Automatically Setting Daylight Saving Time on MISER

NTP

The Network Time Protocol (NTP) provides synchronized timekeeping among a set of distributed time servers and clients. The local OpenVMS host maintains an NTP configuration file (`TCPIP$NTP.CONF`) of participating peers. Before configuring your host, you must do the following:

1) Select time sources.
2) Obtain the IP addresses or host names of the time sources.
3) Enable the NTP service via the `TCPIP$CONFIG` command procedure.

`TCPIP$NTP.CONF` is maintained in the `SYS$SPECIFIC[TCPIP$NTP]` directory.

NOTE: The NTP configuration file is not dynamic; it requires restarting NTP after editing for the changes to take effect.

NTP Startup and Shutdown

To stop and then restart the NTP server to allow configuration changes to take effect, you must execute the following commands from DCL:

```
$ @sys$startup:tcpip$ntp_shutdown
$ @sys$startup:tcpip$ntp_startup
```

NOTE: Since NTP is an OpenVMS TCP/IP service, there is no need to modify any startup command procedures to include these commands; normal TCP/IP startup processing will check to see if it should start or stop the service at the right time.

NTP Configuration File Statements

Your NTP configuration file should always include the following driftfile entry.

```
driftfile SYS$SPECIFIC:[TCPIP$NTP]TCPIP$NTP.DRIFT
```

NOTE: The driftfile is the name of the file that stores the clock drift (also known as frequency error) of the system clock.

A "Client mode" statement indicates that the local host will receive, but not send, time to the remote server. Indicate client mode with the *server* statement. Identify each server with a fully-qualified DNS host name or with an IP address in dotted-decimal notation.

```
server 10.2.3.4
server 10.3.4.5
server 10.4.5.6
```

You can also configure the NTP service to allow the local node to act as the NTP server in an isolated network. To configure the NTP service to act as the sole NTP server, enter the following commands in the NTP configuration file.

```
server 127.127.1.0
fudge 127.127.1.0 stratum 8
```

MISER Time Synchronization Rules

Some general rules for MISER/NTP time synchronization:

- MISER host computers should synchronize time with a reliable time source or be the sole time source for your network.
- MISER workstations should synchronize time with both MISER hosts.
- MISER PC should synchronize time with both MISER hosts if a Windows Domain controller in unavailable.

Sample Configuration Files

A sample NTP configuration file for a MISER host that synchronizes with a set of Internet NTP servers:

```
driftfile SYS$SPECIFIC:[TCPIP$NTP]TCPIP$NTP.DRIFT
server 0.us.pool.ntp.org
server 1.us.pool.ntp.org
server 2.us.pool.ntp.org
server 3.us.pool.ntp.org
```

A sample NTP configuration file for a MISER host that synchronizes with a local set of time sources (IP addresses 10.10.4.5 and 10.10.4.6):

```
driftfile SYS$SPECIFIC:[TCPIP$NTP]TCPIP$NTP.DRIFT
server 10.10.4.5
```

```
server 10.10.4.6
```

A sample NTP configuration file for a MISER host that acts as the sole time source:

```
driftfile SYS$SPECIFIC:[TCPIP$NTP]TCPIP$NTP.DRIFT
server 127.127.1.0
fudge 127.127.1.0 stratum 8
```

A sample NTP configuration file for a MISER workstation that synchronizes with the MISER:

```
driftfile SYS$SPECIFIC:[TCPIP$NTP]TCPIP$NTP.DRIFT
server xyzmva.customer.org
server xyzmvb.customer.org
```

OpenVMS TCP/IP NTP service is not affected by daylight saving on the OpenVMS operating system. Daylight saving is performed by the operating system.

Automatic Standard Time/Daylight Saving Time Change

In time zones that use daylight saving time, your operating system time must be adjusted twice a year. How this change occurs depends on the following:

OpenVMS Version	Architecture	AUTO_DLIGHT_SAV	What Happens
7.3 and later	Alpha and I64	1	Automatically adjusting for Daylight Saving Time
7.3 and later	Alpha and I64	0	Manually adjusting for Daylight Saving Time

OpenVMS Alpha Version 7.3 and later and OpenVMS I64 contain a SYSGEN parameter, `AUTO_DLIGHT_SAV`, which controls automatic switching between standard time and daylight saving time.

If `AUTO_DLIGHT_SAV` is set to `1`, an OpenVMS Alpha Version 7.3 (and later) or I64 system automatically sets the time forward or back when the local time changes between daylight saving time and standard time.

If `AUTO_DLIGHT_SAV` is set to `0` (the default), OpenVMS does not automatically change between daylight saving time and standard time.

In order for this to work correctly, you must set a time zone rule for your time zone.
Use the procedure `SYS$MANAGER:UTC$TIME_SETUP.COM` to set time zone information.

NOTE: To use this procedure, you must have the following privileges enabled:

- `OPER`
- `LOG_IO`

- SYSPRV
- SYSNAM
- CMEXEC

The SYSTEM and HSQ user accounts have these privileges enabled.

You can use SYS$MANAGER:UTC$TIME_SETUP.COM to display current time zone information or to set time zone information.

```
$  @SYS$MANAGER:UTC$TIME_SETUP SHOW

AUTO_DLIGHT_SAV is set to 1".

OpenVMS will automatically change to/from Daylight Saving Time.
(in time zones that use Daylight Saving Time)

    LOCAL TIME ZONE          = PACIFIC / US -- STANDARD TIME
    LOCAL SYSTEM TIME        = 17-NOV-2010 11:51:28.27 (PST)
    TIME DIFFERENTIAL FACTOR = -8:00
    TIME ZONE RULE           = PST8PDT7,M3.2.0/02,M11.1.0/02
    Change PST to PDT on the Second Sunday of March (14-Mar-2010) at 02:00
    Change PDT to PST on the First Sunday of November (7-Nov-2010) at 02:00
```

In time zones that do not use Daylight Saving Time, a statement to that effect will appear in place of the change statements.

```
$  @SYS$STARTUP:UTC$TIME_SETUP SHOW

AUTO_DLIGHT_SAV is set to "1".
OpenVMS will automatically change to/from Daylight Saving Time.
(in time zones that use Daylight Saving Time)

    LOCAL TIME ZONE          = US / HAWAII -- STANDARD TIME
    LOCAL SYSTEM TIME        = 17-NOV-2010 10:52:08.70 (HST)
    TIME DIFFERENTIAL FACTOR = -10:00
    TIME ZONE RULE           = HST10
This time zone does not use Daylight Saving Time.
```

If the AUTO_DLIGHT_SAVE system parameter is set to 0, you may receive a display similar to the following:

```
$  @SYS$MANAGER:UTC$TIME_SETUP SHOW

AUTO_DLIGHT_SAV is set to "0" and DTSS is not in use.
You will have to manually change to/from Daylight Saving Time.

You can do this by executing SYS$MANAGER:UTC$TIME_SETUP.COM,
or you can use SYS$EXAMPLES:DAYLIGHT_SAVINGS.COM.

    LOCAL TIME ZONE          = US / PACIFIC -- DAYLIGHT TIME
    LOCAL SYSTEM TIME        = 17-NOV-2010 10:35:26.97 (PDT)
    TIME DIFFERENTIAL FACTOR = -8:00
    TIME ZONE RULE           = PST8PDT7,M3.2.0/02,M11.1.0/02
    Change PST to PDT on the Second Sunday of March (14-Mar-2010) at 02:00
    Change PDT to PST on the First Sunday of November (7-Nov-2010) at 02:00
```

For local time zone support to work correctly, you must set the time zone that accurately describes the location you want to be considered as your default time zone. Usually, this is the time zone in which your system is running. In addition, your system must be correctly configured to use a valid OpenVMS time differential factor (TDF).

```
$ @SYS$MANAGER:UTC$TIME_SETUP
```

The following example shows how you would select the Eastern time zone for the United States by using the menu numbers:

```
  Configuring the Local Time Zone
TIME ZONE SPECIFICATION -- MAIN Time Zone Menu          "*" indicates a menu

 0* GMT
 1* AFRICA          17) EST             33) IRAN            49) PORTUGAL
 2* AMERICA         18) EST5EDT         34) ISRAEL          50) PRC
 3* ANTARCTICA      19* ETC             35) JAMAICA         51) PST8PDT
 4* ARCTIC          20* EUROPE          36) JAPAN           52) ROC
 5* ASIA            21) FACTORY         37) KWAJALEIN       53) ROK
 6* ATLANTIC        22) GB-EIRE         38) LIBYA           54) SINGAPORE
 7* AUSTRALIA       23) GB              39) MET             55) TURKEY
 8* BRAZIL          24) GMT-0           40* MEXICO          56) UCT
 9* CANADA          25) GMT             41* MIDEAST         57) UNIVERSAL
10) CET             26) GMT0            42) MST             58* US
11* CHILE           27) GMTPLUS0        43) MST7MDT         59) UTC
12) CST6CDT         28) GREENWICH       44) NAVAJO          60) W-SU
13) CUBA            29) HONGKONG        45) NZ-CHAT         61) WET
14) EET             30) HST             46) NZ              62) ZULU
15) EGYPT           31) ICELAND         47* PACIFIC
16) EIRE            32* INDIAN          48) POLAND

Press "Return" to redisplay, enter "=" to search or "?" for help, or
Select the number above that best represents the desired time zone: 58

US Time Zone Menu                                       "*" indicates a menu

0* RETURN TO MAIN TIME ZONE MENU
1) ALASKA           5) EAST-INDIANA      9) MICHIGAN        13) SAMOA
2) ALEUTIAN         6) EASTERN          10) MOUNTAIN
3) ARIZONA          7) HAWAII           11) PACIFIC-NEW
4) CENTRAL          8) INDIANA-STARKE   12) PACIFIC

Press "Return" to redisplay, enter "=" to search or "?" for help, or
Select the number above that best represents the desired time zone: 6

You selected US / EASTERN as your time zone.
Is this correct? (Yes/No) [YES]:
```

```
    Configuring the Time Differential Factor (TDF)


    Default Time Differential Factor for standard time is -5:00.
    Default Time Differential Factor for daylight saving time is -4:00.

    The Time Differential Factor (TDF) is the difference between your
    system time and Coordinated Universal Time (UTC).  UTC is similar
    in most respects to Greenwich Mean Time (GMT).

    The TDF is expressed as hours and minutes, and should be entered
    in the hh:mm format.  TDFs for the Americas will be negative
    (-3:00, -4:00, etc.); TDFs for Europe, Africa, Asia and Australia
    will be positive (1:00, 2:00, etc.).

This time zone supports daylight saving time.
Is this time zone currently on daylight saving time? (Yes/No): no

Enter the Time Differential Factor [-5:00]:

    If this is a seasonal time change, it may also be necessary to
    modify the system time.  Generally, seasonal time changes result
    in adding 1:00 hour, or adding -1:00 hour to the system time.

Do you wish to modify the local system time [N]:

    NEW SYSTEM TIME DIFFERENTIAL FACTOR = -5:00

Is this correct? [Y]:

$
```

These are the system logical names that are set with the time zone information:

- SYS$LOCALTIME
- SYS$POSIXRULES
- SYS$TIMEZONE_DAYLIGHT_SAVING
- SYS$TIMEZONE_NAME
- SYS$TIMEZONE_RULE

These are the files that are written so that time zone information can be reset when the system is rebooted:

- [VMS$COMMON.SYSEXE]SYS$TIMEZONE_SRC.DAT
- [VMS$COMMON.SYS$STARTUP]TDF$UTC_STARTUP.COM

DST SETTINGS

To enable or disable the automatic changing from standard time to daylight saving time, you must modify AUTO_DLIGHT_SAV. The modification will not take effect until you reboot the system. To manually modify the AUTO_DLIGHT_SAV SYSGEN parameters to enable the automatic changing between standard and daylight saving time do the following:

```
$ mc sysgen
SYSGEN>  SHOW AUTO
Parameter Name     Current    Default     Min.       Max.   Unit  Dynamic
--------------     -------    -------   -------    -------  ----  -------
AUTO_DLIGHT_SAV          0          0         0          1 Boolean    D
SYSGEN>  USE CURRENT
SYSGEN>  SET AUTO_DLIGHT_SAV 1
SYSGEN>  WRITE CURRENT
SYSGEN>  EXIT
$
```

To help MISER keep track of this SYSGEN parameter change you can add the AUTO_DLIGHT_SAV SYSGEN parameter to the SITE_MODPARAMS.DAT file located in SITE$DATA. This allows the system manager to preserve this SYSGEN parameter. When HSQPARAM is executed on a new or existing system this SYSGEN parameter will be applied to that system. Near the end of this file add the single line to set this parameter as shown below.

```
! MODPARAMS.DAT - OpenVMS AUTOGEN parameter file.
!       Please make any additions to Mnet$DATA:site_modparams.dat.
!       Any such additions will override parameters in this file.
! Any changes for this particular node should be made to
! Mnet$DATA:modparams_<nodename>.dat, which will override
! everything else.
!
!       23 July 1993  James Wilkinson Modified to include site file.
!       14 Oct  1996  James Wilkinson Modified to include node file.
!       04 June 2004  James Wilkinson Modified working set params.
!       12 Nov  2010  Add AUTO_DLIGHT_SAV
!
scsnode = "RITVSB"
scssystemid = 1495
window_system = 1
min_maxprocesscnt = 100
min_balsetcnt = 90
min_maxbuf = 60000
min_defmbxmxmsg = 1024
min_defmbxbufquo = 10000
min_channelcnt = 512
min_pql_dastlm = 200
min_pql_dtqelm = 200
min_pql_dbiolm = 200
min_pql_dbytlm = 200000
min_pql_dpgflquota = 40960
min_pql_dwsdefault = 40960
min_pql_dwsquota = 61440
min_pql_dwsextent = 81920
min_gblsections = 1200
min_gblpagfil = 40000
min_gblpages =  120000
min_wsmax = 19200
min_npagedyn = 500000
min_mpw_hilimit = 800
min_mpw_lolimit = 120
min_mpw_waitlimit = 800
min_virtualpagecnt = 96000
vaxcluster = 0
erlbufferpages = 32
AUTO_DLIGHT_SAV = 1
agen$include_params mnet$data:site_modparams.dat
agen$include_params mnet$data:modparams_RITVSB.dat
```