

MCR10168

Update Mail System for Network Mail

Revision 1.0

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1 Problem Description

The network mail system (to be installed in `>system_library_network` in MR12.9) depends on an updated version of the `mlsys_mailer_data.incl.pl1` include segment. The only standard system component that uses this include segment is `mlsys_transmit_`, and only when network mail is installed on the system. However, many of the network mail components use `mlsys_mailer_data.incl.pl1` because they manipulate user email while in transit and when queued for delivery to other systems.

The only change to this include segment is information about the AIM access class of the mail, which must live in mail queues so that AIM can be enforced when delivering email. The network mail software captures the AIM access class of the sender and records this in the mail queue. When delivering mail from the queues, it refuses to deliver mail that would violate the AIM rules.

In addition to this change to `mailer_data_format.incl.pl1`, there are two other issues that arose from testing the networking software. One is that if two-digit years are found in the dates of email messages, they would be converted to 4-digit years using conventions that no longer work. The existing software simply adds 1900 to 2-digit years. For 2026, for example, adding 1900 to 26 would yield 1926, which is incorrect. The current convention used by software is to add 2000 if the year is less than 50 and to add 1900 otherwise. This will work, of course, until 2050. It is unlikely that external mailers, these days, will ever represent years with 2 digits, and the second change proposed in this MCR is to make sure that the network mailer doesn't use 2-digit years (as it does without the proposed change).

It turns out that the `mlsys_format_` subroutine explicitly uses 2-digit years for network mail because at the time that this code was written, RFC822 demanded it. It no longer does, so this MCR proposes to remove the enforced 2-digit years.

Multics ticket <https://multics-trac.swenson.org/ticket/400> describes the issue with 2-digit years being used by the mail system for network mail. Ticket <https://multics-trac.swenson.org/ticket/401> describes the issue with 2-digit years being converted to 4-digit years using an obsolete convention.

2 Proposed Fix

The proposed change to `mlsys_mailer_data.incl.pl1` is shown by the `compare_ascii` output below:

```
cpa >ldd>include>mlsys_mailer_data.incl.pl1 ==
```

Inserted in B:

```
B11      2) change(2026-08-19,Swenson), approve(2026-08-19,MCR10168):
B12      Added AIM information about network mail and increased version number from
B13      1 to 2.
```

Preceding:

```
A11                                          END HISTORY COMMENTS */
```

A13

A14

```
A15      dcl MLSYS_MAILER_DATA_VERSION_1 char (8) aligned static options (constant) init
          ("mlsmdv_1");
```

Changed by B to:

```
B16      /* format: style4,delnl,insnl,ifthenstmt,indnoniterend */
```

B17

```
B18      /* Modified: July 1983 by R. Kovalcik for AIM. */
```

B19

```
B20      dcl MLSYS_MAILER_DATA_VERSION_2 char (8) aligned static options (constant) init
          ("mlsmdv_2");
```

Inserted in B:

```
B39      3 aim_info,
```

```
B40      4 given bit (1) unaligned,          /* is authorization
supplied? */
```

```
B41      4 mbz2 bit (35) unaligned,          /* must be zero */
```

```
B42      4 authorization bit (72) aligned,    /* authoriztion mail should
be sent at */
```

Preceding:

```
A34      2 recipients (mlsys_mailer_data_n_recipients refer
          (mlsys_mailer_data.total_recipients))
```

```
A45      3 mbz2 bit(30) unaligned,
```

Changed by B to:

```
B54      3 mbz3 bit(30) unaligned,
```

Comparison finished: 4 differences, 17 lines.

```
GHM 17:33 0.106 0 Swenson
```

The proposed change to `mlsys_transmit_.pl1`, is simply to update the version number:

```
cpa [lpn mlsys_transmit_.pl1] ==
```

```
A3015          mlsys_mailer_data.version = MLSYS_MAILER_DATA_VERSION_1;
Changed by B to:
B3015          mlsys_mailer_data.version = MLSYS_MAILER_DATA_VERSION_2;
```

Comparison finished: 1 difference, 2 lines.

The proposed change to `mlsys_parse_text.pl1` to fix the parsing of 2-digit years in email headers is shown below:

```
cpa [lpn mlsys_parse_text.pl1] ==
```

Inserted in B:

```
B40          5) change(2026-08-19,Swenson), approve(2026-08-19,NET022):
B41          Updated to use sliding century convention for parsing 2-digit years.
Preceding:
A40          END HISTORY COMMENTS */
```

```
A4018          if current.token_lth = 2 then                /* ... assume 20th century
    if 2 digits */
A4019          year = cv_dec_check_ (current_token, code) + 1900;
Changed by B to:
B4020          if current.token_lth = 2 then do;            /* two-digit year:
    sliding-century convention (RFC822-style:
B4021          00-49 -> 20xx, 50-99 ->
    19xx) instead of always assuming
B4022          19xx, which broke
    day-of-week validation for dates in the
B4023          21st century -- see
    project memory */
B4024          year = cv_dec_check_ (current_token, code);
B4025          if code = 0 then
B4026          if year < 50 then year = year + 2000;
B4027          else year = year + 1900;
B4028          end;
```

Comparison finished: 2 differences, 13 lines.

Finally, the proposed change to `mlsys_format.pl1` to no longer force 2-digit years in email headers is shown below:

```
cpa [lpn mlsys_format.pl1] ==
```

Inserted in B:

```
B26          4) change(2026-08-19,Swenson), approve(2026-08-19,NET022):
B27          Fixed to no longer specify years as 2-digit years since network mail now
B28          uses 4-digit years.
Preceding:
A26          END HISTORY COMMENTS */
```

```

A2934          if ifo.rfc822_format then                      /* networks use 2 digit
    years; Multics uses four digits */
A2935          call add_to_buffer_fixed (convert (two_digits_picture, mod (year,
    100)));
A2936          else call add_to_buffer_fixed (convert (four_digits_picture, year));
Changed by B to:
B2937          /* always use a 4-digit
    year: a 2-digit year is ambiguous
B2938          (RFC5322 requires 4+
    digits) and breaks day-of-week
B2939          validation on receivers
    that expand it to the wrong
B2940          century -- see project
    memory */
B2941          call add_to_buffer_fixed (convert (four_digits_picture, year));

```

Comparison finished: 2 differences, 11 lines.

3 Documentation

No changes to the documentation are required as none of this is documented now.

4 Test

These changes have been tested with the networking libraries and the standard mail system on GHM. None of the changes effects anything but network mail, and without network software installed, none of the changes is ever exercised, so to test them, I installed the TCP/IP and Chaosnet network stacks and then ensured that I could send email between Multics systems and between ITS systems and Multics systems.

5 Version History

2026-08-19	1.0	Initial version of the MCR.
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