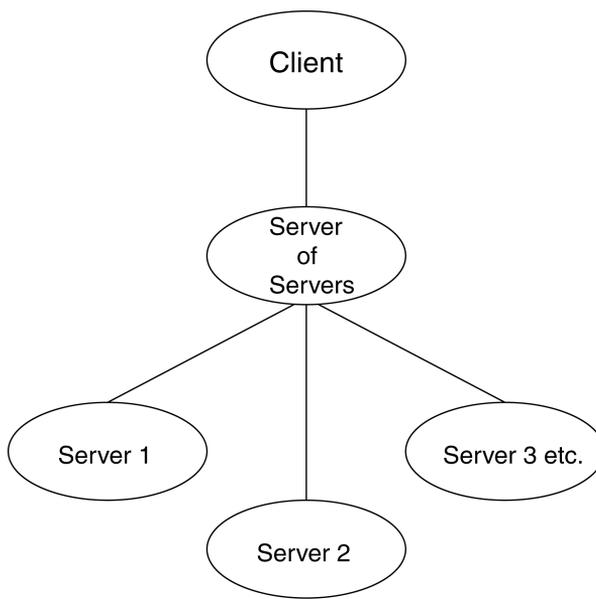




Use Server of Servers

## INTRODUCTION

EnSight7 (with gold license key) has the capability of dealing with partitioned data in an efficient distributed manner by utilizing what we call a server-of-servers (SOS for short). An SOS server resides between a normal client and a number of normal servers. Thus, it appears as a normal server to the client, and as a normal client to the various normal servers.



This arrangement allows for distributed parallel processing of the various portions of a model, and has been shown to scale quite well.

*Note: EnSight SOS provided with release 7.4 does not yet support particle tracing.*

Please recognize that your data must be partitioned in some manner (hopefully in a way that will be reasonably load balanced) in order for this approach to be useful.

*(Included in the EnSight distribution is an unsupported utility that will take most EnSight Gold binary datasets and partition it for you. The source for this utility (called "chopper") can be found in the \$CEI\_HOME/ensight74/unsupported/partitioner directory.)*

Note: If you do your own partitioning of data into EnSight6 or EnSight Gold format, please be aware that each part must be in each partition - but, any given part can be "empty" in any given partition. (All that is required for an empty part is the "part" line, the part number, and the "description" line.)

You should place each partitioned portion of the model on the machine that will compute that portion. Each partitioned portion is actually a self contained set of EnSight data files, which could typically be read by a normal client - server session of EnSight. For example, if it were EnSight gold format, there will be a casefile and associated gold geometry and variable results file(s). On the machine where the EnSight SOS will be run, you will need to place the sos casefile. The sos casefile is a simple ascii file which informs the SOS about pertinent information needed to run a server on each of the machines that will compute the various portions.

The format for this file is as follows: (Note that [ ] indicates optional information, and a blank line or a line with # in the first column are comments.)

```

FORMAT (Required)
type: master_server datatype (Required)
  where: datatype is required and is one of the formats of EnSight's internal readers.
         gold      ensight6  ensight5  plot3d   fidap
         n3s       estet      mpgs4     movie    ansys
         abaqus    fastuns  fluent
  or it can be any other string to use the user-defined format.
  
```



Note: the user-defined format declared to the SOS will be used by all servers.  
If **datatype** is blank, it will default to EnSight6 data type.

<b>SERVERS</b>	(Required)
<b>number of servers: <i>num</i></b>	(Required) where: <b><i>num</i></b> is the number of servers that will be started and run concurrently.
<b>#Server 1</b>	(Comment only)
<b>machine id: <i>mid</i></b>	(Required) where: <b><i>mid</i></b> is the machine id of the server.
<b>executable: <i>./.../ensight7.server</i></b>	(Required, must use full path)
<b>[directory: <i>wd</i>]</b>	(Optional) where: <b><i>wd</i></b> is the working directory from which ensight7.server will be run
<b>[login id: <i>id</i>]</b>	(Optional) where: <b><i>id</i></b> is the login id. Only needed if it is different on this machine.
<b>[data_path: <i>./.../dd</i>]</b>	(Optional) where: <b><i>dd</i></b> is the directory where the data resides. Full path must be provided if you use this line.
<b>casefile: <i>yourfile.case</i></b>	(Required, but depending on format, may vary as to whether it is a casefile, geometry file, neutral file, universal file, etc. Relates to the first data field of the Data Reader Dialog.)
<b>[resfile: <i>yourfile.res</i>]</b>	(Depends on format as to whether required or not. Relates to the second data field of the Data Reader Dialog.)
<b>[measfile: <i>yourfile.mea</i>]</b>	(Depends on format as to whether required or not. Relates to the third data field of the Data Reader Dialog.)
<b>[bndfile: <i>yourfile.bnd</i>]</b>	(Depends on format as to whether required or not. Relates to the fourth data field of the Data Reader Dialog.)

--- Repeat pertinent lines for as many servers as declared to be in this file ---

## BASIC OPERATION

To use Server of Servers, you must:

1. Partition your data, and distribute it (or make it available) to the various machines on which you will run servers.
2. Create the sos casefile, which defines the server machines, the location of server executables on those machines, and the name and location of the partitioned data for the servers.
3. Use EnSight7.sos in place of EnSight7.server, and provide it with the sos casefile.

### Example SOS Casefile

This example deals with a EnSight Gold dataset that has been partitioned into 3 portions, each running on a different machine. The machines are named joe, sally, and bill. The executables for all machines are located in similar locations, but the data is not. Note that the optional data\_path line is used on two of the servers, but not the third.

```

FORMAT
type: master_server gold

SERVERS
number of servers: 3

#Server 1
machine id: joe
executable: /usr/local/bin/ensight74/bin/ensight7.server
data_path: /usr/people/john/data
casefile: portion_1.case

#Server 2
machine id: sally

```



```
executable: /usr/local/bin/ensight74/bin/ensight7.server
data_path: /scratch/sally/john/data
casefile: portion_2.case

#Server 3
machine id: bill
executable: /usr/local/bin/ensight74/bin/ensight7.server
casefile: /scratch/temp/john/portion_3.case
```

If we name this example sos casefile - "all.sos", and we run it on yet another machine - one named george, you would want the data distributed as follows:

On george:	all.sos
On joe (in /usr/people/john/data):	portion_1.case, and all files referenced by it.
On sally (in /scratch/sally/john/data):	portion_2.case, and all files referenced by it.
On bill (in /scratch/temp/john):	portion_3.case, and all file referenced by it.

By starting EnSight with the -sos command line option (which will autoconnect using ensight7.sos instead of ensight7.server), or by manually running ensight7.sos in place of ensight7.server, and providing all.sos as the casefile to read in the Data Reader dialog - EnSight will actually start three servers and compute the respective portions on them in parallel.

## SEE ALSO

- [How To Read Data](#)
- [How To Read EnSight Gold Data](#)
- [How To Read EnSight 6 Data](#)
- [How To Read User Defined](#)

User Manual: [Server-of-Server Casefile Format](#)