

Daylight Savings Time Adjustment

Poor man's solution

Fri, Mar 31, 2000

The TIME local application keeps track of the time-of-day for IRM systems as well as Linac local stations. But the algorithm has not traditionally dealt with the switch into and out of daylight savings time. This note describes a method for doing this that depends upon being manually armed ahead of time. At least, it does not require someone to stay up until 2 am on the designated Sunday to fix it.

Add two parameters to the TIME local application that can be set ahead of time for the month/day of the commencement of DST and the month/day for the return to Standard Time. When the computed time-of-day has reached 2 am on the first day, the zone parameter is incremented, and the first month/day parameter is reset to zero. When the computed time-of-day has reached 2 am of the second day, the zone is decremented, and the parameter is reset to zero. Nothing is done in either case if the relevant parameter is zero.

If the first month/day parameter is nonzero and matches the current month/day, then the hour is checked for being 2 am. If it is, decrement the zone by one and clear the parameter. This means that this action can take place only during a period of one hour on the designated month/day. If the node is not running during this time, it will not notice it. Not only must the node be running, but the network time protocol server must also be running. The same is true for the second month/day parameter. One can set these parameters well ahead of time, because the adjustment can only be done on that day. But these nodes are normally running 24 hours a day, so the chance of failure is slight. The adjustment would only be made at night, when few people are around to mess things up.

There are some weaknesses of this scheme. The node running TIME must be running at 2 am on the designated days to accomplish its mission. Of course, there is also the requirement that someone remember to manually enter the appointed month/day that the change should take place.

The scheme could have been done by checking the time-of-day as derived from the NTP server, rather than the current time-of-day in effect before the query. But using the node's own time-of-day for the check made testing this feature much easier, without waiting for the real time-of-day to occur.

The format of the month/day parameter is simply a word with the BCD month in the high byte and the BCD day in the low byte. For example, 0x0402 means April 2, which is the day for moving into DST this weekend in 2000. Of the ten possible parameters, the first month/day parameter is word 8 and the second is word 9, leaving one spare parameter word for some future need.