

**Federal Emergency Management  
Information System (FEMIS)**

**Installation Guide**

**for**

**FEMIS Version 1.4.7**

**May 26, 2000**

**Prepared for the U.S. Department of Energy  
under Contract DE-AC06-76RLO 1830**

## **Acknowledgment**

The FEMIS product is being developed by the Pacific Northwest National Laboratory as part of the U.S. Army's Chemical Stockpile Emergency Preparedness Program (CSEPP).

This software and its documentation were produced with Government support under Contract Number DE-AC06-76RL0-1830 awarded by the United States Department of Energy. The Government retains a paid-up non-exclusive, irrevocable worldwide license to reproduce, prepare derivative works, perform publicly and display publicly by or for the Government, including the right to distribute to other Government contractors.

## **Disclaimer**

This material was prepared as an account of work sponsored by an agency of the United States Government. Neither the United States Government nor the United States Department of Energy, nor Battelle Memorial Institute, nor any of their employees, MAKES ANY WARRANTY, EXPRESSED OR IMPLIED, OR ASSUMES ANY LEGAL LIABILITY OR RESPONSIBILITY FOR THE ACCURACY, COMPLETENESS, OR USEFULNESS OF ANY INFORMATION, APPARATUS, PRODUCT, SOFTWARE, OR PROCESS DISCLOSED, OR REPRESENTS THAT ITS USE WOULD NOT INFRINGE PRIVATELY OWNED RIGHTS.

References to any specific commercial product, process or service by trade name, trademark, manufacturer, or otherwise does not necessarily constitute or imply endorsement, recommendation, or favoring by the U.S. Army or Battelle.

The software has not been reviewed for export out of the U.S. A license or license exception may be required for export.



This document was printed on recycled paper.

# **Federal Emergency Management Information System (FEMIS)**

## **Installation Guide**

**for**

**FEMIS v1.4.7**

JA Arp	NA Holter
BJ Anderson	DM Johnson
RA Burnett	RL Johnson
RJ Carter	SM Johnson
TR Downing	RM Loveall
JR Dunkle	AJ Stephan
PM Fangman	WD Millard
PP Gackle	BM Wood
BJ Homer	

May 26, 2000

Prepared for  
the U.S. Department of Energy  
under Contract DE-AC06-76RLO 1830

Pacific Northwest National Laboratory  
Richland, Washington 99352

# Preface

The Federal Emergency Management System (FEMIS) is an emergency management planning and response tool. The following documents were developed to support system users. The audience for each is identified.

The ***FEMIS Installation Guide*** provides instructions for installing and configuring the FEMIS software package.

This ***FEMIS Data Management Guide*** provides the information needed to manage the data used to support the administrative, user-environment, database management, and operational capabilities of FEMIS.

The ***FEMIS System Administration Guide*** provides information on FEMIS system administrator activities as well as the utilities that are included with FEMIS.

The ***FEMIS Release Notes*** provide a description of what is new in the release, a list of known problems and workaround suggestions, and any information specific to this release that was not available when other documents were published.

The ***FEMIS Bill of Materials*** defines FEMIS hardware, software, and communication requirements.

The ***FEMIS Online Help System*** explains how to use the FEMIS program, which is designed to help civilian emergency management personnel to plan and respond to a Chemical Accident or Incident (CAI) Event at a military chemical stockpile.

# Contents

1.0	Overview .....	1-1
1.1	Point of Contact .....	1-1
1.2	Document Organization.....	1-1
1.3	Software Products.....	1-2
1.4	Installation .....	1-2
1.4.1	Environment .....	1-2
1.4.2	Storage Requirements.....	1-3
1.4.2.1	FEMIS Server .....	1-3
1.4.2.2	FEMIS PC.....	1-4
1.4.3	Pre-Installation Issues.....	1-4
1.5	FEMIS Directory Structures .....	1-4
2.0	FEMIS UNIX Installation .....	2-1
2.1	Installing and Configuring the UNIX COTS.....	2-2
2.1.1	Installing the Operating System .....	2-2
2.1.1.1	Installing or Upgrading Solaris 7.....	2-4
2.1.1.2	Automounting and FEMIS.....	2-8
2.1.1.3	Creating Users and Groups .....	2-10
2.1.2	Upgrading Sun Volume Manager Software.....	2-13
2.1.3	Installing and Configuring Samba .....	2-15
2.1.3.1	Installing Samba .....	2-16
2.1.3.2	Configuring Samba.....	2-17
2.1.4	Installing the NFS Authentication Services Daemon.....	2-19
2.1.4.1	Determining Version of NFS Daemon .....	2-19
2.1.4.2	Removing Previous NFS Daemon .....	2-19
2.1.4.3	Installing Hummingbird NFS Daemon.....	2-19
2.1.4.4	Installing Sun PC NFS Daemon .....	2-20
2.1.5	Installing an E-mail Package.....	2-21
2.1.6	Installing Perl v5.004-04.....	2-22
2.1.6.1	Removing the Perl Package .....	2-22
2.1.6.2	Installing the Perl Package.....	2-22
2.2	Installing the FEMIS UNIX Software .....	2-23
2.2.1	Creating UNIX Accounts on the Server.....	2-23
2.2.2	Upgrading the FEMIS Application .....	2-25
2.2.3	Installing the FEMIS Package.....	2-27
2.2.4	Installing Network Time Protocol (NTP) .....	2-29
2.3	Installing the FEMIS GIS and Database.....	2-31
2.3.1	Installing the GIS and Oracle Database .....	2-31

2.3.2	Database Cleanup Tasks .....	2-32
2.3.2.1	Dropping Database Objects and Exporting Data Owners.....	2-32
2.3.2.2	Removing Current Oracle Installation .....	2-33
2.3.3	Installing Oracle Software or Relinking Oracle .....	2-34
2.3.3.1	Creating the UNIX Environment for Oracle.....	2-35
2.3.3.2	Installing the Oracle Software .....	2-39
2.3.3.3	Installing and Using Oracle Documentation.....	2-49
2.3.3.4	Relinking the Oracle Software.....	2-50
2.3.3.5	Configuring Existing Oracle for Latest Version of FEMIS .....	2-51
2.3.3.6	Modifying the Initialization Parameter.....	2-52
2.3.4	Defining the Database Topology.....	2-53
2.3.4.1	Running the Build Topology Program.....	2-54
2.3.4.2	Setting Up the EOC DBA Directory (as femis).....	2-55
2.3.5	Creating or Updating the FEMIS Database .....	2-56
2.3.5.1	Creating the Database Schemas .....	2-56
2.3.5.2	Loading Data (as femis).....	2-57
2.3.5.3	Upgrading Database from Previous Versions of FEMIS .....	2-58
2.3.5.4	Creating Objects that Share Data (as femis).....	2-58
2.3.5.5	Creating FEMIS Schema Synonyms .....	2-59
2.3.5.6	Fixing the EOC Table (as femis) .....	2-59
2.3.5.7	Setting Up Oracle Backups.....	2-60
2.3.5.8	Starting Replication (as femis) .....	2-60
2.3.6	Configuring the FEMIS Files (as root) .....	2-61
2.3.7	Copying the files to the /home/femis/user directory .....	2-62
2.3.8	Correcting Group Ownership.....	2-62
2.3.9	Verifying the Configuration Files (as femis) .....	2-63
2.3.10	Setting Up the Command Server Configuration File .....	2-65
2.3.11	Setting Up femis_event .....	2-66
2.4	Checking the FEMIS Startup.....	2-67
2.4.1	Rebooting the Server (as root) .....	2-67
2.4.2	Verifying the FEMIS Programs (as femis) .....	2-67
2.5	Utility to Add FEMIS Login Account to the Database .....	2-68
2.6	FEMIS AutoRecovery System Description and Installation .....	2-69
2.6.1	Messaging Service .....	2-70
2.6.2	Logging .....	2-70
2.6.3	Sending E-mail.....	2-71
2.6.4	Running Processes .....	2-71
2.6.5	Monitoring Swap and Disk Space.....	2-72
2.6.6	Remote Hot Auto-Carve and Auto Insert.....	2-72
2.6.7	Remote Process Monitoring.....	2-73
2.6.8	AutoRecovery's WatchDog Timeout Parameter.....	2-74
2.6.9	Installing AutoRecovery .....	2-74
2.6.10	Configuring AutoRecovery .....	2-75
2.7	AutoRecovery Web Reporting Application .....	2-76
2.7.1	Software Requirements .....	2-76

2.7.2	AutoRecovery Web Reporting .....	2-77
2.7.2.1	Removing the AutoRecovery Web Reporting Package.....	2-77
2.7.2.2	Installing AutoRecovery Web Reporting .....	2-77
2.7.3	Configuring AutoRecovery Web Reporting .....	2-78
2.7.4	Customizing AutoRecovery Web Reporting .....	2-79
2.7.4.1	Setting the \$retainFlag Variable .....	2-79
2.7.4.2	Changing the Refresh Rate .....	2-80
2.7.4.3	Accurate System Time.....	2-80
2.7.4.4	Customizing the Apache Web Server.....	2-80
3.0	FEMIS GIS Migration and Configuration .....	3-1
3.1	Migrating the FEMIS GIS from v1.4.6 to v1.4.7 .....	3-1
3.1.1	Upgrading the femisgis.ini Files to v1.4.7 .....	3-2
3.1.2	Checking the Upgraded v1.4.7 femisgis.ini Files .....	3-3
3.1.3	Upgrading the Zone Theme .....	3-3
3.1.4	Upgrading the General Hazard Zone Theme .....	3-4
3.1.5	Troubleshooting the Migration .....	3-5
3.1.5.1	Checking the v1.4.6 femisgis.ini File .....	3-5
3.1.5.2	Checking the Zone Theme Upgrade .....	3-7
3.1.5.3	Checking the General Hazard Zone Theme Upgrade .....	3-8
3.1.5.4	Editing the FEMIS.INI File for the GIS Upgrade.....	3-9
3.2	Copying v1.4.7 GIS Files to the Other Servers .....	3-10
3.3	Completing the Installation on This PC .....	3-11
4.0	FEMIS PC Installation .....	4-1
4.1	Installing the PC COTS .....	4-1
4.1.1	Installing Windows NT v4.0.....	4-1
4.1.1.1	Before Installing Windows NT .....	4-1
4.1.1.2	Running the Installation Program.....	4-3
4.1.1.3	Installing Windows NT Service Pack 5.....	4-7
4.1.2	Installing an NFS System.....	4-7
4.1.2.1	Identifying the Maestro Version .....	4-8
4.1.2.2	Uninstalling NFS Maestro v6.0.1 (or earlier) .....	4-8
4.1.2.3	Installing NFS Maestro v6.2 .....	4-8
4.1.2.4	Installing NFS Maestro v6.2.0.2 Patch .....	4-10
4.1.2.5	Running the Parmset Configuration Program.....	4-11
4.1.2.6	Installing Solstice NFS Client v3.2.....	4-11
4.1.2.7	Configuring Solstice NFS Client v3.2 .....	4-12
4.1.3	Installing Oracle Net8 Client v8.1.5 and ODBC v8.1.5.5.....	4-13
4.1.3.1	Uninstalling Oracle SQL*Net Client v2.3.4 and Oracle7 ODBC Driver.....	4-13
4.1.3.2	Installing Oracle Net8 Client v8.1.5 .....	4-14
4.1.3.3	Installing Oracle ODBC Driver v8.1.5.5 .....	4-15
4.1.4	Installing ArcView GIS v3.1 and v3.1.1 Patch.....	4-16
4.1.4.1	Installing ArcView GIS v3.1 .....	4-16

4.1.4.2	Installing ArcView GIS v3.1.1 Patch .....	4-17
4.1.4.3	Creating the ArcView GIS Icon for All Users.....	4-18
4.1.5	Installing Microsoft Project 98 Service Release 1 .....	4-18
4.1.6	Installing Other COTS .....	4-19
4.2	Configuring the FEMIS Setup Program .....	4-20
4.2.1	Connecting the Network Install Drive .....	4-20
4.2.2	Validating I:\CONFIGD\FSETUP.INI File .....	4-21
4.2.3	Validating the GIS.INI Files on the Server—Maryland Only.....	4-22
4.2.4	Validating I:\CONFIGD\TNSNAMES.ORA File .....	4-22
4.2.5	Validating I:\CONFIGD\ADDODBC.BAT File.....	4-23
4.2.6	Validating the AUTOEXNT.BAT File .....	4-23
4.2.7	Validating I:\CONFIGD\NTP.CONF File .....	4-23
4.2.8	Validating I:\USER Directory.....	4-24
4.2.9	Configuring the I:\PC\FEMTOOLS\FEMIS.DB File .....	4-24
4.2.10	Updating Files on All PCs Using FUPDATE.BAT .....	4-26
4.2.11	Updating the PC HOSTS Files.....	4-26
4.3	Installing FEMIS Client Software .....	4-27
4.3.1	Preparation .....	4-27
4.3.2	Running the Setup Program .....	4-28
4.3.3	Updating the FEMISGIS.INI File .....	4-29
4.3.4	Regenerating the FEMIS GIS Dynamic Themes .....	4-30
4.4	Configuring the PC.....	4-30
4.4.1	Setting Up FEMIS User Accounts on Windows NT and UNIX .....	4-30
4.4.1.1	Adding User Accounts to Windows NT .....	4-31
4.4.1.2	Adding User Accounts to UNIX.....	4-32
4.4.2	Running the FEMIS Startup Files .....	4-32
4.4.3	Verifying the Temporary Directory and Environment Variables .....	4-33
4.4.4	Verifying the Clock Settings and Time Zone Settings.....	4-33
4.4.5	Verifying the Time Synchronization Services .....	4-33
4.4.5.1	Verifying the AUTOEXNT.BAT File .....	4-34
4.4.5.2	Verify the AutoExNT Service .....	4-34
4.4.6	Verifying the Virtual Memory Setting.....	4-34
4.4.7	Creating the FEMIS Icon .....	4-35
4.4.8	Final Steps for the FEMIS PC Installation and Configuration.....	4-35
4.5	Configuring FEMIS for All PCs at an EOC .....	4-35
4.5.1	Verifying the Zone Name Lookup for EMIS PAR .....	4-36
4.5.2	Using FZONES.EXE Tool.....	4-36
4.6	Validating the FEMIS PC Installation.....	4-36
4.6.1	One Time at EACH EOC.....	4-37
4.6.1.1	Verify Default D2PC Case Exists.....	4-37
4.6.1.2	Verify the Evacuation Command Server .....	4-37
4.6.1.3	Verify FEMIS/EMIS Data Exchange Interface (DEI).....	4-37
4.6.1.4	Create a Plan for Validation Testing.....	4-38
4.6.1.5	Test the GIS on the Printer .....	4-39

4.6.1.6	Verify E-mail .....	4-40
4.6.1.7	Verify the SEPR Icon Addressee.....	4-40
4.6.2	Cleanup AFTER Validation.....	4-40
4.6.2.1	Delete Validation Datasets .....	4-40
4.6.2.2	Ensure Exercise #1 Exists.....	4-40
4.6.2.3	Remove Extraneous FEMIS UNIX User Accounts.....	4-40
4.6.3	Perform on EVERY PC .....	4-40
4.6.3.1	Ensure FEMIS Login Security.....	4-41
4.6.3.2	Verify the PC Configuration.....	4-41
4.6.3.3	Verify the PC Clock.....	4-41
4.6.3.4	Verify the Network Time Protocol (NTP) Service .....	4-41
4.6.3.5	Verify Login .....	4-42
4.6.3.6	Verify Data Manager .....	4-42
4.6.3.7	Verify the System Administration Utility.....	4-43
4.6.3.8	Verify D2PC .....	4-43
4.6.3.9	Verify Notification Server .....	4-43
4.6.3.10	Verify GIS .....	4-43
4.6.3.11	Verify Evacuation.....	4-43
4.6.3.12	Verify Electronic Planning (Planning Mode) .....	4-44
4.6.3.13	Verify Help .....	4-44
4.6.3.14	Verify Printer .....	4-44
4.6.3.15	Verify E-mail .....	4-44
4.6.3.16	Verify SEPR Icon .....	4-44
4.6.3.17	Verify FEMIS Tools .....	4-44
5.0	Remote Evacuee Registration and Point to Point Protocol .....	5-1
5.1	Remote Evacuee Registration.....	5-1
5.2	Installing Remote Evacuee Registration.....	5-1
5.3	Setting Up Dial-Up Networking for Windows NT.....	5-2
5.3.1	Verifying Modem Installation.....	5-2
5.3.2	Configuring Dial-Up Networking .....	5-2
5.3.3	Connecting Via Dial-Up .....	5-3
5.4	Verifying Remote Evacuee Registration .....	5-4
6.0	Stand-Alone Installation of FEMIS v1.4.7 .....	6-1
6.1	Stand-Alone PC System Requirements .....	6-1
6.2	Location of Oracle .....	6-1
6.3	Stand-Alone PC Installation Process .....	6-1
6.3.1	Removing Existing Stand-Alone Database .....	6-2
6.3.2	Installing PC COTS and FEMIS v1.4.7 .....	6-2
6.3.3	Installing Oracle8i Server or Personal Oracle8i.....	6-2
6.3.4	Configuring Oracle Network Components .....	6-3
6.3.5	Building the Database .....	6-4
6.3.6	Creating Stand-Alone Working Directory .....	6-6
6.3.7	Creating FEMIS Database Tablespaces .....	6-6

6.4	Importing or Changing FEMIS Data .....	6-7
6.4.1	Removing Database Data Owners .....	6-7
6.4.2	Obtaining FEMIS Database Export .....	6-8
6.4.3	Importing FEMIS Data into the Database.....	6-9
6.5	Configuring FEMIS Installation for Stand-Alone Database.....	6-10
6.5.1	Creating a Local USER Share.....	6-10
6.5.2	Editing SETSTANDALONE.BAT .....	6-10
6.5.3	Running SETSTANDALONE.BAT and SETNETWORKED.BAT .....	6-10
6.5.4	Correcting D2PC DOS Environment .....	6-11
6.5.5	Testing the Setup.....	6-12
6.6	Remote Access Service.....	6-12
6.7	Verifying the Stand-Alone Installation.....	6-13

# Acronyms and Definitions

ANAD	Name of a FEMIS database (Anniston Depot)
APR	Project file format (ArcView GIS)
BOM	Bill of Materials
COTS	Commercial-Off-The-Shelf
CSEPP	Chemical Stockpile Emergency Preparedness Program
CTOO	Name of a FEMIS database (Tooele County)
D2PC	Chemical wind dispersion model used in FEMIS
DAI	Data Acknowledgment Interface
DBMS	database management system
DEI	Data Exchange Interface
DNS	Domain Name Services
E-mail	electronic mail
EMIS	Emergency Management Information System
EOC	Emergency Operations Center
ESIM	Evacuation SIMulation, part of Oak Ridge Evacuation Modeling System (OREMS)
ESRI	Environmental Systems Research Institute, Inc.
FEMIS	Federal Emergency Management Information System
GB	gigabyte–billion bytes
GID	Group Identification number
GIS	geographic information system
GMT	Greenwich Mean Time
HCL	Hardware Compatibility List
ICG	Oracle7 Installation & Configuration Guide Release 7.3.3
IBS	Integrated Baseline System
IDYNEV	Interactive DYNAMIC EVacuation
IP	Internet Protocol
KB	kilobyte–thousand bytes
LAN	local area network
MB	megabyte–million bytes
Met	meteorological
NFS	Network File System
NTP	Network Time Protocol
ODBC	Open Data Base Connectivity
OREMS	Oak Ridge Evacuation Modeling System
PC	personal computer
PPP	Point to Point Protocol
PNNL	Pacific Northwest National Laboratory
RAM	Random Access Memory
RDBMS	relational database management system
SBCCOM	U.S. Army Soldier and Biological Chemical Command
SMTP	Simple Mail Transfer Protocol

<b>SQL</b>	Structured Query Language
<b>SQL script</b>	Sequence of SQL statements that perform database operations
<b>TCP/IP</b>	Transmission Control Protocol/Internet Protocol
<b>TEAD</b>	Name of a FEMIS database (Army Depot) and Tooele Army Depot
<b>TNS</b>	Transparent Network Substrate
<b>UID</b>	User Identification number
<b>UNIX</b>	Generic name for the Server Operating System
<b>UTST</b>	Name of a FEMIS database (Utah State)
<b>WAN</b>	wide area network
<b>WINS</b>	Windows Internet Name Service
<b>Windows NT</b>	Microsoft Network Operating System for Workstations