



IESVE

Trial Support  
Material

[www.iesve.com](http://www.iesve.com)

ApacheSim: Building  
Use Profiles (ApPro)

# Building Use Profiles (ApPro)

Various profiles can be imported into your project from our libraries, or they can be created from scratch.

Examples of profile use include: scheduling plant equipment, modulating casual gains and ventilation rates, specifying the timing and degree of window opening and defining time-varying set-points and supply temperatures.

## Profiles are of two types:

- **Modulating profiles** are used to modulate inputs such as gains, ventilation rates and window opening, and to schedule plant. They take the form of a time series of values in the range 0- 1.
- **Absolute profiles** are used to specify the time variation of variables such as set-points and supply temperatures. These take the form of a time series of a physical variable (most commonly temperature).

Both modulating and absolute profiles can be defined as mathematical functions of weather or simulation variables, rather than being specified numerically.

These are then known as **formula profiles**. These can be created using an if/then type dialog box.

More details are available at [https://help.iesve.com/ve2019/variables\\_\\_\\_logical\\_operators.htm#](https://help.iesve.com/ve2019/variables___logical_operators.htm#)

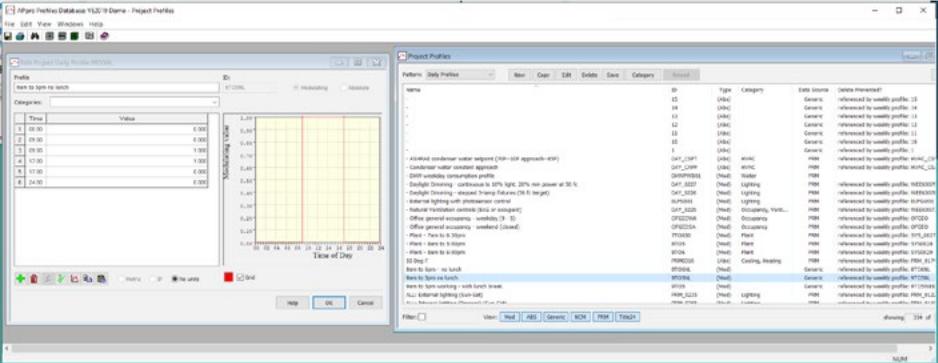
And at [https://help.iesve.com/ve2019/formula\\_profiles.htm#](https://help.iesve.com/ve2019/formula_profiles.htm#)

A profile specifies behaviour variations over a year. It is assembled from daily profiles describing the pattern of variation over a day. Daily profiles are built into weekly profiles to establish a pattern across working days and weekends. Optionally, different weekly patterns can be used for different date ranges (eg. seasonal variations) by defining annual profiles. Weekly and Annual profiles can be assigned to a range of inputs through the VE thermal template data to control the operation of model components, but daily profiles must be compiled into a weekly profile to be used as controllers. Where a weekly profile is selected, this is assumed to continue throughout the year.

## There are 3 other types of profiles available:

- **Free-form profiles** are a set of values specified at given points in time and defined over periods of up to one year. Values are linearly interpolated between the specified points. These profiles are typically used to allow measured time series data to drive variables in Apache.
- **Compact profiles:** These can be used for two-value setpoints for heating and cooling (eg night setback).
- **Scripted profiles:** allow a user to write a Python Script that can be used in a number of ways to create profiles based on variables within a model which include:
  1. Mathematical evaluations
  2. Logical or statistical evaluation
  3. Input from external data sources
  4. Co-simulation

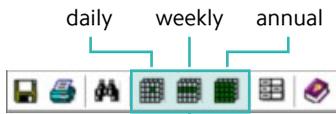
ApPro is accessed by clicking on the ApPro icon found in many applications



The main dialogue displays lists of the profiles in the project in a dialogue headed Project Profiles. The profiles are organised in categories: Daily, Weekly and Annual. By double-clicking on a profile, you can display its properties and edit them. Buttons on the Project Profiles dialogue provide further operations on the profiles such as creating, deleting and copying.

Find out more at <https://help.iesve.com/ve2019/appro.htm>

## How to Build Profiles



You can quickly and easily import generic profiles by clicking on the **appropriate calendar button** on the top menu in ApPro. This will open a list for you to choose from. Note that if you import an annual profile, it will also bring in the associated weekly and daily profiles, and a weekly profile will automatically import the associated daily profiles – you do not have to look for these separately.

Once you have imported profiles, they will appear in the project profiles list.

Note that you can sort this list by any of the headers, to assist in finding profiles in bigger projects.

Within each category (daily, weekly, annual) a list of project profiles is displayed, with the following summary information:

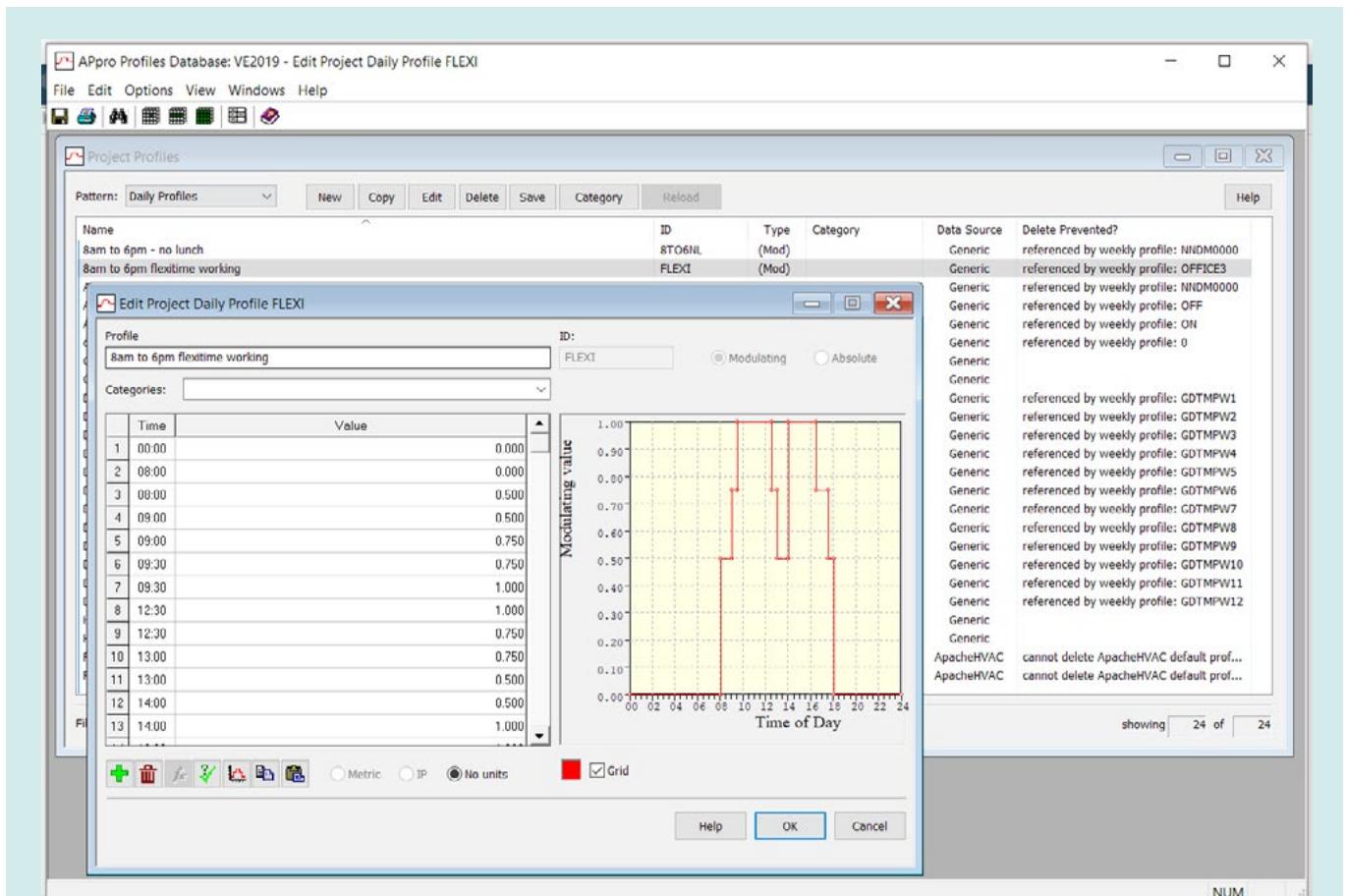
- **Description:** A description of the profile in words.
- **ID:** A unique identifier assigned to the profile when it is created.

To edit a profile, double-click its entry on the list. Alternatively click once on the profile and then on the Edit button.

You can also choose to create a new profile from scratch, or copy one to edit further.

Note that for UK compliance, you will need to use the NCM profiles without editing them

[https://help.iesve.com/ve2019/ncm\\_considerations.htm#](https://help.iesve.com/ve2019/ncm_considerations.htm#)



Having selected a profile to edit, or created a new one, it can either be edited graphically by dragging the points in the graph, or numerically, by adding or deleting rows and editing the row values.

Categories can be added to each profile to assist filtering for later use.

## Using Profiles

Profiles (also known as Schedules) are used in many places within the Virtual Environment to control various inputs for simulations (e.g. heating and cooling set-points for rooms, dimming control on lighting gains). However, projects can become bloated with large numbers of profiles, which can make identifying and using an appropriate profile difficult.

Profile Filtering is a feature that allows you to only see profiles relevant to the particular area you are working with. For example, the Heating Setpoint profile interface will only display heating profiles by default, while the Cooling Setpoint profile interface will only display cooling profiles by default. These filters are completely configurable, allowing you to adapt the filters for your own use or to disable them entirely.

Find out more at [https://help.iesve.com/ve2019/profile\\_filtering.htm#](https://help.iesve.com/ve2019/profile_filtering.htm#)

Once you have created the profiles you need in ApPro, you can assign them wherever needed in the VE.

The same profiles can be referenced across all applications.

If you realise that you need additional profiles while setting system controls etc. you can click on the ApPro button to return to ApPro and add them as desired. You could also edit further, change categories of profiles etc. but remember that this will also change them anywhere else that you have already assigned them.

## Edit Multiple Adjacencies



### Edit multiple adjacencies

Edit Multiple Adjacencies is used to edit the adjacent condition of multiple external surfaces in the current selected spaces.

External walls, ground floors and roofs can be edited simultaneously.

This can be used, for example, to assign a seasonally fluctuating temperature profile as the adjacency condition for ground floor constructions, to replicate the ground (earth) temperature.

**In this instance, the selections chosen would be:**

- Type – Ground floors
- Adjacent Condition – Temp from profile
  - This selection opens another option for temperature – select the profile that represents the annual ground temperature.

Note that this icon is used to set the conditions, not to check them – it will always show the same information when you open it, and should you click **OK**, will over-write your previous changes. To exit without saving, click on **cancel**.

You can check what has been applied by using the  **Input Data Visualisation Tool**, where the Surface Adjacent Conditions is available under the category Other. This will then show you all applied conditions in a 3D view in model viewer.

