PlanPrep (version 4.0.15)

Revision History

28 April 2011 Created by Volpe Center

The PlanPrep program performs the following functions:
1. Merge, sort, select, and combine plan files;
2. Reintegrate subarea plans with regional plan files;
3. Create and check plan partitions; and
4. Generate distribution reports of path and travel time changes.

PlanPrep is a console-based program that runs in a command window on either Windows or Linux. The command syntax is:

PlanPrep [-flag] [control_file]

The control_file is the file name of an ASCII file that contains the control strings expected by the program. The control_file is optional. If a file name is not provided, the program will prompt the user to enter a file name. The flag parameters are also optional. Any combination of the following flag parameters can be included on the command line:

-Q[uiet] = execute without screen messages
-H[elp] = show program syntax and control keys
-K[eyCheck] = list unrecognized control file keys
-P[ause] = pause before exiting
-N[oPause] = never pause before exiting
-B[atch] = execute in batch processing mode

The program automatically creates a printout file based on the control_file name. If the file name includes an extension, the extension is removed and ".prn" is added. The printout file will be created in the current working directory and will overwrite an existing file with the same name.

Control File Examples

EXAMPLE 1 MERGE PLAN FILES

Typically, this takes a small plan file (the INPUT plan file), and merges it with the larger file (the MERGE plan file) to produce an OUTPUT plan file for the next iteration. The plans from the INPUT file supersede the matching plans in the MERGE file, with the result being written in the OUTPUT file.

```
TITLE                   TestBed Merge Plan Sort by traveler
NODE_LIST_PATHS         false
INPUT_PLAN_FORMAT       VERSION3
MERGE_PLAN_FORMAT       VERSION3
OUTPUT_PLAN_FORMAT      VERSION3
INPUT_PLAN_FILE         8.TimePlanC
MERGE_PLAN_FILE         7.TimePlanB
OUTPUT_PLAN_FILE        8.TimePlanB
PLAN_SORT_OPTION        TRAVELER
PLANPREP_REPORT_1        PERCENT_PATH_CHANGE
PLANPREP_REPORT_2        PERCENT_TRAVEL_TIME_CHANGE
```

EXAMPLE 2 SORT PLAN FILES

This example sorts the plans by time-of-day, and is typically used prior to running the microsimulator

```
TITLE                   TestBed Plan Sort by time for microsimulation
NODE_LIST_PATHS       false
INPUT_PLAN_FORMAT       VERSION3
OUTPUT_PLAN_FORMAT       VERSION3
INPUT_PLAN_FILE         8.TimePlanB
OUTPUT_PLAN_FILE        8.TimePlanD
PLAN_SORT_OPTION        TIME
```

EXAMPLE 3 SELECT PLAN FILES

This example selects those plans that belong to a household list.

```
TITLE                   Select plans from a household list
NODE_LIST_PATHS       false
INPUT_PLAN_FORMAT       VERSION3
OUTPUT_PLAN_FORMAT       VERSION3
INPUT_PLAN_FILE         8.TimePlanB
OUTPUT_PLAN_FILE        SelectHH.TimePlanB
HOUSEHOLD_LIST          SelectHouseholds.txt
```

EXAMPLE 4 COMBINE PARTITIONED PLAN FILES

This example combines two partitioned plan files, named 7.TimePlanBpartition.tAA and 7.TimePlanBpartition.tAB, into a single plan file.

```
TITLE                   Recombine Plans
NODE_LIST_PATHS       false
INPUT_PLAN_FORMAT       VERSION3
OUTPUT_PLAN_FORMAT      VERSION3
```

```
INPUT_PLAN_FILE         7.TimePlanBpartition.t*
OUTPUT_PLAN_FILE        7.TimePlanBcombine

INPUT_PLAN_SORT         TRAVELER
PLAN_COMBINE_OPTION     FILE
```

EXAMPLE 5 CREATE PLAN PARTITIONS

Assume that you have a partitioned household list, with household files named Household.txt.TAA, Household.txt.TAB, etc. This control file creates the corresponding partitioned plans.

```
TITLE                   Partition Plans
NODE_LIST_PATHS       false
INPUT_PLAN_FORMAT       VERSION3
OUTPUT_PLAN_FORMAT      VERSION3
INPUT_PLAN_FILE         7.TimePlanB
OUTPUT_PLAN_FILE        7.TimePlanBpartition

HOUSEHOLD_LIST                      Household.txt.t*

UPDATE_PLAN_PARTITIONS  TRUE
```

Control File Parameters

Control parameters are defined using a control key followed by a string or number. The control parameters can be specified in any order. If a given key is defined more than once, the last instance of the key is used. The default value for each key is 0 or "Null". Null parameters do not need to be included in the file. Note that comment lines or extraneous keys can be included in the file. They will be ignored by the program.

The keys recognized by the **PlanPrep** program are listed below. These keys can be defined in a variety of different ways to perform different tasks. The first key is required; others are optional.

INPUT_PLAN_FILE

The input plan file key is required. It specifies the name of the TRANSIMS plan file within the project directory. The full path and file name for the plan file is constructed by appending the value of this key to the value of the PROJECT_DIRECTORY key.

TITLE

Any text string can be used on this line. This text is printed on the top of each output page.

REPORT_FILE

The report file name is optional. If a file name is not provided, the program automatically creates a report file name based on the input control file name. The report file will overwrite an existing file with the same name if the Report Flag key is False or not specified.

REPORT_FLAG

The report flag key is optional. Its default is FALSE. If it is specified as Yes or True, the report file or default printout file will be opened in "Append" mode rather than "Create" mode. This permits the user to consolidate the output of several programs into a single report file.

MAX_WARNING_MESSAGES

When the program generates a warning message, a counter is incremented and the total number of warning messages is reported and a warning return coded (2) is set at the end of the execution. By default the program prints up to 100,000 warning messages to the print-out file. If more than 100,000 warning messages are sent, the program stops printing additional messages to the file or terminates the program with an error message based on the MAX_WARNING_EXIT_FLAG. This parameter enables the user to modify the default warning limit.

MAX_WARNING_EXIT_FLAG

If the maximum number of warning messages is exceeded, this flag directs the program in what to do. If the flag is TRUE (the default), the program is terminated with an error message about the warning messages. If the flag is FALSE, the program continues execution, but no additional warning messages are sent to the screen or written to the printout file. The warning message counter continues to count the messages and reports the total at the end of the execution.

PROJECT_DIRECTORY

The project directory key is not required. If it is specified, it is added to all non-network file names required by the program. If it is not specified, all non-network file names should fully specify the file path.

TRAVELER_SCALING_FACTOR

The traveler scaling factor key enables the user to factor the input travelers by a scaling factor. The default value is 1.0.

INPUT_PLAN_FORMAT

Format of the Input_Plan. Options are Version3 (plain text) and Binary.

INPUT_PLAN_SORT

Plans are sorted either by TRAVELER or TIME.

MERGE_PLAN_FILE

File name for the merge plan file. The full path and file name for the plan file is constructed by appending the value of this key to the value of the PROJECT_DIRECTORY key. When plans are combined, the output plan file consists of records from the INPUT and MERGE plan files, as follows:

- If a particular plan exists in the input file, it is used, superseding the plan in the merge file
- If a particular plan exists in the merge file, but not the input file, it is used.

MERGE_PLAN_FORMAT

Format of the Merge plan file. Options are Version3 (plain text) and Binary.

SUBAREA_PLAN_FILE

Undocumented

SUBAREA_PLAN_FORMAT

Format of the Subarea_Plan. Options are Version3 (plain text) and Binary.

OUTPUT_PLAN_FILE

The output file of selected plans.

OUTPUT_PLAN_FORMAT

Format of the Output_Plan. Options are Version3 (plain text) and Binary.

NODE_LIST_PATHS

The node list paths key is optional and when provided specifies the way the path is identified in the input plan file. The key is "true" by default. This means that the input plans will include a list of the node ID numbers along the travel path. If the key is "false", the program interprets the path as a list of link ID numbers. If the first character of the key is "0", "N", "n", "F", or "f", the key is interpreted as "false".

Note that all plan files must either be node based or link based. Mixing plan files (where, for example the input plan file is node based and the compare plan file is link based) is not allowed.

PLAN_SORT_OPTION

Options are TRAVELER or TIME

The PLAN_SORT_OPTION only apply to the INPUT_PLAN_FILE. The program assumes MERGE_PLAN_FILE is already sorted.

A plan sort reads all of the plans for a given partition into memory to sort the records. . The memory requirement can be estimated as the size of the plan partition in binary format plus several megabytes.

PLAN_COMBINE_OPTION
Options are FILE or MEMORY

MAX_OUTPUT_PLAN_SIZE
Default is unlimited. The range is 1 to 1024 megabytes

SELECT_TRAVELER_RANGE
ID range of travelers to be selected. The default value is ALL travelers.

SELECT_TIME_PERIODS
The select time periods parameter enables the user to specify the times of day that are considered for processing. This parameter is optional. If it is not provided, all times will be considered by the selection process. The parameter is interpreted as a comma-delimited list of time periods. Time periods are specified by providing the beginning time and the ending time separated by two periods. The time values can be provided as integer seconds (e.g., 15000..17000), as decimal hours (e.g., 15.5..17.5), or in standard clock format (e.g., 15:30..17:30). All times must use 24-hour clock conventions

SELECTION_PERCENTAGE
Defaults to 100 percent with a range of 0.1 to 100 percent

RANDOM_NUMBER_SEED
Defaults to the computer clock time

CHECK_PLAN_PARTITIONS
Defaults to FALSE. Possible values are {true/false/yes/no/1/0}

UPDATE_PLAN_PARTITIONS
Defaults to FALSE. Possible values are {true/false/yes/no/1/0}

HOUSEHOLD_LIST
File containing a list of households.

DELETE_HOUSEHOLD_LIST
Enables plans associated with selected households to be removed from the plan file.

DELETE_ONE_LEG_PLANS
Enables plans with only a single leg to be removed from the plan file.

FIX_PLAN_FILE
Filename for the fix plans

MERGE_BY_TRIP

MERGE_BY_TRIP permits PlanPrep to merge/replace selected trips within a household rather than all trips within the household.

PLANPREP_REPORT_*

These are optional reports. Examples appear below under Example 1 (page 9).

Report Options:

PERCENT_PATH_CHANGE
PERCENT_TRAVEL_TIME_CHANGE
DUMP_PATH_CHANGES_GREATER_THAN_*
DUMP_TRAVEL_TIME_CHANGES_GREATER_THAN_*
FIX_PLAN_LISTS

The "*" is replaced by a floating point percent change criteria (e.g., _GREATER_THAN_10.0).

```
Path Change Report
PATH CHANGE:
                          Link Changes * 100 / Previous Links
             -------------Percentile Distribution by Time Period----------     Num.
Time Period   50%    65%    70%    75%    80%    85%    90%    95%    99%    Plans

 000- 100
 100- 200
 200- 300
 300- 400
 400- 500
 500- 600
 600- 700
 700- 800     0.0    0.0    0.0    0.0    0.0    0.0    0.0    0.0    0.0       11
 800- 900     0.0    0.0   66.6   66.6   66.6   66.6   66.6   66.6   66.6       81
```

The Path Change Report focuses on path changes between iterations. Reading the 0800-0900 line:

- The sequence of zeroes up to and including the 65% column signify that 65% of all paths did not change the links on which they travel.
- 99% of all paths changed at most 66.6% of their links; that is, 99% of all paths share at least 1 of every 3 links between the two iterations being compared.
- Skipping to the last column, 81 plans were active this time period.

TRAVEL TIME CHANGE:

Time Change * 100 / Previous Time

Time Period	50%	65%	70%	75%	80%	85%	90%	95%	99%	Num. Plans
	Percentile Distribution by Time Period									
000- 100										
100- 200										
200- 300										
300- 400										
400- 500										
500- 600										
600- 700										
700- 800	52.2	52.6	52.6	52.6	52.6	52.6	52.6	53.0	53.0	11
800- 900	53.2	53.2	53.4	53.6	53.8	53.8	56.0	56.6	56.8	81

The Travel Time Change report compares Router- or Microsimulator-predicted travel time changes, plan-by-plan, between iterations. Reading the 800-900 line:

- 50% of all paths had a predicted travel-time change of 53.2% or less.
- 99% of all paths had a predicted travel-time change of 56.8% or less.
- A total of 81 plans were active this time period.

Sample Printouts

EXAMPLE 1

```
*****************************************
|                                       |
|        PlanPrep - Version 4.0.15      |
|   Copyright (c) 2009 by AECOM Consult |
|         Tue Apr 26 07:34:09 2011      |
|                                       |
*****************************************

Control File = PlanMerge.ctl
Report_File  = PlanMerge.prn (Create)

TestBed Merge Plan Sort by traveler

Input Plan File = 8.TimePlanC
Input Plan File Format = VERSION3

Merge Plan File = 7.TimePlanB
Merge Plan File Format = VERSION3

Output Plan File = 8.TimePlanB
Output Plan File Format = VERSION3

Plan Sort Option = TRAVELER

PlanPrep Reports:  1. PERCENT_PATH_CHANGE
                   2. PERCENT_TRAVEL_TIME_CHANGE


Number of Input Files = 1
Number of Input Plans = 861
Number of Input Records = 5740
Number of Input Travelers = 287
Number of Input Trips = 287

Number of Merge Plans = 282000
Number of Merge Records = 1880000
Number of Merge Travelers = 94000
Number of Merge Trips = 94000

Number of Replaced Travelers = 287

Number of Output Files = 1
Number of Output Plans = 282000
Number of Output Records = 1880000
Number of Output Travelers = 94000
Number of Output Trips = 94000
```

TestBed Merge Plan Sort by traveler

Path Change Report

Link Changes * 100 / Previous Links

Time Period	50%	65%	70%	75%	80%	85%	90%	95%	99%	Num. Plans
000- 100										
100- 200										
200- 300										
300- 400										
400- 500										
500- 600										
600- 700										
700- 800	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	11
800- 900	0.0	0.0	66.6	66.6	66.6	66.6	66.6	66.6	66.6	81
900-1000	71.4	71.4	71.4	71.4	71.4	71.4	71.4	71.4	71.4	24
1000-1100										
1100-1200										
1200-1300										
1300-1400										
1400-1500										
1500-1600	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	26
1600-1700										
1700-1800	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	45
1800-1900	0.0	0.0	0.0	0.0	0.0	0.0	66.6	66.6	71.4	98
1900-2000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2
2000-2100										
2100-2200										
2200-2300										
2300-2400										
Total	0.0	0.0	0.0	0.0	0.0	66.6	66.6	71.4	71.4	287

Travel Time Change Report

Time Change * 100 / Previous Time

Time Period	50%	65%	70%	75%	80%	85%	90%	95%	99%	Num. Plans
000- 100										
100- 200										
200- 300										
300- 400										
400- 500										
500- 600										
600- 700										
700- 800	52.2	52.6	52.6	52.6	52.6	52.6	52.6	53.0	53.0	11
800- 900	53.2	53.2	53.4	53.6	53.8	53.8	56.0	56.6	56.8	81
900-1000	52.0	52.8	52.8	52.8	53.0	53.0	53.0	54.2	54.8	24
1000-1100										
1100-1200										
1200-1300										
1300-1400										
1400-1500										
1500-1600	52.8	52.8	53.0	53.2	53.2	53.2	53.4	53.6	57.4	26
1600-1700										

```
1700-1800    63.2   63.2   63.2   63.2   63.2   63.2   63.2   70.4   70.4       45
1800-1900    54.2   56.0   56.8   58.8   59.2   59.2   59.2   59.2   62.4       98
1900-2000    99.8   99.8   99.8   99.8   99.8   99.8   99.8   99.8   99.8        2
2000-2100
2100-2200
2200-2300
2300-2400

Total        53.8   55.2   56.6   58.8   59.2   60.6   63.0   63.2   70.4      287

Tue Apr 26 07:34:20 2011 -- Process Complete (0:00:11)
```

EXAMPLE 2

```
*****************************************
|                                       |
|        PlanPrep - Version 4.0.15      |
|   Copyright (c) 2009 by AECOM Consult |
|         Tue Apr 26 07:52:09 2011      |
|                                       |
*****************************************

Control File = PlanSort.ctl
Report_File  = PlanSort.prn (Create)

TestBed Plan Sort by time for microsimulation

Input Plan File = 8.TimePlanB
Input Plan File Format = VERSION3

Output Plan File = 8.TimePlanD
Output Plan File Format = VERSION3

Plan Sort Option = TIME


Number of Input Files = 1
Number of Input Plans = 282000
Number of Input Records = 1880000
Number of Input Travelers = 94000
Number of Input Trips = 94000

Number of Output Files = 1
Number of Output Plans = 282000
Number of Output Records = 1880000
Number of Output Travelers = 94000
Number of Output Trips = 94000

Tue Apr 26 07:52:19 2011 -- Process Complete (0:00:10)
```

EXAMPLE 3

```
*****************************************
|                                       |
|        PlanPrep - Version 4.0.15      |
|   Copyright (c) 2009 by AECOM Consult |
|         Tue Apr 26 08:18:22 2011      |
|                                       |
*****************************************

Control File = PlanPrepSelect.ctl
Report_File  = PlanPrepSelect.prn (Create)

Select plans from a household list

Input Plan File = 8.TimePlanB
Input Plan File Format = VERSION3

Output Plan File = SelectHH.TimePlanB
Output Plan File Format = VERSION3

Household List = SelectHouseholds.txt


Number of Input Files = 1
Number of Input Plans = 282000
Number of Input Records = 1880000
Number of Input Travelers = 94000
Number of Input Trips = 94000

Number of Output Files = 1
Number of Output Plans = 5346
Number of Output Records = 35640
Number of Output Travelers = 1782
Number of Output Trips = 1782

Tue Apr 26 08:18:27 2011 -- Process Complete (0:00:05)
```

EXAMPLE 4

```
*****************************************
|                                       |
|        PlanPrep - Version 4.0.15      |
|   Copyright (c) 2009 by AECOM Consult |
|         Mon Apr 25 15:26:45 2011      |
|                                       |
*****************************************

Control File = PlanCombine.ctl
Report_File  = PlanCombine.prn (Create)

Recombine Plans

Input Plan File = 7.TimePlanBpartition.t*
Input Plan File Format = VERSION3
Input Plan Sort = TRAVELER

Output Plan File = 7.TimePlanBcombine
Output Plan File Format = VERSION3
```

```
Plan Combine Option = FILE


Number of Input Files = 2
Number of Input Plans = 282000
Number of Input Records = 1880000
Number of Input Travelers = 94000
Number of Input Trips = 94000

Number of Output Files = 1
Number of Output Plans = 282000
Number of Output Records = 1880000
Number of Output Travelers = 94000
Number of Output Trips = 94000

Mon Apr 25 15:26:56 2011 -- Process Complete (0:00:11)
```

EXAMPLE 5

```
*****************************************
|                                       |
|        PlanPrep - Version 4.0.15      |
|   Copyright (c) 2009 by AECOM Consult |
|         Mon Apr 25 15:20:57 2011      |
|                                       |
*****************************************

Control File = PlanPartition.ctl
Report_File  = PlanPartition.prn (Create)

Partition Plans

Input Plan File = 7.TimePlanB
Input Plan File Format = VERSION3

Output Plan File = 7.TimePlanBpartition
Output Plan File Format = VERSION3

Update Plan Partitions = TRUE

Household List = Household.txt.t*

Number of Input Files = 1
Number of Input Plans = 282000
Number of Input Records = 1880000
Number of Input Travelers = 94000
Number of Input Trips = 94000

Number of Output Files = 2
Number of Output Plans = 282000
Number of Output Records = 1880000
Number of Output Travelers = 94000
Number of Output Trips = 94000

Mon Apr 25 15:21:08 2011 -- Process Complete (0:00:11)
```