

## Assembling unlooped substituted SSL files from SSL files

SSL files are parsed as follows:

- (1) All variable substitution and file insertions are carried out, resulting in a substituted SSL file
- (2) All loop operations are performed, resulting in an unlooped substituted SSL file
- (3) The unlooped substituted SSL file is compiled

Here's how (1) works. The parser starts with a queue containing all lines in the input file, an output file (initially empty), and a list of variables together with their values (initially set in the original SSL call). Each line is parsed, in order, as follows:

- (i) Variable substitution is performed on the line: that is, each defined variable (those in the variable list) is replaced with its value. (The order in which this is done doesn't matter for any extant SSL code.)
- (ii) If the resultant line has the form `VARIABLE(scsvARIABLE=scsvalue)`, the variable `scsvARIABLE` is added to the variable list with the value `scsvalue`
- (iii) If the resultant line has the form `INCLUDE FILE(file)`, the parser looks for `file`. If it doesn't find it, the install fails. If it does find it, `file.ssl` is appended to the top of the queue.
- (iv) If the resultant line doesn't satisfy either (ii) or (iii) (that is, if it's neither a `VARIABLE` nor an `INCLUDE FILE` command) then the line is just appended verbatim to the bottom of the output file.

Note that the `VARIABLE` and `INCLUDE FILE` commands are processed in parallel. So

```
VARIABLE(cat=dog)
INCLUDE FILE(cat)
```

and

```
INCLUDE FILE(cat)
VARIABLE(cat=dog)
```

give different outputs.

I assume the rules for performing loop operations are simple enough that I don't have to explain them. But note that because loops are evaluated after file inclusion, something like

```
BEGIN LOOP(scsvvar | | cat;dog)
```

```
INCLUDE FILE(scscii\animals\scsvvar.ssl)
```

```
END LOOP
```

doesn't give quite what you might expect. There is actually a BEGIN/END OUTER LOOP command in SSL, which is evaluated before inclusions, but it was basically obsolete once VARIABLE was added, and I don't think any SCS script uses it.