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Re: Release: 1233
Reference Release: 1025, 1087, 1138
Service Request: 12852, 13202
Error Reports: 1617, 1618
Programs: None
DB2 Programs: None
CICS Programs: None
Copymembers: CPPDXDC2, CPPDXDC3
Include Members: None
DDL Members: None
Bind Members: None
CICS Maps: None
Forms: None
Table Updates: None
Urgency: Not Urgent

This release provides some minor preventative maintenance to the date-handling routines in PPS. There are no current functional errors caused by the errors being corrected in this release; the corrections are being made to prevent the introduction of errors into programs during future system changes which may use these date-handling routines.

**Error Report 1617**

Copymember CPPDXDC3 is a utility Procedure Division copymember containing a number of date conversion routines. One such routine is XDC3-CONVERT-STD-LONG-TO-ISO, which is used to validate dates in the format YYYYMMDD and then convert those dates to YYYY-MM-DD format. The routine contains logic which should handle input dates consisting of all zeroes or all nines (the PPS sentinel date values). In originally implementing this routine, a coding error was made, and the comparison with the all-zero and all-nine constants was inadvertently made using a shortened version of the input date, a version in YYMMDD format. The result is the failure of the conversion routine to properly recognize the sentinel dates. Instead, those dates are passed through and the routine returns an “invalid date” flag and a “low value” ISO date.

Examination of base PPS revealed that four base programs use this conversion routine: PPP010, PPP851, PPP878, and PPP888. None of these uses are passing either of the sentinel dates through the routine, so these errors have not caused any functional impact to date. These corrections are being made to prevent possible problems with future PPS changes.
Error Report 1618

Copymember CPPDXDC2 is a deprecated utility Procedure Division copymember also containing date conversion routines. Programs should use the date conversion routines contained in CPPDXDC3 in preference to those in CPPDXDC2. Over time, all PPS programs will be converted to the newer routines.

Releases 1025 and 1087 eliminated all PPS references to three of the routines in this copymember:
1. CONVERT-STD-DATE
2. CONVERT-STD-DATE-LNG4
3. CONVERT-STD-TO-DB-FMT-DATE

Those three routines are not Y2K-compliant; they contain a hard-coded value of ‘19’ for the century. Although the references to these routines were eliminated, the routines themselves were not deleted from the copymember, and they should have been, to prevent any inadvertent future use.

Copymembers

CPPDXDC3

CPPDXDC3 has been modified to compare the proper input date with the sentinel date constants in routine XDC3-CONVERT-STD-LONG-TO-ISO.

CPPDXDC2

CPPDXDC2 has been modified by removing three routines (identified earlier) which are not Y2K-compliant. As also noted earlier, all references to these three routines were eliminated in previous releases.

Test Plan

To test the condition indicated by Error Report 1617, UCOP performed a before and after test, using a driver program written just for the purpose of exercising the various date conversion routines. For this specific test, five dates were passed into the conversion routine and the returned values were examined. The before and after results are summarized in the following table:

<table>
<thead>
<tr>
<th>STD Long Date Input</th>
<th>Before Code Correction</th>
<th>After Code Correction</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Invalid Date Flag</td>
<td>ISO Date Returned</td>
</tr>
<tr>
<td>00000000</td>
<td>Yes</td>
<td>0001-01-01</td>
</tr>
<tr>
<td>19990229</td>
<td>Yes</td>
<td>0001-01-01</td>
</tr>
<tr>
<td>19990316</td>
<td>No</td>
<td>1999-03-16</td>
</tr>
<tr>
<td>20000229</td>
<td>No</td>
<td>2000-02-29</td>
</tr>
<tr>
<td>99999999</td>
<td>Yes</td>
<td>0001-01-01</td>
</tr>
</tbody>
</table>

The input dates shaded in the above table are the ones incorrectly-handled before the code changes, and correctly handled after the code changes.
Campuses are encouraged to run similar tests to verify correct installation. Note that the results of the corrections cannot be verified within PPS itself, because there are no programs currently exhibiting the potential problem.

No testing of the changes made to CPPDXDC2 in response to Error Report 1618 can be done, as the changes consisted solely of the removal of "vestigial" routines from the copymember.

**Campuses are strongly encouraged to examine local code for programs that may be using either the modified routine from CPPDXDC3 or the deleted routines from CPPDXDC2, and to immediately remediate any such code.**

**Installation Instructions**

1. Install the modified versions of CPPDXDC2 and CPPDXDC3 into production.
2. DB2 pre-compile, compile and link the following **unmodified** programs into the batch LOADLIB:
   - PPP010
   - PPP851
   - PPP878
   - PPP888
3. Bind the plans for each of the programs recompiled in the previous step.
4. Perform any desired local testing.

**Timing of Installation**

The installation of this release is not urgent. As mentioned above, the errors corrected herein have no current functional impact.

As usual, campuses are encouraged to install this release in as timely a fashion as possible and in the normal numeric sequence.

If there are any questions, please send electronic mail to Jerry.Wilcox@ucop.edu, or call at (510) 987-0516.

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