The purpose of this document is to record what was done to enable lmod PST to use the structured global variable g and other ‘clean up’ actions taken. Each paragraph describes the required changes the PST file that has anything to do with load modulation.

Initial globals:

%% load modulation variables  
global lmod\_con % defined by user  
global n\_lmod lmod\_idx % initialized and created in lm\_indx  
global lmod\_sig lmod\_st dlmod\_st % initialized in s\_simu  
global lmod\_pot % created/initialized in lmod.m   
% g.lmod.lmod\_pot(:,1) = max, g.lmod.lmod\_pot(:,2) = min  
global lmod\_data % added by Trudnowski - doesn't appear to be used?  
% maybe in new models?

Modified globals:

global g

#### User Input Data File

The ‘d\_xxx’ file should now define lmod\_con as g.lmod.lmod\_con. This is because in the ‘standard’ PST method of operations, lmod\_con is defined as a global before the user data file is executed. This effectively means that the user defined arrays in the data file are actually defining global arrays (who knew?).

Code has been added to handle if lmod\_con is not prepended with g.lmod. This approach may be simpler for backwards compatibility with ‘legacy’ data sets.

#### ml\_sig.m

User created file that defines signal(s) to load modulation. Should include global g and only receive index variable k. Utilize global time array located in g.sys.t.

#### lm\_indx.m

Notes from file:

% syntax: f = lm\_indx  
% 5:02 PM 15/08/97  
% determines the relationship between lmod and nc loads  
% checks for lmod  
% determines number of modulated loads

Comments should be redone in a similar fashion as lmod.m

* Prepended g.lmod. to appropriate globals:
  1. n\_lmod
  2. lmod\_idx
* Added comments for each code line.
* Added check for lmod\_con field in g.lmod. If not found, creates empty array and displays a message. (empty array created as there may be other checks to see if lmod\_con is empty)

#### lmod.m

This function calculates the initial state, and states of the lmod model.

* The beginning comments and function info was modified to more closely follow recommended function documentation as provided in the S.J. Chapman MATLAB book.
* The function was modified to be a VOID function (i.e. return nothing).
* bus was removed from input parameters as it is not used.
* Prepended all lmod related globals with g.lmod.

#### s\_simu\_Batch.m

* Added g.lmod. to zero initializations of
  + lmod\_st
  + dlmod\_st
  + lmod\_sig
* Added g.lmod. to initialization call to lmod function
* Added g.lmod. to check for live plot
* Added g.lmod. to integrations of
  + lmod\_st using dlmod\_st
* Added time array t to g.sys.t
* Removed sending of bus to lmod

#### nc\_load.m

Adds load modulation to Y array.

* Added g.lmod. to calls to lmod\_idx and lmod\_st.

#### svm\_mgen\_Batch.m

Not modified as there were no example cases to test functionality of changes.

#### ns\_file.m

Called from svm\_mgen not modified.

#### p\_cont.m

Invoked during linearization of system not modified.

#### p\_file.m

Associated file with svm\_mgen - i.e. state space model stuff not modified.