4.0 FEMIS PC Installation

The following sections describe the steps needed to install FEMIS on a PC.

4.1 Installing the PC COTS

The order for installing the COTS on a new FEMIS PC is as follows:

1. Windows NT Workstation v4.0 and Windows NT Service Pack 5

2. Hummingbird NFS Maestro v6.2 and v6.2.0.2 patch or Solstice NFS Client v3.2

3. Oracle Net8 Client v8.1.5 and ODBC Driver v8.1.5.5

4. ArcView GIS v3.1 and v3.1.1 patch

5. Microsoft Project 98 Service Release 1

Installing the following COTS products is optional.

E-mail application	(if applicable)
Word processor	(if applicable)
Spreadsheet	(if applicable)
Graphics presentation	(if applicable).

At the end of this section, PNNL has provided two checklists that can be used for each PC installation.

- FEMIS PC Installation Checklist
- FEMIS PC Validation Checklist.

Note: If you have a previous version of FEMIS installed, verify that your COTS software packages are the same version as those listed in the ***FEMIS Bill of Materials (BOM)***. If they are the same, proceed to Section 4.3, Installing the FEMIS Client Software, to install the FEMIS application.

4.1.1 Installing Windows NT v4.0

4.1.1.1 Before Installing Windows NT

Issues you should consider before beginning the Windows NT installation include hardware requirements, multi-boot capabilities, installation tips, and storage device detection.

Hardware Requirements

There are two sets of information, which you must consider regarding hardware requirements for Windows NT. First, you must check the *Windows NT Hardware Compatibility List* (HCL) published by Microsoft. This document covers every type and model of hardware that has been tested for compatibility with Windows NT. The list is updated regularly and can be accessed at Microsoft's Web site (http://www.microsoft.com/hwtest/hcl/default.htm). Check the HCL to **verify that every major component** of your computer system is compatible with Windows NT. If one or more components are not listed, contact Microsoft or the hardware vendor to see if new drivers or compatibility aids are available. If not, you should think twice before installing Windows NT on your computer.

The second requirement that must be considered is minimum hardware requirements, which can be found in the ***FEMIS Bill of Materials (BOM)***. If your computer **does not meet these minimum requirements**, it is unlikely that Windows NT will work acceptably on this system.

Multi-Boot

Windows NT can coexist with other operating systems, including MS-DOS, Windows for Workgroups, and Windows 95/98. The Windows NT installation program can detect these operating systems and include them on the Windows NT bootup menu. However, MS-DOS and 16-bit Windows are only supported if they were installed first, before Windows NT. Installing them afterward is strongly discouraged by Microsoft and can cause unreliable Windows NT operation.

Windows NT Installation Tips

Installing Windows NT can be a very intimidating experience. There are many points where the operator must make a choice, but very little information is available about how to choose or the potential consequences of a choice. Fortunately, this problem is not insurmountable. If you plan ahead and collect the necessary information before you begin, the installation process is much easier. Be sure to select Custom installation.

After you select Custom installation for Windows NT v4.0, you will be given the following installation options:

- Set Up Only Components You Select
- Set Up Network
- Set Up Local Printer
- Set Up Applications on the Hard Disk
- Gathering information about your computer
- Installing NT networking
- Finishing Setup.

For modular installation, enable the Set Up Only Components You Select and Set Up Network options and disable the others so you will be able to install printer support and set up applications later.

Storage Device Detection

During the Hardware Setup phase, the Windows NT installation program displays a list of mass storage devices found on your computer. This list includes SCSI adapters and CD drive devices but **does not include** IDE components. Do not worry--IDE devices are indeed recognized and will be supported by the installation.

Gathering Configuration Information

Prior to installation obtain the following information from your System Administrator:

- Computer name (for each machine)
- IP address (for each machine)
- Subnet mask
- Default Gateway
- Workgroup
- Domain
- DNS (Domain Name System) service search order
- WINS servers, if applicable
- FEMIS server name
- FEMIS server IP address.

If this information is unavailable from the System Administrator, it can be determined by using the steps below to check a previously installed machine–provided one is available. It is important that you have this information prior to installation. This information allows you to setup your NT Networking.

4.1.1.2 Running the Installation Program

Note: Before you install Windows NT from the FEMIS COTS CD, read Section 4.1.1.1, Before Installing Windows NT.

You will need to know the 10-digit CD Key number to enter during the Windows NT installation. The CD Key number is located on your licensed Windows NT installation disk.

The CD drive is usually your D:\ drive and will be referred to as the D:\ drive in the following instructions.

You will need to create a formatted DOS partition within the first 2GB of the primary disk on the system you are installing. Use tp DOS boot floppy and use the fdisk utility to create the partition. Use the format command to format the drive.

1. Place the FEMIS COTS CD into the CD drive, and enter \I386\WINNT /B at the C:\ prompt.

   Note: Be sure to include /B or you will be prompted to insert three formatted disks.

2. At the D:\ prompt, enter \I386, and the Windows NT Setup window will be displayed. Please wait while Setup copies files to your hard drive.

3. Restart the computer and continue with the Windows NT Setup.

4. Press Enter to continue setting up WINNT per the Welcome window that displays.

5. Press Enter to continue installation. Windows NT Setup displays a list of mass storage devices found on the computer. This list includes SCSI adapters and CD drive devices but does not include IDE components. The <SCSI Adapter> and <CD drive devices> will display. This indicates that Setup has recognized mass storage devices in the computer.

6. Page down and select F8 to agree when the Windows NT Licensing Agreement window displays.

7. Press Enter to continue when the Windows NT Setup displays the computer's hardware and software components.

8. Install Windows NT on the desired partition

9. Setup will install Windows NT on the partition. Leave the current file system intact (no changes).

10. Setup will install WINNT files on the hard disk. Choose the location where you want these files to be installed, a common location is \WINNT.

11. Setup can also examine the hard disks for corruption.

    - To allow Setup to perform an exhaustive secondary examination, press Enter.
    - To skip this step, press the Esc key.

    Though this is not necessary and takes several minutes, we recommend you complete this step.

12. Restart the computer once this portion of the Setup has completed successfully.

    The Windows NT Setup is gathering information about the computer. Advanced users can customize all available setup options. You will be prompted regarding the next three parts of the Setup: 1) Gathering Info, 2) Installing Windows NT Networking, and 3) Finish Setup.

Part One of Setup–Gathering Info

13. Select 1. Gathering Info, and click Next. On the Setup Options window, select Custom, and click Next.

14. Enter the name and organization associated with the computer. Click Next.

15. Enter the 10 digit, CD Key. The Windows NT registration number is located on the back of the Windows NT CD cover.

16. Enter the computer name.

17. Enter the Administrator password for the Windows NT Administrator account. Repeat this step to confirm the password.

18. It is recommended that you create an Emergency Repair disks for each computer on which Windows NT v4.0 is being installed.

    - Select Yes to create an Emergency Repair disk
    - Select No if you do not want to create an Emergency Repair disk.

19. Click Next.

20. Click Next to accept the default list of components on the Select Components window that displays.

Part Two of Setup–Installing Windows NT Networking

21. Select 2. Installing NT Networking. Click Next.

22. Click Next accept the defaults: This computer will participate on a network and Wired to the network.

23. Select Start Search to allow Setup to locate the default network adapter. Once the default network adapter has been located click Next.

24. Select TCP/IP Protocol for the networking protocols that are used on your network. This is the protocol used to connect to the Internet and Wide Area Networks (WANs). Check with your System Administrator to see if any additional protocols should be selected. Click Next.

25. Click Next to accept the default–All Network Services. Install the selected components

    - RPC Configuration
    - NETBIOS Interface
    - Workstation
    - Server

    Click Next.

26. Check with your System Administrator about special settings that may be required for the network adapter card and in addition to host name resolution. If there are none, accept the default values associated. Click Continue.

27. Select use Network Parameters, even if they cannot be verified.

28. Click No to use DHCP on the TCP/IP Setup Window that displays.

29. Enter the IP Address, Subnet Mask, and Default Gateway values specified by your System Administrator.

30. Check with your System Administrator to see if the domain is required for Domain Name System (DNS). Select the DNS tab, and enter the domain, if required. The Hostname will have been entered by default when the computer was named. If necessary, select Add DNS Search Order.

31. Select Add Primary and Secondary WINS Servers, if required, for the Windows Internet Name Services (WINS).

32. Accept the default–Enable LMHOSTS Lookup. Check with your System Administrator to see if this is required.

33. Enable DNS lookups, if required. Check with you System Administrator regarding DNS setup configuration.

34. Check with your System Administrator to see if Routing is required. Click the Routing tab, and enable the IP forwarding. Click Apply and OK.

35. Accept the defaulted network components that will communicate using this protocol. Check with your System Administrator to see which items should be selected. The Show Bindings window will display.

    - Click Next to accept the default–All Services.
    - Click Next again to start the network.

36. Select Workgroup, and enter the value.

Part Three of Setup–Finish Setup

37. Select 3. Finishing Setup. Click Finish.

38. Select the appropriate Time Zone, and check Automatically adjust clock for daylight savings time on the Date and Time Properties window that displays. Click Close.

39. Accept the default if the system found a video adapter for the computer. Click OK.

40. Select Test to preview settings from the Display Properties window that displays. The GIS operates optimally with a Color palette set to 65536 colors.

    The new mode will be tested. Click OK and wait 5 seconds to determine whether it works properly. Click Yes and OK.

41. Restart the computer for Windows NT to setup and save the previous choices. Select Windows NT4.0 as your operating system. Press Enter.

4.1.1.3 Installing Windows NT Service Pack 5

Service Pack 5 was the current Service Pack issued by Microsoft and was used during the development and testing of FEMIS 1.4.7. It is recommended this service pack be installed to ensure compatibility.

To install Windows NT Service Pack 5, insert the FEMIS COTS CD into the CD drive, and complete the following steps:

1. Login into Windows NT as a user with Administrator privileges.

2. Close any open applications.

3. Click Start → Programs → Windows NT Explorer → D:\NT4SP5\UPDATE. Double-click UPDATE.EXE to run the Update program.

4. Check Accept the Software License Agreement checkbox.

5. Check the other checkbox to backup your current files to uninstall the Service Pack at a later time. This requires more disk space.

6. Click Install to install the Service Pack.

7. Click Restart to restart the computer.

4.1.2 Installing an NFS System

For FEMIS v1.4.7, you may install either NFS Maestro v6.2 and v6.2.0.2 patch or Solstice NFS Client v3.2 for your NFS System. If you will be using Samba to map server drives on the PC, then no NFS software needs to be installed on the PC.

CAUTION

Do not install an NFS system until after you have completely installed Windows NT, including the network setup.

Note: If NFS Maestro v6.0.1 or earlier was previously installed on the PC, it **must be removed** before you install NFS Maestro v6.2 and v6.2.0.2 patch or Solstice NFS Client v3.2.

Versions of Maestro 6.1 or later can be upgraded.

If you have Maestro v6.2 installed, you only need to install the NFS Maestro v6.2.0.2 patch.

4.1.2.1 Identifying the Maestro Version

To know if you will need to upgrade to NFS Maestro v6.2 or only install the v6.2.0.2 patch, complete the following steps.

1. Go to %WINDIR%\SYSTEM32\DRIVERS.

2. Right click on HCLNFS.SYS.

3. Select Properties.

4. Check the version of the file in the Version tab.

Another way to verify if you currently have NFS Maestro v6.2, or later, is to a see if the HCRPCLIB.DLL file in located in %WINDIR%\SYSTEM32 directory. It is a new file with NFS Maestro v6.2.

4.1.2.2 Uninstalling NFS Maestro v6.0.1 (or earlier)

Complete the following steps to remove NFS Maestro v6.0.1 (or earlier). If NFS Maestro has not been installed on the PC, skip this section.

1. Login to Windows NT as a user with Administrator privileges.

1. Click Start → Programs → NFS Maestro → Uninstall.

2. Click Yes on the NFS Maestro Client – Uninstall window. The default radio button is set to Remove completely from Systems for all Users.

3. Click Yes when prompted to remove the registry entries, program groups, and installation directory.

4. Click Yes "I Agree" on the License Agreement window.

5. Click Yes to restart the computer.

4.1.2.3 Installing NFS Maestro v6.2

To install or upgrade to NFS Maestro v6.2, insert the FEMIS COTS CD into the CD drive, and complete the following steps.

1. Login into Windows NT as Administrator.

2. Click Start → Run → Browse → D:\MSTRO62\SETUP.EXE. Click Open and OK to run the SETUP.EXE program.

3. Select the language you want to use. English is the default. Click OK.

4. Click Next on the Welcome Window.

5. Click Yes on the License Agreement window.

6. Select Custom for installation type. Click Next.

7. Click Yes to Allow All Users of this Machine to See this Installation. Click Next.

8. Specify the Maestro Home directory. Click Next to accept the default C:\PROGRAM FILES\MAESTRO.NT.

9. Specify the Maestro User directory. Click Next to accept the default C:\PROGRAM FILES\MAESTRO.NT\USER.

10. Deselect the Jconfig daemon (Java component) from the list of items to install by clicking on it. Click Next and Finish.

    Note: The Jconfig daemon requires Microsoft Java Virtual Machine, which is generally not installed on FEMIS PCs. FEMIS does not require this software or daemon to be installed.

11. Click the Skip on the Site Information window.

12. Click Finished on the Site Information window.

13. Click Next or Skip when prompted to create a shortcut on your desktop–this is optional.

14. Click OK in the Scan for NFS Servers window.

15. Verify the following are in the NFS Maestro Client for Windows NT – Configuration window:

General Tab

1. Enter the name of your FEMIS server in the Default Authentication Server field.

2. Check TCP and DOS-style sharing under Default Links.

3. Under Default Protection for User and Group check R W X (Read, Write, and Execute).

   Note: If this PC is running the EMIS client, be sure the Filename Capitalization is set to Lowercase.

Read/Write Settings Tab

1. Increase the Default Read and Write sizes to the maximum – 65536.

2. Click Close.

   If you get a message about important user files that differ from previous files , click OK, and ignore the message.

3. Click No when prompted to have setup close all applications and restart the computer.

You are now ready to install the NFS Maestro v6.2.0.2 patch.

4.1.2.4 Installing NFS Maestro v6.2.0.2 Patch

Complete the following steps to install the Maestro v6.2.0.2 Patch.

1. Login to Windows NT as a user with Administrator privileges.

2. Click Start → Run → Browse → D:\NFSPATCH\NFS6202_NTI.EXE. Click Open and OK to run this program.

3. Click Continue in Patch Installer window.

4. Click Next in Welcome window.

5. Click Yes in Software License Agreement window.

6. Click Next in Start Copying Files window.

7. Leave Yes selected to have Setup shutdown and restart computer or select No and manually restart the computer after the installation.

8. Click Finish.

4.1.2.5 Running the Parmset Configuration Program

The Parmset Configuration program will run automatically when you log onto the PC after the installation of NFS Maestro 6.2. This program can be rerun anytime by using Start → Programs → NFS Maestro → Parmset. The system has to have been rebooted since the Maestro installation for the Parmset Configuration program to work correctly.

1. Select Continue and run the Parmset Configuration program after setting the following parameters:

   Remote Host: <servername>
   FileSystem: <serverpath>
   UserName: <femis>
   Password: <password>

   Select TCP.

2. Click OK.

This program takes from 10 to 15 minutes to run. Accept the best transfer rate. The PC will need to be rebooted for the changes to work correctly.

4.1.2.6 Installing Solstice NFS Client v3.2

For an upgrade or new installation of Solstice NFS Client v3.2 on a PC, insert the FEMIS COTS CD into the CD drive, and complete the following steps:

1. Login into Windows NT as Administrator.

2. Click Start → Run → Browse → D:\SOLSTICE\SUNWFILE.EXE. Click Open and OK to run this program on the COTS CD.

3. Enter your Solstice NFS Client v3.2 serial number on the User Information window.

   Note: If you are upgrading, your old serial number will display but might not work. If you select Evaluation, your product will expire in 30 days, and FEMIS will not work correctly.

   Click Next.

4. Click Yes to continue on the Registration Confirmation window.

5. Accept the default installation directory on the Choose Destination Location window, and click Next.

   If you are upgrading from Solstice NFS Client v3.1+, click OK for the setup to upgrade your current installation.

6. Select Typical installation on the Setup Type window that displays, and click Next.

7. Click Next to configure the software on the Setup Configuration Wizard window.

8. Click Next to accept the Windows Default Name Service.

9. Click Next to start copying files. If prompted, click Yes to overwrite read only files.

10. Select No, I will restart my computer later. Click Finish.

To properly configure Solstice, complete the steps in the following section, Configuring Solstice NFS Client v3.2.

4.1.2.7 Configuring Solstice NFS Client v3.2

To configure Solstice NFS Client v3.2, complete the following steps:

1. Click Start → Settings → Control Panel → Network → Services tab.

   If this is a new installation, you will need to click Add, select the Solstice NFS Client, and click OK.

2. Select the Solstice NFS Client on the Services tab, and click Properties.

3. Select the Security tab on the Solstice NFS Client Configuration window.

4. Select Read, Write, and Execute for the User and Group on the Default File Creation Permissions section. For Other, only select Read and Execute.

5. Select the Use a Specific Authentication Server, and enter your EOC's server. Click OK and Close the Network window.

   Note: The server needs to be running the Solstice pcnfsd daemon. See Section 2.1.4.4, Installing Sun PC NFS Daemon.

6. Click Yes to restart the computer now.

   Note: When the computer restarts and is logged into the network, the Solstice NFS Client will try to validate the user name and password on the authentication server that was entered in Step 6. If the user does not have an account on this server or passwords on the PC and server are not the same, you will be prompted for a user name and password for Solstice NFS Client as well as your NT workstation login.

4.1.3 Installing Oracle Net8 Client v8.1.5 and ODBC Driver v8.1.5.5

If a previous version of Oracle SQL*Net and the ODBC driver have been installed, they should be removed. If applications other than FEMIS are using your previous version of Oracle, check with the vendor for information on compatibility.

Oracle can be setup on a PC using multiple versions of Oracle using separate directories and Oracle homes, which is not discussed in this procedure.
Since this procedure calls for the removal of the ODBC driver, any DSN (data source name) using the Oracle 7 driver, other than ones created by the FEMIS install, need to be deleted using the ODBC Data Source Administrator located in the Control Panel. You should document the parameters for these DSNs so they can be recreated using the new Oracle ODBC driver. The FEMIS install will automatically change the DSNs for the site you are installing.

4.1.3.1 Uninstalling Oracle SQL*Net Client v2.3.4 and Oracle7 ODBC Driver

If either FEMIS or Oracle has previously been installed on the PC, you will need to perform this section. If a previous version of Oracle has not been installed on the PC, skip this section.

1. Login to Windows NT as a user with Administrator privileges.

2. Click Start → Programs → Oracle for Windows NT → Oracle Installer.

   The Oracle Installer shows your Oracle Home directory where Products Installed at.

3. Save copies of your TNSNAMES.ORA and SQLNET.ORA located in the <Oracle Home>\NETWORK\ADMIN directory. If you have other files you wish to keep in the Oracle Home directory, save them also.

4. Select **all Oracle Products installed** that are listed in the right column of the Oracle Installer. You can hold the Shift key down and select the first and last product to select them all.

5. Click the Remove button in the center of the window.

6. Click Yes to confirm removal of products.

7. Click OK in Informational window that the Oracle Installer will not be removed.

8. Click Exit to close the Oracle Installer.

9. Delete the Oracle Home directory.

10. Delete the Oracle for Windows NT program directory. Using Windows NT Explorer, browse to C:\WINNT\PROFILES\ALL USERS\START MENU\PROGRAMS. Locate the Oracle for Windows NT directory and delete it.

11. Click Start → Run. Enter regedit in the Open field, and click OK.

12. Right mouse click on the ORACLE key and select Delete under My Computer\HKEY_LOCAL_MACHINE\SOFTWARE.

    Note: Be careful when editing the Windows NT registry. Modifying the wrong items can result in a dysfunctional system.

4.1.3.2 Installing Oracle Net8 Client v8.1.5

To install Oracle Net8 Client v8.1.5, insert the FEMIS 147 COTS CD into the CD drive, and complete the following steps.

1. Login to Windows NT as a user with Administrator privileges.

2. Click Start → Run → Browse → D:\ORACLE815\SETUP.EXE. Click Open and OK to run this program.

   The Oracle Universal Installer will start.

   Click Next in the Welcome window.

3. Accept the defaults in the Destination Path in the File Locations window.

   - Destination Name: ORAHOME81
   - Destination Path: C:\ORACLE\ORA81

   Note: The Destination Name and Path can vary due to previous Oracle installations.

   Click Next.

4. Click Next to install Oracle8i Client v8.1.5 in the Available Products window.

5. Choose Custom in the Installation Types window. Click Next.

6. Check the following boxes in the Available Products window:

   - Net8 Products 8.1.5.0.0
     - Net8 Client 8.1.5.0.0

   - Oracle Installation Products
     - Oracle Universal Installer 1.6.0.9.0

Uncheck the following boxes:

- Oracle Utilities
- Oracle Configuration Assistant
- Development Tools
- Oracle Java Products

Note: These are the minimum required products for FEMIS. If you need additional items, they can be also installed, but they may require additional configuration during setup that is not covered in this document.

Click Next.

7. Click Next in Component Locations window.

8. Ensure only TCP/IP is selected in the Oracle Protocol Support window by holding down the Ctrl key and clicking on items to select or deselect them. Click Next.

9. Click Install in the Summary window.

   After Oracle products are installed, the Configuration Tools window will appear, and the Net8 Configuration Assistant will run.

10. Click Cancel in Net8 Configuration Assistant Welcome window.

11. Click OK in Error window that appears.

12. Click Next in the Configuration Tools window.

13. Click Exit in the End of Installation window, and Yes on the message box that appears.

14. Restore your TNSNAMES.ORA and SQLNET.ORA to ORACLE_HOME\NETWORK\ADMIN directory if you are upgrading from a previous Oracle installation.

4.1.3.3 Installing Oracle ODBC Driver v8.1.5.5

Oracle Net8 Client v8.1.5 must be installed before you complete the following steps to install the ODBC Driver 8.1.5.5.

1. Click Start→ Programs → Oracle Installation Products → Universal Installer.

2. Click Next in the Welcome window.

3. Click Browse → <COTS drive letter>:\ODBC8155\PRODUCTS.JAR in the Source… Path: field. Click Open. Click Next.

4. Click Yes in the Dependencies window that appears.

5. Click Install in the Summary window.

6. Click Exit in the End of Installation window, and Yes on the message box that appears.

4.1.4 Installing ArcView GIS v3.1 and v3.1.1 Patch

Note: If you reinstall ArcView GIS after having already installed FEMIS, the correct version of the file DEFAULT.APR will be overwritten by the ArcView GIS installation. Copy the DEFAULT.APR file from your C:\FEMIS directory to the <DRIVE>\ESRI\AV_GIS30\ARCVIEW\ETC directory on the PC. If you cannot find C:\FEMIS\DEFAULT.APR, then the file may be copied from /home/femis/pc/femmisc/ on your server.

ArcView GIS v3.1 must be installed on the computer before you install the v3..1.1 patch, and the patch must be installed for FEMIS to work properly.

If an older version of ArcView GIS is currently on the PC, remove it before installing ArcView GIS v3.1.

Note: If more than one version of ArcView GIS is installed on the PC, FEMIS will find the most recently installed version. If you have multiple versions of ArcView GIS installed, check the %WINDIR%\FEMIS.INI file after the FEMIS installation is complete to make sure that the file references the correct installation.

4.1.4.1 Installing ArcView GIS v3.1

You will need to have the ArcView GIS license number for this installation. The CD key number is located on the ArcView GIS installation disk.

To Install ArcView GIS v3.1, insert the FEMIS COTS CD into the CD drive, and complete the following steps:

1. Login to Windows NT as Administrator.

2. Click Start → Run → Browse → D:\AV3.1\SETUP.EXE. Click Open and OK to run this program.

3. Click Next in the Welcome window.

4. Click Yes in the License Agreement window.

5. Choose Local install for installation type. Click Next.

6. Select Custom and other options you may want to install. Click Next.

   Note: If you are upgrading, click Yes to replace current installation.

   If you are attempting to upgrade and you are not prompted to replace the current installation, click Back and verify the install destination has ArcView installed.

7. Deselect the Map data and Launch Seagate Crystal Reports 6.0 setup. Click Next.

   Note: Map data and Seagate Crystal Reports are not used by FEMIS but can be installed if desired.

8. Click Next to accept the defaults for Program Folders and Existing Folders. The Start Copying Files window displays.

9. Click Finish to start copying the files.

10. Click OK in the information window.

10. Click Yes and Finish on the Setup Complete window to restart the computer.

11. Re-logon to the computer using the same user account that was used to install ArcView.

12. Click Start → Programs → ESRI → ArcView GIS version 3.1 → ArcView GIS version 3.1.

13. Enter the name and organization and the ArcView GIS license number. Click OK, and ArcView GIS will start.

14. Deselect the Show this window when ArcView GIS Starts box on the Welcome to ArcView GIS window. Click Cancel.

15. Click File → Exit to close The ArcView GIS v3.1 application.

4.1.4.2 Installing ArcView GIS v3.1.1 Patch

Note: ArcView GIS v3.1 must be installed before installing ArcView GIS v3. 1.1 patch.

To Install ArcView GIS v3.1.1 patch, insert the FEMIS COTS CD into the CD drive, and complete the following steps:

1. Login to Windows NT as Administrator.

2. Click Start → Run → Browse → D:\AV3.1 PATCH\AV31PATCH.EXE. Double-click on the to run this program.

3. Click Yes to continue the installation of ArcView GIS v3.1.1 patch.

4. Click Next to accept the default Local Install.

5. Click Next to accept the default destination location.

6. Click Next in the Review Current Settings window that displays inside the Start Copying Files window.

7. Click Finish and reboot the PC before using ArcView GIS v3.1.

4.1.4.3 Creating the ArcView GIS Icon for All Users

The ArcView installation only installs the ESRI Program folder that contains the ArcView GIS 3.1 icons for the user that installed the software. If you would like more than this user to run ArcView from Program folders, you will need to copy the ESRI Program folder to the other users profile. FEMIS does not require ArcView GIS v3.1.1 be in Program folders. You can copy the Program folder from the installer's user profile to the All Users profile using the following procedure.

1. Login to Windows NT as a user with Administrator privileges.

2. Click Start → Programs → Windows NT Explorer.

   Note: You **must use** Windows NT Explorer to complete the following steps.

3. Browse to the %WINDIR%\PROFILES\<Installation user>\Start Menu\Programs.

4. Right click on the ESRI folder and select Cut.

5. Browse to the %WINDIR%\PROFILES\All Users\Start Menu.

6. Right click on the Programs folder and select Paste.

4.1.5 Installing Microsoft Project 98 Service Release 1

If a previous version of Microsoft Project has been installed, completely uninstall the previous version before completing this installation.

Note: If the Microsoft Project 98 Service Release 1 installation was unsuccessful, it is because the data access drivers on the PC have been corrupted. On the FEMIS COTS CD, use the mdac_typ.exe file to replace the current data access drivers, and you should be able to successfully install Microsoft Project. For more assistance call the IEM Help desk or PNNL.

You will need to have the Microsoft Project license number during the installation. The CD key number is located on your licensed Microsoft Project installation disk.

To install Microsoft Project 98 Service Release 1, insert the FEMIS COTS CD into the CD drive, and complete the following steps:

1. Login into Windows NT as Administrator.
2. Click Start → Run → Browse → D :\msp98sr1\SETUP.EXE. Click Open and OK to run this program.
3. Select Continue on the Close Any Open Applications window.
4. Enter the name and organization information, if requested. Click OK.
5. Click OK to confirm the name and organization.
6. Enter the Microsoft Project CD key number.
7. Click OK to acknowledge the Product ID.
8. Accept the default destination folders.
9. Click Custom Install.
10. Click Data Access and Change Option. Select the Database Drivers Utility option, and click OK.
11. Click Continue to begin copying files.
12. Click OK when the installation is complete.

4.1.6 Installing Other COTS

The following COTS products should be installed using the installation documentation for each product.

E-mail application (if desired)
Use the standard product installation notes provided with the software.

Word processor (if desired)
Use the standard product installation notes provided with the software.

Spreadsheet (if desired)
Use the standard product installation notes provided with the software.

Graphics Presentation (if desired)
Use the standard product installation notes provided with the software.

4.2 Configuring the FEMIS Setup Program

CAUTION

Configuration is only done once at each EOC. Stop PC installation until all configuration has been performed.

Several other files must be configured for your site or EOC. Most of these files should have been configured during the FEMIS UNIX installation but should be validated before installing the FEMIS application on the PCs.

Note: Directories specified below are from the PC. You will need to use the UNIX version of these directories if you are editing files from the UNIX server.

4.2.1 Connecting the Network Install Drive

To connect the FEMIS network drive to the install directory, complete the following steps. The parts in *italics* are what should be changed.

1. Obtain the shared name of the FEMIS account home directory from your from your System Administrator. Example: Samba/Solstice – \\<server>\femis. Maestro – \\<server>\/disk#/femis.

2. Open the Windows NT Explorer.

3. Select Tools → Map Network Drive menu option, and fill in the fields in the Connect Network Drive window as follows.

   Drive: *I:*
   Path: \\<*server* >*femis*
   Connect as: *femis*
   Enter <network password> when prompted.

The FEMIS network drive will be displayed in the All Folders pane on the left side of the Windows NT Explorer window. Any available drive letter can be used in place of I:\ for the installation drive. However, this documentation will assume that FEMIS is being installed from the I:\ drive.

4.2.2 Validating the I:\CONFIGD\FSETUP.INI File

The FEMIS Setup program uses a configuration file to determine the defaults for the installation. Validate that the I:\CONFIGD\FSETUP.INI file was correctly configured during the server installation.

The first section of the INI file, the [Setup Defaults] section contains entries that set defaults for the Setup program. Starred items (*) are those that should have been configured by the UNIX installation scripts.

Site*	Default site code. This should be the FEMIS four letter code for your site.
EOC*	Default EOC code. This should be the FEMIS four letter code for your site.
DestDir	Default installation destination directory for new installations. Re-installations and upgrades will default to the current FEMIS path.
Version	Gives the version of FEMIS for which this instance of FSETUP.INI was created.
DateThisFSETUPCreated	Gives the build date for this version of FEMIS.
mDriveNetPath*	Path to the FEMIS M:\ drive that the FEMIS startup script will connect. This does not need to be set if you use an alternate method to map the M:\ drive. Enter this specification only if you desire to have fstartup.exe attach the M:\ resources on the majority of PC installations.
LocalStartupScript	Full path for a local startup script to be run by the FEMIS startup script. This is optional.
EMIS_StartupScript	Full path to the EMIS startup script file. The FEMIS startup script file will run this file.

The second section of the INI file, the [Sites] section, is used to fill the Site drop-down list in the Select Site and EOC window in the PC Setup program. You can edit this list to limit the possible selections available in Setup. Each site entry must be formatted as SiteNN=<SITECODE> where NN is a two digit integer and <SITECODE> all uppercase. If you shorten the list of sites to a single entry, the user will be forced to accept that entry when running Setup. If you edit the list, the numbering for the sites must be sequential, starting at 01.

Subsequent sections are lists of EOCs for each site in the [Sites] section. Each site listed in the [Sites] section must have a corresponding [<SITECODE> EOCs] section. These sections are used to fill the EOC drop-down list in the Select Site and EOC window in the PC Setup program when the corresponding site is selected on the same window. The EOC list sections can be edited in the same manner as the Site list. Each EOC entry must be formatted as EocNN=<EOCCODE> where NN is a two digit integer and

<EOCCODE> must be all uppercase. If you shorten the list of EOCs to a single entry, the user will be forced to accept that entry when running Setup. If you edit the list, the numbering for the sites must be sequential, starting at 01. EOC list sections that do not have a corresponding site listed in the [Sites] section will be ignored.

4.2.3 Verifying the GIS.INI Files on the Server—Maryland Only

The Maryland GIS has one set of INI files (small, medium, and large) for each EOC. Each of the other sites has one set that is used by all EOCs. Consequently, an extra step is necessary in Maryland to ensure that the correct set of INI files are in place before installing FEMIS on the PCs.

The /home/femis/gis/sbcc_apr directory on the server is where Setup will look for the INI files. This directory has a subdirectory for each EOC that contains the three INI files. Before running Setup on the PCs, log onto the server as the user femis and copy the files from the subdirectory for your EOC. For example, at the MEMA EOC, you would log onto the server and enter the commands

```
%cd /home/femis/gis/sbcc_apr
%cp ./mema/* ./
```

4.2.4 Validating the I:\CONFIGD\TNSNAMES.ORA File

The TNSNAMES.ORA file should be configured with the correct database names, listeners, and IP addresses. This file should be a copy of $TNS_ADMIN/TNSNAMES.ORA on the UNIX server. For each listener on each server, it should contain a section like the following. The parts in *Italics* are what should be changed. (See Section 2.3.3.2, Installing the Oracle Software, Step 10 to edit the var/opt/tnsnames.ora file):

```
fi_ctoo =
  (DESCRIPTION =
    (ADDRESS_LIST =
        (ADDRESS =
          (COMMUNITY = TCP)
          (PROTOCOL = TCP)
          (HOST = ctoosun.utah.gov)
          (PORT = 1521)
        )
    )
    (CONNECT_DATA =
      (SID = fi_ctoo)
    )
  )
...
```

Note: The setup program will not copy the TNSNAMES.ORA file to a PC if that PC already has a TNSNAMES.ORA file. See Section 15.2, FUPDATE.BAT in the ***FEMIS System Administration Guide*** for more details on how to configure FUPDATE.BAT, if you need to update the TNSNAMES.ORA file on all of the PCs that will be running FEMIS.

4.2.5 Validating the I:\CONFIGD\ADDODBC.BAT File

FEMIS uses the I:\USER\ADDODBC.BAT batch file to add all the necessary ODBC data source names to each PC. Verify that the mapping from EOC code to listener ID is correct for each line.

If any changes are made to this file after FEMIS has been installed on PCs, the I:\USER\FUPDATE.BAT file needs to be updated to propagate the updates to all PCs.

4.2.6 Validating the I:\CONFIGD\AUTOEXNT.BAT File

During the installation process, the I:\CONFIGD\AUTOEXNT.BAT file is copied to the %WINDIR%\SYSTEM32 directory, usually C:\WINNT\SYSTEM32. This file should contain the following commands. The <TEMPLATE_HOSTNAME> should have been changed to the name of the FEMIS UNIX server.

```
net stop NetWorkTimeProtocol
%WINDIR%\SYSTEM32\PING -w 60000 TEMPLATE_HOSTNAME
%WINDIR%\SYSTEM32\NTPDATE -b TEMPLATE_HOSTNAME
net start NetWorkTimeProtocol
```

The AUTOEXNT.BAT file is invoked at boot up. Its purpose is to synchronize time on the PC while bypassing the usual NTP time adjustment algorithms. NTPDATE immediately sets the time on the PC to be the same as on the UNIX server. After boot up, the usual NTP algorithms apply.

Note: Be sure that the last line shown above is present. This line may be deleted by the UNIX setup script that configures the file with the UNIX server name.

4.2.7 Validating the I:\CONFIGD\NTP.CONF File

During the installation process, the NTP.CONF file is copied to the %WINDIR% directory, usually C:\WINNT.

The NTP configuration file on the PC should contain at a minimum one drift file and one-or-more server directives. The format of the drift file directive is driftfile %WINDIR%\NTP.DRIFT, where %WINDIR% usually is C:\WINNT.

The format of the server directive is server <hostname>, where hostname is the name of the UNIX server from which the PC is to acquire time synchronization. Generally, this is the UNIX computer located on the same Local Area Network (LAN) as the PC. PCs should acquire time synchronization first from the closest UNIX computer and not from some distant host on the WAN or the Internet. Distant hosts can be used as a secondary time synchronization source. To designate the primary NTP host, include the keyword, prefer, in the server directive.

As an example, the following NTP.CONF file is the preferred format for NTP configuration. It lists the local UNIX server as the preferred time server and the other (far away) servers as secondary. In this manner, if the preferred host is inaccessible, one of the secondary servers can provide time synchronization:

```
server    <IP address of UNIX server> prefer
server    <IP addresses of other servers on WAN>
server    <IP address of server on the Internet>
driftfile C:\WINNT\NTP.DRIFT
```

The Network Time Protocol service is very sensitive to the format of this file. Occasionally, in transferring this file from between UNIX and Windows computers, extra carriage return characters will be appended to the end of each line in this file. These extra characters are not detectable in a PC editor, but show up as "^M" characters at the end of each line in a UNIX editor, such as VI. These extra characters at the end of a line with a server directive will prevent the Network Time Protocol service from loading correctly. If the Network Time Protocol service does not appear to be working, this should be checked.

For more details on NTP set up and configuration methods, see Section 11.0, Server Network Time Protocol (NTP) Set Up, in the ***FEMIS System Administration Guide***.

4.2.8 Validating the I:\USER Directory

Verify the following files are located in I:\USER directory. FEMIS uses these files to create the ODBC Data Source Names (DSNs) that are used to connect to the Oracle relational database. These files are also used to update files on each PC as needed (see Section 15.2, FUPDATE.BAT in the ***FEMIS System Administration Guide*** for more details on how to configure FUPDATE.BAT).

- ADDODBC.BAT
- FUPDATE.BAT
- ODBCSUB.VBS
- PFEMIS.VBS

4.2.9 Configuring the I:\PC\FEMTOOLS\FEMIS.DB File

To configure the servers and routers to match your network configuration, you will need the server names for all EOCs at the site. If you have not previously configured a femis.db file, it will not exist. Your PC needs to be able to resolve the host names of all the servers on the network either through a naming service or HOSTS file.

1. Execute a telnet session to the FEMIS server by clicking Start → Run, and enter telnet <server>. Logon using the femis account.

2. Change the Permissions on the /home/femis/pc/femtools directory and the femis.db file (if it exists) by entering the following:

   chmod 775 /home/femis/pc/femtools
   chmod 777 /home/femis/pc/femtools/femis.db

   Do not close the telnet session window.

   Note: If the FEMIS.DB file's attributes are set to read-only, then WS_WATCH.EXE will not be able to save the new configuration you create, but it will not give any indication of an error.

3. Run I:\PC\FEMTOOLS\WS_WATCH on the PC.

4. Select File → Load, browse to I:\PC\FEMTOOLS, select FEMIS.DB, and click Open. If FEMIS.DB does not exist, click Cancel.

   If the FEMIS.DB you opened does not resemble your network architecture, close WS_WATCH.EXE, delete I:\PC\FEMTOOLS\FEMIS.DB, and restart WS_WATCH.EXE.

5. Select Edit menu item and modify the grid to match your network. To add a system, select Add → Host. An icon will display. Position the icon where you want it.

6. Click once on the new host, and the host information window displays. Enter the following information.

   Display Name: <server name>
   Address/Name: <server name>
   System Type: <server or router>
   Type: TCP/IP

7. Click Accept.

   Note: Repeat Steps 2 through 4 for all FEMIS servers, network routers, and other systems significant to the network at your location. Use the Edit → Add → Line to show appropriate network connections between items.

8. Add lines between hosts to resemble network connections by selecting Add → Line and right click on the beginning and end of the line position.

9. Delete hosts or lines by selecting Delete → Host/Line. Left click on the host to delete. Right click on the line to delete.

10. Select END_EDIT, File → Save As. Save the file as I:\PC\FEMTOOLS\FEMIS.DB. If it is not saved with this name and location, it will not be installed on the PC during setup.

11. Exit WS_WATCHE.EXE.

12. Return to the telnet session to the FEMIS server. Change the Permissions on the /home/femis/pc/femtools directory and the FEMIS.DB file located there by entering the following:

    ```
    chmod 555 /home/femis/pc/femtools
    chmod 444 /home/femis/pc/femtools/femis.db
    exit
    ```

13. Close the telnet window.

4.2.10 Updating Files on All PCs Using FUPDATE.BAT

FUPDATE.BAT is a utility that can be used to update any file(s) on all FEMIS PCs such as the HOSTS file or GIS data files. View the M:\FUPDATE.BAT file itself for specific instructions on how to configure it to update files on all FEMIS PCs.

When updating GIS files, it is necessary to know the path where the GIS was installed and sometimes the size of the GIS that was installed. These can be determined by adding the following line to FUPDATE.BAT.

```
call %FemisTopDir%\GIS\<site_code>_ENV.BAT
```

This will set two environment variable:

GisTopDir – This is the top level directory for the GIS data. For example, it might be C:\FEMIS\GIS\DCD1 if you were in DCD1 and had installed the GIS on your C:\ drive. This environment variable can be useful for sites where people install the GIS on different drives.

GisSize – This environment variable will contain the relative size of the GIS (SMALL, MEDIUM, or LARGE). This environment variable can be useful if you need to update the FEMISGIS.INI files for a site where not everyone installed the same size GIS data.

See Section 15.2, FUPDATE.BAT in the ***FEMIS System Administration Guide*** for more details on how to configure FUPDATE.BAT.

4.2.11 Updating the PC HOSTS File

Depending on the DNS and TCP/IP configurations for the local PCs, it may be necessary or desirable to update the HOSTS file on PCs as part of the FEMIS installation. If the PC does not have a HOSTS file and one has been configured on the installation server in the /home/femis/configd directory, the PC Setup program will copy that file to the PC. However, if a HOSTS file already exists on the PC, the PC Setup program will not overwrite it.

If it is decided to update the HOSTS file on all PCs, the update should be done using the FEMIS FUPDATE tool. The FUPDATE tool is run as part of the PC Setup program, so updates will be installed when FEMIS is installed. FUPDATE is also run each time a user logs into a PC, so updates, that are configured after one or more PCs have been installed, will still be copied to those PCs.

Note: The setup program will not copy the HOSTS file to a PC if that PC already has a HOSTS file. See Section 4.2.10, Updating Files on All PCs Using FUPDATE.BAT, if you need to update the HOSTS file on all of the PCs that will be running FEMIS.

4.3 Installing the FEMIS Client Software

This software is for the PC workstations that are connected to the FEMIS data server and contains the FEMIS client software and a collection of GIS theme files. The installation program for the FEMIS client software assumes the necessary COTS packages have already been installed.

The FEMIS client software is installed over the network from a UNIX server. The client software contains over 120 files representing approximately 50MB of file space.

The FEMIS executable and other FEMIS support files will be loaded to the following locations:

- current %WINDIR% directory, usually C:\WINNT
- %WINDIR%\SYSTEM32 directory
- C:\FEMIS directory
- Microsoft Project directory.

All files needed by the installation process should have previously been copied from the release tape or CD to the server. The files specified in Section 4.2, Configuring the FEMIS Setup Program, should have been configured or validated before the FEMIS client software is installed.

4.3.1 Preparation

To prepare for starting to install FEMIS v1.4.7, complete the following steps:

1. Login to Windows NT as Administrator or to a Windows NT account that has Administrator privileges. Setup will abort if it is run from a Windows NT account that does not have Administrator privileges.

2. Verify that all COTS needed by FEMIS are installed on the PC. At the minimum, the following should be installed (the Setup program will also verify that these are installed). You should also consult the ***FEMIS Bill of Materials (BOM)*** and verify that the correct versions of the software products are installed.

- Microsoft Windows NT
- Oracle Net8
- Oracle ODBC Driver
- ArcView GIS (ESRI)

Note: FEMIS also requires software to allow the PC to map directories on the FEMIS server to logical drives on the PC. If Samba is being used, no additional software is required on the PC. If an NFS software package such as Hummingbird Maestro or Sun Solstice NFS Client is being used, then the client software needs to be installed on the PC.

4.3.2 Running the Setup Program

The FEMIS Oracle database on the UNIX server must be operational before the setup program is run.

1. Close all programs that are running, especially all FEMIS programs, including KeyPrint.

2. Connect your I:\ drive as specified in Section 4.2.1, Connecting the Network Install Drive, if you have not already done this.

3. Run the I:\PC\SETUP\SETUP.EXE program. The setup will bring up several windows that require your response.

Select Site and EOC:	This allows you to select the Site and EOC from drop-down lists. The contents of the lists are controlled by the I:\PC\SETUP\FSETUP.INI file.
Select Components:	This allows you to select which FEMIS components will be installed. The GIS and Additional Icons components have options that are accessed by highlighting the component and clicking the Change button.
Select Program Folder:	This allows you to specify which folder in the Start menu will be used for the FEMIS icons. The default is FEMIS.
Choose Destination Location:	This allows you to specify the drive and directory where FEMIS will be installed. If FEMIS has previously been installed on the PC, the default is the last place where FEMIS was installed. If this is the first time FEMIS has been installed on the PC, the default location is C:\FEMIS.

GIS Data Path: This allows you to select a destination for the GIS files. The default location is C:\FEMIS\GIS\<site code>.

Note: You may see improved performance from the FEMIS GIS if you choose to install the GIS on a separate physical disk than the one on which you are installing FEMIS.

Start Copying Files: This displays an information window showing the options that have been selected. Select Next to begin copying files.

The next part of the Setup program will take several minutes to configure the PC. You may receive prompts or setup may wait for confirmation before performing some items. Watch and click OK or press Enter, as needed. These configuration operations will

- Update the FEMIS.INI for the PC name, FEMIS and GIS directories, and COTS paths.
- Open ArcView to convert the FEMISGIS.INI file to v1.4.7 format (if applicable).
- Open ArcView to regenerate the FEMISGIS.APR file.

Note: When the FEMISGIS.APR is generated, the system checks to see if any private GIS ViewMarks exist in the VIEWMARK.ODB file in the M:\[SITECODE]\[USERCODE]\GIS\VIEWMARKS directory. If a file exists, it is assumed valid and will be used so that no old ViewMarks are lost. If no VIEWMARK.ODB file exists, a new file is generated with only one default ViewMark. This same check process is repeated for the shared ViewMarks.

- Add ODBC information for the FEMIS databases.
- Start the NTP service to synchronize time on the PC with the server.
- Create the C:\WINNT\SYSTEM32\AUTOEXNT.BAT file.
- Set the system to use FEMIS's own GLOBAL.MPT file with Microsoft Project.
- Remove obsolete files from older FEMIS installations.
- Verify the required COTS packages are installed.
- Add FEMIS environment variables, if needed.

4. Select Yes, I want to restart my computer now. on the Setup Complete window. Click Finish.

5. Log back in as Administrator after the computer restarts.

4.3.3 Updating the FEMISGIS.INI File

If the GIS Upgrade option was selected, perform the following steps after the PC has been rebooted. Otherwise, proceed to Section 4.3.4, Regenerating the FEMIS GIS Dynamic Themes.

1. Map the I:\ drive on the PC to the /home/femis directory on the server. Connect to the drive as the user femis.

2. Open the FEMISGIS_UTILITIES.APR in ArcView GIS v3.1.1.

3. Select Check INI Themes from the Utilities menu. A file dialog box displays. Find the <PC FEMIS GIS DIRECTORY>\<SITECODE>\FEMISGIS.INI file and click OK.

   This will create a message box and error log file of missing themes from the FEMISGIS.INI files in the local GIS directory. See Section 3.1.5, Troubleshooting the Migration, if there are any missing themes reported.

4. Click OK.

   A message box will display reporting any duplicate theme names or theme legend names in the FEMISGIS.INI file. If there are duplicate theme and/or legend names, open a text editor and change the theme name and/or legend name to a unique name. Save the file and repeat Step 3 of above.

5. Close the FEMISGIS_UTILITIES.APR.

4.3.4 Regenerating the FEMIS GIS Dynamic Themes

The FEMIS GIS has both static and dynamic themes. The Setup program installs the files for the static themes. The files for the dynamic themes are generated by the FEMIS application from data stored in the FEMIS relational database. These dynamic theme files need to be regenerated after installing (or reinstalling) FEMIS on a PC.

To regenerate the dynamic GIS themes, complete the following steps:

1. Start FEMIS and log in.

2. Click the Map button on the FEMIS Workbench to start the GIS, and wait for the GIS to load.

3. Click Utility on the menu bar, and select Regenerate Map Layers → Regenerate Point Map Layers.

4. Click the Utility on the menu bar, and select Regenerate Map Layers → Regenerate Polygon Map Layers.

4.4 Configuring the PC

4.4.1 Setting Up FEMIS User Accounts on Windows NT and UNIX

For Windows NT to be able to connect to the required FEMIS drives located on the FEMIS server, a UNIX user account on the FEMIS server must be created for each Windows NT user account that will be used to run FEMIS. Each of these UNIX user accounts must have the same username and password as its corresponding Windows NT user account. These are separate from the usernames and passwords that are

used to log into the FEMIS application. The usernames and passwords used to log into the FEMIS application do not need to match the UNIX or Windows NT usernames and passwords.

Note: Both of the Windows NT and UNIX user accounts **must have** the same username and password so that network drives can connect correctly. Windows NT and UNIX usernames and passwords **are case sensitive**. For example: JSmith and jsmith **will not** work.

You can set up individual user accounts (such as jsmith) on one or on all of the PCs and the FEMIS server. Positional accounts (such as sheriff) can be set up on one or all of the PCs and the FEMIS server. One global (such as femisuser) can be set up on all of the PCs and the FEMIS server, or some other combination.

Note: Setting up and maintaining individual or positional accounts on all of the PCs and the FEMIS server can be time consuming, especially if you have many accounts and many PCs. If the password is changed for an account on one PC, it must be changed on all the others so they can all still connect to the network drives correctly.

4.4.1.1 Adding User Accounts to Windows NT

To add a Windows NT user account on a Windows NT PC, log onto the system with an account with Administrator privileges and complete the following steps.

1. Click Start → Program → Administrative Tools → User.

2. Select New User, and fill in the following fields on the User Manager window:

   Username:
   Full Name:
   Description:
   Password:
   Confirm Password:

3. Check with your System Administrator to determine which of the following options should be checked.

   User must change Password at Next Logon
   User cannot change Password
   Password never expires
   Account disabled

After creating the Windows NT account, verify the following two items.

- The username and password entered are the same as those for this user on the UNIX server.
- The Windows NT account is at least in the Users group under the Groups button.

4.4.1.2 Adding User Accounts to UNIX

Refer to Section 2.1.1.3, Creating Users and Groups, for instructions on adding users to the UNIX server.

4.4.2 Running the FEMIS Startup Files

FEMIS requires that several network drives be connected in order for all items to work correctly. Running the FSTARTUP.EXE program connects these drives, and this program should be run automatically when a user logs into Windows NT. Depending on how your network and PCs are set up, use one of the two methods listed below for the program to run automatically.

Note: Most sites should use Method 1 and **only add** the Windows NT user accounts that will actually be running FEMIS and have corresponding accounts on the UNIX server.

If both FEMIS and EMIS are being installed on a single Windows NT account, you will need to edit the FEMIS.INI file. See Section 4.2.2, Validating I:\CONFIGD\FSETUP.INI File, for details. This should be done once on the UNIX server before FEMIS is installed on the PCs.

Method 1: As a User Login Script

1. When the Setup program completes, select User Manager in Administrative Tools in the Program Manager or Start menu.

2. For every Windows NT user account that will run FEMIS, select the user in the list. Then select the menu item Properties under User, and click the Profile button on the form that appears. If you use an NT domain to manage user accounts, this should be done on the domain server. Otherwise, this should be done on each PC that is used for FEMIS.

3. In the Logon Script Name field, enter FSTARTUP.EXE.

Method 2: In Startup Folder

1. Using Windows NT Explorer, open the C:\WINNT\PROFILES\ALL USERS\START MENU\PROGRAMS\STARTUP folder. From the File menu, select New → Shortcut, and a Create Shortcut dialog box displays. At the Command Line, enter %WINDIR%\SYSTEM32\REPL\IMPORT\SCRIPTS\FSTARTUP.EXE, and click Next. Enter a name for the shortcut, such as FEMIS Startup Script.

2. Follow the steps later to verify that the icon is in the common Startup folder instead of a personal Startup folder.

See Section 4.2.2, Validating I:\CONFIGD\FSETUP.INI File if you wish to customize the startup. You can specify additional drives to be mapped by the FEMIS startup script, and specify local startup scripts to be run after the drives have been mapped.

4.4.3 Verifying the Temporary Directory and Environment Variables

The GIS and other programs need a directory to store temporary files. Use the following steps to verify that this process was completed correctly by the Setup program.

1. Click Start → Settings → Control Panel → System.

2. Select Environment.

3. Verify there is a User Variable named TEMP (usually C:\TEMP). If not, enter TEMP in the Variable field and C:\TEMP in the Value field. Click Set.

4. Verify that a FEMISTOPDIR environment variable exists in the System Variables box. If not, select it and change the value in the Variable and Value text boxes, and click Set. The value of this variable should be set to the directory in which FEMIS was installed.

   If you change anything, you must log out of Windows NT and login again for the changes to take effect.

5. Click OK to exit the System Configuration in the Control Panel.

4.4.4 Verifying the Clock Settings and Time Zone Settings

To set the date format preferences so that FEMIS can process the date correctly, complete the following steps.

1. Click Start → Settings → Control Panel → Regional Settings.

2. Select the Date tab in the Regional Settings window.

3. Set your short date style to dd-MMM-yy (Day - Month - Year).

4. Select the Time tab in the Regional Settings window.

5. Verify that you are either using a 24-hour clock (upper case “H” in the Time Style field) or a 12-hour clock (lower case “h” in the Time Style field) set with the AM and PM symbols are set to AM and PM (not case sensitive).

6. Verify the time zone is correct in the Control Panel → Date/Time icon → Time Zone tab.

4.4.5 Verifying the Time Synchronization Services

To verify the time synchronization services, the files and services discussed in the following sections should be verified.

4.4.5.1 Verifying the AUTOEXNT.BAT File

The AUTOEXNT.BAT file is located in the %WINDIR%\SYSTEM32 directory, usually C:\WINNT\SYSTEM32. This file should contain the following commands.

```
net stop NetWorkTimeProtocol
%WINDIR%\SYSTEM32\PING –w 60000 TEMPLATE_HOSTNAME
%WINDIR%\SYSTEM32\NTPDATE -b TEMPLATE_HOSTNAME
net start NetWorkTimeProtocol
```

The AUTOEXNT.BAT file is invoked at boot up. Its purpose is to synchronize time on the PC while bypassing the usual NTP time adjustment algorithms. NTPDATE immediately sets the time on the PC to be the same as on the UNIX server. After boot up, the usual NTP algorithms apply.

Note: The batch file AUTOEXNT.BAT starts the Network Time Protocol service. Network Time Protocol **should not be started** automatically by the control panel. See Sections 4.4.5.2, Verify AutoExNT Service and 4.6.3.4 Verify Network Time Protocol (NTP) Service.

4.4.5.2 Verify the AutoExNT Service

To verify that the AutoExNT service was installed and configured correctly, complete the following steps:

1. Click Start → Settings → Control Panel → Services.

2. Select AutoExNT. The Status should be blank, and the Startup should be Automatic.

3. Click Startup. Verify the radio buttons for Automatic, under Startup Type, and System Account, under Log On As, are selected. Also verify the checkbox to Allow Service to Interact with Desktop is checked.

4. Select Network Time Protocol. The Status should be Started, and the Startup should be Manual.

5. Click Close to return to the Control Panel window.

4.4.6 Verifying the Virtual Memory Setting

For FEMIS to run as efficiently as possible, the computer should be set to have at least 250MB (megabytes) of virtual memory. To check the virtual memory setting and increase it, if necessary, complete the following steps while logged in as Administrator.

1. Click Start → Settings → Control Panel → System.

2. Select the Performance tab.

3. Click Change.

4. Increase the Maximum size to 250MB, if necessary, click Set.

5. Click OK, click Close, and select Yes to reboot, if prompted.

4.4.7 Creating FEMIS Icons

The FEMIS Setup program creates a shortcut on the All Users' desktop to the FEMIS folder on the Start menu. If you wish to add more shortcuts to the FEMIS folder on the Windows Start menu, you can simply add the shortcuts to the FEMIS folder on the desktop.

If you wish to have any of the FEMIS icons on the desktop, copy the shortcuts from the FEMIS menu on the desktop to the C:\WINNT\PROFILES\ALL USERS\DESKTOP folder.

If you with to delete any of the shortcuts, right click on the shortcut to be deleted and select the Delete option. This will only delete the shortcut, not the program to which it points.

Note: If an icon or a shortcut is not created in the All Users profile, the FEMIS icon **will only show up** for the user under whose profile the shortcut was created.

4.4.8 Final Steps for the FEMIS PC Installation and Configuration

Note: If this is an upgrade installation, you may wish to clean up old icons from the Program Manager. These may include old icons for the FEMIS program and old icons for running the startup batch files in the Startup group.

The following are the final steps for the FEMIS installation.

1. Log out of Windows NT.

2. Log into Windows NT as the appropriate user account. Run FEMIS.

3. Verify the installation of the first PC thoroughly by following Section 4.6, Validating the FEMIS PC Installation, before any more PC installations are started. If you must edit any of the configured files (e.g., ADDODBC.BAT, TNSNAMES.ORA), copy the corrected file back to the server and install again to be sure that it will work correctly.

4.5 Configuring FEMIS for All PCs at an EOC

The following validation steps need to be performed one time at each EOC. Since these configuration changes affect values stored in the FEMIS database for the EOC, they will take effect on all of the PCs using the same database.

4.5.1 Verifying the Zone Name Lookup for EMIS PAR

Note: If both of the following two conditions are true, you must complete this section:

1. You are currently installing FEMIS on an onpost PC.
2. EMIS is used onpost at your site.

You can skip this section if you are upgrading from an earlier version of FEMIS, and you performed these steps when that version was installed.

Because EMIS allows users to change zone names at will, there is a possibility that FEMIS and EMIS zone names will not match exactly. It is important, however, for FEMIS to be able to map its zone names to the zone names used in EMIS so that Protective Action Recommendations (PARs) may be shared between the systems. For this reason, a simple utility named FZONES.EXE has been added to the list of system administration software tools available on the PC. This tool allows your FEMIS System Administrator to set up the EMIS zone name aliases so FEMIS will be able to correctly map PAR information sent from EMIS. If EMIS is part of the site configuration, then this utility must be run on the onpost FEMIS at installation and again whenever EMIS changes their zone names.

4.5.2 Using FZONES.EXE Tool

FZONES.EXE is a system tool that runs on the PC. Before you can run this tool, you will need to install at least one PC with system tools.

This tool displays a two-column spreadsheet of zone information. In the first column, there is a read-only list of FEMIS zone names. In the second column, there is a writable copy of the EMIS zone names. When you first start this utility, it will load the values currently in the database for the FEMIS and EMIS zone names. If at any time during the editing process you wish to reload the spreadsheet based on the values in the database, click the Reset Spreadsheet button.

To populate the FEMIS/EMIS zone lookup table, you will need to get a list of all the EMIS zone names for the site. This information may be found on the EMIS server in the following file: /<disk>/emis3run/emisdyn/data/<site code>/emisgis/giszne.dat. The <disk> and <site code> will be site specific. Once you have the EMIS list of zones, the simplest way to populate the lookup table is to run the FZONES utility, and then type the EMIS zone names directly in the spreadsheet next to the corresponding FEMIS zone name. When the spreadsheet is complete, click the Save button.

4.6 Validating the FEMIS PC Installation

To run correctly, FEMIS software relies on many integrated components: the FEMIS database, commercial and government supplied software products, the FEMIS application, and system support services. Therefore, it is important to ensure that the FEMIS system is fully operational. This section will assist your System Administrator to validate that the FEMIS system has been properly installed and is operating correctly.

The FEMIS PC Validation Checklist, provided at the end of this section, includes items that need to be checked to ensure that the FEMIS system is operating properly. The Checklist correlates to the items listed below. These items are tested from the PC to ensure access and integration into the FEMIS application. This checklist provides a method to validate that the server and external communications are properly installed.

If problems are encountered during the validation, refer to Section 16.0, FEMIS Application Error Messages and Troubleshooting, in the ***FEMIS System Administration Guide*** for suggestions and guidance.

4.6.1 One Time at EACH EOC

The following validation steps must be performed one time at each EOC.

4.6.1.1 Verify Default D2PC Case Exists

From the FEMIS Workbench or the Tracking Navigator, click D2PC. On the D2PC Interface window, select Edit mode, and click File → Site Defaults → Revert to Site Defaults.

If a message displays stating there is "no current D2PC case selected" or "no site defaults yet assigned for this site", then you will need to create a site default D2PC case.

S T O P

If there is not a site default D2PC case, select a case that runs and make it the default case.

It is imperative that you consult with the Hazard Analyst to make sure the new default case is modified to meet their needs and saved.

Once the EOC has a default case, repeat this verification step.

4.6.1.2 Verify the Evacuation Command Server

To verify the Evacuation Command server is working properly, you will need to import and run an Evacuation case. Evacuation cases are located on the I:\data\evac directory where I:\ is \\<server name>\/home/femis. See the FEMIS Help for guidance on importing and running a case. Make it your current operational case (on the Evac main window, File → Make Case Current Operational).

4.6.1.3 Verify FEMIS/EMIS Data Exchange Interface (DEI)

Note: The definitive description of this interface can be found in Section 7.0, FEMIS Data Exchange Interface (DEI), in the ***FEMIS System Administration Guide***.

To verify that DEI is operating, click the Status menu in Operations mode and the select Met Condition. If the current meteorological (Met) data appears in the table, then the DEI is probably running.

4.6.1.4 Create a Plan for Validation Testing

To create a planning dataset that is shared so it can be used for PC validation, complete the following steps:

1. Click on Utiltiy → Planning Functions →Planning.

2. Choose Create New Shared Dataset from the Dataset drop-down list.

3. Name the new dataset, and click OK. The Tracking Navigator displays.

4. Click on Plan → Select Plan.

5. Select Basic Template from the Select Plan spreadsheet, and click Select.

6. Click the New Data button.

From the Tracking Navigator, you will need to create a Protective Action Decision (PAD) and a Community Condition as part of this validation test.

Complete the following steps to create a PAD for the validation test.

1. Click on the PAD function box and OK to the message box that displays.

2. Select the Edit radio button.

3. Create a new PAD by entering a name in the PAD Name field, and click OK.

4. Click the New Data button.

Complete the following steps to create a Community Condition for the validation test.

1. Click on the Community Function box and OK to the message box that displays.

2. Select the Edit radio button.

3. Create a new Community Condition by selecting Default from the Name drop-down list, rename it, and click OK to create a new Community Condition.

4. Click the New Data button.

Complete the following steps to create a Validation plan.

1. Click on Plan → Copy Current Plan.

2. Enter a name for the new plan, and click OK.

3. Click on Plan → Select Plan

4. Click No to AutoCalc synchronization message that displays.

5. Select the plan name created in Step 2, and click Select.

5. Click the New Data button.

6. Click on Edit under Tasks, and click OK on the message box. Microsoft Project is displayed.

Complete the following steps to add a task in Microsoft Project.

1. Click on an empty row.

2. Click on the Task Details Form button (far left side of the toolbar).

3. Select items from the Agency and Stage drop-down lists, select the Times & Misc tab. Click Save to save the task changes. Click Close on FEMIS Task Details.

4. Click on Save under Tasks on the Tracking Navigator to save this plan, which will be used to Verify Electronic Planning (item 15 on the FEMIS PC Validation Checklist).

5. Click the New Data button.

6. Click on Exit Project under Tasks and click Yes on message window.

4.6.1.5 Test the GIS on the Printer

Not all printers display graphics the same. For each printer to which you anticipate printing, use both KeyPrint and the Print option on ArcView GIS to print a GIS map that contains a D2PC case, Threat Area, Risk Area and one or more facilities under each. Review the printout to ensure that it prints graphics in such a way that:

- Risk and No Risk can be differentiated.

- One feature does not totally obscure an underlying feature (e.g., You can still see facilities located in the Threat Area, and the Threat Area does not wipe out the D2PC isopleths.).

4.6.1.6 Verify E-mail

Verify E-mail can be sent to users in all other EOCs.

4.6.1.7 Verify the SEPR Icon Addressee

Verify the addressee in the SEPR (Software Enhancement/Problem Report) icon file is the desired addressee for that EOC. Some EOCs want to compile/review the SEPRs before they send them to PNNL. Check the policy of the EOC and modify the SEPR template as needed. If they want it to go directly to PNNL, use ranata.johnson@pnl.gov (Ranata Johnson's E-mail address) or blanche.wood@pnl.gov (Blanche Wood's E-mail address).

4.6.2 Cleanup AFTER Validation

Note: Do not perform the following clean up procedures until completing the validation steps in Section 4.6.3, Perform on EVERY PC.

After completing the above validations steps, the following cleanup validation steps need to be performed one time at an EOC, not on every PC.

4.6.2.1 Delete Validation Datasets

Delete the planning dataset created for validation in Section 4.6.1.4, Create a Plan for Validation Testing, as well as any other planning datasets that were created for the purpose of installation or validation.

4.6.2.2 Ensure Exercise #1 Exists

Ensure Exercise #1, or whatever Exercise is recognized by EMIS has been created. This will allow EMIS to communicate with FEMIS in Exercise mode.

4.6.2.3 Remove Extraneous FEMIS User Accounts

Remove extraneous FEMIS user accounts that were created during installation and validation. Be sure to leave the one user account, authorized by your System Administrator that will be used during the Shakedown Test.

4.6.3 Perform on EVERY PC

The following validation steps should be performed on every PC.

Note: Login to Windows NT with Administrator privileges.

4.6.3.1 Ensure FEMIS Login Security

If the PC has a femis account under Windows NT, make sure that the password is not set to femis.

4.6.3.2 Verify the PC Configuration

Verify each of the following items to make sure the PC's configuration is correct.

- Icons left from previous installations of FEMIS but are no longer linked to a program should be removed from the Start → Programs → Femis folder.
- KeyPrint is in the Startup group for all users.
- Virtual memory maximum size is set to at least 250MB.
- The FEMIS startup file is called either in each user's profile or from the All User Startup folder.
- System Environment variable FEMISTOPDIR is defined and set to the directory where FEMIS is installed.

4.6.3.3 Verify the PC Clock

Verify the PC clock by clicking Start → Settings → Control Panel→ Regional Settings. On the Date tab, verify your date style is dd-MMM-yy (Day - Month - Year). On the Time tab, make sure you are using either are a 24-hour clock (upper case "H" in the Time Style field) or a 12-hour clock (lower case "h" in the Time Style field) with the AM and PM symbol fields set to AM and PM (not case sensitive).

4.6.3.4 Verify the Network Time Protocol (NTP) Service

To verify the Network Time Protocol (NTP) will synchronize with the server for small variations in time when the PC is booted up, complete the following steps:

- Click Start → Programs → Administrative Tools → Event Viewer to the Event View window. Under the Log menu item, select Application. Check for warning or error messages (yellow or red icon) with NTP as the source. Troubleshoot as necessary.
- Verify the Network Time Protocol startup is set to Manual.
- Verify the fifth line of C:\WINNT\SYSTEM32\AUTOEXNT.BAT has been changed to read NTPDATE -b <hostname>, where <hostname> is the name of your UNIX server.
- Change the PC clock to a significantly different time (1 hour or more).

- Restart the PC (Start → Shut Down → Restart the Computer).
- Login and verify that the PC clock has been reset correctly.
- From a DOS prompt, enter the command ntptrace. This should return a list of the servers that are used to synchronize time to the PC. If this does not happen, see Section 4.2.7, Validating the I:\CONFIGD\NTP.CONF File for more information on this file.

Note: **Do not use Administrator privileges** to perform the rest of the validation steps.

4.6.3.5 Verify Login

For Windows NT v4.0, check to make sure a shortcut to FEMIS exists.

- Validate the ability to access the FEMIS application by double clicking on the FEMIS icon.
- Confirm that the correct default Site/EOC is highlighted.
- Enter a valid usercode and password. The Select Mode window should display.
- If there are Oracle problems with FEMIS from a particular Windows NT machine, check its path (Control Panel → System Environmental Variables). If there is an Oracle directory (i.e., S:\EMISDYN\ORANT\BIN) referenced that is not pointing to where FEMIS installed Oracle (either on the C:\ or D:\ drive), then this portion of the path must be removed. Check with the other software vendors, as appropriate, to be sure this will not cause problems to their software.
- Verify the ability to enter Operations mode.

4.6.3.6 Verify Data Manager

Select Start → Programs → FEMIS → Data Manager to validate the access to the FEMIS Data Administration functionality. If the icon is not available, select Start → Run and enter or browse to C:\FEMIS\FDATAMGR.EXE.

4.6.3.7 Verify the System Administration Utility

Select Utility → System Utilities → System Admin from the main FEMIS menu bar to validate the access to the system administration functionality.

4.6.3.8 Verify D2PC

Complete the following steps to verify D2PC.

- Click D2PC on the Tracking Navigator. Be patient while the initial connection is made to the D2PC application and the FEMIS database. D2PC should come up with a default case and should be ready to run. Select Edit mode.

- Verify the Log Runs checkbox is checked and that you are in Edit mode. From the Run menu, select the Run Model item. You should quickly get a user interface window containing the results of the D2PC run.

- Save the D2PC case.

  Note: Onpost users may get messages about sending the D2PC case offpost. Click Yes, and close the D2PC window.

4.6.3.9 Verify Notification Server

On the Tracking Navigator, you should see a blinking icon (New Data button) that looks like a package. A magenta bar on the D2PC Function box should also appear. This means that FEMIS data notifications are being sent and passing messages to your PC. Click the New Data button.

4.6.3.10 Verify GIS

Click the Map button from the FEMIS toolbar. The ArcView GIS application should start, and you should see a base map displayed within an ArcView GIS window.

To check the link between FEMIS and the GIS, select Facilities theme on the left side of the GIS window. Click the i+ button on the ArcView GIS toolbar; and then click a facility icon on the map. A view-only facility/resource window should appear.
Do not close the GIS as it will be used in the following steps.

4.6.3.11 Verify Evacuation

If the one-time validation steps have been successfully completed, there should be a current Evacuation case displayed on the Tracking Navigator. Click the Evacuation Function box on the Tracking Navigator. If Evacuation has not been previously executed on this PC, you will get a message telling you to create a network. Under File, select Create Network. It should display on the GIS. If the network was previously created on this PC, you will not get the message nor need to create the network. You can merely observe the network is displayed on the GIS.

4.6.3.12 Verify Electronic Planning (Planning Mode)

To run FEMIS Electronic Planning in the Planning mode, you must have Microsoft Project loaded on your PC and a FEMIS Access Database properly attached. To validate this, click on Utility → Planning Functions… and select the validation dataset created in the one-time steps (see Section 4.6.1.4, Create a Plan for Validation Testing,). Examine the Tracking Navigator window to be sure a Plan has been selected. Click on Edit under Tasks, which is next to the Plan on the FEMIS Tracking Navigator (Planning) window. Microsoft Project will open and display the selected Plan. If you can do this without any errors or error messages, and tasks appear in the grid; then the FEMIS Planning software should work properly.

The Microsoft Project calendar should be set to a 24-hour clock and a 7-day calendar. Select Tools → Change Working Time. Every day is gray, and the working time is 12:00 a.m. to 12:00 a.m.

4.6.3.13 Verify Help

Click Help to activate the online Help to verify the Help subsystem is working properly.

4.6.3.14 Verify Printer

Verify KeyPrint was enabled at log in. Use KeyPrint or the Print Screen button on any FEMIS window to ensure the PC is properly connected to a printer.

4.6.3.15 Verify E-mail

Select the MAIL button from the FEMIS toolbar. This should bring up your E-mail application. Verify that you can send an E-mail message to another PC.

4.6.3.16 Verify SEPR Icon

Send a test SEPR message.

4.6.3.17 Verify FEMIS Tools

Verify on a FEMIS PC with System Tools installed. Click on each of the FEMIS Tools (FEMIS Monitor PC, FEMISMon Watcher, and Network Monitor) to ensure they are operational.

FEMIS PC Installation Checklist

Machine Name:			
Admin Password:			
	Task	**Initials**	**Notes**
1	4.1.1 Installing Windows NT 4.0		
2	4.1.1.3 Installing Windows NT Service Pack 5		
3	4.1.2 Installing an NFS System (Maestro and Patch or Solstice)		
4	4.1.3 Installing Oracle Net8 Client v8.1.5 and ODBC Driver v8.1.5.5		
5	4.1.4.1 Installing ArcView GIS v3.1.1 4.1.4.2 Installing ArcView GIS v3.1.1 Patch		
6	4.1.5 Installing Microsoft Project 98 Service Release 1		
7	4.1.6 Installing Other COTS; Site Specific		
8	4.2 Configuring the FEMIS Setup Program (Once at Each EOC)		
9	4.2.11 Updating the PC HOSTS File		
10	4.3 Installing the FEMIS Client Software		
11	4.4.2 Running the FEMIS Startup Files		
12	4.4.3 Verifying Temporary Directory and Environment Variables		
13	4.4.4 Verifying Clock Settings and Time Zone Settings		
14	4.4.5 Verifying the Time Synchronization Services		
15	4.4.6 Setting Virtual Memory Setting (Maximum to at least 250)		

FEMIS PC Validation Checklist

PC Name:			
Validated using NT Login:			
One Time at Each EOC:		**Initials**	**Notes**
1	Verify Default D2PC Case Exists		
2	Verify the Evacuation Command Server		
3	Only on the server with the depot database, Verify FEMIS/EMIS Data Exchange Interface (DEI)		
4	Create a Plan for Validation Testing		
5	Test the GIS on the Printer		
6	Verify E-mail		
7	Verify that SEPR Icon Addressee		
Clean Up AFTER Validation:			
1	Delete Validation Datasets		
2	Ensure Exercise #1 Exists or Whatever Exercise is Recognized by EMIS		
3	Remove Extraneous User Accounts		
Perform on Every PC:			
1	Ensure Windows NT Login FEMIS/FEMIS Does Not Exist		
2	Verify the PC Configuration		
3	Verify the PC Clock		
4	Verify Network Time Protocol (NTP) Service		
5	Verify Link to M:\ Drive		
6	Verify Login		
7	Verify COTS Software		
8	Verify Data Manager		
9	Verify System Administration		
10	Verify D2PC		
11	Verify Notification Server		
12	Verify GIS		
13	Verify Evacuation		
14	Verify Electronic Planning		
15	Verify Help		
16	Verify Printer		
17	Verify E-Mail		Package:
18	Verify SEPR Icon		
19	Verify colors are 65,536		
20	Verify FEMIS Tools on Appropriate PC(s)		