

6.0 FEMIS Contact Daemon

All network communication servers in FEMIS utilize the standard registered service port for making contact between all clients and all servers. By registered, we mean that the FEMIS project has requested registration for and received notification of a single TCP/IP service port from the Internet Assigned Number Authority (IANA). The name registered and port assigned are `femis 1776`.

To implement the registered FEMIS service port on a server, the line `femis 1776` has been added to the `/etc/services` file. Doing this tells `inetd` that any incoming connection request directed to port 1776 is intended for one of the four FEMIS server daemons: Met, notification, command, or monitor.

Upon receiving a connection request on port `femis 1776`, `inetd` forks and executes the `femisd` program, the FEMIS contact protocol daemon. The only job of `femisd` is to figure out which of the four service protocols the client application needs. This is done by reading a single message from the client that contains the requested protocol name and a list of parameters. `femisd` then executes the correct protocol handler and passes control to it. All communication with the protocol handler then takes place over the socket established in `inetd`.

6.1 Message Format

The message format which clients utilize to communicate with `femisd` is `<pro:P|env:E|arg:A>` where `P` is the protocol name, `E` is an environment specification, and `A` is an argument specification for the process to be executed. The `femisd` message can contain any number of environment and argument messages. Environment specifications are used to modify the process environment prior to calling the protocol server. Arguments are passed to the protocol server on the command line.

6.2 Configuration File

This section discusses the format of the `femisd` configuration file.

The contact daemon configuration file default location is `/home/femis/etc/femisd.conf`. This can be over-ridden by the `-conf <file>` command line option.

Any line starting with a `#` is a comment line.

A line `debuglevel NUMBER` specifies the level of debug output in the log file `/home/femis/log/femisd.log`. `NUMBER` is 0, 1, 2, or 3. The value 0 is the least verbose, and the value 3 is the most verbose. Use the higher values of `debuglevel` only for debugging and diagnostic. Using `debuglevel 3` fills up the disk quickly.

A line `PROTOCOL EXECUTABLE OPTIONS` is the way to specify an interface to a protocol handler. Presently there are protocol handlers for command server, FEMIS monitor daemon, and notification server. The names are `cmdservd`, `femismond`, and `fxnotify`.

Notification `PROTOCOL` numbers are usually in the range 9000–9999. These are not port numbers. The port number is always 1776.

`EXECUTABLE` is the full executable path/name to the protocol handler. Example: normal notification protocol handler is `/home/femis/bin/fxnotify`.

`OPTIONS` is a list of special command line switches. They are

`OPTIONS string < %N -- %P %C %J -H %H >` is currently included on every line in the `femisd` configuration file. These specify program name, protocol number, client host, client port number, and home directory.

Option `%N` is substituted for by the `femisd` program name string.

Option `%V` is substituted for by the `femisd` version number string.

Option `%H` is substituted for by the home directory string.

Option `%U` is substituted for by the UID code of the `femisd` process.

Option `%A` is substituted for by the architecture string from `uname`.

Option `%M` is substituted for by the machine type string from `uname`.

Option `%S` is substituted for by the host name of the server.

Option `%C` is substituted for by the host name of the client.

Option `%I` is substituted for by the IP address of the client.

Option `%J` is substituted for by the client port number of the client.

Option `%R` is substituted for by the process id number of the FEMIS process.

Option `%P` is substituted for by the protocol name part of the message.

Option `%D` is substituted for by the current date in `YYYYMMDD` format.

Option `%T` is substituted for by the current time in `HHMMSS` format.

Option `%F` is substituted for by the full time stamp in `YYYYMMDDHHMMSS` format.

Option `%E(V)` is substituted for by the value of environment variable `v`.

Note: The purpose of these and other options is to create unique and different log file names from parameters readily available to the `femisd` program.