
**Pacific Northwest
National Laboratory**

Operated by Battelle for the
U.S. Department of Energy

Federal Emergency Management Information System (FEMIS)

Installation Guide

for

FEMIS Version 1.5

April 26, 2002



Prepared for the CSEPP Office
United States Army Soldier and Biological Chemical Command
under a Related Services Agreement
with the U.S. Department of Energy
under Contract DE-AC06-76RL01830

Acknowledgment

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

This software and its documentation were produced with Government support under Contract Number DE-AC06-76RLO-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 US Army or Battelle.

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

Federal Emergency Management Information System (FEMIS)

Installation Guide

for

FEMIS v1.5

Robert A Burnett	Brian J Homer	Robert M Loveall
Richard J Carter	Daniel M Johnson	Juan Ramos, Jr.
Tim R Downing	Ranata L Johnson	Alex J Stephan
Julie R Dunkle	Sharon M Johnson	Blanche M Wood

April 26, 2002

Prepared for the CSEPP Office
United States Army Soldier and Biological Chemical Command
under a Related Services Agreement
with the U.S. Department of Energy
Contract DE-AC06-76RLO 1830

Pacific Northwest National Laboratory
Richland, Washington 99352

Preface

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

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

The ***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 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 emergency management personnel plan and respond to a Chemical Accident or Incident (CAI) Event at a military chemical stockpile. For System and Database Administrators, the Troubleshooting Guide consists of error messages and known problems as well as suggestions to resolve these errors and problems.

(a) The FEMIS program is being developed by the Pacific Northwest National Laboratory as part of the US Army Chemical Stockpile Emergency Preparedness Program (CSEPP). Pacific Northwest National Laboratory is operated for the US Department of Energy by Battelle under Contract DE-AC06-76RLO 1830.

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	Upgrading from FEMIS v1.4.7.2.....	2-1
2.1.1	Migrating User Defined Polygons in v1.4.7.2 to v1.5.....	2-2
2.1.2	Removing AutoRecovery.....	2-3
2.1.3	Uninstalling the FEMIS v1.4.7.2 Application	2-3
2.1.4	Removing the Perl Package	2-4
2.2	Installing and Configuring Solaris	2-4
2.2.1	Upgrading to Solaris 8	2-5
2.2.1.1	New Installation of Solaris 8	2-5
2.2.1.2	Installing Solaris 8.....	2-6
2.2.1.2	Resizing the Disk Partitions	2-6
2.2.2	Installing Solaris Patches and Patch Clusters	2-8
2.3	New Server Setup for FEMIS v1.5	2-9
2.3.1	Automounting and FEMIS.....	2-9
2.3.1.1	Master Map	2-10
2.3.1.2	Indirect Maps	2-10
2.3.1.3	Automounter Map Availability	2-11
2.3.1.4	FEMIS Users.....	2-11
2.3.2	Creating Users and Groups	2-11
2.3.2.1	Username.....	2-11
2.3.2.2	User Identifications Numbers.....	2-12
2.3.2.3	Password	2-12
2.3.2.4	Group Identification Numbers	2-13
2.3.2.5	User Home Directory	2-13
2.3.2.6	Creating FEMIS User Accounts.....	2-13
2.3.3	Creating FEMIS User Accounts on the Server	2-14
2.3.4	Installing and Configuring Samba	2-16
2.3.4.1	Installing Samba.....	2-16
2.3.4.2	Configuring Samba	2-17

2.4	Installing the FEMIS UNIX Software	2-19
2.4.1	Installing the Perl Package.....	2-19
2.4.2	Installing the FEMIS Application.....	2-20
2.4.3	Configuring Network Time Protocol (NTP).....	2-20
2.5	Installing the GIS and Oracle Database Packages	2-21
2.6	Preparing the Server for the Upgrade	2-23
2.6.1	Dropping Database Objects and Exporting Data Owners.....	2-23
2.6.2	Removing Current Oracle Installation	2-25
2.7	Installing or Configuring the Oracle Software.....	2-26
2.7.1	Preparing the Server for an Oracle v8.1.6 Installation.....	2-26
2.7.2	Installing the Oracle Software	2-30
2.7.3	Applying the Oracle v8.1.6.2 Patches.....	2-40
2.7.4	Installing and Using Oracle Documentation.....	2-42
2.7.5	Relinking the Oracle Software.....	2-44
2.7.6	Configuring Existing Oracle for Latest Version of FEMIS	2-44
2.7.7	Modifying the Initialization Parameter	2-46
2.8	Defining the Database Topology	2-46
2.8.1	Running the Build Topology Program.....	2-47
2.8.2	Configuring the FEMIS Files.....	2-48
2.8.3	Setting Up the EOC DBA Directory.....	2-49
2.9	Creating or Updating the FEMIS Database	2-50
2.9.1	Creating the Database Schemas	2-50
2.9.2	Importing the Data	2-52
2.9.3	Upgrading the Database Structure from Previous Version of FEMIS	2-53
2.9.4	Creating Objects that Share Data.....	2-53
2.9.5	Fixing the EOC Table	2-54
2.9.6	Setting Up Oracle Backups.....	2-54
2.9.7	Starting Replication	2-55
2.10	Miscellaneous Configurations	2-56
2.10.1	Verifying the Configuration Files.....	2-56
2.10.2	Setting Up the Command Server Configuration File.....	2-57
2.10.3	Setting Up femis_event.....	2-58
2.11	Checking the FEMIS Startup	2-59
2.11.1	Rebooting the Server.....	2-59
2.11.2	Verifying the FEMIS Programs	2-60
2.12	Installing FEMIS AutoRecovery System.....	2-60
2.12.1	Installing AutoRecovery	2-61
2.12.1	Configuring AutoRecovery.....	2-62
2.12.3	Messaging Service	2-63
2.12.4	Logging	2-63
2.12.5	Sending E-mail	2-64
2.12.6	Running Processes	2-64
2.12.7	Monitoring Swap and Disk Space.....	2-65
2.12.8	Remote Hot Auto-Carve and Auto Insert	2-65
2.12.9	Remote Process Monitoring.....	2-66

2.12.10	Remote Host Connectivity.....	2-67
2.12.11	AutoRecovery's WatchDog Timeout Parameter	2-67
2.12.12	Oracle Job Monitoring Parameters	2-68
2.13	Installing AutoRecovery Web Reporting Application.....	2-68
2.13.1	Software Requirements.....	2-69
2.13.2	AutoRecovery Web Reporting Description and Installation	2-69
2.13.2.1	Removing the AutoRecovery Web Reporting Package	2-69
2.13.2.2	Installing AutoRecovery Web Reporting	2-69
2.13.3	Configuring AutoRecovery Web Reporting	2-70
2.13.4	Customizing AutoRecovery Web Reporting	2-71
2.13.4.1	Setting the \$retainFlag Variable.....	2-71
2.13.4.2	Changing the Refresh Rate.....	2-72
2.13.4.4	Customizing the Apache Web Server	2-72
3.0	FEMIS GIS Migration and Configuration.....	3-1
3.1	Migrating the FEMIS GIS from v1.4.7.2 to v1.5.....	3-1
3.1.1	Opening the GIS Utilities	3-1
3.1.2	Upgrading the CSEPP Zone Theme	3-2
3.1.3	Upgrading the General Hazard Zone Theme	3-3
3.1.4	Installing FEMIS v1.5 on One PC	3-4
3.1.5	Migrating the ViewMarks to the Database	3-4
3.1.6	Upgrading User Defined Polygons from v.1.4.7.2 to v.1.5	3-5
3.2	Copying v1.5 GIS Files to the Other Servers.....	3-7
3.3	Completing the Installation on This PC.....	3-8
4.0	FEMIS PC Installation	4-1
4.1	Installing the PC COTS	4-1
4.1.1	Installing Windows 2000 Service Pack 2 or Windows NT 4.0 Service Pack 6.....	4-1
4.1.2	Installing Internet Explorer.....	4-2
4.1.3	Installing Oracle Net8 Client v8.1.6 and ODBC v8.1.6.2	4-2
4.1.3.1	Installing Oracle Net8 Client v8.1.6.....	4-2
4.1.3.2	Installing Oracle ODBC Driver v8.1.6.2.....	4-3
4.1.4	Installing Microsoft Data Access Components on Windows NT PCs.....	4-4
4.1.5	Installing ArcView GIS v3.1 and v3.1.1 Patch.....	4-4
4.1.5.1	Installing ArcView GIS v3.1.....	4-4
4.1.5.2	Installing ArcView GIS v3.1.1 Patch.....	4-6
4.1.5.3	Creating the ArcView GIS Icon for All Users	4-6
4.1.6	Installing Other COTS	4-7
4.2	Configuring the FEMIS Setup Program.....	4-7
4.2.1	Connecting the Network Install Drive	4-7
4.2.2	Validating I:\CONFIGD\FSETUP.INI File	4-8
4.2.3	Validating the I:\CONFIGD\TNSNAMES.ORA File	4-9
4.2.4	Validating the I:\CONFIGD\ADDODBC.BAT File	4-10
4.2.5	Validating the I: \CONFIGD\AUTOEXNT.BAT File	4-10

4.2.6	Validating the I: \CONFIGD\NTP.CONF File	4-10
4.2.7	Configuring the I:\PC\SETIP\FEMIS.DB File	4-11
4.2.8	Updating Files on All PCs Using FUPDATE.BAT	4-13
4.2.9	Updating the PC HOSTS Files	4-13
4.3	Installing FEMIS Client Software.....	4-13
4.3.1	Preparation.....	4-14
4.3.2	Running the Setup Program.....	4-14
4.3.3	Regenerating the FEMIS GIS Dynamic Themes.....	4-16
4.4	Configuring the PC	4-16
4.4.1	Setting Up FEMIS User Accounts on Windows 2000/NT and UNIX.....	4-17
4.4.1.1	Adding User Accounts to Windows 2000 and NT.....	4-17
4.4.1.2	Adding User Accounts to UNIX	4-18
4.4.2	Running the FEMIS Startup Files.....	4-18
4.4.3	Verifying the Temporary Directory and Environment Variables	4-19
4.4.4	Verifying the Clock Settings and Time Zone Settings	4-20
4.4.5	Verifying the Virtual Memory Setting.....	4-20
4.4.6	Creating FEMIS Icons	4-21
4.4.7	Final Steps for the FEMIS PC Installation and Configuration	4-21
4.5	Configuring FEMIS for All PCs at an EOC	4-21
4.5.1	Verifying the Zone Name Lookup for EMIS PAR	4-21
4.5.2	Using FZONES.EXE Tool.....	4-22
4.6	Validating the FEMIS PC Installation	4-22
4.6.1	One Time at EACH EOC.....	4-23
4.6.1.1	Verify Default D2PC Case Exists	4-23
4.6.1.2	Verify the Evacuation Command Server.....	4-23
4.6.1.3	Verify FEMIS/EMIS Data Exchange Interface (DEI)	4-23
4.6.1.4	Test the GIS on the Printer.....	4-24
4.6.1.5	Verify User Feedback.....	4-24
4.6.2	Cleanup AFTER Validation.....	4-24
4.6.2.1	Ensure Exercise #1 Exists	4-24
4.6.2.2	Remove Extraneous FEMIS UNIX User Accounts	4-24
4.6.3	Perform on EVERY PC	4-24
4.6.3.1	Ensure FEMIS Login Security	4-25
4.6.3.2	Verify the PC Configuration	4-25
4.6.3.3	Verify the PC Clock	4-25
4.6.3.4	Verify the Network Time Protocol (NTP) Service	4-25
4.6.3.5	Verify Login.....	4-26
4.6.3.6	Verify Data Manager.....	4-26
4.6.3.7	Verify the System Administration Utility	4-26
4.6.3.8	Verify D2PC.....	4-26
4.6.3.9	Verify Notification Service	4-27
4.6.3.10	Verify GIS	4-27
4.6.3.11	Verify Evacuation	4-27
4.6.3.12	Verify Electronic Planning.....	4-27
4.6.3.13	Verify Help.....	4-28

4.6.3.14	Verify Printer	4-28
4.6.3.15	Verify FEMIS Tools	4-28
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	5-2
5.3.1	Verifying Modem Installation.....	5-2
5.3.2	Configuring Dial-Up Networking for Windows NT.....	5-2
5.3.3	Configuring Dial-Up Networking for Windows 2000.....	5-4
5.4	Verifying Remote Evacuee Registration.....	5-4
6.0	Standalone Installation of FEMIS v1.5	6-1
6.1	Disk Space Required.....	6-1
6.2	Standalone PC Installation Process.....	6-1
6.2.1	Removing Existing Standalone Database	6-1
6.2.2	Installing PC COTS and FEMIS v1.5.....	6-1
6.2.3	Installing Oracle8i Server or Personal Oracle8i	6-2
6.2.4	Installing Oracle8i Patch Set 8.1.6.3.....	6-3
6.2.5	Configuring Oracle Network Components	6-3
6.2.6	Enabling NT Authentication.....	6-4
6.2.7	Building the Database.....	6-5
6.2.8	Creating FEMIS Database Tablespaces.....	6-6
6.3	Putting Data in the Standalone Database	6-7
6.3.1	Obtaining FEMIS Database Exports.....	6-8
6.3.2	Importing FEMIS Data into the Database	6-9
6.3.3	Updating FEMIS Data into the Database.....	6-9
6.4	Configuring FEMIS Installation for Standalone Database	6-10
6.4.1	Running SETSTANDALONE.BAT and SETNETWORKED.BAT.....	6-10
6.4.2	Testing the Setup	6-11
6.5	Remote Access Service (NT 4.0 Only).....	6-11
6.6	Verifying the Standalone Installation	6-12

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	US Army Soldier and Biological Chemical Command
SMTP	Simple Mail Transfer Protocol

SQL	Structured Query Language
SQL script	Sequence of SQL statements that perform database operations
TCP/IP	Transmission Control Protocol/Internet Protocol
TEAD	Name of a FEMIS database (Army Depot) and Tooele Army Depot
TNS	Transparent Network Substrate
UID	User Identification number
UNIX	Generic name for the Server Operating System
UTST	Name of a FEMIS database (Utah State)
WAN	wide area network
WINS	Windows Internet Name Service
Windows NT	Microsoft Network Operating System for Workstations
Windows 2000	Microsoft Operating System