

The PSLF Model Conversion Package

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1. Introduction

The Model Conversion Package replaces dynamic model records in a PSLF dynamics data file (".dyd file") with new records whose parameters have a defined relationship to the parameters of the original records. A typical conversion would be to replace all records describing ieeet1 models with corresponding records for the exdc1 model. The central element of the package is a library of Model Conversion Data Files (MCDF), each of which defines the transformation from one model to another. While the package was first intended to convert excitation system models it can be used to replace any PSLF dynamic model with a corresponding but different model.

In addition to replacing models, the conversion process checks the values of parameters and checks for consistency between parameters. In fact, the package can be used for parameter value and consistency checking without changing model assignments; in this mode it simply replaces the incoming model records with new records whose parameter values have been checked and corrected.

Model conversion is achieved by reading a PSLF dynamics data file, (a ".dyd" file) and writing a new file. Records not involved in the conversion are passed through without change and records for models being converted are replaced with the appropriate new ones.

2. Components of the Package

The several components of the Model Conversion Package are described in accompanying manual pages. They are

- Model Conversion Data Files
- The Conversion Rule File, **rule.txt**
- The main conversion program, **3ic**
- The single-bus conversion program, **4ia**
- The single machine dynamic response checking program, **bb.p**
- The multi-machine dynamic response checking program, **cc.p**
- Skeleton load flow case files **bb.sav** and **cc.sav** for use with **bb.p** and **cc.p**.

Each of these components is described in the following documentation.

3. Procedure for using the conversion package

The sequence of steps in making a conversion of models in a dynamics data file is as follows:

- a. Make up a working directory for the conversion work. Place the input .dyd file, and the files bb.p, cc.p, bb.sav, cc.sav in this directory. Place the MCDF library directory, lib, in the working directory.
- b. Ensure that there is an MCDF in the library for each conversion to be made.

- c. Make up a file named **rule.txt** to list the conversions to be made. The rule.txt file format is given in the manual pages for 3ic and 4ia.
- d. Make up a file named **include** or **exclude** if the conversion of models is to be selective by bus. The format of these files is given in the manual page for 3ic.
- e. Run the 3ic program to create a new .dyd file.
- f. Review the error files and changes files produced by 3ic. Note that 3ic corrects some of the errors that it finds but intentionally does not correct them all.
- g. As required correct data errors that were not acted on by 3ic.
- h. To make complete checks on the data for individual machines use the 4ia program to make dynamics data files for the bb.p and/or cc.p programs.