

# Tips & Tricks – Daylight Saving Time

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***Please note: These recommendations are only applicable to Dollar Universe v5.x. This guide does not include any recommendations for Dollar Universe v6.x. For recommendations for Dollar Universe v6.x, please refer to the document “Daylight Saving Time -A smooth transition to winter or summer time”.***

## **Introduction**

Dollar Universe application server (DUAS) schedules jobs according to system (OS) time. Daylight saving time requires a shift of the system time forward or backward one hour. This can have an effect on Dollar Universe operations. In this document, we will help you understand the impacts and how to manage your Dollar Universe Companies to avoid any issues.

### **1. Overview**

Time shifting can have an effect on Dollar Universe’s operations in 2 aspects: scheduling and launching. In both cases, you will need to stop and restart the Launcher, the Calculator and the Supervisor engines after system time change.

### **2. Scheduling**

Dollar Universe’s Calculator creates the launches from the tasks. Initially, a new launch is posted in Launch Wait status. Time shifting can cause some launches to be missed. To fully understand this issue, we need to list the 2 basic rules of a Calculator:

#### ***Rule No. 1***

DUAS can create launches based on 2 different algorithms: serial or parallel. If a task is defined with a serial launch window, the calculator only creates a new launch at the end of the previous launch window. For example, a task is scheduled to run daily at 10AM with launch window 1 hour. Tomorrow’s launch will be created at around 11AM today. If the parallel launch window is used, the calculator will create a new launch at the beginning of the previous launch window. Still using the above example, tomorrow's launch will be created at around 10AM today.

#### ***Rule No. 2***

Calculator will not create the same launch twice. A Calculator will find the latest launch and create a new launch at a later date or time.

### 3. Launching

Dollar Universe's Launcher submits the launches which are present in Launch Wait status. If a launch window is overlapped within the 2AM – 3AM period, the length of the launch window will be changed by the time shift.

In the following 2 sections, we will discuss the impacts of the 2 time shifts in detail.

#### 3.1 Shifting one hour forward (2AM → 3AM)



Fig. 1 Normal time → daylight saving time

#### **Scheduling**

In this case, no launches will be missed.

#### **Launching**

Depending on the start and end time of a launch window, let's consider the following 4 situations:

- Launch window started before 2AM and ended between 2AM and 3AM
- Launch window started between 2AM and 3AM and ended after 3AM
- Launch window started before 2AM and ended after 3AM

For all three above cases, the launch window is shortened by the time shift. Less time is available for EVENT WAIT jobs, and for the Launcher to check and execute all of LAUNCH WAIT jobs. Therefore, the time shift can cause more TIME OVERRUN.

- Launch window started after 2AM and ended before 3AM

In this case, the launch will go directly into TIME OVERRUN.

#### **Summary**

Besides restarting the Launcher, the Calculator and the Supervisor for each active area, there are no additional operations needed. To minimize the impact of the forward time shift:

- Avoid having a complete launch window set in between 2AM and 3AM
- Consider to expand a launch window if part of it falls in 2AM - 3AM period.

#### 3.2 Shifting one hour back (2AM → 1AM)



Fig. 2 Daylight saving time → normal time

### ***Scheduling***

The launches between 2 and 3 am will only be scheduled once. This behavior is normal, for example if you have a job doing a daily payment at 2:30 am. You don't want this payment to be done twice because of the time shift.

### ***Launching***

Considering the following launch windows:

- Launch window started before 2AM and ended after 3AM
- Launch window started between 2AM and 3AM and ended after 3AM

In both above cases, the launch windows are simply expanded.

- Launch window started after 2AM and ended before 3AM

In this case, the launch window repeats twice. But due to the rule No. 2 the job will only be launched once.

### ***Summary***

Besides restarting the Launcher, the Calculator and the Supervisor for each active area, there are no additional operations needed. The launches scheduled between 2AM and 3AM will only be executed once.

## **4. Automating the engine restarting procedure**

With Dollar Universe, it is possible to automate the restart of the Launcher, Calculator and the Supervisor.

The basic idea is to schedule a job that runs a few minutes, for example, 30 minutes, before the time shift. This job will sleep until the time shift is completed; then issues the commands to stop and restart the engines.

### **4.1 The Commands**

The following is a sample script for UNIX system:

```
sleep 2400
$UXEXE/uxend atm exp lan
$UXEXE/uxend atm exp cal
$UXEXE/uxend atm exp sur
sleep 5
$UXEXE/uxstr atm exp lan
$UXEXE/uxstr atm exp cal
$UXEXE/uxstr atm exp sur
```

### **4.2 The scheduling**

#### **Shifting one hour forward (2AM → 3AM)**

The above script can be scheduled to run at 1:30am. It will then restart the engines after the time shift, at 3:10am.

#### **Shifting one hour back (3AM → 2AM)**

The same script can be scheduled to run at 2:30am. It will then restart the engines after the time shift, at 2:10am.

### **4.3 Creating the launches**

After creating an uproc with the script, you have 2 ways to launch it in Dollar Universe.

#### **4.3.1 Manual launch**

You can manually create a launch for this uproc and specify the proper launch window for it.

#### **4.3.2 Tasks**

If you have to run the script on several nodes, creating a task for this uproc would be a more efficient way. You can specify the task to run only on the specific time shifting day; then distribute it to all other nodes.

## **5 UniViewer Console Graphical User Interface**

In most versions of UniViewer Console (UVC), if the interface is opened before the time shift and remains open during the time shift, the displayed time will not change to the Standard (Winter) or Daylight (Summer) Time. For example: if UVC is opened at

12:55AM the night of the forward time shift, at 1:59AM the displayed time should revert to 1AM. Today this is not the case and the displayed time will continue to be that of Daylight Time (2AM). To work around this issue, you need only to close your instance of UniViewer Console and open it again after the time shift. The time will once again be correct.

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