

Control/DCD Digital Documentation for program IPTPRG

Note to Users

1. This document is built using user supplied parameters. Consult the Quick Start guide for changing parameters for different features.
2. For successful use of this document, search with a leading & (NO SPACES) before any operand.
 - a. The leading & will bring the user right to the correct place for operand used.
 - b. Insure there is NO SPACE after the leading ampersand and before the chosen operand.
3. Use &HELP for more information.
4. The INDEX begins on the next page. The COBOL program is included if requested.
5. Page Numbers are not used. Use &OPERAND in the SEARCH block for key searching.

OPERANDS to choose from

- | | |
|--|------------------------------------|
| 1. any data field | 9. INDEX |
| 2. any performed paragraph or section name | 10. OPEN |
| 3. CALL | 11. PERFORM-ANALYSIS |
| 4. COPY | 12. PERFORMED-ROUTINES |
| 5. CODE-NOT-USED | 13. SQL |
| 6. ERRORS | 14. Cn/ (see HELP for explanation) |
| 7. FORWARD-TRACING | 15. n (see HELP for explanation) |
| 8. HELP | 16. any COPY member |

This is the cover page with instructions on how to use the Digital Documentation Manual (DDM).

Please review the Operands as shown above.

The format is &Operand

Use the Adobe Reader Search Icon to move through the DDM.

All of the functionality of Adobe Reader can be used with the DDM.

Store your DDM reports in Adobe Cloud, Microsoft One Drive, Dropbox or on any PC or Server for future use.

Control/DCD is a product of Marble Computer, Inc.

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#INDEX                &INDEX
#COBOL PROGRAM        HAS          563 RECORDS
#ENDSOURCE            HAS           1 RECORDS
#HELP                 HAS           1 RECORDS
#HELP-----          HAS          188 RECORDS
#CALL REPORT          HAS           10 RECORDS
#COPY REPORT          HAS           5 RECORDS
#PERFORM-ANALYSIS     HAS           23 RECORDS
#COPY=FILEINFO        HAS           18 RECORDS   C1/..
#COPY=DATADIV2        HAS           14 RECORDS   C2/..
#COPY=PROCDIV1        HAS           15 RECORDS   C3/..
#COPY=PRDIV2          HAS           29 RECORDS   C4/..
#OPEN REPORT          HAS           16 RECORDS
#SQL REPORT           HAS            2 RECORDS
#NARRATIVE REPORT     HAS          1,619 RECORDS           FORMAT 3
  NOTES - FORMAT 3 CREATES MORE RECORDS THAN FORMAT 2 OR FORMAT 1
          USE ( OMIT DD-ATTRIBUTES ) FOR LESS RECORDS
          ( FORMAT 1 ) OR (2) REMOVES ROUTINE-NAMES FROM NARRATIVE
#FORWARD TRACING      HAS           28 RECORDS
#CODE-NOT-USED        HAS           17 RECORDS
#ERRORS               HAS            6 RECORDS           OMITTED
#PERFORMED-ROUTINES  HAS           18 RECORDS           OMITTED
# End of Index
  1. 000010 IDENTIFICATION DIVISION.
  2. 000020 PROGRAM-ID. IPTPRG.
  3. 000030 ENVIRONMENT DIVISION.
  4. 000040 CONFIGURATION SECTION.
  5. 000050 SOURCE-COMPUTER. IBM-370.
  6. 000060 OBJECT-COMPUTER. IBM-370.
  7. 000070 INPUT-OUTPUT SECTION.
  8. 000080 FILE-CONTROL.
  9. 000110     SELECT FOR-MERGE-QVW-FILE          ASSIGN TO UT-S-IPTPRG.
10. 000120     SELECT MERGED-OUTPUT-FILE        ASSIGN TO UT-S-CATANAL.
11. 000130     SELECT DEBUG-OUTPUT-FILE         ASSIGN TO UT-S-DEBUGFOR.
12. 000140     SELECT ANAL-WORK-FL              ASSIGN TO UT-S-ANALWORK.
13. 000150     EJECT
14. 000160 DATA DIVISION.
15. 000170 FILE SECTION.
16. 000370
17. 000380 FD FOR-MERGE-QVW-FILE
18. 000390     RECORDING MODE IS F
19. 000400     LABEL RECORDS ARE STANDARD
20. 000410     BLOCK CONTAINS 0 RECORDS
21. 000420     RECORD CONTAINS 156 CHARACTERS
22. 000430     DATA RECORD IS FD-PT-RECORD.
23. 000440 01 FD-PT-RECORD                       PIC X(156).
24. 000450
25. 000460 FD MERGED-OUTPUT-FILE
26. 000470     RECORDING MODE IS F
27. 000480     LABEL RECORDS ARE STANDARD
28. 000490     BLOCK CONTAINS 0 RECORDS
29. 000500     RECORD CONTAINS 80 CHARACTERS
30. 000510     DATA RECORD IS FD-QVW-RECORD.
31. 000520 01 FD-QVW-RECORD                       PIC X(80).
32. 000530
33. 000540 FD DEBUG-OUTPUT-FILE
34. 000550     RECORDING MODE IS F
35. 000560     LABEL RECORDS ARE STANDARD
36. 000570     BLOCK CONTAINS 0 RECORDS
37. 000580     RECORD CONTAINS 130 CHARACTERS
38. 000590     DATA RECORD IS DPR-DEBUG-PRINT-REC.
39. 000600 01 DPR-DEBUG-PRINT-REC                   PIC X(130).
40. 000610
41. 000620 FD ANAL-WORK-FL
42. 000630     RECORDING MODE IS F
43. 000640     LABEL RECORDS ARE STANDARD
44. 000650     BLOCK CONTAINS 0 RECORDS
45. 000660     RECORD CONTAINS 90 CHARACTERS
46. 000670     DATA RECORD IS AW-RECORD.
47. 000680 01 AW-RECORD                             PIC X(90).
48. 000690     EJECT
49. 000700 WORKING-STORAGE SECTION.
50. 000710 01 SORT-RECORD.
51. 000730     05 SORT-TYPE-SEQ-1                       PIC X(001).
52. 000720     05 SORT-PERF-ORDER-SEQ-2                 PIC 9(005).
53. 000740     05 SORT-SEQ-NBR-3                       PIC 9(006).
54. 000750     05 SORT-INDENT-NBR                     PIC 9(003).
55. 000760     05 SORT-REST-RECORD                     PIC X(183).
56. 000770
57. 000780 01 WS-TYPE-SORT-DONE-SW               PIC X(01)   VALUE SPACE.

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This is the Index of the DDM followed by the Cobol Program. The Narrative follows the Cobol program. The short cut to the Narrative is: &ENDSOURCE

The Source Code is followed by the Call & Copy Reports.

This begins the Cobol listing at the Data Division in our example output from the DDM.

Use &ENDSOURCE to proceed with the analysis sections.

A03/11

A02/2015

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58.	000790	88	WS-TYPE-SORT-IS-SHELL		VALUE '1'.	A02/2015
59.	000800	88	WS-TYPE-SORT-IS-REGULAR		VALUE '2'.	A02/2015
60.	000810					
61.	000820	01	WS-NBR-OF-OTHER-RECS	PIC 9(06)	VALUE ZERO.	A01/2015
62.	000830	01	WS-UNUSED-FIELD	PIC X(01)	VALUE SPACE.	A02/2015
63.	000840	01	WS-LARGEST-NBR-OF-DIGITS	PIC 9(02)	VALUE 02.	A02/2015
64.	000850					
65.	000860	01	WS-AW-RECORD.			A02/2015
66.	000870	05	WS-AW-10-CHARS.			A02/2015
67.	000880		10 WS-AW-SORT-PREFIX-ID	PIC X(02).		A02/2015
68.	000890		10 WS-AW-SORT-POS-3	PIC X(01).		A02/2015
69.	000900		10 WS-AW-SORT-SEQUENCE	PIC 9(06).		A02/2015
70.	000910		10 WS-AW-SORT-POSL-10	PIC X(01).		A02/2015
71.	000920	05	WS-AW-80-CHARS	PIC X(80).		A02/2015
72.	000930					A02/2015
73.	000940	01	QVW-RECORD.			A02/2015
74.	000950	05	QVW-FIRST-6-CHARS	PIC X(06).		A02/2015
75.	000960	05	QVW-THRU-POS-200.			A02/2015
76.	000970		10 QVW-LAST-68-CHARS	PIC X(68).		A02/2015
77.	000980		10 QVW-POS-69-200	PIC X(132).		A02/2015
78.	000990	05	QVW-FORMAT-PERFORM	REDEFINES QVW-THRU-POS-200.		A02/2015
79.	001000		10 QVW-F-POS	OCCURS 200 TIMES		A02/2015
80.	001010			INDEXED BY QVW-F-INDEX		A02/2015
81.	001020			PIC X(01).		A02/2015
82.	001030	01	QVW-RECORD-2	REDEFINES QVW-RECORD.		A02/2015
83.	001040	05	QVW-FIRST-12	PIC X(12).		A02/2015
84.	001050	05	QVW-POS-13	PIC X(01).		A02/2015
85.	001060	05	QVW-NARR-FIELD	PIC X(199).		A02/2015
86.	001070	01	QVW-RECORD-9	REDEFINES QVW-RECORD.		A02/2015
87.	001080	05	FILLER	PIC X(4).		A02/2015
88.	001090	05	QVW-POS-5-12	PIC X(08).		A02/2015
89.	001100	05	FILLER	PIC X(01).		A02/2015
90.						
91.		01	FM-CAT-PD-NBR	PIC 9(6)	VALUE ZERO.	
92.	001110					
93.	001120	01	PT-RECORD.			
94.	001130	05	PT-PERF-SEQ-NBR	PIC 9(06).		
95.	001140	05	FILLER	PIC X(01).		
96.	001150	05	PT-INDENT-NBR	PIC 9(03).		
97.	001160	05	FILLER	PIC X(01).		
98.	001170	05	PT-BEG-PERF-RNG-NBR	PIC 9(06).		
99.	001180	05	PT-RANGE-DASH	PIC X(01).		
100.	001190	05	PT-END-PERF-RNG-NBR	PIC 9(06).		
101.	001200	05	FILLER	PIC X(01).		
102.	001210	05	PT-VERB-CODE	PIC 9(03).		
103.	001220	05	FILLER	PIC X(01).		
104.	001230	05	PT-PERFORM-NAME	PIC X(30).		
105.	001240	05	FILLER	PIC X(01).		
106.	001250	05	PT-THRU-NAME	PIC X(30).		
107.	001260	05	FILLER	PIC X(01).		
108.	001270	05	PT-PTR-INTO-UPT-TABLE	PIC 9(05).		
109.	001280	05	FILLER	PIC X(01).		
110.	001290	05	PT-SEE-FORMER-NBR-SW	PIC X(01).		
111.	001300		88 PT-SEE-FORMER-NBR		VALUE 'Y'.	
112.	001310		88 PT-SEE-FORMER-LOOP		VALUE 'L'.	
113.	001320	05	FILLER	PIC X(01).		
114.	001330	05	PT-UNIQUE-NUMBER	PIC 9(05).		
115.	001340	05	FILLER	PIC X(01).		
116.	001350	05	PT-NUMBER-PERFORMS	PIC 9(05).		
117.	001360	05	FILLER-TO-156	PIC X(46).		A05/11
118.	001370					
119.	001380	01	WS-QVW-RECORD-NBR	PIC S9(5) COMP-3	VALUE ZERO.	A03/11
120.	001390					
121.		01	ERROR-RECORD	PIC X(80).		
122.						
123.	001400	01	WS-CURR-PERF-RECORD	PIC 9(5)	VALUE ZERO.	
124.	001410					
125.	001420	01	WS-THRU-CONSTANT	PIC X(09)	VALUE SPACES.	
126.	001430					
127.	001440	01	WS-110-CHARS	PIC X(110)	VALUE SPACES.	
128.	001450	01	WS-NUMERIC-FIELDS.			
129.	001460	05	WS-NUMBER-6	PIC 9(6)	VALUE ZERO.	
130.	001470	05	WS-PERF-ORDER	PIC 9(5)	VALUE ZERO.	
131.	001480	05	WS-IPT-NBR-ENTRIES	PIC S9(8) COMP	VALUE ZERO.	
132.	001490*	05	WS-PERF-SEQ-Z5	PIC ZZZZ9.		
133.	001500	05	WS-NBR-SPACES	PIC S9(4) COMP	VALUE ZERO.	
134.	001510	05	WS-C87-JUMP-TO-NBR	PIC 9(6)	VALUE ZERO.	
135.	001520	05	WS-NBR-ODD-PERFORMS	PIC S9(5) COMP-3	VALUE ZERO.	
136.	001530					
137.	001540	01	WS-SWITCHES.			

Columns
73-80
contains
the
contents
of those
positions

138.	001550	05	WS-ANAL-FILE-OPEN-SW	PIC X	VALUE SPACE.	A01/2015
139.	001560	88	WS-ANAL-FILE-OPEN		VALUE 'Y'.	A01/2015
140.	001570	05	WS-END-QVW-DN-FILE-SW	PIC X(1)	VALUE SPACE.	
141.	001580	88	WS-END-QVW-DN-FILE		VALUE 'Y'.	
142.	001590	05	WS-END-4MER-QVW-FILE-SW	PIC X(1)	VALU SPACE.	
					E	
143.	001600	88	WS-END-4MER-QVW-FILE		VALU 'Y'.	
					E	
144.	001610	05	WS-END-4MER-CAT-FILE-SW	PIC X(1)	VALU SPACE.	
					E	
145.	001620	88	WS-END-4MER-CAT-FILE		VALU 'Y'.	
					E	
146.	001630	05	WS-END-SORT-FILE-SW	PIC X(1)	VALU SPACE.	
147.	001640	88	WS-END-SORT-FILE		E 'Y'.	
					VALU	
					E	
148.	001650	05	WS-ONE-CAT-REC-FOUND-SW	PIC X(1)	VALU SPACE.	
					E	
149.	001660	88	WS-ONE-CAT-REC-FOUND		VALU 'Y'.	
					E	
150.	001670	05	WS-LAST-LINE-COBOL-SW	PIC X(1)	VALU SPACE.	
					E	
151.	001680	88	WS-LAST-LINE-COBOL		VALU 'Y'.	
					E	
160.	001770					
161.	001780	01	IPT-INTERNAL-PERF-TABLE.			
162.	001790	05	IPT-MAX-NBR-ENTRIES	PIC S9(8)	COMP VALUE +30000.	
163.	001800	05	IPT-NBR-ENTRIES	PIC S9(8)	COMP VALUE ZERO.	
164.	001810	05	IPT-ENTRIES	OCCURS 1 TO 30000	TIMES	
165.	001820			DEPENDING ON	IPT-NBR-ENTRIES	
166.	001830			INDEXED BY	IPT-INDEX.	
167.	001840	10	IPT-BEG-RANGE	PIC S9(6)	COMP.	
168.	001850	10	IPT-END-RANGE	PIC S9(6)	COMP.	
169.	001860	10	IPT-INDENT-NBR	PIC S9(3)	COMP-3.	
170.	001870*		above 3 entries total 10 bytes			
171.	001880					
172.	001890	01	WS-COUNT-SEQS	PIC S9(5)	COMP-3 VALUE ZERO.	A03/11
173.	001900					A03/11
174.	001910	01	SEQ-TABLE.			A03/11
175.	001920	05	SEQ-MAX-NBR-ENTRIES	PIC S9(5)	COMP-3 VALUE +2501.	A03/11
176.	001930	05	SEQ-NBR-OF-ENTRIES	PIC S9(5)	COMP-3 VALUE ZERO.	A03/11
177.	001940	05	SEQ-ENTRY	OCCURS 1 TO 2503	TIMES	A03/11
178.	001950			DEPENDING ON	SEQ-NBR-OF-ENTRIES	A03/11
179.	001960			INDEXED BY	SEQ-INDEX.	
180.	001970	10	SEQ-BEG-SEQ-NBR	PIC 9(06).		
181.	001980	10	SEQ-BEG-COL-NBR	PIC 9(02).		
182.	001990	10	SEQ-END-SEQ-NBR	PIC 9(06).		A03/11
183.	002000	10	SEQ-END-COL-NBR	PIC 9(02).		A03/11
184.	002010					
185.	002020			COPY	FILEINFO.	
186.	002030					
187.	002040	01	SN1-RECORD	PIC X(07).		
188.	002050	01	SN3-RECORD	REDEFINES SN1-RECORD.		A02/2015
189.	002060	05	SN3-POS	OCCURS 7	TIMES	A02/2015
190.	002070			INDEXED BY	SN3-INDEX	A02/2015
191.	002080			PIC X(01).		A02/2015
192.	002090					A02/2015
193.	002100	01	WK-WORK-RECORD.			A02/2015
194.	002110	05	WS-FIRST-68.			A02/2015
195.	002120	10	WS-F68	OCCURS 68	TIMES	A02/2015
196.	002130			INDEXED BY	WS-F68-INDEX	A02/2015
197.	002140			PIC X(01).		A02/2015
198.	002150					
199.	*			COPY	MISSING.	
200.						
201.	002160			COPY	DATADIV2.	
202.	002170					A02/2015
203.	002180	01	S1-RECORD.			A02/2015
204.	002190	05	S1-30-POS	OCCURS 30	TIMES	A02/2015
205.	002200			INDEXED BY	S1-INDEX	A02/2015
206.	002210			PIC X(01).		A02/2015
207.	002220					A02/2015
208.	002230	01	WS-SECOND-LINE	PIC X(150)	VALUE SPACES.	A02/2015
209.	002240					A02/2015
210.	002250	01	WS-SORT-CHARS-NEEDED	PIC S9(8)	COMP VALUE ZERO.	A01/2015
211.	002260	01	WS-RECORDS-FOUND	PIC S9(7)	COMP VALUE ZERO.	A01/2015
212.	002270	01	WS-SORT-REC-SIZE	PIC S9(3)	COMP VALUE ZERO.	A01/2015
213.	002280	01	WS-SCN-UNSIGNED	PIC 9(8)	VALUE ZERO.	A01/2015
214.	002290	01	WS-RF-UNSIGNED	PIC 9(7)	VALUE ZERO.	A01/2015
215.	002300	01	WS-SRS-UNSIGNED	PIC 9(3)	VALUE ZERO.	A01/2015
216.	002310					
217.	002320	01	ES-EDIT-SEQ-NBR-RECORD.			A02/2015

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218. 002330 05 ES-INCOMING-FIELDS. A02/2015
219. 002340 10 ES-CALLING-PROGRAM PIC X(08). A02/2015
220. 002350 10 ES-FUNCTION PIC X(04). A02/2015
221. 002360 88 ES-OPEN VALUE 'OPEN'. A02/2015
222. 002370 88 ES-EDIT VALUE 'EDIT'. A02/2015
223. 002380 10 ES-INCOMING-SEQ-NBR PIC 9(05). A02/2015
224. 002390 05 ES-OUTGOING-FIELDS. A02/2015
225. 002400 10 ES-RETURN-CODE PIC 9(04). A02/2015
226. 002410 10 ES-COPY-MEMBER-IND PIC X(01). A02/2015
227. 002420 88 ES-COPY-MEMBER VALUE 'Y'. A02/2015
228. 002430 10 ES-PROG-COPY-NAME PIC X(08). A02/2015
229. 002440 10 ES-OUTGOING-SEQ-NBR PIC 9(05). A02/2015
230. 002450 EJECT
231. 002460 PROCEDURE DIVISION.
232. 002470
233. 002480 010-DO-INITIALIZATION. A02/2015
234. 002490 OPEN EXTEND ANAL-WORK-FL. A02/2015
235. 002500 MOVE SPACES TO WS-AW-RECORD. A02/2015
236. 002510 MOVE ' #FORWARD TRACING .FORWARD-TRACING' A02/2015
237. 002520 TO WS-AW-80-CHARS. A02/2015
238. 002530 MOVE WS-AW-RECORD TO AW-RECORD. A02/2015
239. 002540 WRITE AW-RECORD. A02/2015
240. 002550 MOVE ES-CALLING-PROGRAM TO FILE-INFO-10-CHARS.
241. 002560 MOVE FILE-INFO-10-CHARS TO ES-CALLING-PROGRAM.
242. 002570 OPEN OUTPUT MERGED-OUTPUT-FILE.
243. 002580 CLOSE MERGED-OUTPUT-FILE.
244. 002590 PERFORM C-BUILD-NARR-FILE-TO-MERGE.
245. 002600 WRITE DPR-DEBUG-PRINT-REC.
246. 002610
247. 002620 COPY PROCDIV1.
248. 002630
249. 002640 OPEN EXTEND DEBUG-OUTPUT-FILE.
250. 002650 PERFORM M-MERGE-THREE-FILES-TO-ONE.
251. 002660
252. 002670 900-END-RUN.
253. 002690
254. 002700 MOVE SPACES TO ERROR-RECORD
255. 002710 STRING 'MSG=01=' DELIMITED BY SIZE
256. 002720 ' from IPTPRG ' DELIMITED BY SIZE
257. 002730 INTO ERROR-RECORD
258. 002740 WRITE ERROR-RECORD.
259. 002750 PERFORM G-BUILD-OPEN-NARR-TO-MERGE.
260. 002770 MOVE +45 TO IPT-NBR-ENTRIES.
261. 002780 CLOSE DEBUG-OUTPUT-FILE.
262. 002790 CLOSE ANAL-WORK-FL.
263. 002800
264. 002810 999-GOBACK.
265. 002820 GOBACK.
266. 002830 EJECT
267. 002840 C-BUILD-NARR-FILE-TO-MERGE SECTION.
268. 002850 C010-OPEN-FILES.
269. 002870
270. 002880 C020-BYPASS-HEADER-RECORD.
271. 002890
272. 002900 MOVE FILE-INFO-REC-SIZE TO FILE-INFO-PROGRAM-NAME.
273. 002910 MOVE FILE-INFO-PROGRAM-NAME TO QVW-FIRST-6-CHARS.
274. 002920
275. 002930 IF WS-END-QVW-DN-FILE
276. 002940 GO TO C900-CLOSE.
277. 002950
278. 002960 C030-READ-FIRST-RECORD.
279. 002970
280. 002980 C900-CLOSE.
281. 003000
282. 003010 C999-EXIT. EXIT.
283. 003020 EJECT
284. 003030 G-BUILD-OPEN-NARR-TO-MERGE SECTION.
285. 003030 MOVE 'N' TO WS-END-QVW-DN-FILE-SW.
286. 003070
287. 003080 G999-EXIT. EXIT.
288. 003090 EJECT
289. 003100 M-MERGE-THREE-FILES-TO-ONE SECTION.
290. 003110 M010-SORT-3-FILES-TOGETHER.
291. 003120 MOVE 'SIP 0208 ' TO FILE-INFO-10-CHARS. A01/2015
292. 003130 CALL 'OPOUTPUT' USING FILE-INFO-RECORD. A01/2015
293. 003140 PERFORM FILEIO-ERROR-ROUTINE. A01/2015
294. 003150 A01/2015
295. 003160 PERFORM N-SORT-INPUT-PROCEDURE. A01/2015
296. 003170 A01/2015
297. 003180 MOVE 'SIP' TO FILE-INFO-10-CHARS. A01/2015

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This is where the Source Code Procedure Division starts in our example.

298.	003190	CALL 'DOCLOSE'	USING FILE-INFO-RECORD.	A01/2015
299.	003200	PERFORM	FILEIO-ERROR-ROUTINE.	A01/2015
300.	003210			A01/2015
301.	003220	MOVE 208	TO WS-SORT-REC-SIZE.	A01/2015
302.	003230	ADD 4	TO WS-RECORDS-FOUND.	A01/2015
303.	003240	MULTIPLY	WS-SORT-REC-SIZE	A01/2015
304.	003250		BY WS-RECORDS-FOUND	A01/2015
305.	003260	GIVING WS-SORT-CHARS-NEEDED.		A01/2015
306.	003270			A01/2015
307.	003280	MOVE WS-SORT-CHARS-NEEDED	TO WS-SCN-UNSIGNED.	A01/2015
308.	003290	MOVE WS-RECORDS-FOUND	TO WS-RF-UNSIGNED.	A01/2015
309.	003300	MOVE WS-SORT-REC-SIZE	TO WS-SRS-UNSIGNED.	A01/2015
310.	003310			A01/2015
311.	003320	IF WS-SORT-CHARS-NEEDED	> 25	
312.	003330	MOVE '2'	TO WS-TYPE-SORT-DONE-SW	A02/1015
313.	003340	DISPLAY 'IFTPRG - Doing Regular SORT'		A02/2015
314.	003350	' - WS-SORT-CHARS-NEEDED=' WS-SORT-CHARS-NEEDED		A02/2015
315.	003360	CALL 'SORTR208'		
316.	003370	ELSE		A02/2015
317.	003380	MOVE '1'	TO WS-TYPE-SORT-DONE-SW	A02/2015
318.	003390	CALL 'SHELL208'.		
319.	003400	MOVE 'SOP 0208 Y'	TO FILE-INFO-10-CHARS.	A01/2015
320.	003410	CALL 'OPINPUT'	USING FILE-INFO-RECORD.	A01/2015
321.	003420	PERFORM	FILEIO-ERROR-ROUTINE.	A01/2015
322.	003430			A01/2015
323.	003440	PERFORM	P-SORT-OUTPUT-PROCEDURE.	A01/2015
324.	003450			A01/2015
325.	003460	MOVE 'SOP'	TO FILE-INFO-10-CHARS	A01/2015
326.	003470	CALL 'DOCLOSE'	USING FILE-INFO-RECORD	A01/2015
327.	003480	PERFORM	FILEIO-ERROR-ROUTINE.	A01/2015
328.	003490			
329.	003500	M999-EXIT. EXIT.		
330.	003510	EJECT		
331.	003520	N-SORT-INPUT-PROCEDURE	SECTION.	
332.	003530	N010-DO-PERFORM-RECORDS.		
333.	003650			
334.	003660	PERFORM	N220-LOOK-FOR-MATCH THRU N299-EXIT	
335.	003670	UNTIL	WS-END-4MER-CAT-FILE.	
336.	003680			
337.	003710	N040-EXIT-SORT-IP-PROCEDURE.		
338.	003720	GO TO	N999-EXIT.	
339.	003730			
340.	003740			
341.	003750	N110-SET-UP-IPT-TABLE.		
342.	003760	MOVE	WS-CURR-PERF-RECORD	
343.	003770	TO	IPT-NBR-ENTRIES.	
344.	003780	SET	IPT-INDEX	
345.	003790	TO	IPT-NBR-ENTRIES.	
346.	003800			
347.	003810	MOVE ZEROS	TO IPT-BEG-RANGE (IPT-INDEX)	
348.	003820		IPT-END-RANGE (IPT-INDEX)	
349.	003830		IPT-INDENT-NBR (IPT-INDEX).	
350.	003840			
351.	003850	IF NOT PT-SEE-FORMER-NBR		
352.	003860	AND NOT PT-SEE-FORMER-LOOP		
353.	003870	MOVE PT-BEG-PERF-RNG-NBR	TO IPT-BEG-RANGE (IPT-INDEX)	
354.	003880	MOVE PT-END-PERF-RNG-NBR	TO IPT-END-RANGE (IPT-INDEX)	
355.	003890	MOVE PT-INDENT-NBR	TO IPT-INDENT-NBR (IPT-INDEX).	
356.	003900			
357.	003910	N120-FORMAT-RECORD.		
358.	003930	MOVE '1'	TO SORT-TYPE-SEQ-1.	
359.	003920	MOVE WS-CURR-PERF-RECORD	TO SORT-PERF-ORDER-SEQ-2.	
360.	003940	MOVE PT-BEG-PERF-RNG-NBR	TO SORT-SEQ-NBR-3.	
361.	003950	MOVE PT-INDENT-NBR	TO SORT-INDENT-NBR.	
362.	003960	MOVE PT-RECORD	TO SORT-REST-RECORD.	
363.	003970			
364.	003980	IF PT-END-PERF-RNG-NBR	> 9999	A02/2015
365.	003990	MOVE 05	TO WS-LARGEST-NBR-OF-DIGITS	A02/2015
366.	004000	ELSE		A02/2015
367.	004010	IF	WS-LARGEST-NBR-OF-DIGITS < 05	A02/2015
368.	004020	AND PT-END-PERF-RNG-NBR	> 999	A02/2015
369.	004030	MOVE 04	TO WS-LARGEST-NBR-OF-DIGITS	A02/2015
370.	004040	ELSE		A02/2015
371.	004050	IF	WS-LARGEST-NBR-OF-DIGITS < 04	A02/2015
372.	004060	AND PT-END-PERF-RNG-NBR	> 99	A02/2015
373.	004070	MOVE 03	TO WS-LARGEST-NBR-OF-DIGITS.	A02/2015
374.	004080			
375.	004090	N130-RELEASE-SORT-RECORD.		
376.	004100	PERFORM	N500-WRITE-OUT-SORT-RECORD THRU N599-EXIT.	
377.	004110			

```

378. 004120 N190-READ-NEXT-RECORD.
379. 004130 READ FOR-MERGE-QVW-FILE INTO PT-RECORD
380. 004140 AT END
381. 004150 MOVE 'Y' TO WS-END-4MER-QVW-FILE-SW.
382. 004160 ADD 1 TO WS-CURR-PERF-RECORD.
383. 004170
384. 004180 N199-EXIT. EXIT.
385. 004190
386. 004200
387. 004210 N220-LOOK-FOR-MATCH.
388. 004220 MOVE IPT-NBR-ENTRIES TO WS-IPT-NBR-ENTRIES.
389. 004230 MOVE 'N' TO WS-ONE-CAT-REC-FOUND-SW.
390. 004240 PERFORM N410-TEST-CAT-SEQ-IN-IPT-RANGE THRU N499-EXIT
391. 004250 VARYING IPT-INDEX FROM 1 BY 1
392. 004260 UNTIL IPT-INDEX > WS-IPT-NBR-ENTRIES.
393. 004270
394. 004280 N230-TEST-ONE-HIT.
395. 004290
396. 004300 IF NOT WS-ONE-CAT-REC-FOUND
397. 004310 MOVE 99998 TO SORT-PERF-ORDER-SEQ-2
398. 004320 MOVE '2' TO SORT-TYPE-SEQ-1
399. 004330 MOVE FM-CAT-PD-NBR TO SORT-SEQ-NBR-3
400. 004340 MOVE 1 TO SORT-INDENT-NBR
401. 004370* RELEASE SORT-RECORD.
402. 004380 PERFORM N500-WRITE-OUT-SORT-RECORD THRU N599-EXIT.
403. 004390
404. 004440
405. 004450 N299-EXIT. EXIT.
406. 004460
407. 004470
408. 004480 N410-TEST-CAT-SEQ-IN-IPT-RANGE.
409. 004490
410. 004500 IF FM-CAT-PD-NBR NOT LESS IPT-BEG-RANGE (IPT-INDEX)
411. 004510 AND FM-CAT-PD-NBR NOT GREATER IPT-END-RANGE (IPT-INDEX)
412. 004520 SET WS-PERF-ORDER TO IPT-INDEX
413. 004530 MOVE WS-PERF-ORDER TO SORT-PERF-ORDER-SEQ-2
414. 004540 MOVE '2' TO SORT-TYPE-SEQ-1
415. 004550 MOVE FM-CAT-PD-NBR TO SORT-SEQ-NBR-3
416. 004560 MOVE IPT-INDENT-NBR (IPT-INDEX)
417. 004570 TO SORT-INDENT-NBR
418. 004580 MOVE 'Y' TO WS-ONE-CAT-REC-FOUND-SW
419. 004590
420. 004620 PERFORM N450-RELEASE-SORT-RECORD.
421. 004630
422. 004640 GO TO N499-EXIT.
423. 004650
424. 004660 N450-RELEASE-SORT-RECORD.
425. 004670
426. 004680 PERFORM N500-WRITE-OUT-SORT-RECORD THRU N599-EXIT.
427. 004690 SET SEQ-INDEX TO 1
428. 004700 SEARCH SEQ-ENTRY
429. 004710 AT END
430. 004720 PERFORM N500-WRITE-OUT-SORT-RECORD THRU N599-EXIT
431. 004730 WHEN SEQ-BEG-SEQ-NBR (SEQ-INDEX) NOT < FM-CAT-PD-NBR
432. 004750 NEXT SENTENCE.
433. 004760
434. 004770 N499-EXIT. EXIT.
435. 004780
436. 004790 N500-WRITE-OUT-SORT-RECORD.
437. 004800** RELEASE SORT-RECORD
438. 004810 MOVE 'SIP' TO FILE-INFO-10-CHARS. A01/2015
439. 004820 CALL 'DOWRITE' USING FILE-INFO-RECORD A01/2015
440. 004830 SORT-RECORD. A01/2015
441. 004840 ADD 1 TO WS-RECORDS-FOUND. A01/2015
442.
443. IF WS-RECORDS-FOUND = 72
444. GO TO N499-EXIT.
445.
446. 004850 PERFORM FILEIO-ERROR-ROUTINE. A01/2015
447. PERFORM NA-WITHIN-COPY-PRDIV2.
448. 004870 N599-EXIT. EXIT.
449. 004880
450. 004890 N999-EXIT. EXIT.
451. 004900 COPY PRDIV2.
452. 004910 EJECT
453. 004920 P-SORT-OUTPUT-PROCEDURE SECTION.
454. 004930 P010-OPEN-OUTPUT-FILE.
455. 004940 OPEN OUTPUT MERGED-OUTPUT-FILE.
456. 004950
457. 004960 P030-DO-ALL-RECORDS.

```

458.	004970	PERFORM	P110-CLEAR-QVW-LINE	THRU	P195-EXIT	
459.	004980	UNTIL			WS-END-SORT-FILE.	
460.	004990					
461.	005000	P080-CLOSE-OUTPUT-FILE.				
462.	005010	CLOSE	MERGED-OUTPUT-FILE.			
463.	005020					
464.	005030	P090-END-ROUTINE.				
465.	005040	GO TO	P999-EXIT.			
466.	005050					
467.	005060	P110-CLEAR-QVW-LINE.				
468.	005070					
469.	005080	IF	SORT-TYPE-SEQ-1	NOT =	'3'	
470.	005090	AND			WS-LAST-LINE-COBOL	
471.	005100	MOVE	'N'	TO	WS-LAST-LINE-COBOL-SW	
472.	005110	MOVE	SPACES	TO	QVW-RECORD	
473.	005120	MOVE	'B'	TO	WS-LAST-LINE-BLANK-SW	
474.	005130	PERFORM	P750-WRITE-QVW-RECORD.			
475.	005140					
476.	005150	MOVE	SPACES	TO	QVW-RECORD.	
477.	005160					
478.	005170	P120-SET-UP-TYPE.				
479.	005180					A02/2015
480.	005190	IF	RETURN-CODE	NOT =	ZERO	A02/2015
481.	005200	MOVE	ZEROS	TO	ES-OUTGOING-SEQ-NBR	A02/2015
482.	005210	DISPLAY	'IPTPRG - P130 - Error when calling EDITSEQ'.			A02/2015
483.	005220					
484.	005230	P133-CHECK-COPY-NAME.				
485.	005240					
486.	005250	IF			ES-COPY-MEMBER	
487.	005260	MOVE	ES-PROG-COPY-NAME	TO	QVW-POS-5-12.	
488.	005270					
489.	005280	P150-FORMAT-LINE.				
490.	005290					
491.	005300	IF	SORT-TYPE-SEQ-1	=	'1'	
492.	005310	PERFORM	P200-FORMAT-PERFORM-LINE	THRU	P299-EXIT	
493.	005320	MOVE	'N'	TO	WS-LAST-LINE-COBOL-SW.	
494.	005330					
495.	005340	P190-RETURN-NEXT-RECORD.				
496.	005350					
497.	005360					
498.	005370	P195-EXIT. EXIT.				
499.	005380					A02/2015
500.	005390	P197-LOOP-BACK.				A02/2015
501.	005400	MOVE	SPACE	TO	WS-UNUSED-FIELD.	A02/2015
502.	005410	P197-EXIT. EXIT.				A02/2015
503.	005420					A02/2015
504.	005430	P198-MOVE-IN-SEQ-NBR-POS.				A02/2015
505.	005440	MOVE	SN3-POS (SN3-INDEX)	TO	QVW-F-POS (QVW-F-INDEX).	A02/2015
506.	005450	SET	SN3-INDEX	UP BY	1.	A02/2015
507.	005460	SET			QVW-F-INDEX UP BY 1.	A02/2015
508.	005470	P198-EXIT. EXIT.				A02/2015
509.	005480					
510.	005490	P200-FORMAT-PERFORM-LINE.				
511.	005500					
512.	005510	IF	PT-THRU-NAME	NOT =	SPACES	
513.	005520	MOVE	' THRU *'	TO	WS-THRU-CONSTANT	
514.	005530	ELSE				
515.	005540	MOVE	'*'	TO	WS-THRU-CONSTANT.	
516.	005550					
517.	005560	P270-FORMAT-JUST-NBR-PERFORMS.				
518.	005570	MOVE	PT-NUMBER-PERFORMS	TO	WS-5-DIGITS.	
519.	005580	MOVE	SPACES	TO	WS-110-CHARS.	
520.	005590	STRING	'--> ('	DELIMITED BY SIZE		
521.	005600	WS-NUM-ASTERISK		DELIMITED BY	'*'	
522.	005610	' Performs)'		DELIMITED BY SIZE		
523.	005620			INTO	WS-110-CHARS.	
524.	005630					
525.	005640	P299-EXIT. EXIT.				
526.	005650					
527.	005660	P710-INSURE-ONE-BLANK-LINE.				
528.	005670					
529.	005680	IF			WS-LAST-LINE-NON-BLANK	
530.	005690	MOVE	'B'	TO	WS-LAST-LINE-BLANK-SW	
531.	005700	MOVE	SPACES	TO	QVW-RECORD	
532.	005710	PERFORM	P750-WRITE-QVW-RECORD.			M03/11
533.	005720					
534.	005730	P750-WRITE-QVW-RECORD.				A03/11
535.	005740*	DISPLAY	'P750='	SORT-RECORD.		
536.	005750	MOVE	QVW-RECORD	TO	FD-QVW-RECORD.	A01/2015
537.	005760	WRITE			FD-QVW-RECORD.	M01/2015


```

538. 005770 ADD 1 TO WS-QVW-RECORD-NBR.
      A03/11 539. 005780
540. 005790 P890-WRITE-ANALWORK-RECORD.
541. 005800 ADD 1 TO
542. 005810 WS-NBR-OF-OTHER-RECS.
543. 005820 MOVE WS-NBR-OF-OTHER-RECS TO WS-AW-SORT-SEQUENCE.
544. 005830 MOVE SPACES TO WS-AW-80-CHARS.
545. 005840 STRING QVW-FIRST-12 DELIMITED BY SIZE
546. 005850 WS-FIRST-68 DELIMITED BY SIZE
547. 005860 INTO WS-AW-80-CHARS.
548. 005870* MOVE WS-FIRST-80 TO WS-AW-80-CHARS.
549. 005880 MOVE WS-AW-RECORD TO AW-RECORD.
550. 005890 WRITE AW-RECORD.
551. 005900
552. 005910 MOVE SPACES TO QVW-FIRST-12.
      A02/2015 553. 005920
554. 005930 P999-EXIT. EXIT.
555. 005940 EJECT
556. 005950 R-CORRECT-MAST-CODE SECTION.
557. MOVE ZEROS TO AW-
RECORD. 558. 005960 R999-EXIT. EXIT.
559. 005940 EJECT
560. 005950 FILEIO-ERROR-ROUTINE SECTION.
561. 005960 FILEIO-EXIT.
EXIT. 562. 005970
563.

```

The end of the source code in the DDM is followed by the Call & Copy Reports.

```

#ENDSOURCE &ENDSOURCE
#CALL REPORT &CALL
231 PROG ENTRY &IPTPRG
298 CALL &DOCLOSE USING 1 PARAMETER
326 CALL &DOCLOSE USING 1 PARAMETER
439 CALL &DOWRITE USING 2 PARAMETERS
320 CALL &OPINPUT USING 1 PARAMETER
292 CALL &OOUTPUT USING 1 PARAMETER
318 CALL &SHELL208
315 CALL &SORTR208
C3/7 CALL &TESTCNBR USING 2 PARAMETERS
#COPY REPORT &COPY
DATA DIVISION 201 COPY DATADIV2
DATA DIVISION 185 COPY FILEINFO
PROCEDURE DIV 451 COPY PRDIV2
PROCEDURE DIV 247 COPY PROCDIV1
#FORWARD TRACING &FORWARD-TRACING
1 231 &PROGRAM-ENTRY
2 267 &C-BUILD-NARR-FILE-TO-MERGE
3 289 &M-MERGE-THREE-FILES-TO-ONE
4 560 &FILEIO-ERROR-ROUTINE --> (4 Performs)
5 331 &N-SORT-INPUT-PROCEDURE
6 387 &N220-LOOK-FOR-MATCH --> (Perform/UNTIL)
7 408 &N410-TEST-CAT-SEQ-IN-IPT-RANGE --> (Perform/VARYING)
8 424 &N450-RELEASE-SORT-RECORD
9 436 &N500-WRITE-OUT-SORT-RECORD --> (2
Performs) (See #4) FILEIO-ERROR-ROUTINE
10 C4/2 &NA-WITHIN-COPY-PRDIV2
11 C4/20 &NB-DUMMY-RTN
12 C4/21 &NB010-FIRST-PARA
(See #9) N500-WRITE-OUT-SORT-RECORD --> (2 Performs)
(See #9) N500-WRITE-OUT-SORT-RECORD
(See #9) N500-WRITE-OUT-SORT-RECORD --> (4 Performs)
(See #7) N410-TEST-CAT-SEQ-IN-IPT-RANGE -->
(Perform/VARYING) (See #8) N450-RELEASE-SORT-
RECORD
(See #4) FILEIO-ERROR-ROUTINE
(See #10) NA-WITHIN-COPY-PRDIV2
13 453 &P-SORT-OUTPUT-PROCEDURE
14 467 &P110-CLEAR-QVW-LINE --> (Perform/UNTIL)
15 534 &P750-WRITE-QVW-RECORD
16 510 &P200-FORMAT-PERFORM-LINE
(See #15) P750-WRITE-QVW-RECORD --> (2 Performs)
(See #16) P200-FORMAT-PERFORM-LINE
17 284 &G-BUILD-OPEN-NARR-TO-MERGE
#OPEN REPORT &OPEN REPORT
(0025) &MERGED-OUTPUT-FILE
Open Output MERGED-OUTPUT-FILE (242)
P-SORT-OUTPUT-PROCEDURE
Open Output MERGED-OUTPUT-FILE (455)

(0033) &DEBUG-OUTPUT-FILE
Open Input DEBUG-OUTPUT-FILE (C3/6)
Open Extend DEBUG-OUTPUT-FILE (249)

(0041) &ANAL-WORK-FL

```

Forward Tracing Section in the DDM. This section details the flow of the program logic along with Source sequence numbers.

The Open Report shows all the Open Statements in the Cobol Program.

Open Extend ANAL-WORK-FL (234)
 NA-WITHIN-COPY-PRDIV2
 Open Output ANAL-WORK-FL (C4/5)

End of FD OPEN & SORT Info

#PERFORM-ANALYSIS &PERFORM-ANALYSIS
 PERFORM Warnings & Major Errors
 Count Type & Sequence Number(s)

03	GO TOs leaving the range of a PERFORM	MAJOR PERFORM ERROR
444	C4/9 C4/16	
03	Backward GO TO's	MODERATE PERFORM ERROR
444	C4/9 C4/16	

PERFORM & GO TO activity
 Count Type & Sequence Number(s)

12	PERFORM SECTIONS					
244	250	259	293	295	299	321
323	327	446	447	C4/8		

12	PERFORM Paragraphs					
334	376	390	402	420	426	430
C4/15	458	474	492	532		

07	GO TO Paragraphs					
276	338	422	444	C4/9	C4/16	465

#SQL &SQL REPORT (&DB2)
 REPORT Info Found !
 No SQL

```
#COPY=FILEINFO      &FILEINFO      &C1/
1.      *              COPY FILEINFO.
2.      01 FILE-INFO-RECORD.
3.      05 FILE-INFO-10-CHARS.
4.      *      File-Info-10-Chars contains common passed fields
5.      10 FILE-INFO-EXT      PIC X(03).
6.      10 FILE-INFO-CHAR-4  PIC X(01).
7.      10 FILE-INFO-REC-SIZE PIC 9(04).
8.      10 FILE-INFO-ERROR-SW PIC X(01).
9.      88 FILE-INFO-ERROR-FOUND      VALUE 'Y'.
10.     10 FILE-INFO-EOF-VALUE PIC X(01).
11.     88 FILE-INFO-EOF-IS-Y      VALUE 'Y'.
12.     88 FILE-INFO-EOF-IS-E      VALUE 'E'.
13.     88 FILE-INFO-EOF-OUTPUT-FILE VALUE ' '.
14.     05 FILE-INFO-DO-DISPLAY-SW PIC X(01).
15.     88 FILE-INFO-DO-DISPLAYS      VALUE 'Y'.
16.     05 FILE-INFO-REC-COUNT      PIC S9(7) COMP-3.
17.     05 FILE-INFO-PROGRAM-NAME  PIC X(08).
18.
```

```
#COPY=DATADIV2      &DATADIV2      &C2/
1.      *              COPY DATADIV2.
2.      01 DATADIV2-COPY-REC.
3.      05 DATADIV2-1ST-FIELD      PIC X(3).
4.      05 DATADIV2-2ND-FIELD      PIC X(3).
5.      05 DATADIV2-3RD-FIELD      PIC X(3).
6.      05 DATADIV2-4TH-FIELD      PIC X(3).
7.      05 DATADIV2-5TH-FIELD      PIC X(3).
8.      05 DATADIV2-6TH-FIELD      PIC X(3).
9.      05 DATADIV2-7TH-FIELD      PIC X(3).
10.     05 DATADIV2-8TH-FIELD      PIC X(3).
11.     05 DATADIV2-9TH-FIELD      PIC X(3).
12.     05 DATADIV2-10TH-FIELD     PIC X(3). 13.
```

```
#COPY=PROCDIV1      &PROCDIV1      &C3/
1.      *              COPY PROCDIV1.
2.      020-TEST-COPY-IN-PROC-DIV.
3.      MOVE DATADIV2-2ND-FIELD      TO DATADIV2-9TH-FIELD.
4.      MOVE DATADIV2-8TH-FIELD      TO DATADIV2-2ND-FIELD.
5.      ** MOVE ZEROS      TO DATADIV2-44TH-FIELD.
6.      OPEN INPUT DEBUG-OUTPUT-FILE.
7.      CALL 'TESTCNBR' USING DATADIV2-9TH-FIELD
8.      DATADIV2-2ND-FIELD.
9.
10.     030-TEST-NEXT-PARA.
11.     MOVE QVW-FIRST-6-CHARS      TO DATADIV2-10TH-FIELD.
12.     ** OPEN EXTEND FOR-MERGE-CAT-NARR-FILE.
13.     MOVE DATADIV2-7TH-FIELD      TO
```

```
QVW-POS-5-12. 14.
#COPY=PRDIV2      &PRDIV2      &C4/
1.      *              COPY PRDIV2.
```

The Perform Analysis Section.
 All Major Perform Errors are
 noted here.

Copy Book(S)
 Information
 with data field
 expansion.

```

2.      NA-WITHIN-COPY-PRDIV2          SECTION.
3.      NA010-TEST-MORE.
4.      MOVE QVW-POS-13                TO   QVW-POS-5-12.
5.      OPEN OUTPUT ANAL-WORK-FL.
6.      MOVE FILE-INFO-PROGRAM-NAME TO QVW-POS-5-12.
7.      IF   QVW-POS-5-12 = 'GARBAGE',
8.      PERFORM      NB-DUMMY-RTN
9.      GO TO  N499-EXIT. 10.
11.     MOVE QVW-POS-5-12              TO   DATADIV2-4TH-FIELD.
12.     ** OPEN INPUT ERROR-FILE-TO-VB.
13.     IF   DATADIV2-10TH-FIELD = QVW-POS-5-12
14.     MOVE QVW-POS-5-12 TO DATADIV2-9TH-FIELD
15.     PERFORM      NB010-FIRST-PARA
16.     GO TO  C999-EXIT. 17.
18.     NA999-EXIT. EXIT.
19.     EJECT
20.     NB-DUMMY-RTN                    SECTION.
21.     NB010-FIRST-PARA.
22.     MOVE SPACES TO
23.     QVW-POS-5-12. 23.
24.     NB020-SECOND-PARA.
25.     MOVE ZEROS TO
26.     QVW-POS-13. 26.
27.     NB999-
28.     EXIT. EXIT.

```

The Narrative Report. Details the use of all Data Elements in the Cobol Program. The DDM also shows the hierarchy of all performed paragraphs that use a specific Data Element.

#NARRATIVE REPORT &NARRATIVE

```

(0017) &FOR-MERGE-QVW-FILE          / This field: \
FD FOR-MERGE-QVW-FILE              ==> Data
Attributes <== RECORD CONTAINS    156 CHARACTERS
BLOCK CONTAINS 0 RECORDS
- - - - -
(0023) &FD-PT-RECORD                / This field: \
156 pos in 01 FD-PT-RECORD         ==> Data
Attributes <== within FD
FOR-MERGE-QVW-FILE
01 FD-PT-RECORD
   Pic X(156)
- - - - -
01 N-SORT-INPUT-PROCEDURE          ==> Forward Tracing
   <==
- - - - -
N-SORT-INPUT-PROCEDURE             ==> Activity by
Routine <== Read FD-PT-RECORD into PT-RECORD (379)
- - - - -
(0025) &MERGED-OUTPUT-FILE          / This field: \
FD MERGED-OUTPUT-FILE              ==> Data
Attributes <== RECORD CONTAINS    80 CHARACTERS
BLOCK CONTAINS 0 RECORDS
- - - - -
01 PROGRAM-ENTRY                  ==> Forward Tracing
   <==
- - - - -
02 M-MERGE-THREE-FILES-TO-ONE (No Activity)
03 P-SORT-OUTPUT-PROCEDURE
- - - - -
PROGRAM-ENTRY                      ==> Activity by Routine
<==
Open Output MERGED-
OUTPUT-FILE (242) Close
MERGED-OUTPUT-FILE (243)
P-SORT-OUTPUT-PROCEDURE
Open Output MERGED-
OUTPUT-FILE (455) Close
MERGED-OUTPUT-FILE (462)
- - - - -
(0031) &FD-QVW-RECORD                / This field: \
80 pos in 01 FD-QVW-RECORD         ==> Data
Attributes <== within FD
MERGED-OUTPUT-FILE
01 FD-QVW-RECORD
   Pic X(80)
- - - - -
01 P750-WRITE-QVW-RECORD           ==> Forward Tracing
   <==
- - - - -
P750-WRITE-QVW-RECORD              ==> Activity by
Routine <== Move QVW-RECORD to FD-QVW-RECORD (536)
Write FD-QVW-RECORD (537)
- - - - -
(0033) &DEBUG-OUTPUT-FILE          / This field: \
FD DEBUG-OUTPUT-FILE              ==> Data

```

Attributes <== RECORD CONTAINS 130 CHARACTERS
BLOCK CONTAINS 0 RECORDS

01 PROGRAM-ENTRY ==> Forward Tracing
<==

PROGRAM-ENTRY ==> Activity by Routine
<==

Open Input DEBUG-OUTPUT-
FILE (C3/6) Open Extend
DEBUG-OUTPUT-FILE (249)
Close DEBUG-OUTPUT-FILE
(261)

(0039) &DPR-DEBUG-PRINT-REC / This field: \
130 pos in 01 DPR-DEBUG-PRINT-REC ==> Data
Attributes <== within FD
DEBUG-OUTPUT-FILE
01 DPR-DEBUG-PRINT-REC
Pic X(130)



01 PROGRAM-ENTRY ==> Forward Tracing
<==

PROGRAM-ENTRY ==> Activity by Routine
<==

Write DPR-DEBUG-PRINT-REC (245)

(0041) &ANAL-WORK-FL / This field: \
FD ANAL-WORK-FL ==> Data Attributes
<==

RECORD CONTAINS 90
CHARACTERS BLOCK
CONTAINS 0
RECORDS

01 PROGRAM-ENTRY ==> Forward Tracing
<==

- 02 M-MERGE-THREE-FILES-TO-ONE (No Activity)
- 03 N-SORT-INPUT-PROCEDURE (No Activity)
- 04 N220-LOOK-FOR-MATCH --> (Perform/UNTIL) (No Activity)
- 05 N410-TEST-CAT-SEQ-IN-IPT-RANGE --> (Perform/VARYING) (No Activity)
- 06 N450-RELEASE-SORT-RECORD (No Activity)
- 07 N500-WRITE-OUT-SORT-RECORD --> (2 Performs) (No Activity)
- 08 NA-WITHIN-COPY-PRDIV2

PROGRAM-ENTRY ==> Activity by Routine
<==

Open Extend ANAL-
WORK-FL (234) Close
ANAL-WORK-FL (262)

Add Routine to check for invalid sort key.

NA-WITHIN-COPY-PRDIV2
Open Output ANAL-WORK-FL (C4/5)

(0047) &AW-RECORD / This field: \
90 pos in 01 AW-RECORD ==> Data
Attributes <== within FD
ANAL-WORK-FL
01 AW-RECORD
Pic X(90)

01 PROGRAM-ENTRY ==> Forward Tracing
<==

- 02 M-MERGE-THREE-FILES-TO-ONE (No Activity)
- 03 P-SORT-OUTPUT-PROCEDURE (No Activity)
- 04 P110-CLEAR-QVW-LINE --> (Perform/UNTIL) (No Activity)
- 05 P750-WRITE-QVW-RECORD

PROGRAM-ENTRY ==> Activity by Routine
<==

Move WS-AW-RECORD to AW-
RECORD (238) Write AW-
RECORD (239)

P750-WRITE-QVW-RECORD
Move WS-AW-RECORD to AW-
RECORD (549) Write AW-
RECORD (550)

```

Move ZEROS to AW-RECORD (557)
(0050) &SORT-RECORD / This field: \
198 pos in 01 SORT-RECORD ==> Data
Attributes <== in WORKING-
STORAGE
01 SORT-RECORD

01 N500-WRITE-OUT-SORT-RECORD --> (2 Performs) ==> Forward
Tracing <== N500-WRITE-
OUT-SORT-RECORD --> (2 Performs) ==> Activity by
Routine <==
Call 'DOWRITE' using SORT-RECORD (439)
(0051) &SORT-TYPE-SEQ-1 / This field: \
In 1-1 of 01 SORT-RECORD ==> Data
Attributes <== in WORKING-
STORAGE
05 SORT-TYPE-SEQ-1
Pic X(001)

01 N-SORT-INPUT-PROCEDURE ==> Forward Tracing
<==
02 N220-LOOK-FOR-MATCH --> (Perform/UNTIL)
03 N410-TEST-CAT-SEQ-IN-IPT-RANGE --> (Perform/VARYING)

01 P110-CLEAR-QVW-LINE --> (Perform/UNTIL)

```

PDF readers support Group
Work Projects

```

N-SORT-INPUT-PROCEDURE ==> Activity by
Routine <== Move '1' to SORT-TYPE-SEQ-1 (358)
N220-LOOK-FOR-MATCH -->
(Perform/UNTIL) Move '2'
to SORT-TYPE-SEQ-1 (398)
N410-TEST-CAT-SEQ-IN-IPT-RANGE -->
(Perform/VARYING) Move '2' to SORT-
TYPE-SEQ-1 (414)
P110-CLEAR-QVW-LINE -->
(Perform/UNTIL) If SORT-
TYPE-SEQ-1 not = '3'
(469)
If SORT-TYPE-SEQ-1 = '1' (491)

```

Check for any Sort Key Errors. Add additional code for sort check digit validation.

```

(0052) &SORT-PERF-ORDER-SEQ-2 / This field: \
In 2-6 of 01 SORT-RECORD ==> Data
Attributes <== in WORKING-
STORAGE
05 SORT-PERF-ORDER-SEQ-2
Pic 9(005)

01 N-SORT-INPUT-PROCEDURE ==> Forward Tracing
<==
02 N220-LOOK-FOR-MATCH --> (Perform/UNTIL)
03 N410-TEST-CAT-SEQ-IN-IPT-RANGE --> (Perform/VARYING)

N-SORT-INPUT-PROCEDURE ==> Activity by
Routine <== Move WS-CURR-PERF-RECORD to SORT-PERF-ORDER-SEQ-2 (359)
N220-LOOK-FOR-MATCH --> (Perform/UNTIL)
Move 99998 to SORT-PERF-ORDER-SEQ-2 (397)
N410-TEST-CAT-SEQ-IN-IPT-RANGE -->
(Perform/VARYING) Move WS-PERF-ORDER
to SORT-PERF-ORDER-SEQ-2 (413)

```

```

(0053) &SORT-SEQ-NBR-3 / This field: \
In 7-12 of 01 SORT-RECORD ==> Data
Attributes <== in WORKING-
STORAGE
05 SORT-SEQ-NBR-3
Pic 9(006)

01 N-SORT-INPUT-PROCEDURE ==> Forward Tracing
<==
02 N220-LOOK-FOR-MATCH --> (Perform/UNTIL)
03 N410-TEST-CAT-SEQ-IN-IPT-RANGE --> (Perform/VARYING)

N-SORT-INPUT-PROCEDURE ==> Activity by
Routine <== Move PT-BEG-PERF-RNG-NBR to SORT-SEQ-NBR-3 (360)
N220-LOOK-FOR-MATCH --> (Perform/UNTIL)
Move FM-CAT-PD-NBR to SORT-SEQ-NBR-3 (399)

```

N410-TEST-CAT-SEQ-IN-IPT-RANGE -->
 (Perform/VARYING) Move FM-CAT-PD-NBR
 to SORT-SEQ-NBR-3 (415)

(0054) &SORT-INDENT-NBR / This field: \
 In 13-15 of 01 SORT-RECORD ==> Data
 Attributes <== in WORKING-
 STORAGE
 05 SORT-INDENT-NBR
 Pic 9(003)

01 N-SORT-INPUT-PROCEDURE ==> Forward Tracing
 <==

02 N220-LOOK-FOR-MATCH --> (Perform/UNTIL)
 03 N410-TEST-CAT-SEQ-IN-IPT-RANGE --> (Perform/VARYING)

For the sake of brevity, we have eliminated 17 pages of
 Narrative and continue with the last page of this DDM
 output.

01 PROGRAM-ENTRY ==> Forward Tracing
 <==

PROGRAM-ENTRY ==> Activity by Routine
 <==
 Move ES-CALLING-PROGRAM to FILE-INFO-10-
 CHARS (240) Move FILE-INFO-10-CHARS to
 ES-CALLING-PROGRAM (241)

(0220) &ES-FUNCTION / This field: \
 In 9-12 of 01 ES-EDIT-SEQ-NBR-RECORD ==> Data
 Attributes <== in WORKING-
 STORAGE
 10 ES-FUNCTION
 Pic X(04)

(0221) &ES-OPEN / This field: \
 in WORKING-STORAGE ==> Data Attributes
 <==
 88 ES-OPEN VALUE 'OPEN'.

(0222) &ES-EDIT / This field: \
 in WORKING-STORAGE ==> Data Attributes
 <==
 88 ES-EDIT VALUE 'EDIT'.

(0223) &ES-INCOMING-SEQ-NBR / This field: \
 In 13-17 of 01 ES-EDIT-SEQ-NBR-RECORD ==> Data
 Attributes <== in WORKING-
 STORAGE
 10 ES-INCOMING-SEQ-NBR
 Pic 9(05)

(0224) &ES-OUTGOING-FIELDS / This field: \
 In 18-35 of 01 ES-EDIT-SEQ-NBR-RECORD ==> Data
 Attributes <== in WORKING-
 STORAGE
 05 ES-OUTGOING-FIELDS
 Data field is a GROUP item

(0225) &ES-RETURN-CODE / This field: \
 In 18-21 of 01 ES-EDIT-SEQ-NBR-RECORD ==> Data
 Attributes <== in WORKING-
 STORAGE
 10 ES-RETURN-CODE
 Pic 9(04)

(0226) &ES-COPY-MEMBER-IND / This field: \
 In 22-22 of 01 ES-EDIT-SEQ-NBR-RECORD ==> Data
 Attributes <== in WORKING-
 STORAGE
 10 ES-COPY-MEMBER-IND
 Pic X(01)

(0227) &ES-COPY-MEMBER / This field: \
 in WORKING-STORAGE ==> Data Attributes

```

88 ES-COPY-MEMBER VALUE 'Y'. <==

01 P110-CLEAR-QVW-LINE --> (Perform/UNTIL) ==> Forward Tracing
<==

P110-CLEAR-QVW-LINE --> (Perform/UNTIL) ==> Activity by
Routine <== If ES-COPY-MEMBER (486)

(0228) &ES-PROG-COPY-NAME / This field: \
In 23-30 of 01 ES-EDIT-SEQ-NBR-RECORD ==> Data
Attributes <== in WORKING-
STORAGE
10 ES-PROG-COPY-NAME
Pic X(08)

01 P110-CLEAR-QVW-LINE --> (Perform/UNTIL) ==> Forward Tracing
<==

P110-CLEAR-QVW-LINE --> (Perform/UNTIL) ==> Activity by
Routine <== Move ES-PROG-COPY-NAME to QVW-POS-5-12 (487)

(0229) &ES-OUTGOING-SEQ-NBR / This field: \
In 31-35 of 01 ES-EDIT-SEQ-NBR-RECORD ==> Data
Attributes <== in WORKING-
STORAGE
10 ES-OUTGOING-SEQ-NBR
Pic 9(05)

01 P110-CLEAR-QVW-LINE --> (Perform/UNTIL) ==> Forward Tracing
<==

P110-CLEAR-QVW-LINE --> (Perform/UNTIL) ==> Activity by
Routine <== Move ZEROS to ES-OUTGOING-SEQ-NBR (481)
Pic 9(05)

```

The Help Section begins here.

```

#HELP &HELP
--#HELP-----&HELP----- ( User HELP for using DDM )
HELP for Control/DCD digital documentation for one program

```

This DDM (Digital Documentation Manual) includes the COBOL program (if included) and created documentation from this COBOL program.

Getting at this information is done by FINDs that use a leading ampersand.

The FINDs used must contain an & (ampersand) and the ampersand used must

be left justified with NO spaces between the & and the operand being

searched for: The format is shown as follows: &operand

The operand following an & can be any of the following:

1. data-field (user supplied data-field)
2. performed paragraph or section (used supplied routine-name)
3. CALL
4. COPY
5. CODE-NOT-USED
6. ERRORS
7. FORWARD-TRACING
8. HELP
9. INDEX
10. OPEN
11. PERFORM-ANALYSIS (Perform ERRORS are shown)
12. PERFORMED-ROUTINES
13. SQL

The next three entries are explained later in this HELP.

14. Cn/
15. n FIRST
16. Copy-Member-Name

EXAMPLES follow
(Most used features shown first)

Find on a data-name

Examples of how to use the &Operands within Acrobat's PDF Search function.

- o SHOWS data division information or attributes

then o SHOWS forward tracing of those routines involved WITH this name then o
 SHOWS specially formatted PROCEDURE DIVISION activity such as ADDs
 MOVES or IFs along with the name of its PERFORMed Routine.

EXAMPLE - Doing a Find on data field: &IPT-NBR-ENTRIES
 brings in:

```
(0163) &IPT-NBR-ENTRIES          &163& In 5-8 of
      IPT-INTERNAL-HOLD-TABLE
      in WORKING-STORAGE
      05 IPT-NBR-ENTRIES
          Pic S9(8) Value ZERO Usage is
          COMP
      Used in Depending on IPT-NBR-ENTRIES

01  PROGRAM-ENTRY
02  C-INITIAL-READ-FILE
02  N-SORT-INPUT-PROCEDURE
03  P-LOOK-FOR-MATCH

C-INITIAL-READ-FILE
  Move +45 to IPT-NBR-ENTRIES (260) N-SORT-
INPUT-PROCEDURE
  Move WS-CURR-HOLD-NBR @125 to IPT-NBR-ENTRIES (342) Set IPT-
INDEX @166 to IPT-NBR-ENTRIES (344)
P-LOOK-FOR-MATCH
  Move IPT-NBR-ENTRIES to WS-IPT-NBR-ENTRIES @131 (388)
```

Find on a performed paragraph or section
 o SHOWS forward-tracing going forward from selected routine

EXAMPLE - Doing a Find on a performed routine: &M-MERGE-THREE-FILES-TO-ONE brings
 in:

```
4  276    &M-MERGE-THREE-FILES-TO-ONE
5  560    &FILEIO-ERROR-ROUTINE --> (4 Performs)
6  318    &N-SORT-INPUT-PROCEDURE
7  374    &N220-SEEK-MATCH THRU N299-EXIT -->
          (Perform/UNTIL)
8  395    &N410-GET-IPT-RANGE-SEQ THRU N499-EXIT -->
          (Perform/VARYING)
9  411    &N450-RELEASE-SORT-RECORD
10 423    &N500-WRITE-SORT-REC THRU N599-EXIT --> (2
          Performs)
(See #5)    FILEIO-ERROR-ROUTINE
(See #10)   N500-WRITE-SORT-REC THRU N599-EXIT -->
          (2 Performs)
(See #10)   N500-WRITE-SORT-REC THRU N599-EXIT (See #10)
          N500-WRITE-SORT-REC THRU N599-EXIT
(See #8)   N410-GET-IPT-RANGE-SEQ THRU N499-EXIT -->
```

Find on CODE-NOT-USED
 o SHOWS Unused 01 Records
 o SHOWS Unused Data Names (not in a COPY)
 o SHOWS Unused (dead) Procedure Division code

EXAMPLE - Doing a Find on: & with CODE-NOT-USED for unused code brings in:

&Unreferenced PARAGRAPHS and SECTIONS for IPTPROG Before
 removing routine, check FALL THRU's not intended

```
Unused SECTIONS
Seq Number  Section/Paragraph Name  Message or Warning
543         R-ENTRY-TO-SUB-ACCT-2 NO Direct Refs to SECTION Before
removing routine, check FALL THRU's not intended
```

```
Unused PARAGRAPHS
Seq Number  Section/Paragraph Name  Message or Warning
544         R010-BEGIN-SUB-ACCT-2 NO Direct Refs to PARAGRAPH &Unused 01
          Records and 77 Entries for Prog: IPTPROG
Seq Number  Lvl   Field Name
146         01   WS-COUNT-SEQS
175         01   S1-RECORD
```



```

&Unused Data Names for Prog: IPTPROG Seq Number
      Lvl   Field Name
(39)*****01**WS-AW-RECORD***** contains unused fields **
41          10 WS-AW-SORT-PREFIX-ID

```

```

Find on PERFORM-ANALYSIS
  o SHOWS all Major, Moderate and Minor PERFORM Errors
  o SHOWS Normal PERFORM and GO TO activity

```

EXAMPLE - Doing a Find on: & with PERFORM-ANALYSIS for PERFORM-ANALYSIS brings in:

```

PERFORM Warnings & Major Errors Count Type
& Seq Nbr(s)

 2 GO TOs leaving range of PERFORM MAJOR PERFORM ERROR 477
 589

 3 Backward GO TO's MINOR PERFORM WARNING 753
 833 912

```

```

PERFORM & GO TO activity Count Type &
Seq Nbr(s)

12 PERFORM
   SECTIONS
   242 248 258 304 306 310
   332 336 338 479 480 685

05 PERFORM Paragraphs
   356 400 414 428 452

07 GO TO Paragraphs

```

```

Find & with CALL COPY or OPEN shows analysis on CALL COPY or OPEN Find & with
FORWARD-TRACING see 2nd example above

```

```

Find & with performed routine shows performed routine given

```

```

Find & with SQL shows all EXEC SQL narrative that relate to COBOL
Data Names

```

```

Find & with Cn/ is useful when COPY members are included to find a COPY
data name by its shown sequence number within this
documentation

```

Format for FIND for COPY names is as follows:

Cn1/n2 where n1 = the sequential number of COPY in this program and where n2 = the sequential number of data-name in this COPY

Look for use of Cn1/n2 in narrative use in Procedure Division activity in data-name narrative, such as C3/65 where the COPY data-name is the 65th line in the 3rd COPY member within this program

To find a list of COPYs used in in this program, INDEX at begin of documentation

```

Find & with sequence number may only be used if a ( Use @-DD-number)
option was used during creation of this
documentation. Use of this option builds an @number
in Procedure Division activity showing sequence
number of referenced other data-field. See SAMPLE
below.

```

Narrative SAMPLE: Move WS-CURR-NBR @98 to IPT-NBR-OF-ENTRIES (342)

This Find goes to narrative for other data-name at shown sequence number.

Find & with Copy-Member-Name is available if COPY members were included in documentation set up.

Use support@marblecomputer.com to offer suggestions to this software.

End of Manual &EndofManual