

# Late Attribute

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Sometimes tasks don't run as expected, and we want to get a notification when this is the case.

For this, we use the late attribute.

A node can only have **one** late attribute. The late attribute **only** applies to a task. You can define it on a Suite/Family in which case it will be inherited. Any late defined lower down the hierarchy will override the aspect(submitted, active, complete) defined higher up.

- -s submitted: The time node can stay submitted (format [+]hh:mm). submitted is always relative, so + is simply ignored, if present. If the node stays submitted longer than the time specified, the late flag is set
- -a Active: The time of day the node must have become active (format hh:mm). If the node is still queued or submitted, the late flag is set
- -c Complete: The time node must become complete (format {+}hh:mm). If relative, time is taken from the time the node became active, otherwise the node must be complete by the time given.

## Late example

```
task t1
  late -s +00:15 -a 20:00 -c +02:00
```

This is interpreted as, the node can stay submitted for a maximum of 15 minutes, and it must become active by 20:00 and the runtime must not exceed 2 hours.

For the purposes of this tutorial, we will add a late attribute for the runtime only.

## Ecf Script

We will add a new [task](#) /test/f6/t1.

Create new [ecf script](#) file \$HOME/course/test/f6/t1.ecf for which we want to be late.

## \$HOME/course/test/f6/t1.ecf

```
%include <head.h>
echo "I will now sleep for %SLEEP% seconds"
sleep %SLEEP%
%include <tail.h>
```

## Text

Let us modify the [suite definition](#) file again

```
# Definition of the suite test.
suite test
  edit ECF_INCLUDE "$HOME/course"    # replace $HOME with the path to your home directory
  edit ECF_HOME    "$HOME/course"

  family f6
    edit SLEEP 120
    task t1
      late -c +00:01 # set late flag if task take longer than a minute
    endfamily
  endsuite
```

## Python

## `$HOME/course/test.py`

```
import os
from ecflow import Defs, Suite, Family, Task, Edit, Trigger, Complete, Event, Meter, Time, Day, Date, Label, \
    RepeatString, RepeatInteger, RepeatDate, InLimit, Limit, Late

def create_family_f6():
    return Family("f6",
        Edit(SLEEP=120),
        Task("t1",
            Late(complete='+00:01')) # set late flag if task t1 takes longer than a minute

print("Creating suite definition")
home = os.path.join(os.getenv("HOME"), "course")
defs = Defs(
    Suite("test",
        Edit(ECF_INCLUDE=home, ECF_HOME=home),
        create_family_f6())
print(defs)

print("Checking job creation: .ecf -> .job0")
print(defs.check_job_creation())

print("Checking trigger expressions")
assert len(defs.check()) == 0, defs.check()

print("Saving definition to file 'test.def'")
defs.save_as_defs("test.def")
```

## What to do

1. Type in the changes
2. Replace the [suite definition](#)
3. Run the suite, you should see the task late flag set in [ecflow\\_ui](#)
4. When the job completes, if you re-queue family node f6 or task t1, it will clear the late flag. The late flag can also be cleared manually, select task t1, then with Right Mouse Button, Special Clear late flag

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