

CLIENT INSTALLATION GUIDE

Version 5 - Release 2.0.4b



MYCHE MCAULEY

August 2007



National Aeronautics and
Space Administration

Jet Propulsion Laboratory
California Institute of Technology
Pasadena, California

Document: D-31531 Rev. 3

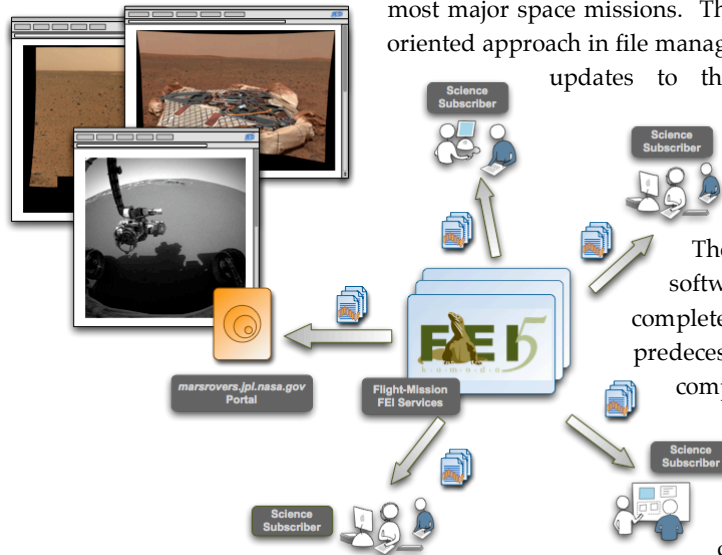
The technical data in this document (or file) is controlled under the U.S Export Regulations and may not be released to foreign persons without a license authority.

Table of Contents

Table of Contents	2
1. Introduction	1
2. Software Distribution	2
▶ Distribution directory structure	2
▶ Issues regarding file systems and operating systems	3
▶ Issues regarding firewalls	3
3. Platform Support and Required Tools	4
▶ Supported platforms	4
▶ Required tools	4
4. Installing and Configuring Unix Clients	6
5. Installing and Configuring Windows Clients	8
6. Installation Validation and Troubleshooting	9

1. Introduction

The File Exchange Interface (FEI) service offers secure file transaction, store, transport, and management services. FEI is the science data product management and distribution service used by most major space missions. The service offers a transaction-oriented approach in file management. That is, all concurrent



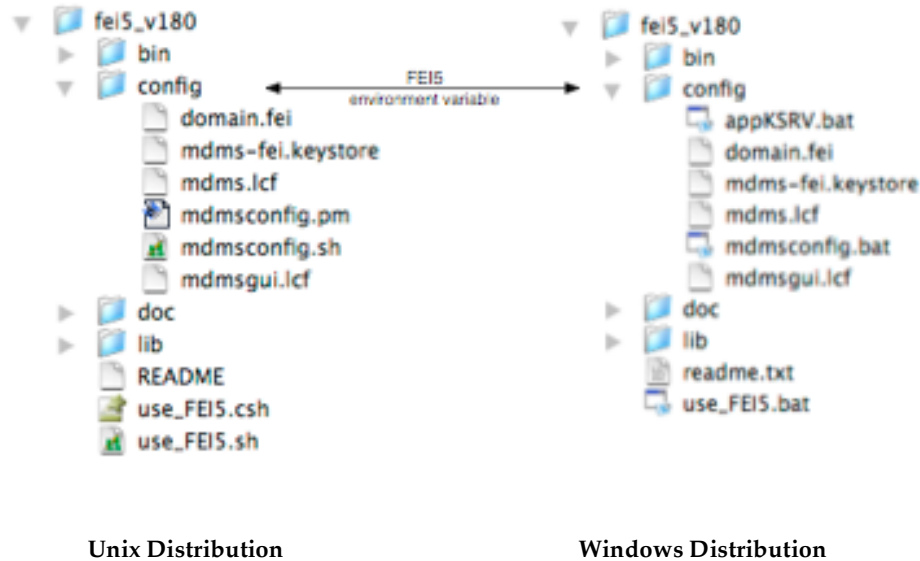
updates to the same data product are prohibited. All uncommitted file transactions are automatically rolled back.

The latest distribution, FEI5 software code name Komodo, is a complete redesign from its predecessors, which adopts the latest computing technologies and standards.

This client installation guide provides a step-by-step description on how to install the FEI client software on a standalone operating environment where system administrator is not required. Please consult with your system administrator for installing the software under a shared operating environment where it is accessible by multiple users concurrently from your local networked computers.

2. Software Distribution

The FEI5 client is primarily distributed in a standalone archive file. It is also being distributed as part of the Video Image Communication And Retrieval (VICAR) image processing software system, a product of Multimission Ground Systems and Service Office (MGSS) - Instrument Operations Systems. Please follow the VICAR installation instructions if you obtained the FEI5 client as part of the VICAR software distribution. The standalone distribution is to assist our external users to quickly utilize the FEI5 service with minimal configuration overhead.



► Distribution directory structure

FILE / DIRECTORY	DESCRIPTION
Root Directory	The default FEI5 distribution uses 'fei5_<version>' as the root directory name. For mission-specific distribution of the software, the root directory might use a mission-specific naming convention.
README	A text file containing version and contact information
use_FEI5.{csh sh bat}	Simple utility scripts to setup the bootstrap environment. The .csh version is for C (csh) and TC (tcsh) shell users. The .sh version is for Bourne (sh) and Bash (bash) shells users. The .bat version is for Windows users.
bin	Directory contains client application executables.

FILE / DIRECTORY	DESCRIPTION
config	Directory contains the FEI5 domain file, the required SSL certificate, and configuration files for application launchers and logger.
doc	Directory contains client documentations.
lib	Directory contains all required library files for the client applications.

► **Issues regarding file systems and operating systems**

Each operating system has an associated file system. Some operating systems can support more than one type of file system, such as Mac OS X, which can support both the Mac OS Extended and Unix file systems. Some of the noticeable differences of file systems include the file name case sensitivity, space in file names, the naming convention for file extension, the naming convention for hidden files, the maximum size for a file, and the maximum number of file that can be stored within a single directory. The limitations are partially attributed by the physical file system and partially attributed by the operating system. For example, the file system ext2 is a popular file system for Linux. It has the maximum file size limit of 4TB. However, the Linux kernel 2.2 limits the maximum file size to 2GB. While it is recommended to run FEI5 under a Unix file system because it provides the most flexible support for file names, it is not a requirement. Both the FEI5 client and server software have been tested under the Mac OS X, Unix, and NTFS file systems. The user should be aware of their operating system and file system limitations.

► **Issues regarding firewalls**

Firewall software is now part of Mac OS X, Linux, and Windows XP (SP2). These firewalls, by default, are intended to block outside systems from initiating connection to the users' local machines. The FEI5 client, as a client software, initiates connection request to remote FEI5 servers. The bootstrap firewall software on these platforms will grant the outbound connection request. Some firewalls, common for workgroups and enterprises, can also be configured to monitor outbound connection requests. That is, the firewall needs to be configured to allow the client to initiate connection to remote FEI5 servers. The user is advised to contact his/her local system administrator on all firewall-related issues. The FEI5 server administrator can provide the server host machine names and TCP ports information to user's local system administrator.

3. Platform Support and Required Tools

▶ Supported platforms

OS	VERSION
Sun	Solaris 9
RedHat Linux	RHEL3, RHEL4, FC1, FC2, FC3, FC4
Apple Mac OS X	10.4.x or above
Microsoft Windows	2000, XP

The FEI5 client and server software have been tested under the following platforms

▶ Required tools

The FEI5 client and server software only requires Java™ 2 Runtime Environment (J2RE) version 1.5 or higher. FEI5 recommends the user install the Java™ 2 Standard Development Kit (J2SDK) version 1.5 or higher, because the J2SDK distribution is bundled with a portable ‘jar’ command that can be used to unzip the ZIP file for our Windows distribution and to extract the uncompressed TAR file for our Unix distribution. The J2SDK also includes J2RE as part of its bundle. Both J2SDK and J2RE are available for download at <http://java.sun.com>. (Note: We found IBM’s java is missing the security provider class.) The FEI5 client software locates the ‘java’ executable through the `JAVA_HOME` environment, which should be defined to reference to the root directory of the J2SDK or J2RE installation. To determine the version of Java™ being referenced, try running the following command after following the installation instructions in the next sections.

On Unix: `% $JAVA_HOME/bin/java -version`

On Windows: `C:\> %JAVA_HOME%\bin\java -version`

The FEI5 client executables are platform-specific application launchers to configure and to invoke the platform-specific Java virtual machine. The application launchers come in three flavors. Unix users can choose between Perl5 or Bourne/Bash shell launchers. The Perl launchers are the default launchers that requires the Perl5 executable to be installed under standard ‘/usr/bin’ directory. The user can issue a ‘`perl -v`’ command to determine the version of Perl installed. The Bourne/Bash shell (*.sh) launchers requires only the ‘sh’ executable to be installed under the standard ‘/bin’ directory. Windows users can use the batch (*.bat) launchers, that is natively supported by Windows.

Note: On linux systems, JAVA uses a different file for determining time from what the linux “date” command does. Have your System Administrator verify that /etc/localtime and

`/etc/sysconfig/clock` files have the same time zone. It is also recommend that you time sync your system with a time service.

4. Installing and Configuring Unix Clients

This section discusses installation instructions specific to the Unix environments. The instructions in this section cover Sun Solaris, RedHat Linux, and Mac OS X operating systems.

Distribution archive file: fei5_vxxx.tar.gz (i.e. fei5_v204b.tar.gz)

Required environment variables:

VARIABLE	DESCRIPTION	DEFAULT
FEI5	The location of the FEI5 domain and client configuration files	none
JAVA_HOME	The location of the local J2SDK or J2RE location	/usr/java

Sample installation instructions (for tcsh) to install FEI5 distribution under /usr/local

1. Change directory
% cd /usr/local
2. Unzip the FEI5 client distribution at user's home directory
% gunzip \$HOME/fei5_vxxx.tar.gz
3. Unpack the FEI5 client distribution archive file using the 'jar' command from J2SDK distribution. The user can also use the Unix command 'tar' to unpack the archive file.
% jar -xvf \$HOME/fei5_vxxx.tar
or
% tar -xvf \$HOME/fei5_vxxx.tar
4. Configure the local session J2SDK/J2RE location. Let's assume a J2SDK is installed under java/j2sdk1.5, a sub-directory of /usr/local. By default, the FEI5 client assumes J2SDK/J2RE is installed under /usr/java directory.

For CSH and TCSH users:

```
% setenv JAVA_HOME ${cwd}/java/j2sdk1.5
```

For SH users:

```
% export JAVA_HOME=${cwd}/java/j2sdk1.5
```

Note: Mac OS X has a standard directory hierarchy for its Java installation

```
% setenv JAVA_HOME \  
/System/Library/Frameworks/JavaVM.framework/Versions/1.5/Home
```

5. Configure the local session environment by 'source'-ing the use_FEI5.{csh|sh} script

Tip 1: Create a unix softlink called "latest" and assign it to the fei_vxxx directory. Use "latest" in scripts. This reduces the amount of work needed when this is an upgrade. For an upgrade, just remove the 'latest' softlink and recreate the softlink pointing to the new fei5 version directory. You will need to kill and restart your subscriptions.

```
% ln -s /usr/local/fei_vxxx latest
```

Tip 2: Add the JAVA_HOME environment variable to the use_FEI5.csh or use_FEI5.sh file and hardcode the paths so you can source the use_FEI5 file without having to cd to the directory first.

```
% cd fei5_vxxx or latest
```

For CSH and TCSH users:

```
% source use_FEI5.csh
```

For SH users:

```
% source use_FEI5.sh
```

The script sets up the FEI5 environment variable and the user's local execution path to include the FEI5 client executables. To manually configure these variables

- FEI5 environment variable

For CSH and TCSH users:

```
% setenv FEI5 ${cwd}/fei5_vxxx/config
```

For SH users:

```
% export FEI5=${cwd}/fei5_vxxx/config
```

- Configure the local session execution path

For CSH and TCSH users:

```
% setenv $PATH \  
    ${cwd}/fei5_vxxx/bin:${PATH}
```

For SH users:

```
% export PATH=${cwd}/fei5_vxxx/bin:${PATH}
```

5. Installing and Configuring Windows Clients

This section discusses installation instructions specific to the Microsoft Windows™ environment.

Distribution archive file: fei5_vxxx.zip (i.e. fei5_v203b.zip)

Required environment variables:

VARIABLE	DESCRIPTION	DEFAULT
FEI5	The location of the FEI5 domain and client configuration files	none
JAVA_HOME	The location of the local J2SDK or J2RE location	none

Sample installation instructions (for DOS shell) to install FEI5 distribution under C:\Program Files (a.k.a C:\progra~1) directory

1. Open a DOS shell window
> Start > Programs > Accessories > Command Prompt
2. Change directory to C:\progra~1 directory using DOS shell
C:\> cd C:\progra~1
3. Unzip the FEI5 client distribution under the C:\progra~1 directory using the 'jar' command from J2SDK distribution.
C:\progra~1> jar -xvf fei5_vxxx.zip

The popular Windows ZIP file tool - WinZip (available at <http://www.winzip.com>) can also be used to unzip the FEI5 client distribution. In addition, Windows XP now natively supports ZIP files.

4. Configure the local session J2SDK/J2RE location. Let's assume a J2SDK is installed under C:\progra~1\Java\j2re1.5
C:\progra~1> set JAVA_HOME=C:\progra~1\Java\j2re1.5
5. Configure the local session environment by running the use_FEI5.bat script
C:\>progra~1> cd fei5_vxxx
C:\progra~1\fei5_vxxx> use_FEI5
The script setups up the FEI5 environment variable and the user's local execution path to include the FEI5 client executables. To manually configure these variables
 - FEI5 environment variable
C:\progra~1> set FEI5=C:\progra~1\fei5_vxxx\config
 - Configure the local session execution path
C:\progra~1> set PATH=%PATH%;C:\progra~1\fei5_vxxx\bin

Environment variables can also be set through the Windows' properties dialog windows.

Right click on 'My Computer' > Properties Advanced Environment Variables... click 'New...' under 'User variables' to add the above environment variables.

6. Installation Validation and Troubleshooting

To validate the installation of the client, run the command. Installation is done if connection to all filetypes is successful. See the User's Guide for trouble shooting error messages.

```
fei5kinit<cr>
```

```
Username: <enter provided username>
```

```
Password: <enter provided password>
```

```
% fei5check
```

```
Trying connection to filetype MDMS_DEV:image1
```

```
OK
```

```
Trying connection to filetype MDMS_DEV:image2
```

```
OK
```