

Cluster Musings 01SEP2005

Run Configuration File

In the Haney implementation, information on what executable is to be run is specified in text boxes in the Windows interface. In this implementation, a configuration file will contain the needed information. The following is the general scheme:

1. The user will specify the name of the configuration file in a text box in the interface.
2. The configuration file will contain the names of all executable and data files that need to be transferred to the client.
3. The configuration file will contain the name of the main executable file. This is the first file to be executed on the client and will control execution of all other executables.
4. The configuration file will contain the starting and ending iteration number to be run.
5. The configuration file will contain any command line parameters that need to be sent to the client executable.
6. The names of the output files to be returned to the server will be specified in the configuration file with the fully qualified name of the directory to which it is to be returned. If an output file is created on the client and it's name is not mentioned in the configuration file, the file will be simply deleted.

The general form of the file will be:

```
# name of main executable file to be sent to the client
MainExecutableFileName
main.exe

# name of another executable file to be sent to the client
NameOfFileToSendToClient
other.exe

# name of a data file to be sent to the client
NameOfFileToSendToClient
mydata.dat

# starting iteration number
StartingIterationNumber
1

# ending iteration number
EndingIterationNumber
1000

# command line parameters for client main executable
CommandLineParameters
12345 mydata.data x

# name and directory for files returned to the server
out.dat c:\myoutput
```

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```
# name and directory for files returned to the server  
out.jpg c:\graphicsoutput
```

Configuration File Considerations

1. Some sort of array will be needed on both the client and server to record the executable and data file information.
2. Returned data files (i.e. data files returned to the server) will have the iteration number appended to them. For example if a data file is generated by iteration 123 with the name out.dat, the file placed in the output directory will be called out_00000123.dat.

Message Types Needed

The messaging protocol will need (at least) the following message types:

Client->Server – heartbeat

Client->Server – ready to do work

Client->Server – client executable failed with error code X

Client->Server – execution discontinued due to mouse/keyboard activity

Client->Server – execution discontinued for unknown reason

Client->Server – ack data file/executable file received

Client->Server – ack main executable file name received

Server->Client – Halt all operations (i.e., kill screensaver)

Server->Client – Halt current client executable. Allow screensaver to remain active

Server->Client – sending iteration (rank) number

Server->Client – sending main executable file name and contents

Server->Client – sending data/executable file name and contents

Server->Client – ack data file received

Server->Client – run the main executable

Messaging Considerations

1. If a client run is discontinued, the server will need to check for partially transferred files residing on the server and delete it.
2. Timeouts will be needed for client sending server data. That is, what if server dies and client is sending data. Probably same for server.