted.

Procedure:

1. From the SMTP Mail Configuration Menu, select "Stop the SMTP Mail Delivery." Press **4 <Return>**. You will see the following prompt:

Do You Wish To Stop the SMTP Mail Delivery? Y(es), N(o)

2. If you wish to stop the SMTP mail server, enter **Y**. To return to the SMTP Mail Configuration Menu, enter **N**.

If you answer Y to stop the mail server, you will see the following message:

```
The MAP System will reboot automatically if the mail delivery system
is stopped.
```

```
Are you sure you want to stop the mail delivery system? Y(es), N(o)
```

3. If you wish to stop the SMTP mail server, enter **Y**. To return to the SMTP Mail Configuration Menu, enter **N**.

If you enter Y, and the queue is empty, you will see the message in step 4. If there are undelivered mail messages (alarms) in the queue, you will see:

```
There is currently mail queued for delivery. Stopping the mail system
will cause all queued mail to be removed from the mail queue. Any
high priority mail that is removed will be logged and a four star
system alarm will be posted. Do you wish to continue? Y(es), N(o)
```

If you wish to delete any queued mail, enter **Y**. To continue mail delivery, enter **N** and you will be returned to the SMTP Mail Configuration Menu.

If you enter Y to delete any undelivered mail in the queue, you will see:

```
Please wait, removing queued mail..
```

```
All queued mail has been removed.
```

4. When the mail queue is empty, you will see:

```
The mail delivery process has been stopped. All new low priority
outbound mail messages will be queued for delivery but will not be
delivered until the mail system is restarted. A low priority system
dispatch will be posted informing you of queued messages. All new
high priority outbound messages (such as alarms) will cause a four
star system alarm to be created when the mail delivery system is
detected as being inactive or unconfigured. The contents of the high
priority mail messages will be logged to the Mail Messages Not Sent
log file which can be accessed and viewed using the View MAP Data
Files menu option. The system will reboot to complete the mail
delivery shutdown process.
```

```
Hit <Return> to Reboot..
```

Press the **<Return>** key to reboot the MAP System, and stop the SMTP mail server.

SET MAIL SENDER NAME

In order to control spam, some mail systems require email to originate from a registered user name, and will not deliver or forward email from anonymous or unknown users. Since email from PressureMAP systems always originates from either the *map* or *root* users, this security policy can interfere with the ability to deliver alarms and/or reports from PressureMAP. Consequently, a new menu option has been added to the SMPT Mail Configuration Menu to allow Network

Administrators to set a sender name alias for mail that originates from PressureMAP's *map* and *root* designations.

Procedure:

1. From the SMTP Mail Configuration Menu, select "Set Mail System Name." Press **5** <Return>. You will see the following prompt:

```
Do You Wish To Set Mail Sender Name? Y[es], N[o]
```

2. To proceed, type **Y** and press <Return>. The program displays the following:

```
Enter sender email for map (q to quit) :
```

3. Type an email alias for the PressureMAP alarms that originate from user: *map*. Follow the entry with a **Return**. If you make a typing error or something that the software does not recognize as an email address, a prompt notifies you that the entry is invalid redisplaying the prompt above. Entering "q" will simply return you to the SMTP Mail Configuration Menu.

An example of a possible sender email entry for *map* could be as follows:

```
Enter sender email for map (q to quit) : pmap_alarm@telco.com
```

The program then prompts you for an email address for PressureMAP alarms that originate from user: *root*.

```
Enter sender email for root (q to quit) :
```

4. Type the desired email alias and follow the entry with a **Return**. In most cases, the same email address would be used for both *map* and *root*.

```
Enter sender email for root (q to quit) : pmap_alarm@telco.com
```

5. After you have made your entries, the program asks for confirmation:

```
User "map" sender email address "pmap_alarm@telco.com"
User "root" sender email address "pmap_alarm@telco.com"
Does this look correct (y/n - q to quit)
```

If you need to make changes to your entries, type **n** and <Return>. You will be prompted to reenter sender email addresses. Otherwise, type **y** <Return> when you see **Ready to continue (y/n)**.

At this point, several lines of program data will display, followed by a "sync complete" statement and a prompt to enter <Return>.

```
User "map" sender email address "pmap_alarm@telco.com"
User "root" sender email address "pmap_alarm@telco.com"
Does this look correct (y/n - q to quit)
Ready to continue (y/n) y
Starting sendmail.mc edits...
Creating /etc/mail/genericstable...
Restarting sendmail service...
Shutting down sm-client:           [ OK ]
Shutting down sendmail:           [ OK ]
```

```

Starting sendmail:           [ OK ]
Starting sm-client:         [ OK ]

Sync complete!

Hit <Return> to continue.

```

6. To finish the procedure for setting the mail sender name, press **<Return>** to access the SMTP Configuration Menu. You can then perform other mail configuration functions or continue to back out through the various menus.

PERFORM SMTP MAIL DIAGNOSTICS

The last option of the SMTP Mail Configuration Menu is "Perform SMTP Mail Diagnostics." This option will check the file permissions of all the SMTP mail files and inform the Network Administrator of any incorrect or missing files. Any incorrect file permission will be automatically reset. If the mail system is correctly configured and is active, the Network Administrator can send a test message.

Procedure:

1. From the SMTP Mail Configuration Menu, select "Perform SMTP Mail Diagnostics." Press **5** **<Return>**. You will see the following prompt:

```
Do You Wish To Perform SMTP Mail Diagnostics? Y(es), N(o)
```

2. If you wish to run the diagnostics program for the SMTP mail server, enter **Y**. To return to the previous menu, enter **N**.

If you answer Y, you will see the following message:

```

Diagnosing SMTP Mail System Files.....

SMTP Mail System Files OK.

The mail system is configured and running.

Do you want to send a test message? Y(es), N(o)

```

3. If you wish to send a message to test the SMTP mail server, enter **Y**. To end the diagnostics program, and return to the SMTP Mail Configuration Menu, enter **N**.

If you have entered Y to send a test message, you will see the following prompt:

```
Enter the name of the user to send the message to:
```

4. Enter the login name or alias of the person you wish to receive the test message. Any person the mail server machine knows about (by relating the name to IP address), can receive this test message. After entering the name, and pressing the **<Return>** key, you will see:

```
Enter the message subject:
```

5. Enter the word or phrase that will reside in the "subject" location of the mail message. You will then see:

Enter your test message (20 lines maximum). Enter a dot (".") character in the first character position of a line to terminate your message or simply hit the <Return> key until all 20 lines have been used. A line count will be visible to the left of the message:

6. Type in the message, following the instructions above. To terminate and send the message, enter a dot character in the first position of a line, or hit the <Return> key until all 20 lines have been used. You will then see:

```
Inserting PressureMAP Message Header and Sending Message..
Message Sent.
Hit <Return> to continue.
```

7. Press <Return> to exit to the SMTP Mail Configuration Menu.

Configure Serial Resources

The MAP System software allows you to expand your system's communications capabilities by using a Digi PortServer II® serial port concentrator. Since the release of Version 21 PressureMAP has provided for the administration and maintenance of up to 10 PortServers (with 64 ports each) per PressureMAP system. This capability makes it possible to utilize several units, some local and some remote, to eliminate telephone toll charges to remote installations.

Note: Earlier versions of PressureMAP also supported the use of a Corollary communications card, which provided a function similar to the PortServer II®. Beginning with PressureMAP Version 27, systems that use the Linux operating system do not support this previously discontinued serial resource.

This section of the Network Administration Menu provides access to a PortServer submenu which includes options for viewing the PortServer configuration, adding and removing PortServers, confirming PortServer connectivity, and resetting a PortServer. To select the serial resource configuration option from the Network Administration Menu (SCREEN 7-2), press **3** and <Return>. You will now see the Serial Resource Configuration Menu, shown below.

```
Serial Resource Configuration                                MAP Series XX.XX.XX
05/10/2012 19:31                                         System Studies Incorporated
-----
Serial Resource Configuration
-----
 1. Configure Digi PortServer
 Q. Quit

Choice?
```

SCREEN 7-7: SERIAL RESOURCE CONFIGURATION MENU

DIGI PORTSERVER CONFIGURATION

The information below describes the configuration, setup and update procedures that pertain to the Digi PortServer II equipment.

Procedure:

1. From the Serial Resource Configuration Menu, select "Configure Digi PortServer." Press **1** <Return>. The following menu is displayed.

```

Digi Configuration Tool                                MAP Series XX.XX.XX
05/10/2012 19:31                                    System Studies Incorporated
-----
PortServer Configuration
-----
1. View Configuration
2. Add PortServer
3. Remove PortServer
4. Connectivity Test
5. Reset PortServer
Q. Quit
Choice?

```

SCREEN 7-8: PORTSERVER CONFIGURATION TOOL MENU

2. To select one of the menu options, enter its number and press <Return>. To exit this menu and return to the Serial Resource Configuration Menu, press **Q** <Return>.

View Configuration

This menu option displays the current PortServer configuration. The configuration screen displays the ID, name (Modem Site), IP address, number of ports, and remarks for each configured PortServer.

Procedure:

1. From the PortServer Configuration Menu, select "View PortServer Configuration." Press **1** <Return>. A screen similar to the following example will be displayed.

```

View PortServer Configuration                        MAP Series XX.XX.XX
05/10/2012 19:31                                    System Studies Incorporated
-----
ID  Modem Site   IP Address   Ports  Remarks
--  -
A  DENVER-1     192.168.100.111  32    100 East Colfax.
B  COLOSPGS    192.168.100.102  32    202 South Fountain Blvd.
C  COLOSPGS    192.168.100.103  64    3000 First Street.
D  BOULDER1    192.168.100.142  32    404 Pearl St.

Hit the <enter> key to continue...

```

SCREEN 7-9: VIEW PORTSERVER CONFIGURATION DISPLAY

2. Press <Return> to exit the screen and return to the Digi PortServer Configuration Tool Menu.

Add PortServer

This menu option allows the Network Administrator to add one or more PortServers to the PressureMAP system's configuration. As stated above PressureMAP supports a maximum of 10 PortServers with 64 ports each.

Procedure:

1. From the PortServer Configuration Tool Menu, select "Add PortServer." Press **2** <Return>. The following prompt will display.

Enter the tty device ID (only 2 chars allowed):

2. Type a two-character designation for the PortServer device follow by <Return>. Please note that if you enter an ID designation that is longer than two characters, the program appears to accept your entry and continues to proceed through the "Add PortServer" process explained below. However, when you complete the process and view the configuration listing, as described above, you will notice that there is no entry listed for the device. At this point you will have to start again at step 1.

After you have entered the device ID, the following prompt displays:

Enter Modem Site:

3. Type a Mode Site name of eight characters or less. Press <Return>. If you exceed the maximum number allowed or include punctuation in your entry, this message appears:

Must be 1 to 8 characters, no punctuation please.

Enter a new or truncated Mode Site name which meets these requirements and press <Return> to proceed. The program then requests the following:

Enter the IP address of the new PortServer II:

4. Type the IP address assigned to your PortServer II equipment, then press <Return>. The next setup requirement is to specify the number of ports in your new Digi equipment.

Enter the number of ports:

5. Valid port number entries are 8, 16, 24, 32, 40, 48, 56, and 64. Type the number of active ports associated with your new PortServer II equipment. Press <Return> to continue. The following prompt then displays:

Enter remarks, up to 40 characters:

6. At this point you can enter a brief remark to further define the PortServer installation. When you have finished press <Return>. A summary of your entries will be displayed, an example of which is shown below:

```
ID:      "E"
Site:    "WESTGATE"
IP:      "192.168.100.119"
Ports:   "32"
Remarks: "1411 FONTANA RD."
```

Is this correct (Y[es], N[o])?

7. If the information that is displayed is correct, enter **Y** <Return>, and you will be returned to the PortServer Configuration Menu. If the information is incorrect, enter **N** <Return> and the following prompt appears:

Enter the tty device ID (only 2 chars allowed) :

Begin the procedure at Step 1.

Use the procedure described above to add each PortServer II that is installed in the network.

Remove PortServer

This menu option allows the Network Administrator to remove a PortServer from the PressureMAP system's configuration. Before you begin the following procedure, it is a good precaution to make sure that all other PressureMAP users are logged out of the system. Also, it is recommended that you notify other PressureMAP users that you will be removing a specific PortServer or PortServers.

Procedure:

1. From the PortServer Configuration Tool Menu, select "Remove PortServer." Press **3** **<Return>**. A screen similar to the one below will be display, showing the installed PortServers in your system.

```

View PortServer Configuration                                MAP Series XX.XX.XX
05/10/2012  19:54                *Schedule Off*          System Studies Incorporated
-----
ID  Modem Site      IP Address      Ports  Remarks
--  -
A  DENVER-1       192.168.100.111  32    100 East Colfax.
B  COLOSPGS      192.168.100.102  32    202 South Fountain Blvd.
C  COLOSPGS      192.168.100.103  64    3000 First Street.
D  BOULDER1      192.168.100.142  32    404 Pearl St.

Enter the PortServer ID that you would like to remove:

```

SCREEN 7-10: VIEW PORTSERVER CONFIGURATION DISPLAY

2. Notice that a prompt at the bottom of the display asks for the ID of the PortServer that you would like to remove. Type the ID designation of the intended PortServer followed by **<Return>**. The screen will then display your selection and ask you if the selected ID is correct:

```
You entered "<ID Designation>", is this correct (Y[es], N[o])?
```

If what you have entered is incorrect, type **N** **<Return>**. The original data prompt will then be redisplayed, and you can enter the correct ID information. If the desired PortServer ID for remove is correct, type **Y** **<Return>**.

3. Once you have deleted the PortServer from the defined serial resources, the PortServer Configuration Menu will redisplay. To remove other PortServers follow Steps 1 and 2 above

Connectivity Test

This menu options enables you to confirm that communications between PressureMAP and the PortServer II equipment that has been added to the system are working properly. The simple, automated test essentially pings each Digi PortServer that has been defined for the MAP System and provides a screen display for evaluation. The output of the test includes data for existing PortServers as well as the most recently added ones.

Procedure:

1. Begin the test by accessing the PortServer Configuration Tool Menu described on page 7-19. From the menu select "Connectivity Test." Press **4 <Return>**. The screen refreshes to display results information similar to what is shown below.

PortServer Connectivity Test		MAP Series XX.XX.XX
05/10/2012 20:09	*Schedule Off*	System Studies Incorporated
Modem Site	IP Address	Result
DENVER-1	192.168.100.111	OK
COLOSPGS	192.168.100.102	OK
COLOSPGS	192.168.100.103	No Response
BOULDER1	192.168.100.142	OK

SCREEN 7-11: CONNECTIVITY TEST OUTPUT

As you can see in the example above, the test is not intended to provide detailed information about the communications attempts. It merely indicates whether or not PressureMAP was able to connect with the PortServers.

If a "No Response" result is returned, you should check that the IP Address information for the PortServer was entered correctly when the PortServer was added to the database. If this information is correct, next check that the unit is receiving the required 115V AC power and that the network cable is connected properly at the PortServer and the network router.

2. Once you have completed the Connectivity Test described above, press **<Return>** to access the previous menu.

Reset PortServer

A new feature implemented in PressureMAP Version 28 and later software releases makes it possible for you to remotely reset any of the Digi PortServers installed on your system. This procedure is helpful, for example, if a Digi PortServer is powered up and working, but one or more of the modems connected to it are inoperative. By selecting this reset function, you can re-establish modem functionality without have to visit or arrange for someone to visit the modem site.

Procedure:

1. From the PortServer Configuration Tool Menu, select "Reset PortServer" by pressing **5 <Return>**. The screen redisplay listing PortServer site information on the bottom.


```

Digi Configuration Tool                                MAP Series XX.XX.XX
05/10/2012 19:31                                    System Studies Incorporated
-----
PortServer Configuration
-----
1. View Configuration
2. Add PortServer
3. Remove PortServer
4. Connectivity Test
5. Reset PortServer
Q. Quit

Choice?

ID Modem Site  IP Address      Ports      Remarks
--  -
B  DIGI_B     10.1.0.99       8          test remarks
A  DIGI_A     10.1.0.126     24         test remarks
C  DIGI_C     10.1.0.124     8          test remarks ,...

Which digi ID would you like to reset (example: A):

```

SCREEN 7-12: PORTSERVER CONFIGURATION TOOL MENU

2. Type the letter of the PortServer that you wish to reset, followed by **<Return>**. Selecting ID designation A, for example, would produce screen output similar to the following:

```

Trying 10.1.0.126...
Connected to 10.1.0.126 (10.1.0.126).
Escape character is '^]'.

login: root
password:
#> boot action=reset
rebooting...

Please wait for session to terminate..(10 seconds or so)
<returns to 'Digi Configuration Tool' menu>

```

3. As the screen prompt indicates, when the selected PortServer has been reset, the PortServer Configuration Tool Menu redisplay. Repeat the process described above to reset other Digi PortServers, or press **Q <Return>** to go back to the Serial Resource Configuration Screen.

Set or Change MAP System Host Name

Another Network Administration option available for Linux systems enables you to set and change the Host Name assigned to the MAP System. The Host Name designation is needed to support configuration of the mail delivery system under Linux. The Host Name differs from the MAP System Name in that the Host Name identifies the network name of the computer, such as www.mytelco.com.

! Important ! If BackupEDGE has already been installed, configured and registered on your MAP Engine computer (or equivalent), the BackupEDGE licensing keys will become invalid if the MAP system Host Name is changed. If you intend to use the host name

function in Linux, perform the procedures listed below BEFORE installing BackupEDGE.

Procedure:

1. Setting or changing the MAP System Host Name begins at the Network Administration Menu (refer to page 7-6 for an example). From the list of options displayed, press **4** **<Return>**. The following screen displays:

```
Set or Change the MAP System Host Name                MAP Series XX.XX.XX
05/16/2012 16:49                *Schedule Off*        System Studies Incorporated
-----
MAP System Host Name is: localhost.localdomain

Do you want to change the MAP System Host Name? Y[es], N[o]
```

SCREEN 7-12 MAP SYSTEM HOST NAME SETTINGS

2. To set or change the name, press **y** **<Return>**. The program displays the following:

```
Enter the new fully qualified hostname
(ex. name.domain.com) [localhost.localdomain]:
```

3. Directly following the example *name.domain.com* in the prompt above, the name of the existing host name (if applicable) is displayed. Carefully type the new or replacement MAP System Host Name, followed by **<Return>**.

The program responds with:

```
MAP system hostname changed!

Hit <Return> to continue.
```

4. Press **<Return>** and the program will redisplay the Network Administration Menu. Please note that if you have incorrectly entered the desired host name, you can simply repeat the procedure described above.

Configure the Name Server

The last option provided under Network Administration is the ability to establish, add, and/or change the MAP Engine computer's Domain Name Server (DNS) designations. In prior releases of PressureMAP it was necessary to use static IP addresses for all network connected servers and devices. Version 27 and Linux brought DNS capability to the MAP System—giving Network Administrators more freedom in the assignment or reassignment of IP addresses associated with mail servers used with the system.

Before you can configure the Name Server you will need to access the Network Administration Menu. Please refer to the instructions on page 7-5 of this section if you need help locating the menu.

Procedure:

1. From the Network Administration Menu select “Configure the Name Server (DNS).” Press **5** **<Return>**, and SCREEN 7-14 displays.

```

Name Server (DNS) Configuration                                MAP Series XX.XX.XX
05/22/2012  17:04                                           System Studies Incorporated
-----
Name Server (DNS) Configuration
-----
1. View the Name Server (DNS) Configuration
2. Add/Change the Name Server (DNS) Configuration
Q. Quit

```

SCREEN 7-14 NAME SERVER CONFIGURATION MENU

As you can see the first option gives you the ability to view the existing Name Server configuration. Initially, there will be no information provided until option #2 has been used to enter the DNS information.

ADDING NAME SERVER IP INFORMATION

2. To establish DNS configuration for the MAP System, press **2** **<Return>**. The Add/Change Name Server Configuration Screen displays, as shown below.

```

Add/Change the Name Server (DNS) Configuration              MAP Series XX.XX.XX
05/24/2012  16:11          *Schedule Off*                System Studies Incorporated
-----
Do You Wish To Add/Change the Name Server (DNS) Configuration? Y[es], N[o]

```

SCREEN 7-13: ADD/CHANGE NAME SERVER CONFIGURATION SCREEN

3. Make sure you have the necessary Name Server IP address information, and press **Y** **<Return>** to proceed. The program responds with the following prompt:

```
Enter the domain search list [example.com] :
```

4. Type the desired domain name for the MAP System followed by **<Return>**. The following additional prompt information is displayed.

```
Enter an 'X' to delete an existing nameserver IP address.
```

```
Enter the primary nameserver IP address :
```

5. The Name Server Configuration utility enables you to specify up to three IP addresses for the defined name server. Type your primary name server IP address followed by **<Return>**. The example below shows an IP address entry of 10.1.1.67. The software will display your IP address entry and ask if it is correct.

```
10.1.1.67 specified, is this correct? Y[es], N[o], Q[uit]
```

6. Confirm that you have typed the correct primary name server IP address and, if so, and press **Y <Return>**. If the entry is incorrect pressing **N <Return>** will redisplay the second prompt shown in step 4. Retype the correct IP address followed by **<Return>** to continue.

The next prompt asks you to enter the secondary IP address for the name server. Repeat the process described above in Steps 5 and 6 for both the secondary and tertiary name server IP addresses (if assigned). The program will ask you to confirm each entry and finish with one final query:

```
Are you sure you want to update the DNS configuration?
```

7. Assuming the information you entered is correct, press **Y <Return>**. The following information displays:

```
DNS configuration script complete.
```

```
Hit <Return> to continue.
```

8. Press **<Return>** to go back to the Name Server Configuration Menu.

VIEWING DNS CONFIGURATION INFORMATION

To confirm the accuracy of the new or modified Name Server (DNS) information, select “View the Name Server (DNS) Configuration Information” from the Name Server Configuration Menu. Press **1** and **<Return>**. A menu similar to the one below will display, showing your search domain and Name Server list.

```
View the Name Server (DNS) Configuration                MAP Series XX.XX.XX
05/22/2012 17:04                                     System Studies Incorporated
-----
DNS Configuration:

    Default search domain(s): airtalk.com

    Nameserver list:
        10.1.1.67
        206.13.29.11
        206.13.28.11

Hit <Return> to continue.
```

SCREEN 7-14: VIEW NAME SERVER CONFIGURATION DISPLAY

9. When you have finished defining and viewing your DNS server information, press **Q** and **<Return>** repeatedly to go back to the Network Administration Menu. From there you can continue to perform other network administrative functions, return to the System Administration Menu, or exit out of the system.

Configure the Time Server

The next option provided under Network Administration (option #6) provides the ability to use Network Time Protocol (NTP) to help synchronize your Linux system's clock with an accurate time source. It is good practice to have at least one server on your network be the local time server for all your other devices. This makes it much easier to correlate system-related events on different systems and network components.

As with the other network administration functions described in this section of the manual, you will need to first access the Network Administration Menu. Please refer to the instructions on page 7-5 of this section if you need help locating the menu.

Procedure:

1. From the Network Administration Menu, select *Configure the Time Server (NTP)* by pressing **6** and **<Return>**. The Time Server (NTP) Configuration Menu displays, as shown in SCREEN 7-17.

```

Time Server (NTP) Configuration                                MAP Series XX.XX.XX
05/22/2012  15:08                *Schedule Off*           System Studies Incorporated
-----

Time Server (NTP) Configuration
-----
  1. View the Time Server (NTP) Configuration
  2. Add/Change the Time Server (NTP) Configuration
  Q. Quit

Choice?

```

SCREEN 7-15: TIME SERVER (NTP) CONFIGURATION MENU

View Configuration

The first menu option on the list displays the current configuration of the available or designated time servers.

2. Select "View the Time Server (NTP) Configuration" by pressing **1 <Return>**.

On a newly installed system, the NTP Configuration Display lists a pair of random servers from the pool at www.pool.ntp.org, as shown in the screen sample below.

```

View the Time Server (NTP) Configuration                      MAP Series XX.XX.XX
05/22/2012  15:20                *Schedule Off*           System Studies Incorporated
-----

NTP Configuration:

  Server list:
    0.centos.pool.ntp.org
    1.centos.pool.ntp.org

Hit <Return> to continue.

```

SCREEN 7-16: NTP CONFIGURATION DISPLAY

Since pool.ntp.org will assign your time servers from all over the world, time quality may not be ideal. A better option is to designate one of the servers on your network, one with the correct time zone configuration, as your time server.

Add/Change Configuration

This second option on the Time Server (NTP) Configuration Menu gives you the ability to select a server to use as the local time server for your PressureMAP system and other network servers. You can enter both a primary and a secondary server, or you can delete a server, as desired, and retain just the one that you wish to designate as the primary time server for your system.

3. At the Time Server (NTP) Configuration Menu (Screen 7-17), press **2 <Return>**. The program responds by displaying the following prompt:

```
Do You Wish To Add/Change the Time Server (NTP) Configuration? Y[es], N[o]
```

4. Press **Y** to proceed. The software then displays the following two prompts:

```
Enter an 'X' to delete an existing server IP address.
```

```
Enter the primary server IP address [0.centos.pool.ntp.org] :
```

5. Type the IP address of the server you wish to designate as your primary time server and press **<Return>**. A confirmation request follows:

```
xxx.xxx.xxx.xxx (your designation)specified, is this correct Y[es], N[o],  
Q[uit]
```

6. Make sure that the correct IP address has been entered and, if so, press **Y <Return>** to proceed. If you respond with N, you will be prompted to type the IP address again.

You are then asked to enter a secondary server, if desired.

```
Enter the secondary server IP address [1.centos.pool.ntp.org] :
```

7. Repeat steps 5 and 6 to enter a secondary server, or simply press **<Return>** to bypass this step. Once you have finished designating the primary and secondary server, if applicable, the software asks for one final confirmation:

```
Are you sure you want to update the NTP configuration?
```

8. To complete the Add/Change Configuration procedures, press **Y <Return>**. The PressureMAP system then syncs its clock to the designated primary server and displays the following message:

```
NTP configuration script complete.
```

At this point, the Time Server (NTP) Configuration Menu redisplay. You can make further modifications, if desired, or press **Q** to return to the Network Administration Menu.

Configure the System Status Viewer

A utility called System Status Viewer (SSV) makes it possible for PressureMAP Systems to indicate that they are up and running by sending a “heartbeat” message to a designated PressureMAP server. Updates from all of the reporting systems can then be viewed over the Internet via a standard web browser. In PressureMAP releases prior to Version 27, this capability was available only by installing a receiver application on a Window PC and setting up the necessary programs for viewing the information. It was also necessary to contact System Studies’ Technical Support department and request that a specific PressureMAP system be configured to send its System Status message to the Windows server via TCP/IP socket connection.

Beginning with Version 27.00.03 it became possible for the System Status Viewer to be installed directly on a PressureMAP system. Additionally, a Network Administrator or anyone with access to the Network Administration Menu can set up an individual PressureMAP system (client) to report to the server without having to contact System Studies. Once System Status Viewer has been installed and individual PressureMAP reporting systems have been configured, a link on PressureWEB provides quick access to information from all of the reporting systems.

The procedures for configuring a system (client) to report to the System Status Viewer are presented below. The *MAP System Installation Manual* describes how to install and set up a receiver application on the designated PressureMAP server.

Procedure:

1. From the Network Administration Menu select “Configure System Status Viewer.” Press **6** **<Return>** and the following screen appears.

```

Configure System Status Viewer (SSV) Client                MAP Series XX.XX.XX
05/24/2012 17:04                                         System Studies Incorporated
-----
System Status Viewer Configuration
-----
1. Configure System Status Viewer (SSV) Client
Q. Quit

```

SCREEN 7-17 SYSTEM STATUS VIEWER CONFIGURATION MENU

Note: Before you proceed, you will need to know the IP address of the PressureMAP server on which the System Status Viewer is installed. You will also need to enter the system number and name of the PressureMAP client that you intend to configure.

2. To proceed with the configuration, press **1** **<Return>**; otherwise, press **Q** and **<Return>** to back up to the Network Administration Menu. Once you have selected option 1, the following screen prompt appears:

```

Do You Wish to Configure System Status Viewer (SSV) Client?
Y[es], N[o]

```

3. Press **Y** and **<Return>** to advance. The additional information below displays:

```

SSV Client currently OFF

```

Enter SSV IP (XX.XX.XX.XX OR <Return> to quit):

4. Type the IP address of the PressureMAP server where SSV is installed, followed by **<Return>**. Your entry is displayed on screen, similar to what is shown below:

```
10.1.0.199 specified, this correct? Y[es], N[o], Q[uit]
```

5. Confirm that the IP address is correct and, if so, press **Y <Return>**. The program then asks you for the System Status Viewer Port number:

```
Enter the SSV Port Number ([3555] <Return>, Q[uit])
```

6. The default port number for the SSV is 3555. Hit **<Return>** to designate this port number or enter a new one followed by **<Return>**.

```
Port 3555 specified, is this correct? Y[es], N[o], Q[uit]
```

7. Press **Y <Return>** if the designated port number is correct. Next, you will be prompted to enter information about the reporting PressureMAP system.

```
Enter the system's number and name to
display in SSV ([5555-TS ENG8] <Return>, Q[uit])
```

8. Type the request information and press **<Return>**. The program then displays your entry and asks you if it is correct:

```
9999-NORTHWEST specified, is this correct? Y[es], N[o], Q[uit]
```

9. Confirm the accuracy of you information and press **Y <Return>** if it is correct.

```
Editing /usr1/map/MAPSYS.SCH
Adding SSV schedule item to MAPSYS.SCH.
```

```
Hit <Return> to continue.
```

10. Pressing **<Return>** completes the reporting configuration process for your PressureMAP system and redisplay the System Status Viewer Configuration Menu (SCREEN 6-17). If, for any reason, you need to turn the SSV client off, you can do so by selecting option 1 from the menu and responding to the screen prompt provided:

```
SSV Client currently ON
Would you like to turn the SSV client OFF? Y[es], N[o], Q[uit] y
```

```
Editing /usr1/map/MAPSYS.SCH
SSV client has been turned OFF!
```

```
Hit <Return> to continue.
```