

# EMFAC-HK Version 2.1

Running Without the GUI

# Objectives

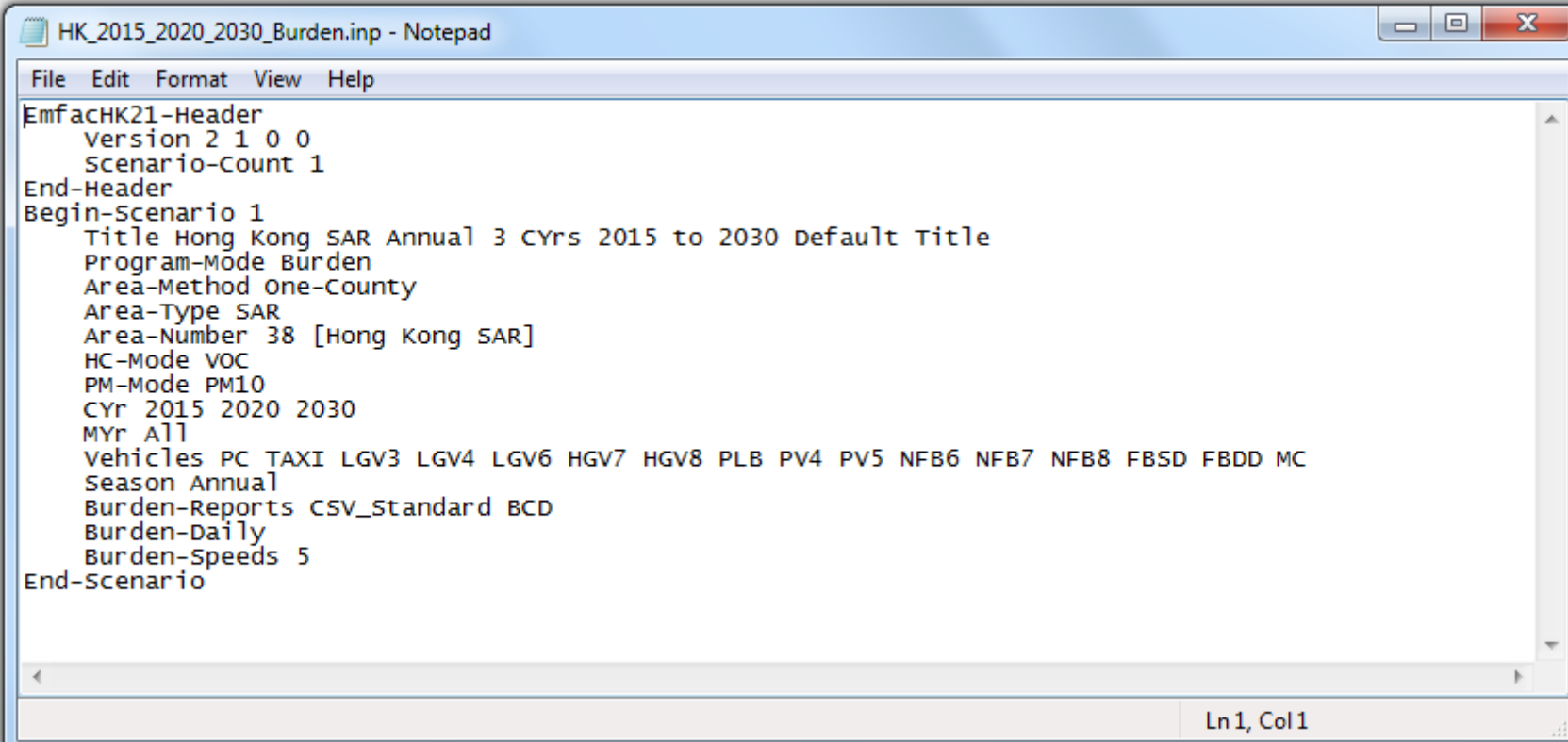
- Describe/illustrate EMFAC-HK v 2.1 input file format and keywords
- Provide general description of the input file format to facilitate creating/modifying input files outside of the GUI.
- Provide steps to run EMFAC-HK Version 2.1 without using the GUI (i.e., non-interactively or “batch” mode)
- Perform example

# Components

- **EMFAC-HK V2.1 Input file Format**
  - Structure of input Files
  - Keywords
  - Running using an input file
  - Batch mode use of EMFAC-HK

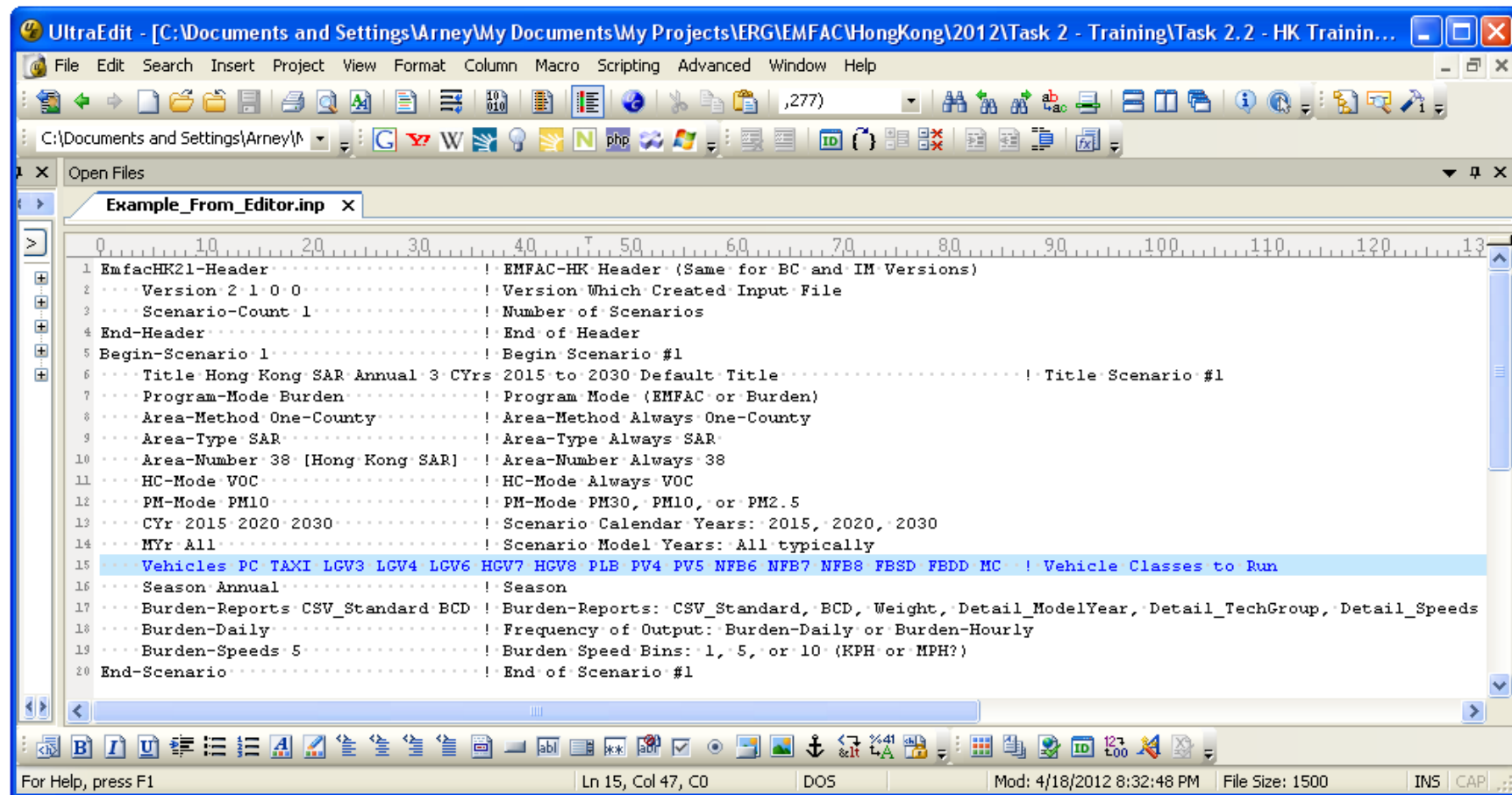
# EMFAC-HK Version 2.1

## Sample Input File (Basic Scenario)



```
HK_2015_2020_2030_Burden.inp - Notepad
File Edit Format View Help
EmfachK21-Header
  Version 2 1 0 0
  Scenario-Count 1
End-Header
Begin-Scenario 1
  Title Hong Kong SAR Annual 3 CYrs 2015 to 2030 Default Title
  Program-Mode Burden
  Area-Method One-County
  Area-Type SAR
  Area-Number 38 [Hong Kong SAR]
  HC-Mode VOC
  PM-Mode PM10
  CYr 2015 2020 2030
  MYr All
  Vehicles PC TAXI LGV3 LGV4 LGV6 HGV7 HGV8 PLB PV4 PV5 NFB6 NFB7 NFB8 FBSD FBDD MC
  Season Annual
  Burden-Reports CSV_Standard BCD
  Burden-Daily
  Burden-Speeds 5
End-Scenario
Ln 1, Col 1
```

# Annotated Sample Input File (Basic Scenario)



The screenshot displays the UltraEdit text editor interface. The title bar shows the file path: C:\Documents and Settings\Arney\My Documents\My Projects\ERG\EMFAC\HongKong\2012\Task 2 - Training\Task 2.2 - HK Trainin... The menu bar includes File, Edit, Search, Insert, Project, View, Format, Column, Macro, Scripting, Advanced, Window, and Help. The toolbar contains various icons for file operations and editing. The main window shows a file named 'Example\_From\_Editor.inp' with the following annotated text:

```
1 EmfacHK21-Header ..... ! EMFAC-HK Header (Same for BC and IM Versions)
2 ... Version 2 1 0 0 ..... ! Version Which Created Input File
3 ... Scenario-Count 1 ..... ! Number of Scenarios
4 End-Header ..... ! End of Header
5 Begin-Scenario 1 ..... ! Begin Scenario #1
6 ... Title Hong Kong SAR Annual 3 CYrs 2015 to 2030 Default Title ..... ! Title Scenario #1
7 ... Program-Mode Burden ..... ! Program Mode (EMFAC or Burden)
8 ... Area-Method One-County ..... ! Area-Method Always One-County
9 ... Area-Type SAR ..... ! Area-Type Always SAR
10 ... Area-Number 38 [Hong Kong SAR] ..... ! Area-Number Always 38
11 ... HC-Mode VOC ..... ! HC-Mode Always VOC
12 ... PM-Mode PM10 ..... ! PM-Mode PM30, PM10, or PM2.5
13 ... CYr 2015 2020 2030 ..... ! Scenario Calendar Years: 2015, 2020, 2030
14 ... MYr All ..... ! Scenario Model Years: All typically
15 Vehicles PC TAXI LCV3 LCV4 LCV6 HGV7 HGV8 PLB PV4 PV5 NFB6 NFB7 NFB8 FBSD FBDD MC ! Vehicle Classes to Run
16 ... Season Annual ..... ! Season
17 ... Burden-Reports CSV_Standard BCD ..... ! Burden-Reports: CSV_Standard, BCD, Weight, Detail_ModelYear, Detail_TechGroup, Detail_Speeds
18 ... Burden-Daily ..... ! Frequency of Output: Burden-Daily or Burden-Hourly
19 ... Burden-Speeds 5 ..... ! Burden Speed Bins: 1, 5, or 10 (KPH or MPH?)
20 End-Scenario ..... ! End of Scenario #1
```

The status bar at the bottom indicates: For Help, press F1 | Ln 15, Col 47, CO | DOS | Mod: 4/18/2012 8:32:48 PM | File Size: 1500 | INS CAP

# EMFAC-HK Version 2.1 Input Format

## Scenario Data Edits

A	
!	scenario data
!	BEGIN-SCENARIO-PROGDATA (# Data Items)
!	BEGIN-DATA-ITEM (Repeat for each data item)
!	DATATYPE 19 PopTotal
!	APPLIES-TO CYR 2010
!	APPLIES-TO SEASON Summer
!	APPLIES-TO AREA-METHOD One-County
!	APPLIES-TO AREA-TYPE SAR
!	APPLIES-TO AREA-NUMBER 38
!	APPLIES-TO VEHICLE PC
!	APPLIES-TO MYR All
!	APPLIES-TO AGES All
!	APPLIES-TO EXH-TECH-GROUP 23
!	APPLIES-TO EVAP-TECH-GROUP 15
!	APPLIES-TO FUEL Gas
!	REAL-VALUE nn.nn
!	INTEGER-VALUE nn
!	BEGIN-REAL-ARRAY nn
!	values.nn
!	END-REAL-ARRAY
!	END DATA-ITEM
!	END-SCENARIO-PROGDATA

# EMFAC-HK Data Types

Data Type	Keyword	Description
1	Temperature	Temperature
3	RelativeHumidity	Relative Humidity
5	RVP	Gasoline RVP
7	SpeedFractions	Speed Distribution by Hr
9	ExhaustTechFrac	Exhaust Technology Group Fractions
10	EvapTechFrac	Evap Technology Group Fractions
11	VMTTotal	VMT Total
12	VMTVehicle	VMT by Vehicle Class
13	VMTVehicleFuel	VMT by Vehicle Class, Fuel
14	VMTVehicleFuelHour	VMT by Vehicle Class, Fuel, Hr
15	TripsTotal	Trips Total
16	TripsVehicle	Trips by Vehicle Class
17	TripsVehicleFuel	Trips by Vehicle Class, Fuel
18	TripsVehicleFuelHour	Trips by Vehicle Class, Fuel, Hr

Data Type	Keyword	Description
19	PopTotal	Population Total
20	PopVehicle	Pop by Vehicle Class
21	PopVehicleFuel	Pop by Vehicle Class, Fuel
22	PopVehicleFuelAge	Pop by Vehicle Class, Fuel, Hr
23	AccrualTotal	Accrual Total
24	AccrualVehicle	Accr by Vehicle Class
25	AccrualVehicleFuel	Accr by Vehicle Class, Fuel
26	AccrualVehicleFuelAge	Accr by Vehicle Class, Fuel, Hr
27	InterimIMConstants	Interim IM Constants
28	IdleTotal	Idle Time Total
29	IdleVehicle	Idle Time by Vehicle Class
30	IdleVehicleFuel	Idle Time by Vehicle Class, Fuel
31	IdleVehicleFuelHour	Idle Time by Vehicle Class, Fuel, Hr
32	RawPop	Raw (Baseline) Pop
33	RawAccrual	Raw Accrual
34	RawTrips	Raw Trips
35	RawGrowth	Raw Pop Growth

Note: Datatype codes are the same as EMFAC-HK v 1.2

# Annotated Sample Input File (HK\_2015\_M&HGV\_speed.inp)

```
HK_2015_M&HGV_speed (annotated).inp - Notepad
File Edit Format View Help
EmfACHK21-Header
  Version 2 1 0 0
  Scenario-Count 1
End-Header
Begin-Scenario 1
  Title Hong Kong SAR Annual CYr 2015 Default Title
  Program-Mode Burden
  Area-Method One-County
  Area-Type SAR
  Area-Number 38 [Hong Kong SAR]
  HC-Mode VOC
  PM-Mode PM10
  CYr 2015
  MYr All
  Vehicles PC TAXI LGV3 LGV4 LGV6 HGV7 HGV8 PLB PV4 PV5 NFB6 NFB7 NFB8 FBSD FBDD MC
  Season Annual
  Burden-Reports CSV_Standard BCD
  Burden-Daily
  Burden-Speeds 5
End-Scenario
Begin-Scenario-ProgData 2
  Begin-Data-Item
    DataType 7 SpeedFractions
    Applies-To CYr 2015
    Applies-To Area-Method One-County
    Applies-To Area-Type SAR
    Applies-To Area-Number 38 [Hong Kong SAR]
    Applies-To Vehicle HGV7
    Integer-value 5 ! SpeedBin Increment (1, 5, or 10 kph)
    Begin-Real-Array
      Dims 18 24 1 1 ! Array Dimensions 18 cols x 24 rows (18 Speed bins for 24 hours)
      Data
        5.0000001E-02 0 0 0.25 0 0 0.2 0.25 0.25 0 0 0 0 0 0 0 0 ! Speed Bin 1-18, Hour 1
        5.0000001E-02 0 0 0.25 0 0 0.2 0.25 0.25 0 0 0 0 0 0 0 0 ! Speed Bin 1-18, Hour 2
        5.0000001E-02 0 0 0.25 0 0 0.2 0.25 0.25 0 0 0 0 0 0 0 0 ! Speed Bin 1-18, Hour 3
        5.0000001E-02 0 0 0.25 0 0 0.2 0.25 0.25 0 0 0 0 0 0 0 0 ! Speed Bin 1-18, Hour 4
        5.0000001E-02 0 0 0.25 0 0 0.2 0.25 0.25 0 0 0 0 0 0 0 0 ! Speed Bin 1-18, Hour 5
        5.0000001E-02 0 0 0.25 0 0 0.2 0.25 0.25 0 0 0 0 0 0 0 0 ! Speed Bin 1-18, Hour 6
        5.0000001E-02 0 0 0.25 0 0 0.2 0.25 0.25 0 0 0 0 0 0 0 0 ! Speed Bin 1-18, Hour 7
        5.0000001E-02 0 0 0.25 0 0 0.2 0.25 0.25 0 0 0 0 0 0 0 0 ! Speed Bin 1-18, Hour 8
        5.0000001E-02 0 0 0.25 0 0 0.2 0.25 0.25 0 0 0 0 0 0 0 0 ! Speed Bin 1-18, Hour 9
        0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 ! Speed Bin 1-18, Hour 10
        0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 ! Speed Bin 1-18, Hour 11
Ln 32, Col 17
```



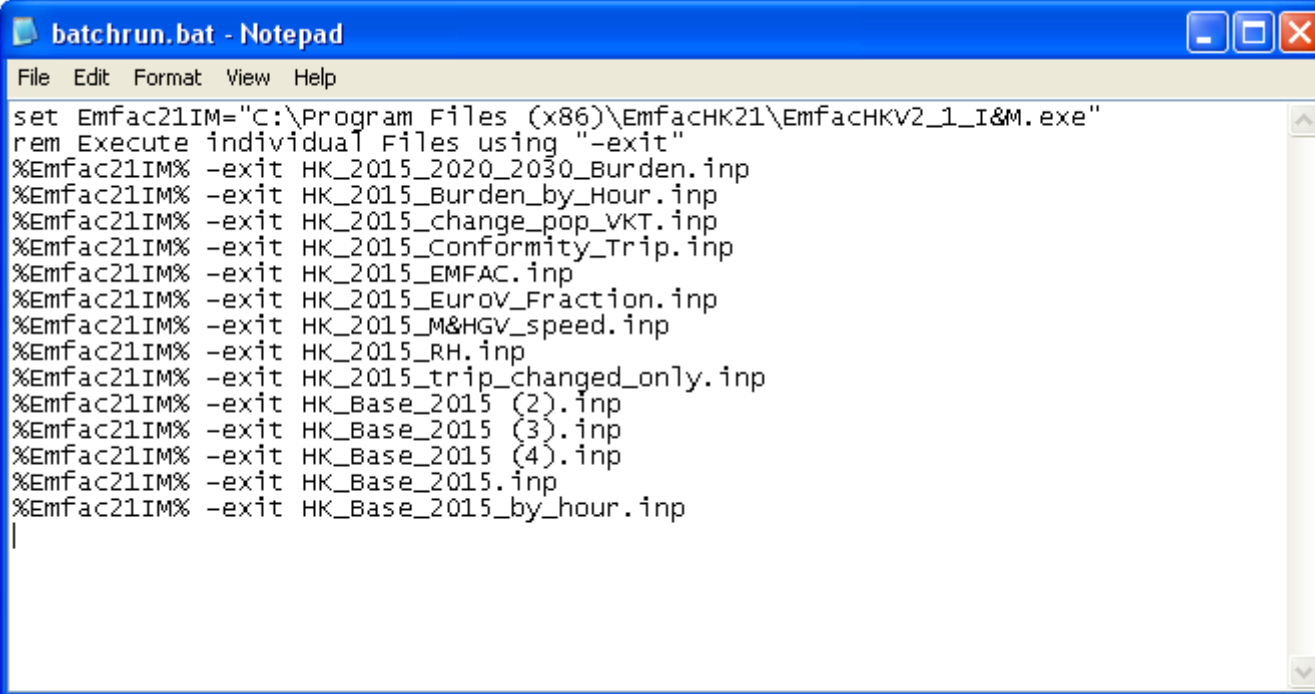
# Running EMFAC-HK Non-Interactively (i.e., Bypassing the GUI)

- Purpose: users who have already created input files and want to run without going through the GUI (i.e., execute the program from the command window or a batch file).
- Find out where EMFAC-HK is installed on your system
  - "C:\Program Files\EMFACHK21" (Windows XP)
  - "C:\Program Files (x86)\EMFACHK21" (Windows 7)
- Use a text editor (i.e., notepad, etc.) and create a batch file to house the non-interactive batch file commands
  - Notepad emfac.bat
- Use the "set" command to create a shortcut to the EMFAC-HK located on your computer.
- Example:
  - set Emfac21BC="C:\Program Files\EmfacHK21\EmfacHKV2\_1\_BC.exe" (Windows XP)
  - set Emfac21IM="C:\Program Files (x86)\EmfacHK21\EmfacHKV2\_1\_I&M.exe" (Windows 7)

# Running EMFAC-HK Non-Interactively (i.e., Bypassing the GUI)

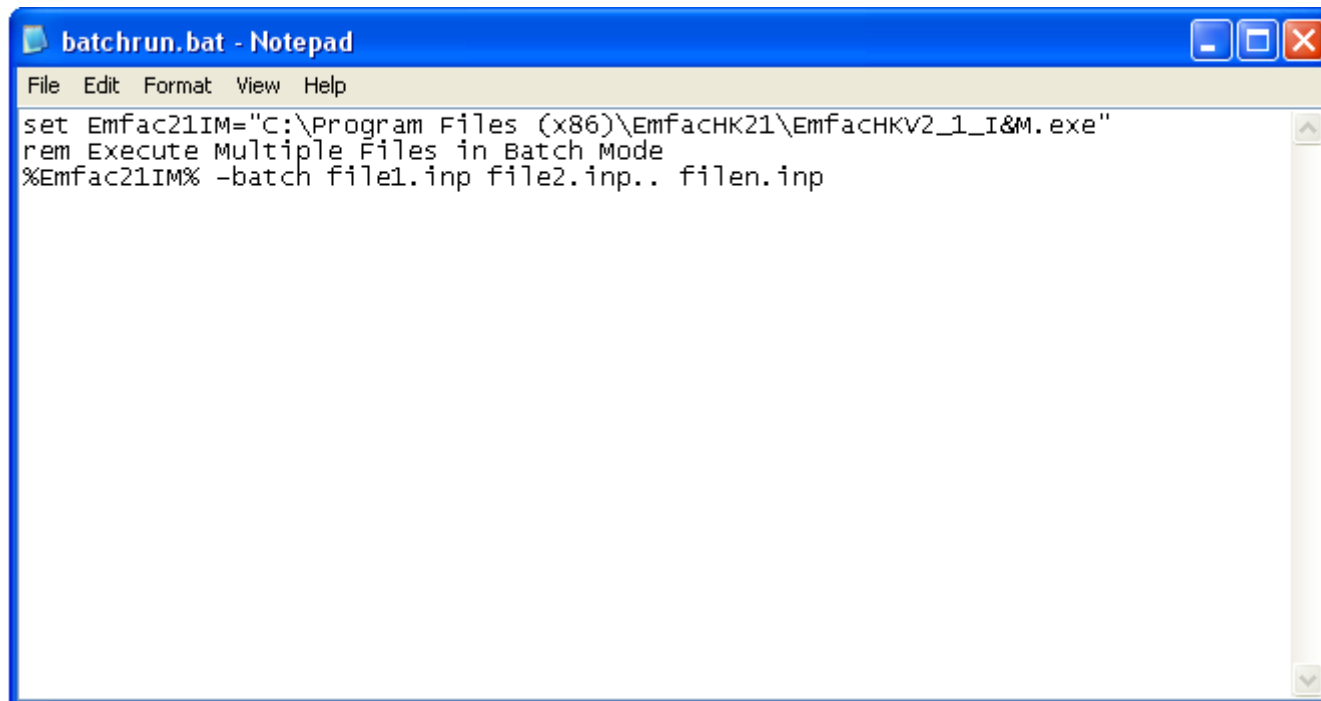
- Executing input files one at a time:
  - `%Emfac21IM% -exit HK_2015_2020_2030_Burden.inp`
- Executing multiple files at a time:
  - `%Emfac21IM% -batch HK_2015_2020_2030_Burden.inp  
HK_2015_Burden_by_Hour.inp HK_2015_change_pop_VKT.inp  
HK_2015_Conformity_Trip.inp`

# Running EMFAC-HK Non-Interactively (One-at-a-Time Example)



```
batchrun.bat - Notepad
File Edit Format View Help
set Emfac21IM="C:\Program Files (x86)\Emfachk21\Emfachkv2_1_I&M.exe"
rem Execute individual Files using "-exit"
%Emfac21IM% -exit HK_2015_2020_2030_Burden.inp
%Emfac21IM% -exit HK_2015_Burden_by_Hour.inp
%Emfac21IM% -exit HK_2015_change_pop_VKT.inp
%Emfac21IM% -exit HK_2015_conformity_Trip.inp
%Emfac21IM% -exit HK_2015_EMFAC.inp
%Emfac21IM% -exit HK_2015_EuroV_Fraction.inp
%Emfac21IM% -exit HK_2015_M&HGV_speed.inp
%Emfac21IM% -exit HK_2015_RH.inp
%Emfac21IM% -exit HK_2015_trip_changed_only.inp
%Emfac21IM% -exit HK_Base_2015 (2).inp
%Emfac21IM% -exit HK_Base_2015 (3).inp
%Emfac21IM% -exit HK_Base_2015 (4).inp
%Emfac21IM% -exit HK_Base_2015.inp
%Emfac21IM% -exit HK_Base_2015_by_hour.inp
|
```

# Running EMFAC-HK Non-Interactively (Batch Example)



```
batchrun.bat - Notepad
File Edit Format View Help
set Emfac21IM="C:\Program Files (x86)\EmfachK21\EmfachKV2_1_I&M.exe"
rem Execute Multiple Files in Batch Mode
%Emfac21IM% -batch file1.inp file2.inp.. filen.inp
```