Introduction

EnSight is a distributed application with a *client* that manages the user interface and graphics, and a *server* that reads data and performs compute-intensive calculations. The client and server each run as separate processes on one or more computers. Before EnSight can do anything useful, the client process must be connected to the server process.

There are two basic types of connection: *manual* and *automatic*. A manual connection is made by starting the client, telling it to listen for a server connection, and then starting the server (and telling it what machine the client is running on). Manual connection is covered in detail in the Getting Started manual. Automatic connection is covered here.

Basic Operation

The auto-connect mechanism requires that certain conditions exist in your computing environment:

On Unix Systems:

1. You have a valid `.rhosts` file in your home directory on all systems on which you wish to run the EnSight server. The file permission for this file must be such that only the owner (you) has write permission (*e.g.* `chmod 600 ~/.rhosts`). A `.rhost` file grants permission for certain commands (*e.g.* `rsh` or `rlogin`) originating on a remote host to execute on the system containing the `.rhosts` file. For example, the following line grants permission for remote commands from host `clienthost` executed by user `username` to execute on the system containing the `.rhosts` file:

   ```
   clienthost username
   ```

   There should be one line like this for every client host system that you wish to be able issue remote commands from. It is sometimes necessary to add an additional line for each client host of the form `clienthost.domain.com username` (where `domain.com` should be changed to the full Internet domain name of the client host system).

2. You have a `.cshrc` file (even if you are running some other command shell such as `/bin/sh`) in your home directory on the EnSight server host that contains valid settings for `ENSIGHT6_HOME, ENSIGHT6_ARCH, ENSIGHT6_READER, ENSIGHT6_INPUT,` and (optionally) a `path` variable that contains the directory containing the EnSight server executable. For example, if your EnSight distribution is installed in `/usr/local/bin/ensight62` and you are running EnSight on an SGI system (other architectures use a different library path variable), your `.cshrc` should contain:

   ```
   setenv ENSIGHT6_HOME /usr/local/bin/ensight62
   setenv ENSIGHT6_ARCH sgi_6.2
   setenv ENSIGHT6_READER dummy
   setenv ENSIGHT6_INPUT dummy
   set path = ( $path $ENSIGHT6_HOME/bin )
   ```

3. Your `.cshrc` file (or files sourced or executed from there) has no commands that cause output to be written (*e.g.* `date` or `pwd`). Any output would be interpreted as an EnSight server startup error.
4. You can successfully execute a *remote shell* command from the client host system to the server host system. The name of the remote shell command varies from system to system. While logged on to the client host system, execute one of the following (where `serverhost` is the name of your server host system):

   ```
   rsh serverhost date
   remsh serverhost date
   ```

If successful, the command should print the current date.

If any of these conditions are not met, you will be unable to establish a connection automatically and will have to use the manual connection mechanism. Note that it is not uncommon for system administrators to disable operation of all remote commands for security reasons. Consult your local system administrator for help or more information.

On Windows NT Systems:

1. You have the EnSight server (ens6sv.exe) installed on the same system as your EnSight client (if you plan to connect to the same system)

   ---- OR ----

2. You can successfully execute a *remote shell* command from the client host system to the server host system.

   Note: While all Windows NT workstations have the ability to issue RSH (Remote Shell) requests, only systems running Windows NT Server have the RSH deamon and can respond by executing the EnSight server.

   The name of the remote shell command varies from system to system. While logged on to the client host system, execute one of the following (where `serverhost` is the name of your server host system):

```
rsh serverhost date
remsh serverhost date
```

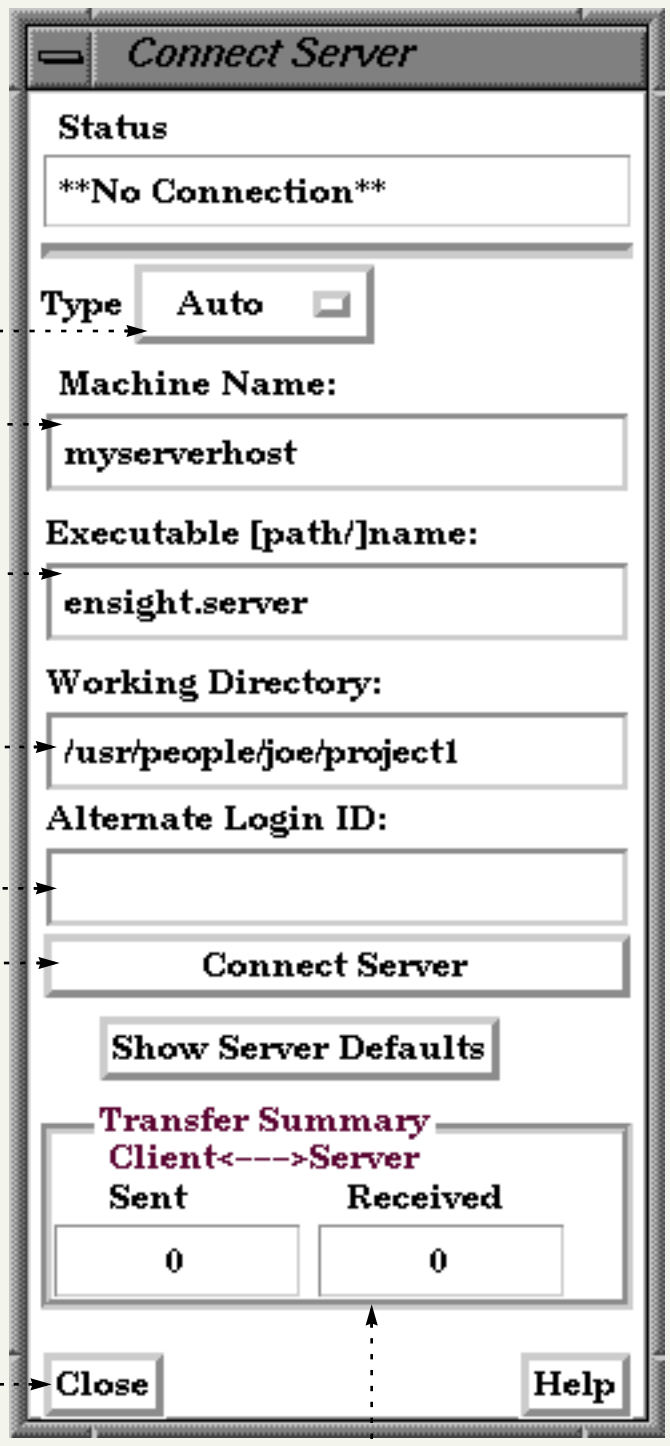
If successful, the command should print the current date.

If condition 1. or 2. is not met, you will be unable to establish a connection automatically and will have to use the manual connection mechanism. Note that it is not uncommon for system administrators to disable operation of all remote commands for security reasons. Consult your local system administrator for help or more information.

How To ... Connect Automatically

In an initial session, you must provide the connection information to EnSight. Once this is done correctly, you can start future sessions and make the connection automatically. To set up for an automatic connection:

1. Select File > Connect... to open the Connect Server dialog.



2. Set the Type to Auto.

3. Enter the host name of the system on which you wish to run the EnSight server.

4. Enter the full path name of the EnSight server executable.

If the server executable is in your default command search path on the server machine, you do not have to provide the full path name – only the name of the server executable.

5. Enter the full path name of the directory from which you wish to start the EnSight server.

This is typically the directory containing your results files. If this field is left blank, the working directory will default to the directory from which the client was started (if both client and server are running on the same system) or your home directory on the server system (if the server is running on a remote machine).

6. If your login name on the server host is different from your login name on the client host, enter your server login name here.

7. Click Connect Server to initiate the connection process.

See the **troubleshooting** section below if the connection attempt fails.

8. Click Close to close the dialog.

You can restore the connection defaults (as stored in `~/.ensight6/ensight.connect.default`) by clicking Show Server Defaults.

You can open the Connect Server dialog at any time and check the Transfer Summary. This section shows how many bytes have been Sent from the client to the server and how many have been Received in return.

Once an automatic connection has been successfully performed, you can start subsequent sessions of EnSight and connect automatically with the following command:

```
% ensight6
```

(This assumes that your command search path on the client host has been set up to include the client execution directory –*e.g.* for Unix, `set path = ( $ENSIGHT6_BIN $path )`.

TROUBLESHOOTING

An automatic connection can fail for any of several reasons. Because of the complexity of networking and customized computing environments, we recommend that you consult your local system administrator and/or CEI support if the following remedies fail to resolve the problem.

Problem	*Probable Causes*	*Solutions*
For Unix Systems:		
Automatic connection fails or is refused	Server (remote) host name is incorrect for some reason.	Is the server host entered correctly in the Machine Name field? Try running `telnet serverhost` from the client machine.
	Incorrect or missing `.rhosts` file in your home directory on the server host.	Follow the instructions on `.rhosts` files (as described in the Basic Operation section, **step 1** above). If you cannot successfully execute a remote command (such `rlogin` or `rsh`) from the client host to the server host, you will not be able to connect automatically.
	The user account (*i.e.* login name) on the client host does not exist on the server host.	Enter your login name on the server host in the Alternate Login ID field.
	The server executable is not found on the server system	Is the entry in the Executable [path/]name field correct? If the server executable is NOT in your default command search path on the server, you must include the full path name to the executable. For example, `/usr/local/bin/ensight6/server/ensight.server`.
	Your .cshrc does not contain a valid setting for `ENSIGHT6_HOME`.	Add the appropriate line as described in the Basic Operation section, **step 2** above.

	Your `.cshrc` file (or files executed by it) causes output to be written. This is interpreted as a server startup error.	Remove the offending commands from your `.cshrc` file. As a test, do the following:
		`% cd`
		`% mv .cshrc .cshrc-SAVE`
		Create a new .cshrc file that contains only the lines to set `ENSIGHT6_HOME` and `path` as described in the Basic Operation section, **step 2** above. If that test works, you will need to examine your `.cshrc` to find and remove the offending lines.

For Windows NT Systems:		
Automatic connection fails or is refused (trying to connect to same host system)	Server not installed or not executable.	You should be able to locate the server executable (ens6sv.exe) using NT Explorer. Double click on it and see if a console window opens with “This is EnSight Server 6.2.1” etc. If this doesn’t happen, refer to “Troubleshooting the Installation” in the Getting Started Manual.
	Path to the server is incorrect	If using the EnSight Connect dialog, check that the correct path is specified in the “default path” field. If running from the ensight6 command, first ensure that your PATH environment variable contains the paths for the EnSight6 “client” and “server” directories. You can check and correct the value of PATH in the Start >Settings >ControlPanel >System_Environment dialog.
	Incorrect hostname entered in the “Machine Name” field of the Connect dialog.	Make sure that the hostname is correct, including the case of all letters. The ONLY way to see the hostname (in the correct case) from NT is via the Start >Settings >ControlPanel >Network >Protocols >TCP/IP >DNS diaolg.
Automatic connection fails or is refused (trying to connect to a remote server)	Same causes as for a Unix system	See “**For Unix Systems**” portion of this table above.

Other Notes

The automatic connection information is stored in the file `~/.ensight6/ensight.connect.default`. The information contained in this file is loaded to the text fields in the Connect Server dialog when it is opened. If required, the file can be edited with any text editor.

By default, the connection between the client and server uses a standard TCP/IP socket mechanism. However, if an automatic connection is being made and EnSight determines that the server will be running on the same machine as the client, it will use a different connection mechanism (known as *named pipes*). This mechanism results in much faster communications between the client and server (from 2 to 5 times speedup). Automatic connection should therefore always be used when running both client and server on the same machine.

See Also

See the Getting Started manual for basic information on EnSight installation and manual connections.