

## Running AMES V5.X Using Test Case Input Data

### Step 1: Running AMES V5.X in basic default form

After the installation instructions 1-6 in the 'INSTALLATION.rst' file have been carried out, AMES V5.X can be run using either of the following two options:

**Option 1 (Without FNCS):** Users who intend to run AMES V5.X without using FNCS can simply execute the command below from the command line prompt:

```
java-jar-java.library.path=%YourLocationForAmesV5.X%/fncsDependencies  
"%YourLocationForAmesV5.X%/dist/AMES-V5.X.jar"
```

**Option 2 (With FNCS):** Users who intend to run AMES V5.X using FNCS need to carry out several special set-up instructions. Example files provided in the 'TESAgents' subdirectory demonstrate how users can set-up AMES V5.X to run with FNCS. Advanced users can modify these example files to run AMES V5.X with FNCS in a manner that suits their purposes.

To run AMES V5.X with FNCS after all special set-up instructions have been carried out, execute the following command from the command line prompt:

1. Change the directory to TESAgents using in user's system

Example usage: Cd %YourLocationForAmesV5.X%/TESAgents/

2. Generate YAML file for AMES by executing the below

command: python YAMLWriter.py NTxBus NLSE TxBus

The above commands depend on the following user-specified parameters:

NTxBus - The number of transmission buses

NLSE - The number of LSEs present in the transmission model

TxBus - The transmission bus to which the distribution system is considered to be connected to (Note: This input is needed if this model is used within an ITD system, else it defaults to 1)

(Example usage: python YAMLWriter.py 2 1 1)

The generated YAML file contains the required subscriptions for configuring AMES.

3. The user should run AMES V5.X by double-clicking on the below batch file:

runAMES.bat

If the user wants to end the simulation run in the middle of the run, the user needs to execute 'kill5570.bat'.

**Note:**

- i. Users interested in creating their own input '.dat' files, please note that the required input '.json' files for forecasted load must be created following the guidelines below.

If the user creates a test case data input file named 'FileName.dat', then the user needs to create two additional files in '.json' format – one for day-ahead forecast and another for real-time forecast, in the following format.

FileNameDAM.json

FileNameRTM.json

(Default '.json' files are located in %YourLocationForAmesV5.X%/TESAgents/forecast/data)

- ii. Developers who have made modifications in the AMES V5.X code will need to compile AMES V5.X prior to running AMES V5.X. To compile AMES V5.X, execute the following command from the command line prompt:

- a. Change the directory to TESAgents using

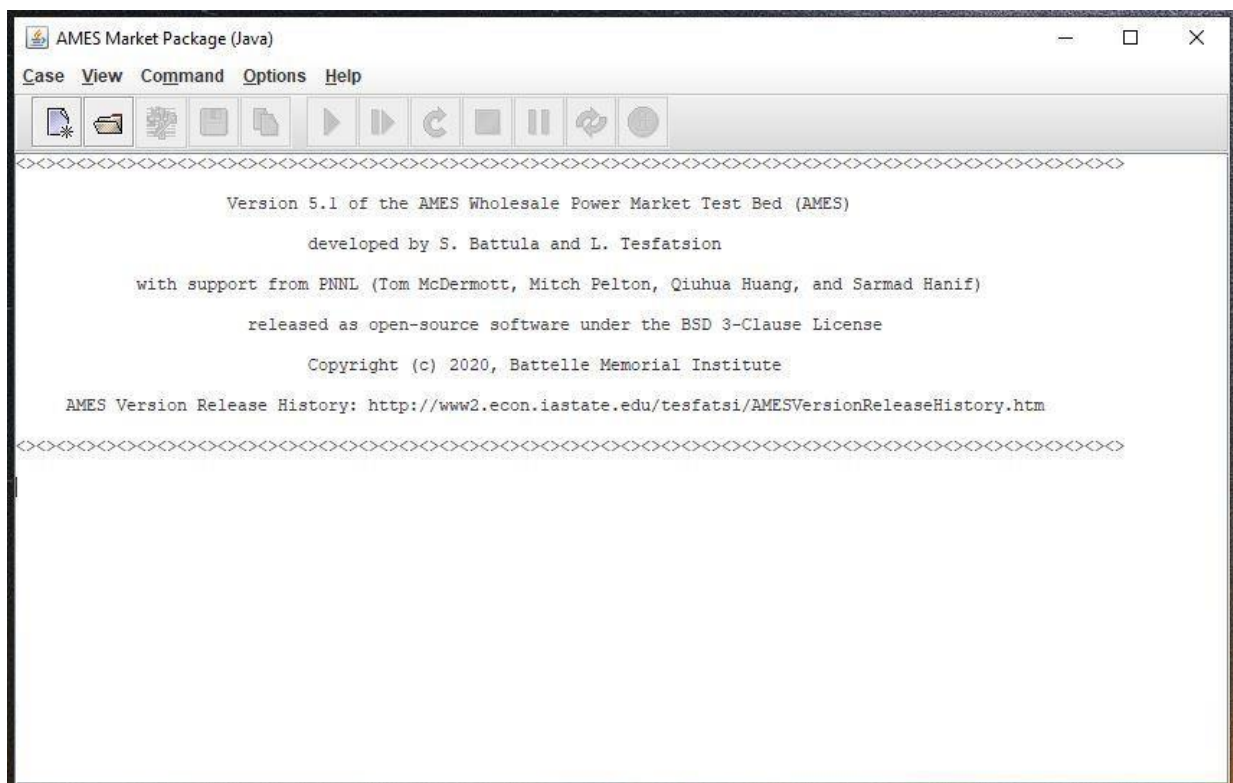
Example usage: Cd %YourLocationForAmesV5.X%/TESAgents/

- b. Compile by double-clicking on the below batch file

compileAMES.bat

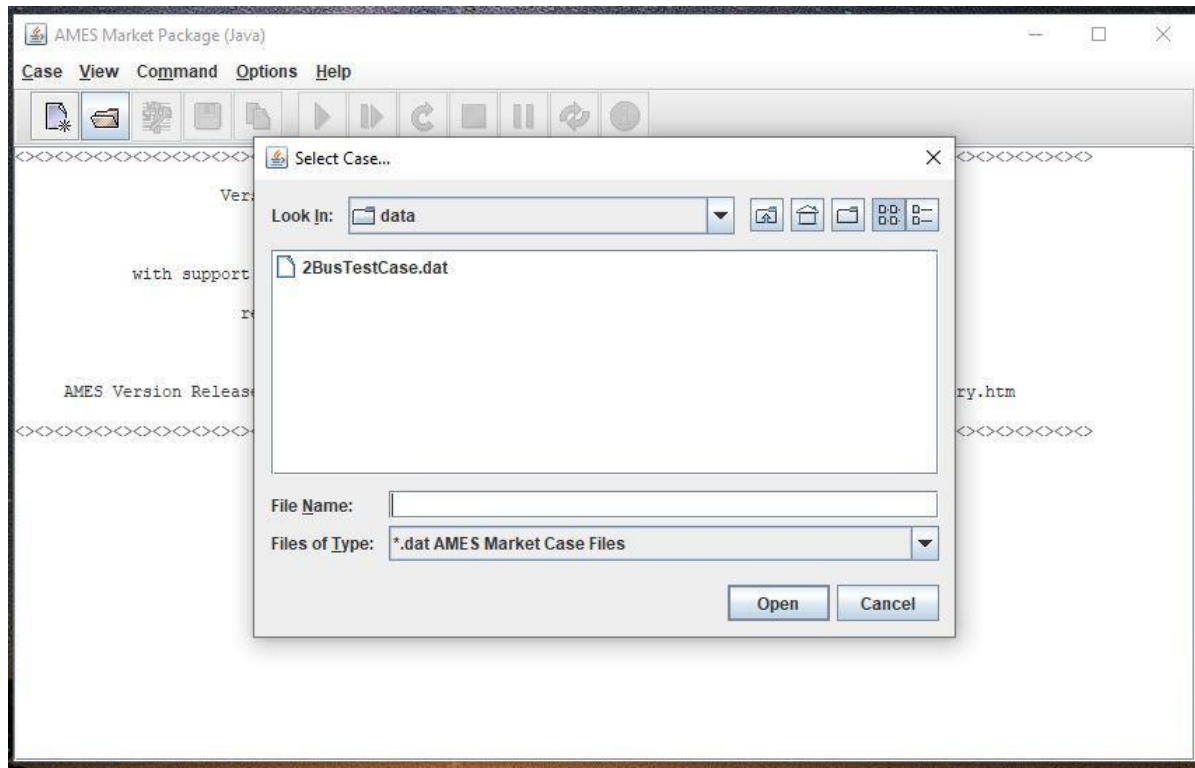
**Step 2: Screen display check**

After running AMES V5.X using Option 1 or Option 2, the following screen for the AMES Graphical User Interface (GUI) should be displayed.



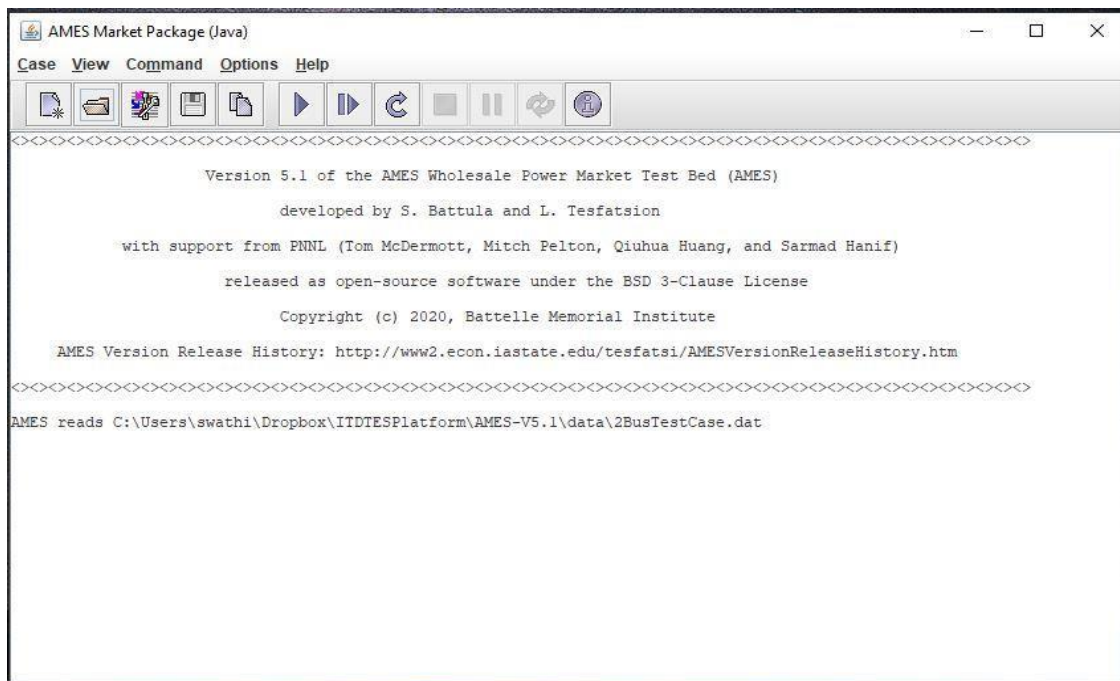
### Step 3: Select a test case data input file

To select a test case data input file (e.g. `2BusTestCase.dat`) located in the `data` subdirectory, first select the "Case->Open Case" command from the main AMES GUI menu and then select the required test case data input file.



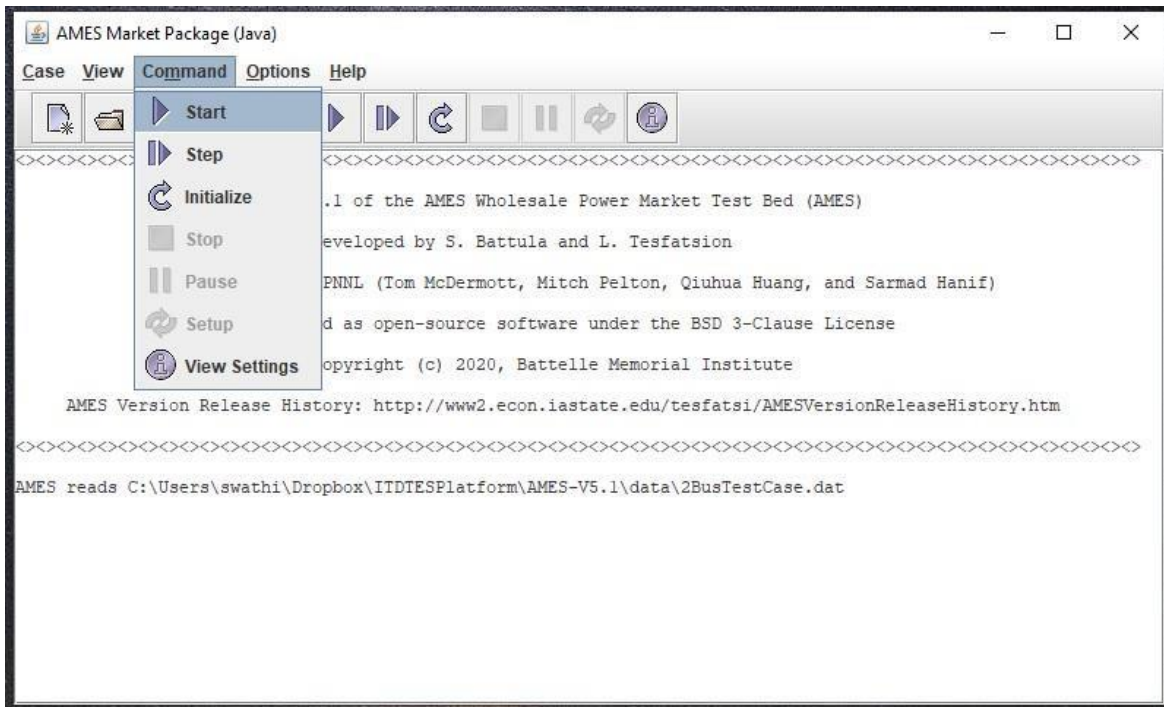
### Step 4: Open the selected test case data input file

After selecting the desired test case data input file, click the 'Open' button along the bottom right of the dialogue box. The following screen should then appear.

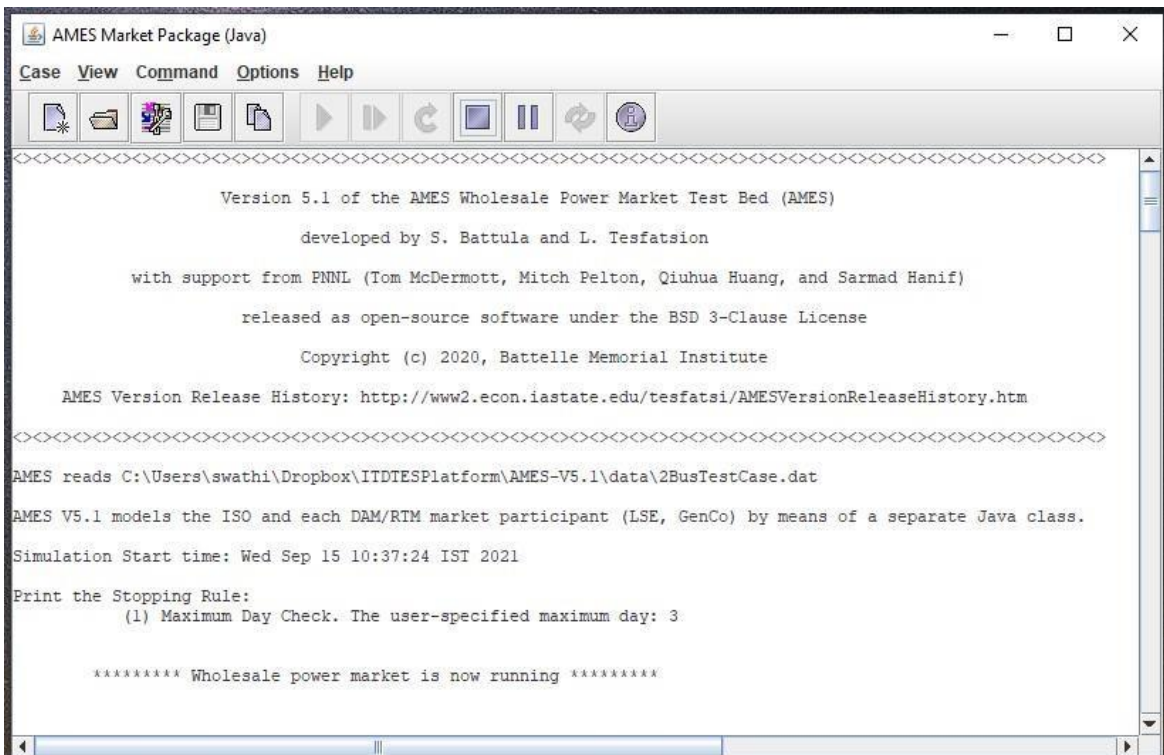


### Step 5: Running the selected test case data input file

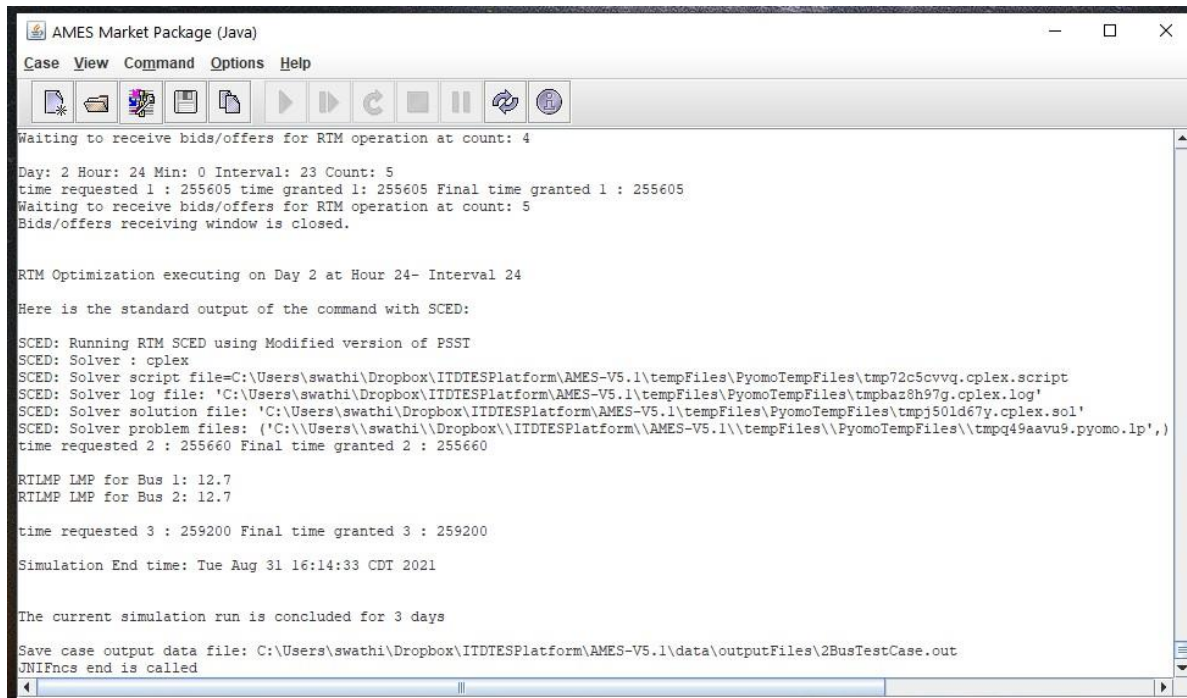
To run the selected test case data input file, either click the “Start” icon on the AMES GUI toolbar or (as depicted below) select “Command->Start” from the main AMES GUI menu.



AMES V5.X should then commence running, as indicated in the following screen shot.



Unless errors are found, AMES V5.X will continue to run for 'MaxDay' simulated days. At the end of this simulation run, a test case data output file will be created in the 'data/outputFiles' directory; see the illustrative screen shot below.



The screenshot shows a Java application window titled "AMES Market Package (Java)". The window has a menu bar with "Case", "View", "Command", "Options", and "Help". Below the menu bar is a toolbar with icons for file operations (new, open, save, print, etc.) and simulation controls (play, pause, stop, etc.). The main text area displays the following output:

```
Waiting to receive bids/offers for RTM operation at count: 4
Day: 2 Hour: 24 Min: 0 Interval: 23 Count: 5
time requested 1 : 255605 time granted 1: 255605 Final time granted 1 : 255605
Waiting to receive bids/offers for RTM operation at count: 5
Bids/offers receiving window is closed.

RTM Optimization executing on Day 2 at Hour 24- Interval 24

Here is the standard output of the command with SCED:

SCED: Running RTM SCED using Modified version of PSS1
SCED: Solver : cplex
SCED: Solver script file=C:\Users\swathi\Dropbox\ITDIESPlatform\AMES-V5.1\tempFiles\PyomoTempFiles\tmp72c5cvvq.cplex.script
SCED: Solver log file: 'C:\Users\swathi\Dropbox\ITDIESPlatform\AMES-V5.1\tempFiles\PyomoTempFiles\tmpbaz8h97g.cplex.log'
SCED: Solver solution file: 'C:\Users\swathi\Dropbox\ITDIESPlatform\AMES-V5.1\tempFiles\PyomoTempFiles\tmpj50ld67y.cplex.sol'
SCED: Solver problem files: ('C:\\Users\\swathi\\Dropbox\\ITDIESPlatform\\AMES-V5.1\\tempFiles\\PyomoTempFiles\\tmpq49aavu9.pyomo.lp',)
time requested 2 : 255660 Final time granted 2 : 255660

RTLMP LMP for Bus 1: 12.7
RTLMP LMP for Bus 2: 12.7

time requested 3 : 259200 Final time granted 3 : 259200

Simulation End time: Tue Aug 31 16:14:33 CDT 2021

The current simulation run is concluded for 3 days

Save case output data file: C:\Users\swathi\Dropbox\ITDIESPlatform\AMES-V5.1\data/outputFiles\2BusTestCase.out
UNIFncs end is called
```