

CA PDSMAN PDS Library Management 7.7  
CA RS 2007 Service List

1

| Service  | Description   | Type |
|--|---|------|
| SO12047  | ADD A MEMBER CACHE TO IMPROVE POBJ LRDR PERFORMANCE | PTF  |
| The CA RS 2007 service count for this release is 1 |   |      |

CA PDSMAN PDS Library Management  
CA RS 2007 Service List for CPDS770

2

| FMID  | Service | Description   | Type |
|---|---------|---|------|
| CPDS770   | S012047 | ADD A MEMBER CACHE TO IMPROVE POBJ LRDR PERFORMANCE | PTF  |
| The CA RS 2007 service count for this FMID is 1 |         |   |      |

| Service | Details  |
|---------|--|
| S012047 | <p>S012047 M.C.S. ENTRIES = ++PTF (S012047)</p> <p>ADD A MEMBER CACHE TO IMPROVE POBJ LRDR PERFORMANCE</p> <p>ENHANCEMENT DESCRIPTION:</p> <p>PDSMAN normally records the member last reference date in the member directory entry. This method cannot be used for program objects due to limitations imposed by the operating system on program object update types and methods.</p> <p>As an alternative, PDSMAN uses a VSAM database to record member last reference dates for program objects. As member references occur PDSMAN queues requests to record information to the PDSMAN address space, which processes the requests asynchronously and records references in the PDSMAN database if required.</p> <p>This PTF improves the efficiency of Last Reference Date Recording for program objects by introducing a cache of frequently referenced members that have been referenced on the current day. This dramatically reduces the queuing to the PDSMAN address space.</p> <p>Technical Description</p> <p>Prior to this PTF ALL member references were queued, without considering whether the member was already referenced on a given day. On highly active program object libraries the queueing of all members introduces delay if member references occur at a rate higher than database recording can process them.</p> <p>This PTF adds a member cache so that queueing for recording in the database is only required if the cache does not already contain the member name. Members are recorded in the cache after the reference date is successfully recorded in the database and the table is checked before a member reference request is queued to the PDSMAN address space.</p> <p>Storage for the member cache is allocated in the PDSMAN common data space and a hashing algorithm is used so that member lookup is efficient.</p> <p>The PDSMAN \$DATABASE control statement is updated with the following parameters that can be used to define the member cache table. It is not necessary to add any of these parameters to activate the cache, the defaults are selected to provide efficient caching of frequently accessed members.</p> <p>\$DATABASE</p> <p>QMCACHE_ACT=Y/N</p> <p>Option to control activation of the cache table</p> <p>N</p> <p>Do not allocate a member reference cache table.</p> <p>Y</p> <p>Allocate and activate a member reference cache.</p> <p>Default = Y</p> <p>QMCACHE_SLOT#= nnnn</p> <p>Defines the number of slots in the cache table.</p> <p>Default = 2048 with valid range 1024 to 8192.</p> <p>The hashing algorithm generates a CRC32 checksum using the member name to index into the table of 8 byte slots.</p> <p>QMCACHE_ELEM#=- nnnnn</p> <p>Defines the number of elements or members that the table will contain.</p> |

| Service | Details   |
|---------|---|
|         | <p>Default = 8192 with valid range 1024 to 32767.</p> <p>Member specific information, such as library name and volser, is recorded in the element table (80 bytes each).</p> <p>QMCACHE_ELDUR= nn</p> <p>Defines a number of seconds of inactivity after which a table element is eligible to be reused.</p> <p>Default = 60 with valid range 3 to 99.</p> <p>The member cache table is allocated and maintained by the Database Queue Manager Subtask of the PDSMAN address space.</p> <p>The QMDB task accesses the \$DATABASE options that describe the cache only during initialization. So to change any of the \$DATABASE options the following sequence is required:</p> <ol style="list-style-type: none"> <li>1) Update PDSMINIT as required, then issue F PDSMAN,NEWRULES</li> <li>2) Reinitialize the QMDB subtask using F PDSMAN,NEWQMDB</li> </ol> <p>Every hour on the hour the QMDB subtask will check the hash table status and release storage of tables that are not active. At midnight each day a new empty table will be allocated. The following commands can be used to control and report the status of the member cache table:</p> <p>F PDSMAN,QMDBSTATus</p> <p>This command now includes a PDSMQMDB-17 message:</p> <p>PDSMQMDB-17 Member Cache status: status Start Time=time or N/A Address=address or zero</p> <p>F PDSMAN,QMDBPERForm</p> <p>PDSMQMDB-18 Member Cache acty: desc cnt desc cnt desc cnt</p> <p>This message is issued in response to the PDSMAN address space QMDBPERForm command. The PDSMQMDB-18 message is issued multiple times to report the counters described below. The Cache table statistics are maintained on the same cadence as other statistics reported by the QMDBPERF command, that is the numbers reported represent activity for the current hour. Statistics for previous time periods are reported by the QMDBPERFALL command - which displays statistics for the current period (approximately one hour) and for each recorded period (statistics for up to 50 previous periods are recorded).</p> <p>Searches      Number of times the table was searched.</p> <p>Found         Number of times the member was found in the table.</p> <p>Hit pct        Percent of searches in which member was found.</p> <p>Coll cnt       Collision count - number of times a different name hashed to the same slot#. When this occurs elements are chained and a sequential search results.</p> <p>Long chn       Longest chain of elements.</p> <p>Adds           Number of member adds.</p> <p>Reuse cnt      Number of times an element was reused.</p> <p>Add fail       Number of times an add request failed due to all elements used and none were eligible for reuse.</p> <p>Srch con       Number of search contention events.</p> <p>Add con        Number of add contention events.</p> <p>Mbr del        Number of member delete and/or rename requests.</p> <p>F PDSMAN,QMDBSTOPHT</p> <p>Deactivates the member reference cache.</p> |

| Service                          | Details   |         |  |                                  |             |         |  |          |              |         |  |         |  |         |  |       |            |          |  |         |  |           |                          |          |  |         |  |        |                            |
|----------------------------------|---|---------|--|----------------------------------|-------------|---------|--|----------|--------------|---------|--|---------|--|---------|--|-------|------------|----------|--|---------|--|-----------|--------------------------|----------|--|---------|--|--------|----------------------------|
|                                  | <p>F PDSMAN,QMDBSTARTHT</p> <p>Allocates and activates a new empty cache table.</p> <p>F PDSMAN,QMDBNEWHT</p> <p>Same as QMDBSTARTHT.</p> <p>SYMPTOMS:</p> <p>Increased elapsed times when Last Reference Date recording, \$ACCESS REF=Y, is specified on highly active program object libraries.</p> <p>IMPACT:</p> <p>Users of the Last Reference Date Recording facility on highly active program object libraries may be impacted by this problem.</p> <p>CIRCUMVENTION:</p> <p>None.</p> <p>PRODUCTS AFFECTED:</p> <p>CA PDSMAN PDS Library Management r7.7</p> <p>PRODUCT(S) AFFECTED:</p> <p>CA PDSMAN PDS Library Management <span style="float: right;">Release 7.7</span></p> <p>Related Problem:</p> <p>PDSM 1098</p> <p>Copyright (C) 2020 CA. All rights reserved. R00243-PDS770-SP1</p> <p>DESC(ADD A MEMBER CACHE TO IMPROVE POBJ LRDR PERFORMANCE).</p> <p>++VER (Z038)</p> <p>FMID (CPDS770)</p> <p>PRE ( R021043 R021122 R021214 R021883 R022426 R024163</p> <p>R025010 R028420 R030006 R030074 R032065 R032119</p> <p>R033883 R037159 R037791 R040737 R045849 R045963</p> <p>R046395 R050409 R052549 R058121 R058236 R059424</p> <p>R062179 R062446 R062773 R066087 R068088 R068485</p> <p>R069258 R069784 R070838 R071686 R072095 R073404</p> <p>R077451 R077773 R078098 R081109 R086751 R086993</p> <p>R090257 R095384 R096952 R098807 S000052 S000512</p> <p>S001547 S003631 S004102 S004983 S008082 S009685</p> <p>S011374 )</p> <p>SUP ( AR22324 R022748 R022824 R074545 R078780 S009511</p> <p>ST09511 ST12047 TR22748 TR22824 TR74545 TR78780 )</p> <p>++HOLD (S012047) SYSTEM FMID(CPDS770)</p> <p>REASON (ACTION ) DATE (20160)</p> <p>COMMENT (</p> <table border="1"> <tr> <td colspan="2">+-----+</td> </tr> <tr> <td>  CA PDSMAN PDS Library Management</td> <td>Release 7.7  </td> </tr> <tr> <td colspan="2">+-----+</td> </tr> <tr> <td> SEQUENCE</td> <td>  Before Apply  </td> </tr> <tr> <td colspan="2">+-----+</td> </tr> <tr> <td> PURPOSE</td> <td>  Ensure proper loading of resident modules.  </td> </tr> <tr> <td colspan="2">+-----+</td> </tr> <tr> <td> USERS</td> <td>  All users.  </td> </tr> <tr> <td> AFFECTED</td> <td>   </td> </tr> <tr> <td colspan="2">+-----+</td> </tr> <tr> <td> KNOWLEDGE</td> <td>  CA PDSMAN administration  </td> </tr> <tr> <td> REQUIRED</td> <td>   </td> </tr> <tr> <td colspan="2">+-----+</td> </tr> <tr> <td> ACCESS</td> <td>  CA PDSMAN console commands  </td> </tr> </table> | +-----+ |  | CA PDSMAN PDS Library Management | Release 7.7 | +-----+ |  | SEQUENCE | Before Apply | +-----+ |  | PURPOSE | Ensure proper loading of resident modules. | +-----+ |  | USERS | All users. | AFFECTED |  | +-----+ |  | KNOWLEDGE | CA PDSMAN administration | REQUIRED |  | +-----+ |  | ACCESS | CA PDSMAN console commands |
| +-----+                          |   |         |  |                                  |             |         |  |          |              |         |  |         |  |         |  |       |            |          |  |         |  |           |                          |          |  |         |  |        |                            |
| CA PDSMAN PDS Library Management | Release 7.7   |         |  |                                  |             |         |  |          |              |         |  |         |  |         |  |       |            |          |  |         |  |           |                          |          |  |         |  |        |                            |
| +-----+                          |   |         |  |                                  |             |         |  |          |              |         |  |         |  |         |  |       |            |          |  |         |  |           |                          |          |  |         |  |        |                            |
| SEQUENCE                         | Before Apply  |         |  |                                  |             |         |  |          |              |         |  |         |  |         |  |       |            |          |  |         |  |           |                          |          |  |         |  |        |                            |
| +-----+                          |   |         |  |                                  |             |         |  |          |              |         |  |         |  |         |  |       |            |          |  |         |  |           |                          |          |  |         |  |        |                            |
| PURPOSE                          | Ensure proper loading of resident modules.  |         |  |                                  |             |         |  |          |              |         |  |         |  |         |  |       |            |          |  |         |  |           |                          |          |  |         |  |        |                            |
| +-----+                          |   |         |  |                                  |             |         |  |          |              |         |  |         |  |         |  |       |            |          |  |         |  |           |                          |          |  |         |  |        |                            |
| USERS                            | All users.  |         |  |                                  |             |         |  |          |              |         |  |         |  |         |  |       |            |          |  |         |  |           |                          |          |  |         |  |        |                            |
| AFFECTED                         |   |         |  |                                  |             |         |  |          |              |         |  |         |  |         |  |       |            |          |  |         |  |           |                          |          |  |         |  |        |                            |
| +-----+                          |   |         |  |                                  |             |         |  |          |              |         |  |         |  |         |  |       |            |          |  |         |  |           |                          |          |  |         |  |        |                            |
| KNOWLEDGE                        | CA PDSMAN administration  |         |  |                                  |             |         |  |          |              |         |  |         |  |         |  |       |            |          |  |         |  |           |                          |          |  |         |  |        |                            |
| REQUIRED                         |   |         |  |                                  |             |         |  |          |              |         |  |         |  |         |  |       |            |          |  |         |  |           |                          |          |  |         |  |        |                            |
| +-----+                          |   |         |  |                                  |             |         |  |          |              |         |  |         |  |         |  |       |            |          |  |         |  |           |                          |          |  |         |  |        |                            |
| ACCESS                           | CA PDSMAN console commands  |         |  |                                  |             |         |  |          |              |         |  |         |  |         |  |       |            |          |  |         |  |           |                          |          |  |         |  |        |                            |

| Service | Details   |
|---------|---|
|         | <pre>  REQUIRED   +-----+ ***** * STEPS TO PERFORM * ***** 1. Issue the following operator command: P PDSMAN 2. Wait for PDSMAN address space to successfully shut down. 3. APPLY the PTF. 4. Issue the following operator command: S PDSMAN ). ++HOLD (S012047) SYSTEM FMID(CPDS770) REASON (DOC ) DATE (20160) COMMENT ( +-----+   CA PDSMAN PDS Library Management Release 7.7   +-----+ ***** * PUBLICATION * ***** See the Enhancement Description ). </pre> |

CA PDSMAN PDS Library Management 7.7  
CA RS 2007 Product/Component Listing

| Product Family   | Product                          | Release  |
|--|----------------------------------|----------|
| Systems Management   | CA PDSMAN PDS LIBRARY MANAGEMENT | 07.07.00 |
| The CA RS 2007 Product/Component Count for this release is 1 |                                  |          |

| CA RS Level | Service | FMID    |
|-------------|---------|---------|
| CAR2007     | S012047 | CPDS770 |
| CAR2006     | S013262 | CPDS770 |
| CAR2005     | S012264 | CPDS770 |
| CAR2004     | S012320 | CPDS770 |
| CAR2002     | S011374 | CPDS770 |
|             | S011359 | CPDS770 |
| CAR1910     | S009685 | CPDS770 |
| CAR1909     | S009792 | CPDS770 |
|             | S009511 | CPDS770 |
| CAR1908     | S008990 | CPDS770 |
| CAR1907     | S008723 | CPDS770 |
| CAR1906     | S008338 | CPDS770 |
|             | S008180 | CPDS770 |
| CAR1905     | S008082 | CPDS770 |
|             | S007776 | CPDS770 |
|             | S007670 | CPDS770 |
|             | S007466 | CPDS770 |
| CAR1903     | S007218 | CPDS770 |
|             | S007135 | CPDS770 |
| CAR1902     | S006975 | CPDS770 |
| CAR1901     | S006592 | CPDS770 |
|             | S006477 | CPDS770 |
| CAR1812     | S004102 | CPDS770 |
| CAR1811     | S005384 | CPDS770 |
| CAR1810     | S005157 | CPDS770 |
|             | S004896 | CPDS770 |
| CAR1809     | S004983 | CPDS770 |
| CAR1807     | S004028 | CPDS770 |
|             | S003878 | CPDS770 |
| CAR1806     | S003631 | CPDS770 |
|             | S001862 | CPDS770 |
|             | S001731 | CPDS770 |
| CAR1805     | S001547 | CPDS770 |
|             | S001504 | CPDS770 |
|             | S001353 | CPDS770 |
|             | S001344 | CPDS770 |
|             | S001195 | CPDS770 |
| CAR1804     | S000512 | CPDS770 |
|             | S000265 | CPDS770 |
| CAR1802     | S000052 | CPDS770 |
| CAR1801     | R099695 | CPDS770 |
| CAR1712     | R098907 | CPDS770 |
|             | R098807 | CPDS770 |
|             | R098805 | CPDS770 |
| CAR1709     | R097200 | CPDS770 |
|             | R096952 | CPDS770 |
| CAR1708     | R096640 | CPDS770 |



| CA RS Level | Service | FMID    |
|-------------|---------|---------|
|             | R096164 | CPDS770 |
| CAR1705     | R095384 | CPDS770 |
| CAR1703     | R094651 | CPDS770 |
|             | R094289 | CPDS770 |
|             | R094097 | CPDS770 |
| CAR1702     | R093796 | CPDS770 |
| CAR1701     | R093719 | CPDS770 |
| CAR1611     | R092644 | CPDS770 |
| CAR1610     | R091085 | CPDS770 |
|             | R090856 | CPDS770 |
| CAR1608     | R090257 | CPDS770 |
| CAR1606     | R089789 | CPDS770 |
| CAR1605     | R089660 | CPDS770 |
| CAR1604     | R088867 | CPDS770 |
| CAR1602     | R086993 | CPDS770 |
| CAR1601     | R086751 | CPDS770 |
| CAR1512     | R086071 | CPDS770 |
| CAR1511     | R085305 | CPDS770 |
| CAR1509     | R083263 | CPDS770 |
| CAR1508     | R082787 | CPDS770 |
|             | R082608 | CPDS770 |
|             | R082487 | CPDS770 |
|             | R082181 | CPDS770 |
| CAR1507     | R081109 | CPDS770 |
| CAR1506     | R080992 | CPDS770 |
| CAR1505     | R080016 | CPDS770 |
| CAR1504     | R078780 | CPDS770 |
|             | R078746 | CPDS770 |
|             | R078537 | CPDS770 |
| CAR1503     | R078098 | CPDS770 |
| CAR1502     | R077773 | CPDS770 |
|             | R077451 | CPDS770 |
| CAR1501     | R076807 | CPDS770 |
|             | R076791 | CPDS770 |
|             | R076038 | CPDS770 |
|             | R075654 | CPDS770 |
|             | R074071 | CPDS770 |
| CAR1412     | R076042 | CPDS770 |
|             | R075697 | CPDS770 |
| CAR1411     | R074545 | CPDS770 |
|             | R073404 | CPDS770 |
|             | R073184 | CPDS770 |
| CAR1410     | R073423 | CPDS770 |
|             | R073422 | CPDS770 |
|             | R072183 | CPDS770 |
| CAR1409     | R072878 | CPDS770 |
|             | R072095 | CPDS770 |

| CA RS Level | Service | FMID    |
|-------------|---------|---------|
|             | R071884 | CPDS770 |
|             | R071686 | CPDS770 |
| CAR1407     | R070838 | CPDS770 |
|             | R070181 | CPDS770 |
| CAR1406     | R069953 | CPDS770 |
|             | R069784 | CPDS770 |
|             | R069754 | CPDS770 |
|             | R069692 | CPDS770 |
|             | R069258 | CPDS770 |
| CAR1405     | R069344 | CPDS770 |
|             | R069084 | CPDS770 |
|             | R068485 | CPDS770 |
|             | R068484 | CPDS770 |
| CAR1404     | R068291 | CPDS770 |
|             | R068136 | CPDS770 |
|             | R068088 | CPDS770 |
|             | R068025 | CPDS770 |
|             | R068024 | CPDS770 |
|             | R066989 | CPDS770 |
|             | R066882 | CPDS770 |
|             | R066803 | CPDS770 |
|             | R066087 | CPDS770 |
|             | R066078 | CPDS770 |
|             | R066063 | CPDS770 |
| CAR1403     | R065828 | CPDS770 |
|             | R065714 | CPDS770 |
|             | R064956 | CPDS770 |
|             | R064543 | CPDS770 |
|             | R064187 | CPDS770 |
|             | R063402 | CPDS770 |
| CAR1312     | R062902 | CPDS770 |
|             | R062518 | CPDS770 |
|             | R062446 | CPDS770 |
|             | R061003 | CPDS770 |
|             | R060154 | CPDS770 |
| CAR1310     | R062876 | CPDS770 |
|             | R062773 | CPDS770 |
|             | R062179 | CPDS770 |
|             | R061432 | CPDS770 |
|             | R061137 | CPDS770 |
| CAR1309     | R062417 | CPDS770 |
|             | R059424 | CPDS770 |
|             | R058478 | CPDS770 |
|             | R058474 | CPDS770 |
|             | R058336 | CPDS770 |
|             | R058334 | CPDS770 |
|             | R058327 | CPDS770 |

| CA RS Level | Service | FMID    |
|-------------|---------|---------|
|             | R058236 | CPDS770 |
|             | R057358 | CPDS770 |
|             | R057158 | CPDS770 |
| CAR1308     | R061136 | CPDS770 |
| CAR1307     | R060050 | CPDS770 |
|             | R058121 | CPDS770 |
| CAR1306     | R052549 | CPDS770 |
|             | R052466 | CPDS770 |
| CAR1303     | R052919 | CPDS770 |
|             | R052916 | CPDS770 |
|             | R052915 | CPDS770 |
|             | R051975 | CPDS770 |
|             | R051974 | CPDS770 |
|             | R051012 | CPDS770 |
|             | R050594 | CPDS770 |
|             | R050415 | CPDS770 |
|             | R049247 | CPDS770 |
|             | R047842 | CPDS770 |
| CAR1212     | R050409 | CPDS770 |
|             | R049416 | CPDS770 |
|             | R048636 | CPDS770 |
|             | R047881 | CPDS770 |
|             | R047664 | CPDS770 |
|             | R046743 | CPDS770 |
| CAR1210     | R046854 | CPDS770 |
|             | R046847 | CPDS770 |
|             | R046663 | CPDS770 |
|             | R046395 | CPDS770 |
|             | R045963 | CPDS770 |
|             | R045849 | CPDS770 |
|             | R045163 | CPDS770 |
|             | R044914 | CPDS770 |
|             | R044646 | CPDS770 |
|             | R044364 | CPDS770 |
|             | R044359 | CPDS770 |
|             | R044022 | CPDS770 |
|             | R043732 | CPDS770 |
|             | R043636 | CPDS770 |
|             | R043635 | CPDS770 |
| CAR1207     | R042453 | CPDS770 |
|             | R042345 | CPDS770 |
|             | R042037 | CPDS770 |
|             | R040737 | CPDS770 |
|             | R040379 | CPDS770 |
|             | R040278 | CPDS770 |
|             | R038674 | CPDS770 |
|             | R038262 | CPDS770 |

| CA RS Level | Service | FMID    |
|-------------|---------|---------|
| CAR1204     | R038141 | CPDS770 |
|             | R037791 | CPDS770 |
|             | R037159 | CPDS770 |
|             | R037038 | CPDS770 |
|             | R036641 | CPDS770 |
|             | R036607 | CPDS770 |
|             | R036524 | CPDS770 |
|             | R036418 | CPDS770 |
|             | R036320 | CPDS770 |
|             | R036247 | CPDS770 |
|             | R036050 | CPDS770 |
|             | R035820 | CPDS770 |
|             | R033883 | CPDS770 |
| CAR1201     | R033794 | CPDS770 |
|             | R032119 | CPDS770 |
|             | R032065 | CPDS770 |
|             | R031992 | CPDS770 |
|             | R031442 | CPDS770 |
| CAR1110     | R031373 | CPDS770 |
|             | R030074 | CPDS770 |
|             | R030006 | CPDS770 |
|             | R029368 | CPDS770 |
|             | R029208 | CPDS770 |
|             | R028618 | CPDS770 |
|             | R028420 | CPDS770 |
|             | R024391 | CPDS770 |
| CAR1107     | R027125 | CPDS770 |
|             | R027026 | CPDS770 |
|             | R026144 | CPDS770 |
|             | R025010 | CPDS770 |
| CAR1104     | R025866 | CPDS770 |
|             | R025494 | CPDS770 |
|             | R024296 | CPDS770 |
|             | R024163 | CPDS770 |
|             | R023264 | CPDS770 |
|             | R023225 | CPDS770 |
|             | R023152 | CPDS770 |
|             | R023088 | CPDS770 |
| CAR1101     | R022824 | CPDS770 |
|             | R022426 | CPDS770 |
|             | R021954 | CPDS770 |
|             | R021883 | CPDS770 |
|             | R021781 | CPDS770 |
|             | R021534 | CPDS770 |
|             | R021214 | CPDS770 |
|             | R021122 | CPDS770 |
|             | R020990 | CPDS770 |

| CA RS<br>Level | Service | FMID    |
|----------------|---------|---------|
| CAR1010        | R018841 | CPDS770 |
|                | R018640 | CPDS770 |
|                | R018637 | CPDS770 |
|                | R018085 | CPDS770 |