Chapter 4

INTRODUCTION

This document offers simplified instructions for installing both the required Linux operating system and the PressureMAP and PressureWEB™ applications. It also explains how to perform any supplemental updates that may be required to establish and maintain full program functionality going forward. PressureMAP systems running the previously supported version of Linux (Version 5.2) can be updated to Linux Version 5.5 by using the latest PressureMAP release media and following the instructions located near the end of this section (*Procedure to Update Linux OS*).

PressureMAP Software Requirement

Please note that Version 28 is the first PressureMAP release that has been designed to run exclusively on the CentOS Linux 5 operating system platform. Prior to this release, the last several versions of PressureMAP were developed for the SCO UNIX operating system. An exception was PressureMAP Version 27, which provided the option of using either SCO UNIX 5.0.7, Red Hat Enterprise Linux ES 4.2, or CentOS 5.2 Linux.

PressureMAP development on the SCO UNIX platform has been discontinued due to very real concerns that UNIX is nearing End of Life (EOL) status, plus the increasing difficulty of locating and certifying compatible hardware for the PressureMAP/SCO UNIX system. Linux presents neither of these challenges and is the obvious operating system platform on which to develop current and future PressureMAP releases. It is particularly suitable for network server applications, like PressureMAP, because it is a secure, standards-based, open source operating system that has proven to be tremendously stable and versatile. Linux also includes all of the UNIX standard tools and utilities, with unsurpassed portability and flexibility.

Listed below are the software applications and version designations that are supplied on the PressureMAP Version 28 Installation CD. Please note that the last item listed in the table, BackupEDGE™, is an optional third-party product that must be purchased separately. It provides the ability to back up the PressureMAP system onto a variety of media, including electronic tape cartridge, CD/DVD ROM, RAM disk, or remote computer via FTP.

Software	Version
Operating System	CentOS 5.5 Linux
Primary Application	PressureMAP Version 28.00
Web Browser Interface	PressureWEB Version 3.02
Optional	
Backup Software	BackupEDGE™ Version 3.00 [1]

[1] Sold separately by Microlite Corporation.

CENTOS 5.5 LINUX INSTALLATION

The steps below describe how to install the CentOS 5.5 Linux Operating System on your MAP Engine or compatible computer. For the most part, this installation process is preformed automatically with very little input required from the user. In addition to the CentOS Linux OS, the installation CD includes both PressureMAP Version 28 and PressureWEB 3.02. The entire installation process takes less than 20 minutes to complete.

To provide reference for the installation proceedings, many of the CentOS installation screens are included in the procedure below.

Warning!   If you boot up your computer with the Linux CentOS Installation diskette in the DVD/CD ROM drive, the installation process will format your hard drive and erase any pre-existing data. If your hard drive contains data, make sure you have taken the necessary precautions before proceeding.

Procedure:
1. Insert the Linux CentOS Installation CD in the CD/DVD drive and reboot the system. With the CD in place, you can press the reset button on the front of the computer.

   At this point the CentOS 5.5 welcome screen shown below displays.
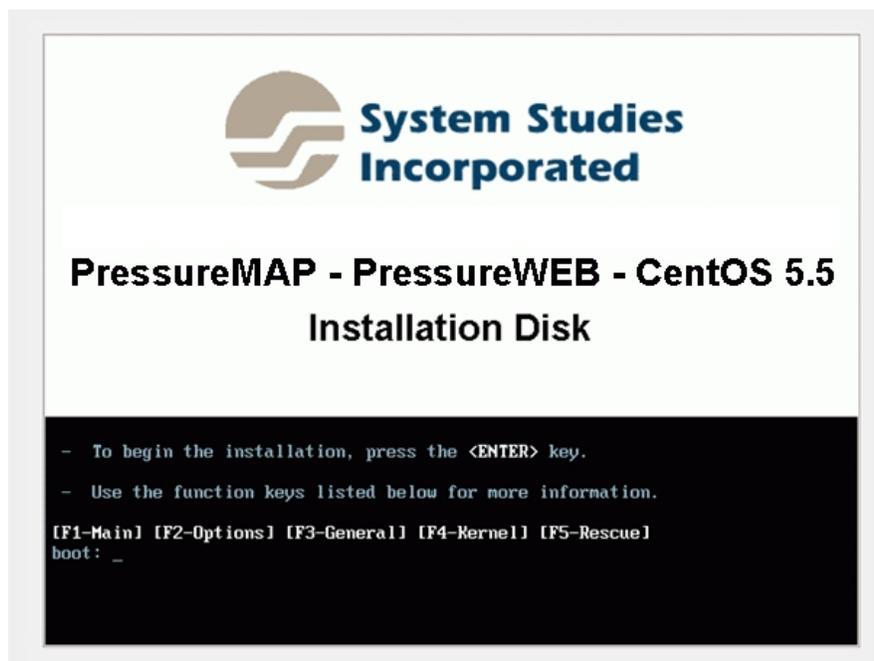
SCREEN 4-1: CENTOS WELCOME

2. As instructed, press *<Enter>* to begin the installation. Screen 4-2 displays.
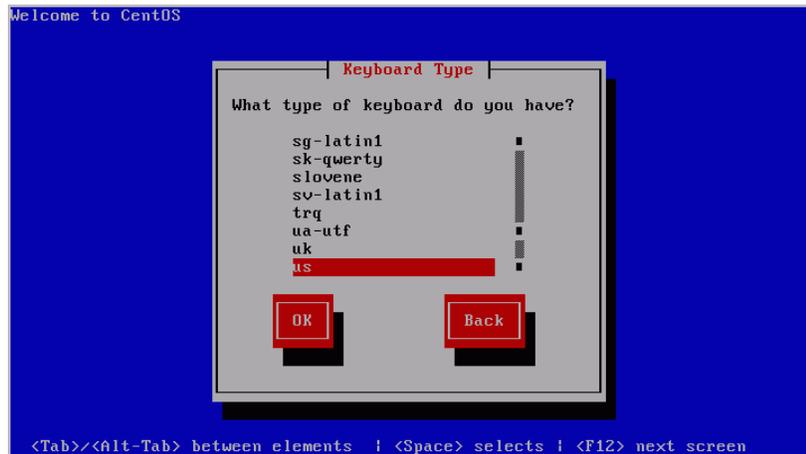
SCREEN 4-2: CENTOS KEYBOARD SELECTION

3. You will notice that *us* is already highlighted. If you are installing your system in the United States, simply tab down to highlight the **OK** button and press **<Enter>**. Otherwise, use the scroll bar to select a keyboard designation that is more suitable for your application. Then highlight *OK* and press *<Enter>*.

Next the Time Zone Selection Screen displays, as shown below:
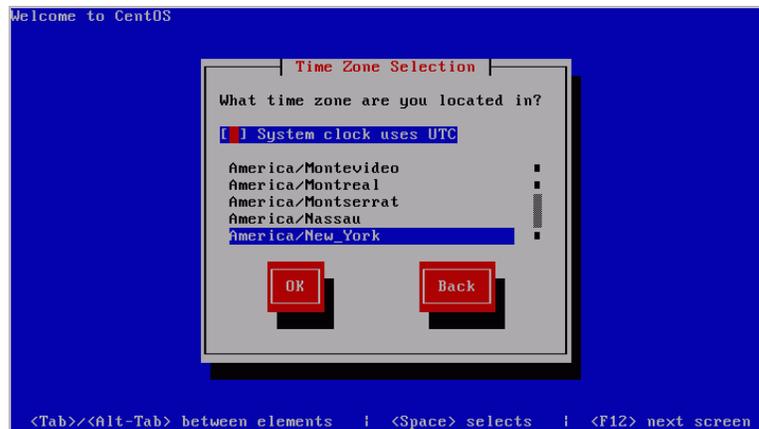
SCREEN 4-3: CENTOS TIME ZONE SELECTION

4. Use the scroll bar on the screen to select the area which most closely represents your time zone. Tab down to **OK** and press **<Enter>**.

At this point the installation proceeds without requiring user input. The following screens are displayed in succession.
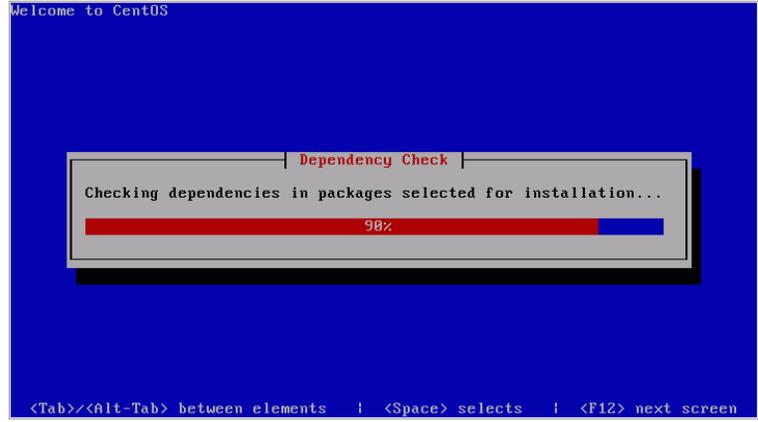
SCREEN 4-4: CENTOS DEPENDENCY CHECK
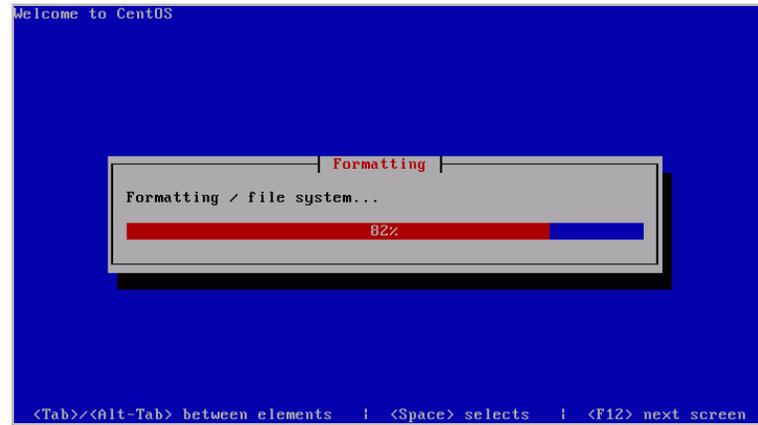
SCREEN 4-5: CENTOS FILE SYSTEM FORMATTING
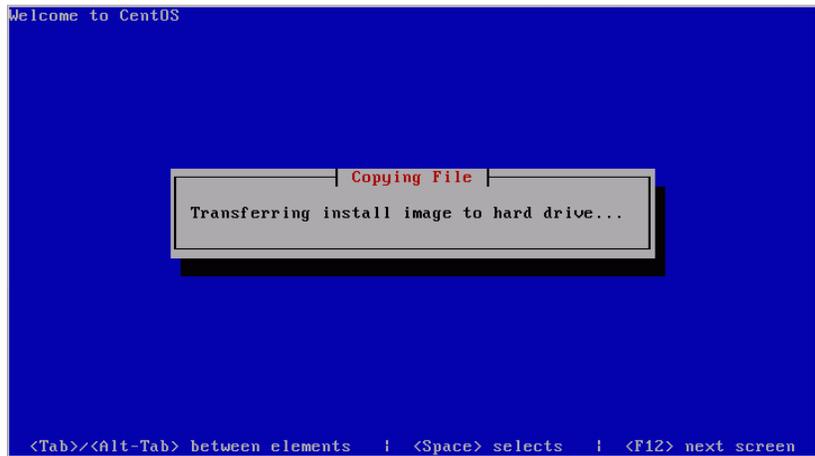
SCREEN 4-6: CENTOS TRANSFER IMAGE
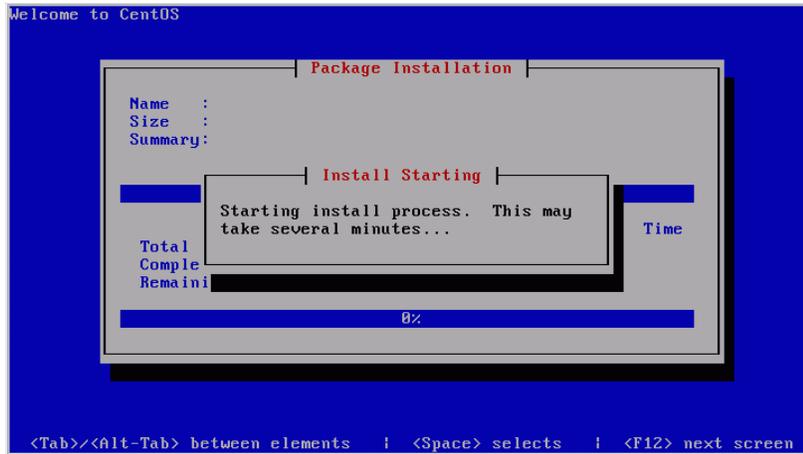
SCREEN 4-7: CENTOS BEGINNING INSTALLATION
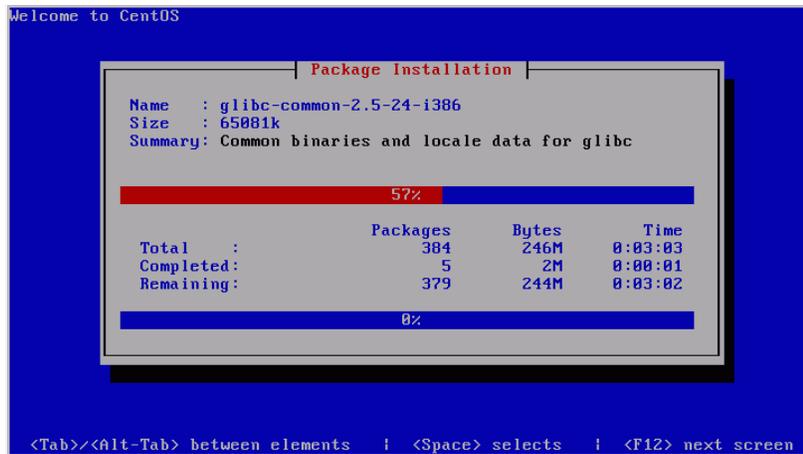
SCREEN 4-8: CENTOS PACKAGE INSTALLATION

SCREEN 4-9: CENTOS BOOTLOADER
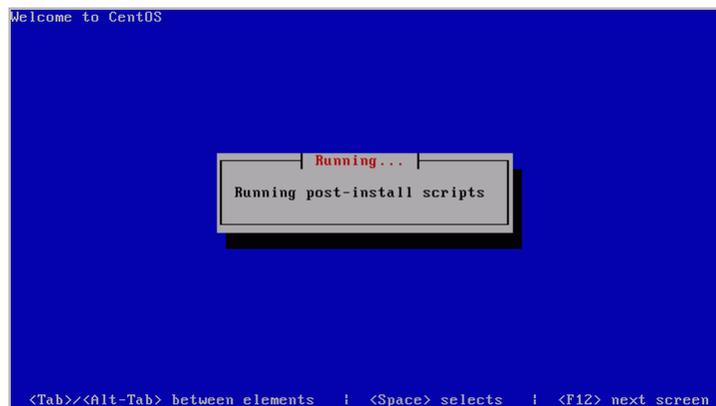
SCREEN 4-10: CENTOS POST-INSTALL SCRIPTS
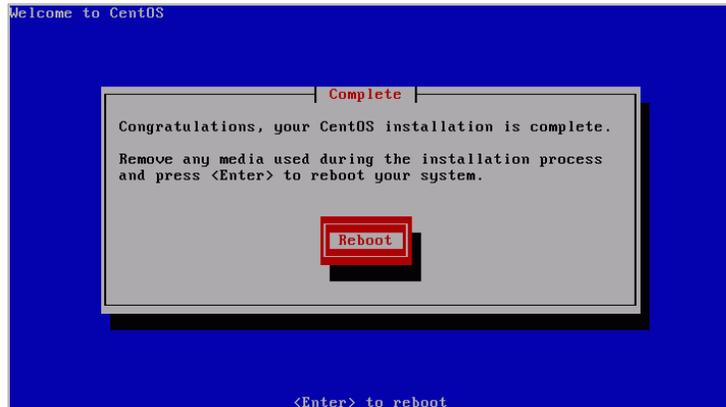
SCREEN 4-11: CENTOS REBOOT NOTICE

PRESSUREMAP VERSION 28 AND PRESSUREWEB 3.02 INSTALLATION

The steps that follow pertain to installing the latest versions of PressureMAP and PressureWEB. Both of these applications are included on the Linux CentOS 5.5 Installation CD. Unlike the lengthy and sometimes confusing installation process required for past PressureMAP systems on UNIX OS platforms, this installation is fully automated. You will not need to reboot the system or respond to any prompts until the PressureWEB install is underway (see menu below).

Procedure (continued):

5. At the Reboot prompt (SCREEN 4-11), remove the Linux CentOS Installation CD from the CD/DVD drive and press *<Enter>*. This completes the operating system installation and begins the automatic PressureMAP install.

   After a few minutes several lines of PressureMAP installation data will scroll by on the screen. Typical output is shown below:

```
Preparing...              ################################################
pmap_server_users         ################################################
        Creating other1 group
        Creating editor group
        Creating map user account
        Creating ssi user account
        Creating cpams user account
        Creating pmap user account
        Creating pdata user account
        Creating progs user account
        Creating adata user account
        Creating um user account
        Creating mapadm user account
        Creating netadmin user account
        Creating clogs user account
        Creating cmap user account
        Creating cdata user account
        Creating itron user account
        Creating melard user account
        Creating cmenu user account

*** Creating Digi realport package ***
```

Eventually the following prompt will display:

*** PressureMAP 28.00 Installation complete ***

Almost immediately, the PressureWEB installation begins. Within seconds the following menu displays:

Please select your company's icon from the list below:

1.	Alaska	2.	Aliant
3.	AT&T	4.	Bartel
5.	Bell Canada	6.	CanTV
7.	Codetel	8.	RairPoint
9.	Frontier	10.	Hawaiian Telcom
11.	PRT	12.	Qwest
13.	SureWest	14.	System Studies
15.	Telia	16.	Verizon
17.	Windstream	18.	Canby Telcom
19.	CenturyLink		

Your Selection:

6) Press the option number opposite your company's name and hit *<Enter>.* A prompt asks you to confirm your icon selection.

You selected [one of the menu #s]. Are you sure (y or n)

Change the selection, if desired, by pressing *n* and *<Enter>.* To accept your selection, press *y* and *<Enter>.* Next, the software prompts you for a default language selection. Currently, two options are available.

**Please select a default language for your PressureWEB
installation:**

```
                    1.   English
                    2.   Espanol

                    x. Exit install
```

7) Enter the number of your desired default language followed by *<Enter>.* Confirm or change your selected at the confirmation prompt.

At this point the installation process continues and more data is displayed on the screen. At the completion of the process, the following prompt displays:

```
*** PressureWEB 3.02.D03 Installation complete ***
```

Now the local host login appears, and you can log onto the system and perform the required setup. If this is an entirely new PressureMAP system, you will need to enter office and device data, set up report and alarm centers, define calling times, etc. These procedures are described in the *PressureMAP Data Entry Manual.* You will also need to set up user accounts, define printers, and configure the network (if applicable). These procedures are described in the *MAP System Administration Manual*.

If you are migrating data from an SCO UNIX PressureMAP Version 27 system and have a Linux Migration Tape or CD available, you can load your existing PressureMAP data by selecting option 6, *Restore from Linux Migration Tape*, from System Admin's Restore Menu. An explanation of this process is located in Section 5 of this manual.

SUPPLEMENTAL UPDATE PROCEDURES

The information below describes the procedures for performing a Supplemental Update on your Version 28 PressureMAP system. Most of the Supplemental Updates that are available pertain to special reports that have been developed over the years in response to customer requests. Once installed using the Supplemental Update process, these reports can be accessed via the MAP Program's *User Initiated Operations* option.

By default, each new PressureMAP system includes a single special report, called the Standards Report. Other reports, such as an Alarm Report, SQI Report, OAU Report and Flat Cable Report, can be added to your PressureMAP system as desired. In addition, report profiles have been created for several of the major telephone operating companies (telcos). These profiles include the reports most applicable to the telco or, in some cases, even to a certain region within the company.

Other items, such as AT&T West Alarm Filtering, BackupEDGE Installation, MAP Engine VIII Patches, and various application configurations, are also provided as Supplemental Updates. These choices are available from the Supplemental Updates Menu *Select Individual Updates* options described below. It is important to note that only those updates which pertain to the operating system you are using with PressureMAP will be included as menu options.

Important!   Please contact System Studies' Technical Support Department at 800-247-8255 prior to performing any of the updates listed on the Supplemental Updates Menu. Not all updates are applicable to any one system.

The options shown in the procedures below represent what appears on CentOS 5.5 Linux systems. For example, there are update options for a Brooktrout driver and 3COM NIC Settings that are not required for Linux operating systems. Consequently, you will not see them if your system is running Linux.

Note: Unlike previous versions of PressureMAP, where special supplemental reports and updates were made available via an incremental CD or one or more diskettes, in PressureMAP Version 28 these reports are included on the CentOS Installation CD, which also contains the PressureMAP and PressureWEB applications. The procedures described below cannot be performed until PressureMAP Version 28 has been installed.

Installation Procedures

Before you begin the procedures described below, you must first inform everyone who uses the PressureMAP system that the program will be shut down. All users MUST log out before you begin step 1. For instructions on shutting down the program, please refer to "Shut Down and Reboot the Computer" in Section 5 of this manual.

Procedure:
1. When you see:

   ```
   PressureMAP 28.XX Login:
   ```

   Type *cpams* and press *<Return>*.

2. When you see:

   ```
   Password:
   ```

   Enter your password and press *<Return>*.

3. When you see:

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

   Choice ?
   ```

   Enter *3* and press *<Return>*.

4. When you see:

   ```
   Password:
   ```

   Enter the System Administration Password and press *<Return>*.

5. When you see:

```
System Administration
---------------------
  1. Set Default Daily Backup Resource    13. Stop Process
  2. Backup MAP System Files              14. Pause Process
  3. Restore MAP System Files             15. User Management
  4. Update MAP System                    16. Set Idle Logout Time
  5. Shutdown the Computer                17. Set the System Name
  6. Shutdown and Reboot the Computer     18. Tape Administration
  7. Set the Date and Time                19. Network Administration
  8. List Users Currently Logged In       20. BackupEDGE
  9. Reset File Permissions               21. Restart Web Services
 10. Modem Administration                 22. Display System Uptime
 11. Printer Administration               23. Renew System Registration
 12. Start Process                         Q. Quit

 Choice?
```

Enter *4* and press *<Return>*.

6. When you see:

```
Type of Update
--------------
 1. System Update
 2. Supplemental Update
 Q. Quit

 Choice?
```

Enter *2* and press *<Return>*. The software displays the following message:

```
Stopping MAP Processes  . . . .

System will reboot when update finishes.
```

7. When you see:

```
Place the MAP Install CD into the CD drive.
Hit C)ontinue or Q)uit?
```

Insert the requested CD into your computer's CD/DVD tray and return the tray to the closed position.

Enter *C* and press *<Return>*.

You will then see:

```
Update Profiles
---------------

 1. Default
 2. AT&T (West and Midwest) Profile
 3. AT&T (Southeast) Profile
 4. Verizon Profile
 5. Select Individual Updates

 Q. Quit
```

Accessing Report Profiles

The easiest way to update your PressureMAP Version 28 system with multiple reports is to select one of the top four options from the Update Profiles menu show above. Once you have selected an option and updated your system, you can access additional individual updates, as desired, by selecting Option 5 and following the procedures described at the end of this section.

The following is a list of the type of reports provided with each update profile option.

Option 1, "Default," listed above includes the following special reports:

- SQI Report
- OAU Report
- Alarm Report
- Flat Cable Report
- Standards Report, Rev C

Option 2, "AT&T (West and Midwest) Profile," includes these reports:

- The five Default Reports (included in Option 1), plus
- SBC Standards Report

Option 3, "AT&T (Southeast) Profile," includes these reports:

- The five Default Reports (included in Option 1), plus
- Bell South Standards Report

Option 4, "Verizon Profile," includes these reports:

- The five Default Reports (included in Option 1), plus
- Standards Report, Rev D

Option 5, "Select Individual Updates," allows you to list and select from among the various reports that are available, plus whatever other update options are available for your operating system.

8. To install the default reports, for example, enter *1* and press *<Return>*. The program displays your selection and asks if you wish to continue or quit.

    ```
    Updates to be installed:
          Default

    Do you wish to C)ontinue or Q)uit?
    ```

9. Press *C <Return>* to continue. PressureMAP then displays information similar to what is shown below as the automated updates are processed. Please note that similar information is provided for options 2 through 4.

    ```
    Please wait for the Custom Reports Update to complete.

      28.00.01: Installing sqirpt
      Added sqirpt to /usr1/map/LNG_ENG_USA/USERENG.MEN
    ```

```
Added sqirpt to /usr1/map/LNG_ESP/USERESP.MEN
Added sqirpt to /usr1/map/LNG_FRE_CAN/USERFRC.MEN
Added sqirpt to /usr1/map/LNG_SVE/USERSVE.MEN
Reports Update 27.00.02 Successful.

Please wait for the Custom Reports Update to complete.

28.00.01: Installing oaurpt
Added oaurpt to /usr1/map/LNG_ENG_USA/USERENG.MEN
Added oaurpt to /usr1/map/LNG_ESP/USERESP.MEN
Added oaurpt to /usr1/map/LNG_FRE_CAN/USERFRC.MEN
Added oaurpt to /usr1/map/LNG_SVE/USERSVE.MEN
Reports Update 27.00.02 Successful.

Please wait for the Custom Reports Update to complete.

28.00.01: Installing alrmrpt
Added alrmrpt to /usr1/map/LNG_ENG_USA/USERENG.MEN
Added alrmrpt to /usr1/map/LNG_ESP/USERESP.MEN
Added alrmrpt to /usr1/map/LNG_FRE_CAN/USERFRC.MEN
Added alrmrpt to /usr1/map/LNG_SVE/USERSVE.MEN
Reports Update alrmrpt 27.00.02 Successful.

Please wait for the Custom Reports Update to complete.

28.00.01: Installing fcosrpt
Added fcosrpt to /usr1/map/LNG_ENG_USA/USERENG.MEN
Added fcosrpt to /usr1/map/LNG_ESP/USERESP.MEN
Added fcosrpt to /usr1/map/LNG_FRE_CAN/USERFRC.MEN
Added fcosrpt to /usr1/map/LNG_SVE/USERSVE.MEN
Reports Update 27.00.02 Successful.

Please wait for the Custom Reports Update to complete.

28.00.01: Installing cstdsrpt
Added cstdsrpt to /usr1/map/LNG_ENG_USA/USERENG.MEN
Added cstdsrpt to /usr1/map/LNG_ESP/USERESP.MEN
Added cstdsrpt to /usr1/map/LNG_FRE_CAN/USERFRC.MEN
Added cstdsrpt to /usr1/map/LNG_SVE/USERSVE.MEN
Reports Update 27.00.02 Successful.
<Enter> to continue ..
```

10. Pressing *<Return>* redisplays the Updates Type Menu:

```
Type of Update
--------------
1. System Update
2. Supplemental Update
Q. Quit

Choice?
```

11. If you wish to return to the System Administration Menu, press *Q* and *<Return>*. However, if you would like to install other Supplemental Updates, press *2* and *<Return>*.

    The software again displays the following message:

```
System will reboot when update finishes.
```

12. When you see:

```
Place the MAP Install CD into the CD drive.
Hit C)ontinue or Q)uit?
```

Enter *C* and press *<Return>*.

Once again, the following menu displays:

```
Update Profiles
---------------

1. Default
2. AT&T (West and Midwest) Profile
3. AT&T (Southeast) Profile
4. Verizon Profile
5. Select Individual Updates

Q. Quit
```

Accessing Individual Updates

Update Profile Option 5 produces a menu which lists all of the Supplemental Updates available for your system.

Procedure:
1. When see the Update Profiles Menu, enter 5 and press *<Return>*. The Individual Updates Menu displays, as shown below.

```
Individual Updates
------------------
 1. AT&T West Alarm Filtering Update
 2. Alarm Report
 3. SQI Report
 4. OAU Report
 5. Flat Cable Report
 6. Standards Report Rev. B
 7. Standards Report Rev. C
 8. Standards Report Rev. D
 9. AT&T West/Midwest Standards Report
10. Report Card Report
11. Quality Report
12. AT&T Southeast Standards Report
13. Backup Edge Installation
14. MAP Engine VIII Patches

Q. Quit

Choice?
```

Notice that all of the supplemental reports included in the individual profiles are included on the menu, plus a few other options which may be required for your system. The example above displays the options that are now available for PressureMAP Version 28 installed on a MAP Engine (or compatible) computer running CentOS 5.5 Linux.

For the most part the update options listed above are performed automatically once a selection has been made. To provide an example of a non-report type of supplemental update, please refer to the example content below. **Please note that before you perform a particular update, it is important to contact System Studies' Technical Support Department to make sure that the update is compatible with your system.**

2. Select the desired option and follow the instructions provided on-screen.

    The following procedures are required, for example, if you intend to install MAP Engine VIII Patches. Select menu option *15* and press *<Return>*. PressureMAP displays the following:

    ```
    Please wait for the MAP Incremental Update to complete.

    Starting incremental update for MAP ENGINE VIII

    Installing MAP ENGINE VIII updates.

    Successfully copied /mnt/supplements/2747/scan_pci_bus to /usr1/map

    Successfully copied /mnt/supplements/2747/install_tape.exp to /usr1/map
    Resetting permissions...

    Resetting file permissions. Please wait...
    Resetting file permissions successful.
    umount: warning: /mnt was not in mount table


    The system will reboot.
    Remove any floppy disks and CDs from drives before continuing:
       C)ontinue ?
    ```

    To complete the update process, remove the MAP Installation CD and type *C* and *<Return>*.

    The PressureMAP system will then reboot. To continue working with PressureMAP, login using your designated login and password and access the desired PressureMAP program.

SOFTWARE VERSION UPDATES

It is possible to separately update working versions of PressureMAP, PressureWEB, System Status Viewer, and even the CentOS Linux operating system from the PressureMAP installation media. The *System Update Menu,* accessed via option 4, Update MAP System, of the System Administration Menu provides the menu access point for performing the updates.

Because much of the procedure for updating a software version—particularly, the first eight or nine steps—is nearly identical for each application, the following explanation of the Linux OS update process can be followed to begin each update.

LINUX OS Update Procedure

Before you update CentOS to the latest version, you must first inform everyone who uses the PressureMAP system that the program will be shut down. All users MUST log out before you begin step 1. For instructions on shutting down the program, please refer to "Shut Down and Reboot the Computer" in Section 5 of this manual.

Procedure:
1. When you see:

    ```
    PressureMAP 28.XX Login:
    ```

    Type *cpams* and press *<Return>*.

2. When you see:

   ```
   Password:
   ```

   Enter your password and press *<Return>*.

3. When you see:

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

   Choice ?
   ```

   Enter *3* and press *<Return>*.

4. When you see:

   ```
   Password:
   ```

   Enter the System Administration Password and press *<Return>*.

5. When you see:

   ```
   System Administration
   ---------------------
     1. Set Default Daily Backup Resource   13. Stop Process
     2. Backup MAP System Files             14. Pause Process
     3. Restore MAP System Files            15. User Management
     4. Update MAP System                   16. Set Idle Logout Time
     5. Shutdown the Computer               17. Set the System Name
     6. Shutdown and Reboot the Computer    18. Tape Administration
     7. Set the Date and Time               19. Network Administration
     8. List Users Currently Logged In      20. BackupEDGE
     9. Reset File Permissions              21. Restart Web Services
    10. Modem Administration                22. Display System Uptime
    11. Printer Administration              23. Renew System Registration
    12. Start Process                        Q. Quit

    Choice?
   ```

   Enter *4* and press *<Return>*.

6. When you see:

   ```
   Type of Update
   --------------
   1. System Update
   2. Supplemental Update
   Q. Quit

   Choice?
   ```

   Enter *1* and press *<Return>*.

7. The program cautions you to first make sure you have a current backup of the system:

    ```
    WARNING: Make sure you have a current system backup before
    proceeding!!!

    Hit C)ontinue or Q)uit?
    ```

8. If your backup is current and you are ready to proceed, press *C <Return>.*

9. When you see:

    ```
    Stopping Map Processes ..

    Place the MAP Install CD into the CD drive.
    Hit C)ontinue or Q)uit?
    ```

    Insert the PressureMAP Installation CD and press *C <Return>*.

10. Next you will see:

    ```
    Please wait for the MAP System Update to complete.


    Products available for installation/update:

      m) PressureMAP
      w) PressureWEB
      s) System Status Viewer (SSV)
      L) Linux (CentOS) Updates
      x) Exit

    Selection:
    ```

11. Type *L* and *<Return>* to begin the Linux (CentOS) update process. At this point a simple message displays:

    ```
    Please wait for installation to complete...
    ```

    followed by the several lines of installation program output similar to the following:

    ```
    ********  Updating CentOS to version 5.5 ********

    The installed operating system (5.2.el5.centos)
    will be updated to version 5.5 if you proceed.

    Are you sure? y
    Setting up Upgrade Process
    Resolving Dependencies
    --> Running transaction check
    ---> Package gnutls.i386 0:1.4.1-3.el5_3.5 set to be updated
    ---> Package stunnel.i386 0:4.15-2.el5.1 set to be updated
    ---> Package procps.i386 0:3.2.7-16.el5 set to be updated
            :              :              :
            :              :              :
    --> Finished Dependency Resolution

    Dependencies Resolved
    ```

```
================================================================================
Package                 Arch         Version            Repository        Size
================================================================================
Installing:
 kernel                 i686         2.6.18-194.el5     ssi-media         17 M
 kernel-devel           i686         2.6.18-194.el5     ssi-media        5.4 M

Updating:
 ORBit2                 i386         2.14.3-5.el5       ssi-media        252 k
 SysVinit               i386         2.86-15.el5        ssi-media        112 k
          :              :                :
          :              :                :

Transaction Summary
================================================================================
Install      20 Package(s)
Update      228 Package(s)
Remove        0 Package(s)

Total download size: 234 M
Downloading Packages:
Running rpm_check_debug
Running Transaction Test
Finished Transaction Test
Transaction Test Succeeded
Running Transaction
  Updating  : libgcc                       #################### [  1/476]
  Updating  : setup                        #################### [  2/476]
       :              :                :
       :              :                :
Complete!

CentOS Update Successful

Reinstalling Digi Drivers

*** Creating Digi realport package ***
    (note: this may take a while)
*** Installing Digi realport package ***

OS Modifications

Checking digi udev rules file /etc/udev/rules.d/10-dgrp.rules

Adding digi tty permissions in /etc/udev/rules.d/10-dgrp.rules

*** Installation complete ***
```

Once the installation has been completed, the program displays a prompt to reboot the system:

```
A system reboot is required to proceed. Reboot now?
```

12. Press **Y** and **<Return>**, and the following text confirmation displays:

```
Rebooting system...

Broadcast message from root (pts/0) (Wed Feb 29 19:54:17 2012):

The system is going down for reboot NOW!
```

This completes the Linux OS update process. After the system reboots and displays the PressureMAP login prompt, type your user ID and password to log onto the program.

Once again, similar procedures pertain to installing PressureMAP, PressureWEB and System Status Viewer updates from the PressureMAP Installation media. In each case, all users will have to be notified to log off of the program to perform the individual application update.