## Contents

**Preface** .......................................................... 15  
About This Book .................................................. 16  
Adobe Portable Document Format .............................. 19  
Documentation Conventions .................................... 20

**What’s New** ....................................................... 23  
New Features and Enhancements ............................... 24

**Chapter 1. Introduction to the Menu System Interface**  
Overview ............................................................... 28  
Signing Onto the Menu System Interface Directly ........ 30  
OMEGAMON II Features .......................................... 32

**Chapter 2. Using the Menu System**  
Menu System Main Menu ............................................ 36  
Menu System Navigation .......................................... 37  
INFO-line .............................................................. 39  
Menu System Function Keys ..................................... 40  
Menu System Colors ................................................ 41  
Menu System Zooming ............................................. 42  
Fast Pathing in the Menu System .............................. 43  
Menu System Help Panels ........................................ 44  
Menu System Displays ............................................. 46

**Chapter 3. Overview Panels**  
Displaying CICS Regions ......................................... 48  
Performance Overview .......................................... 50

**Chapter 4. Response Time Analysis**  
CICS Transaction Response Time .............................. 54  
Response Time Data Status ...................................... 55  
Network Response Time ........................................... 56  
Response Time Periods ............................................ 57  
Response Time Data Collection Settings .................... 63

**Chapter 5. Exception Analysis**  
Displaying Exceptions ............................................. 66  
Global CPU Threshold ............................................ 69  
CICS Exceptions .................................................... 70
<table>
<thead>
<tr>
<th>Chapter</th>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>6</td>
<td>Task Analysis</td>
<td>89</td>
</tr>
<tr>
<td></td>
<td>Task Analysis</td>
<td>89</td>
</tr>
<tr>
<td></td>
<td>Task Summary</td>
<td>90</td>
</tr>
<tr>
<td></td>
<td>Task Detail</td>
<td>91</td>
</tr>
<tr>
<td></td>
<td>Categorizing Task Information</td>
<td>102</td>
</tr>
<tr>
<td></td>
<td>Killing a Task</td>
<td>105</td>
</tr>
<tr>
<td></td>
<td>Transaction Rate</td>
<td>109</td>
</tr>
<tr>
<td></td>
<td>Resource Limiting</td>
<td>111</td>
</tr>
<tr>
<td></td>
<td>Starting and Stopping Resource Limiting</td>
<td>114</td>
</tr>
<tr>
<td>7</td>
<td>Task History</td>
<td>117</td>
</tr>
<tr>
<td></td>
<td>Historical Task Analysis</td>
<td>118</td>
</tr>
<tr>
<td></td>
<td>Historical Summary</td>
<td>119</td>
</tr>
<tr>
<td></td>
<td>Historical Detail</td>
<td>121</td>
</tr>
<tr>
<td></td>
<td>File Level Statistics</td>
<td>124</td>
</tr>
<tr>
<td></td>
<td>Historical Task Selection</td>
<td>129</td>
</tr>
<tr>
<td></td>
<td>Controlling Online Historical Viewing Collector (ONDV)</td>
<td>131</td>
</tr>
<tr>
<td>8</td>
<td>Bottleneck Analysis</td>
<td>135</td>
</tr>
<tr>
<td></td>
<td>How Bottleneck Analysis Works</td>
<td>136</td>
</tr>
<tr>
<td></td>
<td>Bottleneck Analysis Displays</td>
<td>137</td>
</tr>
<tr>
<td></td>
<td>Wait Reasons</td>
<td>140</td>
</tr>
<tr>
<td></td>
<td>Operational Considerations</td>
<td>145</td>
</tr>
<tr>
<td></td>
<td>Enqueues</td>
<td>149</td>
</tr>
<tr>
<td>9</td>
<td>Impact Analysis</td>
<td>153</td>
</tr>
<tr>
<td></td>
<td>How Impact Analysis Works</td>
<td>154</td>
</tr>
<tr>
<td></td>
<td>Starting and Stopping Impact Analysis Collection</td>
<td>155</td>
</tr>
<tr>
<td></td>
<td>Impact Analysis Displays</td>
<td>156</td>
</tr>
<tr>
<td></td>
<td>Workload Impact Profile (IPRO)</td>
<td>161</td>
</tr>
<tr>
<td></td>
<td>Adjusting Collection and Display Parameters</td>
<td>163</td>
</tr>
<tr>
<td>10</td>
<td>Storage Analysis</td>
<td>167</td>
</tr>
<tr>
<td></td>
<td>CICS Storage Management</td>
<td>169</td>
</tr>
<tr>
<td></td>
<td>CICS Storage Analysis Displays</td>
<td>171</td>
</tr>
<tr>
<td></td>
<td>MVS Storage Management</td>
<td>188</td>
</tr>
<tr>
<td></td>
<td>MVS Storage Management Displays</td>
<td>189</td>
</tr>
<tr>
<td></td>
<td>Storage Display and Alteration</td>
<td>195</td>
</tr>
<tr>
<td>11</td>
<td>File Analysis</td>
<td>197</td>
</tr>
<tr>
<td></td>
<td>Accessing the Files Path</td>
<td>198</td>
</tr>
<tr>
<td></td>
<td>File Allocation and Activity</td>
<td>199</td>
</tr>
<tr>
<td></td>
<td>VSAM Information</td>
<td>207</td>
</tr>
</tbody>
</table>
Chapter 12. Database Analysis .................................................. 215
Accessing the Databases Path ............................................. 216
DB2 Interface ................................................................. 217
DLI Analysis ................................................................. 219

Chapter 13. CICS System Analysis ......................................... 229
Accessing the CICS Path .................................................... 231
Automatic Initiate Descriptors (AIDs) ................................. 233
AID Kill ................................................................. 235
Common System Area (CSA) ............................................. 236
Destination Control Table (DCT) ......................................... 238
DLI Data Management Block Directory (DDIR) .................... 242
DLI Program Specification Block Directory (PDIR) ............... 244
CICS Dumps ............................................................... 246
CICS Exits ................................................................. 247
Extended Recovery Facility (XRF) ....................................... 249
File Control Table (FCT) .................................................. 250
Interval Control Elements (ICEs) ....................................... 255
ICE Kill ................................................................. 257
Journal Control Table (JCT) ............................................. 258
Processing Program Table (PPT) ........................................ 261
System Initialization Table (SIT) ......................................... 264
Terminal Control Table Prefix (TCTFX) ............................... 266
Temporary Storage Usage .................................................. 267
Temporary Storage Queues ............................................... 269
Terminal Control Table (TCT) ........................................... 271
CICS Trace ................................................................. 276
Program Control Table (PCT) ............................................ 278
Transient Data ............................................................ 281
CICS Shutdown Option .................................................... 284

Chapter 14. MVS Analysis ................................................... 285
CPU and Paging Utilization ............................................... 286
Program Status Word (PSW) ............................................. 291
TCB Structure ............................................................ 292
MVS Modules ............................................................. 293

Chapter 15. DASD Performance ............................................. 295
DASD Response Times .................................................... 296
Devices Exceeding a Threshold ........................................ 298
DASD Users ............................................................... 299
Device Detail ............................................................... 300

Chapter 16. Utilities .......................................................... 303
Accessing Utilities .......................................................... 304
<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Issuing Commands</td>
<td>305</td>
</tr>
<tr>
<td>Obtaining Diagnostics</td>
<td>308</td>
</tr>
<tr>
<td>Viewing and Modifying Storage</td>
<td>316</td>
</tr>
<tr>
<td>Chapter 17. Group Definition and Activation</td>
<td>325</td>
</tr>
<tr>
<td>Background</td>
<td>326</td>
</tr>
<tr>
<td>Stopping and Starting the Response Time Data Collector</td>
<td>327</td>
</tr>
<tr>
<td>Group Definition Limits</td>
<td>328</td>
</tr>
<tr>
<td>Element Names</td>
<td>329</td>
</tr>
<tr>
<td>Default Group Definitions</td>
<td>330</td>
</tr>
<tr>
<td>Group Definition Panels</td>
<td>331</td>
</tr>
<tr>
<td>Appendix A. Menu System Fastpath Index</td>
<td>341</td>
</tr>
<tr>
<td>Using the Fastpath Index</td>
<td>342</td>
</tr>
<tr>
<td>Appendix B. Guide to Candle Customer Support</td>
<td>359</td>
</tr>
<tr>
<td>Base Maintenance Plan</td>
<td>360</td>
</tr>
<tr>
<td>Enhanced Support Services</td>
<td>364</td>
</tr>
<tr>
<td>Customer Support Contact Information</td>
<td>365</td>
</tr>
<tr>
<td>Index</td>
<td>367</td>
</tr>
<tr>
<td>FIGURE</td>
<td>Description</td>
</tr>
<tr>
<td>--------</td>
<td>-----------------------------------------------------------------------------</td>
</tr>
<tr>
<td>1</td>
<td>Signing onto OMEGAMON II through ISPF</td>
</tr>
<tr>
<td>2</td>
<td>Menu System Main Menu</td>
</tr>
<tr>
<td>3</td>
<td>Tasks Panel Showing Horizontal Menu</td>
</tr>
<tr>
<td>4</td>
<td>Profile Panel Showing Vertical Menu</td>
</tr>
<tr>
<td>5</td>
<td>INFO-line Format</td>
</tr>
<tr>
<td>6</td>
<td>Typical Help Panel</td>
</tr>
<tr>
<td>7</td>
<td>OMEGAMON II General Help Menu</td>
</tr>
<tr>
<td>8</td>
<td>Summary of CICS Regions Panel (W.)</td>
</tr>
<tr>
<td>9</td>
<td>Performance Overview Panel (V)</td>
</tr>
<tr>
<td>10</td>
<td>Transaction Response Times by Intervals Panel (R.G)</td>
</tr>
<tr>
<td>11</td>
<td>Groups with Response Time Activity in Last 10 Minutes Panel (R.)</td>
</tr>
<tr>
<td>12</td>
<td>Graph of Response Time Problems Panel (R.F)</td>
</tr>
<tr>
<td>13</td>
<td>End-to-end Response Times for LUs Panel (R.K)</td>
</tr>
<tr>
<td>14</td>
<td>Average Transaction Response Times Panel (R.J)</td>
</tr>
<tr>
<td>15</td>
<td>Current Exceptions Panel (E.)</td>
</tr>
<tr>
<td>16</td>
<td>Summary of Exceptions this Session Panel (E.B)</td>
</tr>
<tr>
<td>17</td>
<td>Exception Recommendation Panel (Accessed by Zoom)</td>
</tr>
<tr>
<td>18</td>
<td>Global Resource Limit Panel (P.A.K)</td>
</tr>
<tr>
<td>19</td>
<td>Database Exception Settings Panel (P.A)</td>
</tr>
<tr>
<td>20</td>
<td>VSAM Exception Settings Panel (P.A.I)</td>
</tr>
<tr>
<td>21</td>
<td>All Tasks in System Panel (T.)</td>
</tr>
<tr>
<td>22</td>
<td>Task Detail Panel - Task Detail Information Section (T.FP)</td>
</tr>
<tr>
<td>23</td>
<td>Task Detail Panel - Remote Information Section</td>
</tr>
<tr>
<td>24</td>
<td>Task Detail Panel - Current Storage Usage Section (CICS/MVS)</td>
</tr>
<tr>
<td>25</td>
<td>Task Detail Panel - Current Storage Usage Section (CICS/ESA)</td>
</tr>
<tr>
<td>26</td>
<td>Task Detail Panel - Storage Statistics Section</td>
</tr>
<tr>
<td>27</td>
<td>Task Detail Panel - Time Statistics Section (CICS/ESA)</td>
</tr>
<tr>
<td>28</td>
<td>Task Detail Panel - General Statistics Section</td>
</tr>
<tr>
<td>29</td>
<td>Task Detail Panel - File Control Statistics Section</td>
</tr>
<tr>
<td>30</td>
<td>Task Detail Panel - DLI Statistics Section</td>
</tr>
<tr>
<td>31</td>
<td>Task Detail Panel - ADABAS Statistics Section</td>
</tr>
<tr>
<td>32</td>
<td>Task Detail Panel - Umbrella Data Section</td>
</tr>
<tr>
<td>33</td>
<td>Task Detail Panel - Unit-of-Work Information Section</td>
</tr>
<tr>
<td>34</td>
<td>Horizontal Menu Showing Task Categories</td>
</tr>
<tr>
<td>35</td>
<td>Tasks in a Class Panel (T.F)</td>
</tr>
<tr>
<td>36</td>
<td>Kill Tasks Panel (T.G)</td>
</tr>
<tr>
<td>37</td>
<td>Kill Task Detail Panel (Accessed by Zoom)</td>
</tr>
<tr>
<td>38</td>
<td>Transaction Rate Panel (T.H)</td>
</tr>
<tr>
<td>39</td>
<td>Main Menu</td>
</tr>
<tr>
<td>40</td>
<td>Control Options Menu</td>
</tr>
<tr>
<td>Figure</td>
<td>Description</td>
</tr>
<tr>
<td>--------</td>
<td>-----------------------------------------------------------------------------</td>
</tr>
<tr>
<td>41</td>
<td>Historical Transaction Overview Panel (H.)</td>
</tr>
<tr>
<td>42</td>
<td>(Part 1) Historical Transaction Detail Panel (Accessed by Zoom)</td>
</tr>
<tr>
<td>43</td>
<td>(Part 2) Historical Transaction Detail Panel (Accessed by Zoom)</td>
</tr>
<tr>
<td>44</td>
<td>(Part 3) Historical Transaction Detail Panel (Accessed by Zoom)</td>
</tr>
<tr>
<td>45</td>
<td>Historical File Summary for Selected Task (Accessed by Zoom)</td>
</tr>
<tr>
<td>46</td>
<td>DLI Statistics (Accessed by Zoom)</td>
</tr>
<tr>
<td>47</td>
<td>ADABAS Statistics (Accessed by Zoom)</td>
</tr>
<tr>
<td>48</td>
<td>DATACOM Statistics (Accessed by Zoom)</td>
</tr>
<tr>
<td>49</td>
<td>IMS Statistics (Accessed by Zoom)</td>
</tr>
<tr>
<td>50</td>
<td>USREVNT1 Statistics (Accessed by Zoom)</td>
</tr>
<tr>
<td>51</td>
<td>SUPRA Statistics (Accessed by Zoom)</td>
</tr>
<tr>
<td>52</td>
<td>Detail File Request Statistics Panel (Accessed by Zoom)</td>
</tr>
<tr>
<td>53</td>
<td>Set Criteria for Selecting Historical Records Panel (H.B)</td>
</tr>
<tr>
<td>54</td>
<td>Historical Collector Status Panel (O.H)</td>
</tr>
<tr>
<td>55</td>
<td>Control Database Collectors Panel (O.P)</td>
</tr>
<tr>
<td>56</td>
<td>Bottlenecks Panel (B.B)</td>
</tr>
<tr>
<td>57</td>
<td>Bottleneck Graph Panel (B.)</td>
</tr>
<tr>
<td>58</td>
<td>Wait Reason Detail Panel (Accessed by Zoom)</td>
</tr>
<tr>
<td>59</td>
<td>Bottleneck Analysis Control Panel (O.I)</td>
</tr>
<tr>
<td>60</td>
<td>Control Bottleneck Analysis Wait Reason Buckets Panel (O.J)</td>
</tr>
<tr>
<td>61</td>
<td>Enqueues with Tasks Waiting Panel (B.H)</td>
</tr>
<tr>
<td>62</td>
<td>Enqueues with Tasks Waiting Panel Using RES= (B.H)</td>
</tr>
<tr>
<td>63</td>
<td>Enqueue Resource Detail Panel (Accessed by Zoom)</td>
</tr>
<tr>
<td>64</td>
<td>Workload Impact Analysis Panel (B.E)</td>
</tr>
<tr>
<td>65</td>
<td>Display Body Example</td>
</tr>
<tr>
<td>66</td>
<td>Workload Impact Analysis Detail Panel (B.G)</td>
</tr>
<tr>
<td>67</td>
<td>Workload Impact Analysis Profile Panel (B.F)</td>
</tr>
<tr>
<td>68</td>
<td>Workload Impact Analysis Settings Panel (O.N)</td>
</tr>
<tr>
<td>69</td>
<td>Plot Percentage Message Example</td>
</tr>
<tr>
<td>70</td>
<td>Storage Summary Panel (S.)</td>
</tr>
<tr>
<td>71</td>
<td>Storage Violations Panel (S.B)</td>
</tr>
<tr>
<td>72</td>
<td>Task Storage Panel (S.C)</td>
</tr>
<tr>
<td>73</td>
<td>Dynamic Storage Area Panel for CICS/ESA Version 4.1 (S.D)</td>
</tr>
<tr>
<td>74</td>
<td>Dynamic Storage Area Panel for CICS/ESA (S.D)</td>
</tr>
<tr>
<td>75</td>
<td>Dynamic Storage Area Panel for CICS/MVS (S.D)</td>
</tr>
<tr>
<td>76</td>
<td>Storage Allocated in the DSA Panel for CICS/ESA (S.F)</td>
</tr>
<tr>
<td>77</td>
<td>Storage Allocated in the DSA Panel for CICS/MVS (S.F)</td>
</tr>
<tr>
<td>78</td>
<td>Storage Usage for All Subpool Groups Panel for CICS/ESA (S.H)</td>
</tr>
<tr>
<td>79</td>
<td>Storage Usage for a Loader Subpool Group (Accessed by Zoom)</td>
</tr>
<tr>
<td>80</td>
<td>Storage Usage for a Task Subpool Group (Accessed by Zoom)</td>
</tr>
<tr>
<td>81</td>
<td>Storage Compressions for CICS/MVS Panel (S.J)</td>
</tr>
<tr>
<td>82</td>
<td>CICS Region MVS Subpools Panel (M.F)</td>
</tr>
<tr>
<td>83</td>
<td>CICS Region Storage Panel (S.I)</td>
</tr>
<tr>
<td>84</td>
<td>All Datasets Allocated to CICS Panel (F.H)</td>
</tr>
<tr>
<td>85</td>
<td>Select Datasets Panel (F.L)</td>
</tr>
</tbody>
</table>
FIGURE 86. File Detail Panel (Accessed by Zoom) .................................................. 202
FIGURE 87. VSAM Summary Panel (FE) ................................................................. 207
FIGURE 88. VSAM File Detail Panel (Accessed by Zoom) ............................ 209
FIGURE 89. LSR Pool Summary Panel (FF) ............................................................ 210
FIGURE 90. LSR Pool Detail Panel (Accessed by Zoom) .............................. 212
FIGURE 91. Files Using Specific LSR Pool (Accessed by Zoom) ................. 213
FIGURE 92. String and Buffer Waits Panel (FI) ....................................................... 214
FIGURE 93. CICS/DB2 Interface Panel (D.) ............................................................. 217
FIGURE 94. DB2 Transaction Detail Panel (Accessed by Zoom) ................. 218
FIGURE 95. DLI Summary Panel (D.B) ................................................................. 219
FIGURE 96. DLI General Information Panel (D.C) ............................................... 221
FIGURE 97. DLI Databases Panel (D.D) ............................................................... 222
FIGURE 98. DLI Database Detail Panel (Accessed by Zoom) ................. 223
FIGURE 99. DLI Subpool Statistics Panel (D.E) ..................................................... 224
FIGURE 100. CICS/DLI Interface ECBs Panel (D.F) .............................................. 225
FIGURE 101. CICS/DLI Interface Addresses Panel (D.G) ......................... 226
FIGURE 102. CICS/DBCTL Interface Panel (D.H) ................................................ 227
FIGURE 103. CICS Options Menu Panel (C.) ......................................................... 231
FIGURE 104. Automatic Initiate Descriptors (AIDs) Panel (C.A) ............ 233
FIGURE 105. AID Detail Panel (Accessed by Zoom) ............................................. 234
FIGURE 106. Common System Area (CSA) Panel (C.C) ................................. 236
FIGURE 107. Destination Control Table Attributes Panel (C.D) .................. 238
FIGURE 108. DCT Summary Panel (Accessed by Zoom) ............................. 239
FIGURE 109. Extrapartition DCT Entry Panel (Accessed by Zoom) ............ 240
FIGURE 110. Indirect Intrapartition DCT Entry Panel (Accessed by Zoom) .... 241
FIGURE 111. DLI DMB Directory Attributes Panel (C.F) ............................... 242
FIGURE 112. DDIR Summary Panel (Accessed by Zoom) ............................. 243
FIGURE 113. DLI PSB Directory Attributes Panel (C.G) ............................... 244
FIGURE 114. PDIR Summary Display (Accessed by Zoom) ....................... 245
FIGURE 115. Dump Component Panel (C.H) ......................................................... 246
FIGURE 116. Exits Panel (C.I) ................................................................................... 247
FIGURE 117. Extended Recovery Facility Status Panel (C.J) ..................... 249
FIGURE 118. File Control Table Attributes Panel (C.K) ............................... 250
FIGURE 119. FCT Summary Panel (Accessed by Zoom) ............................. 251
FIGURE 120. FCT Entry Panel for VSAM File (Accessed by Zoom) .......... 252
FIGURE 121. FCT Entry Panel for BDAM File (Accessed by Zoom) .......... 253
FIGURE 122. FCT Entry - Remote Information ..................................................... 253
FIGURE 123. FCT Entry - Data Table Information ............................................. 254
FIGURE 124. Interval Control Elements (ICEs) Panel (C.L) ......................... 255
FIGURE 125. ICE Detail Panel (Accessed by Zoom) ........................................... 256
FIGURE 126. Journal Control Table Attributes Panel (C.N) ................. 258
FIGURE 127. JCT Summary Panel (Accessed by Zoom) ............................... 259
FIGURE 128. JCT Entry Panel (Accessed by Zoom) ........................................... 260
FIGURE 129. Processing Program Table Attributes Panel (C.Q) .............. 261
FIGURE 130. PPT Summary Panel (Accessed by Zoom) ............................... 262
FIGURE 176. Display CICS Storage Panel (U.E) ................................................................. 318
FIGURE 177. Sample MDEF Command .............................................................. 319
FIGURE 178. Scan CICS Storage Panel (U.F) ...................................................... 319
FIGURE 179. Modify CICS Storage Panel (U.G) .................................................. 320
FIGURE 180. Display Dataspace Storage Panel (U.H) ........................................... 321
FIGURE 181. Scan Dataspace Storage Panel (U.I) .............................................. 321
FIGURE 182. Modify Dataspace Storage Panel (U.J) .......................................... 322
FIGURE 183. List Dataspaces Panel (U.K) ............................................................. 323
FIGURE 184. Group Summary Panel (G.) .............................................................. 331
FIGURE 185. Group Detail Information Panel (Accessed by Zoom) ...................... 332
FIGURE 186. Create Group Panel (G.B) ................................................................. 332
FIGURE 187. Add Elements to Group Panel (G.C) ............................................. 334
FIGURE 188. Update Group Panel (G.D) ............................................................... 335
FIGURE 189. Update Elements in Group Panel (G.E) ......................................... 336
FIGURE 190. Delete Elements from a Group Panel (G.F) .................................... 337
FIGURE 191. Clear a Group Panel (G.G) ............................................................... 338
FIGURE 192. List Groups Panel (G.H) ................................................................. 339
<table>
<thead>
<tr>
<th>Table</th>
<th>Description</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>OMEGAMON II for CICS Documentation</td>
<td>16</td>
</tr>
<tr>
<td>2</td>
<td>Symbols in Command Syntax</td>
<td>20</td>
</tr>
<tr>
<td>3</td>
<td>Page Locations for Control Options Information</td>
<td>29</td>
</tr>
<tr>
<td>4</td>
<td>Task Detail Display Zoom Destinations</td>
<td>101</td>
</tr>
<tr>
<td>5</td>
<td>Task Resources and Limit Testing</td>
<td>112</td>
</tr>
</tbody>
</table>
OMEGAMON II is a comprehensive software performance monitor that assists in troubleshooting problems and tuning your IBM Customer Information Control System (CICS). Providing a real-time window into CICS activity, OMEGAMON II automatically detects and warns of problems that affect CICS availability and performance, identifying any degradation associated with resources internal to CICS or external to CICS in the MVS environment.

Although OMEGAMON II runs in a separate address space from CICS, it has some facilities that run within the CICS address space.

OMEGAMON II can monitor multiple CICS systems running at different release levels. Refer to the OMEGAMON II for CICS Configuration and Customization Guide for all releases of IBM software that OMEGAMON II currently supports.

This document refers to version 2 of CICS as CICS/MVS, and Versions 3 and greater as CICS/ESA.

**Preface Contents**

About This Book ................................................................. 16
  Who should read this book .............................................. 16
  Documentation set information .................................... 16
  Where to look for more information .......................... 18
  Ordering additional documentation ........................ 18
  We would like to hear from you ................................. 18
Adobe Portable Document Format ........................................ 19
  Printing this book .................................................. 19
  Printing problems? .................................................. 19
  Contacting Adobe ..................................................... 19
Documentation Conventions .......................................................... 20
  Introduction .......................................................... 20
  Panels and figures .................................................. 20
  Revision bars .......................................................... 20
  Variables and literals ............................................. 20
  Symbols ................................................................. 20
About This Book

Who should read this book

This document provides comprehensive information on the features of OMEGAMON II for CICS Version 520 (hereafter referred to as OMEGAMON II). The manual should be read by those who need to understand how or use OMEGAMON II’s CUA interface and menu system interface to access the data you need to analyze CICS performance problems, create profiles, define groups for monitoring purposes, and use all of OMEGAMON II’s features.

- Volume 1 provides the information about the CUA interface.
- Volume 2 provides the information about the menu system interface.

Documentation set information

The documentation listed below is available for OMEGAMON II for CICS.

Table 1. OMEGAMON II for CICS Documentation

<table>
<thead>
<tr>
<th>Document Number</th>
<th>Document Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>C251-6363</td>
<td>OMEGAMON II for CICS Configuration and Customization Guide</td>
<td>Explains how to configure and customize OMEGAMON II after it is installed.</td>
</tr>
<tr>
<td>C254-6312</td>
<td>OMEGAMON II for CICS User’s Guide</td>
<td>Provides a task-oriented guide to using OMEGAMON II. Explains basic features and navigation methods.</td>
</tr>
<tr>
<td>C253-6313</td>
<td>OMEGAMON II for CICS Reference Manual - Volume 1</td>
<td>Provides comprehensive reference information about the features of OMEGAMON II and explains how to access OMEGAMON II data in the CUA interface.</td>
</tr>
<tr>
<td>C253-6314</td>
<td>OMEGAMON II for CICS Reference Manual - Volume 2</td>
<td>Provides comprehensive reference information about the features of OMEGAMON II and explains how to access OMEGAMON II data in the menu system interface.</td>
</tr>
<tr>
<td>C299-6316</td>
<td>OMEGAMON II for CICS Historical Reporting Manual</td>
<td>Describes how to use the SMF records created by OMEGAMON II to produce historical reports.</td>
</tr>
<tr>
<td>WO52-6238</td>
<td>Messages Manual - Volume 1 OMEGAMON II/OMEGAVIEW</td>
<td>Provides reference summary of all OMEGAMON II and OMEGAVIEW messages.</td>
</tr>
<tr>
<td>WO52-6239</td>
<td>Messages Manual - Volume 2 OMEGAMON II/OMEGAVIEW</td>
<td></td>
</tr>
<tr>
<td>WO52-6240</td>
<td>Messages Manual - Volume 3 OMEGAMON II/OMEGAVIEW</td>
<td></td>
</tr>
<tr>
<td>C257-6315</td>
<td>OMEGAMON II for CICS Problem Determination Manual</td>
<td>Describes how to diagnose and solve problems that you may encounter with OMEGAMON II, get the best possible problem-solving help from Candle Customer Support, and prevent or reduce the recurrence of problems.</td>
</tr>
</tbody>
</table>
### Table 1. OMEGAMON II for CICS Documentation

<table>
<thead>
<tr>
<th>Document Number</th>
<th>Document Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>C299-6370</td>
<td>OMEGAMON II for CICS Quick Reference Card</td>
<td>Pocket-sized document that explains how to use the CUA interface and lists all of the fast paths.</td>
</tr>
<tr>
<td>ET53-5586</td>
<td>End-to-End Response Time (ETE) Feature Reference Manual</td>
<td>Describes ETE and its commands, and lists its error messages, return codes, and sense codes.</td>
</tr>
</tbody>
</table>
About This Book

Where to look for more information

For more information related to this product and other related products, please see the
- technical documentation CD-ROM that came with your product
- technical documentation information available on the Candle Web site at www.candle.com
- online help provided with this and the other related products.

Ordering additional documentation

To order additional product manuals, contact your Candle Customer Support representative.

We would like to hear from you

Candle welcomes your comments and suggestions for changes or additions to the
documentation set. A user comment form, located at the back of each manual, provides
simple instructions for communicating with the Candle Information Development
department.

You can also send email to UserDoc@candle.com. Please include "OMEGAMON II for CICS
Adobe Portable Document Format

Printing this book

Candle supplies documentation in the Adobe Portable Document Format (PDF). The Adobe Acrobat Reader will print PDF documents with the fonts, formatting, and graphics in the original document. To print a Candle document, do the following:

1. Specify the print options for your system. From the Acrobat Reader Menu bar, select File > Page Setup… and make your selections. A setting of 300 dpi is highly recommended as is duplex printing if your printer supports this option.

2. To start printing, select File > Print… on the Acrobat Reader Menu bar.

3. On the Print pop-up, select one of the Print Range options for
   - All
   - Current page
   - Pages from: [ ] to: [ ]

4. (Optional). Select the Shrink to Fit option if you need to fit oversize pages to the paper size currently loaded on your printer.

Printing problems?

The print quality of your output is ultimately determined by your printer. Sometimes printing problems can occur. If you experience printing problems, potential areas to check are:

- settings for your printer and printer driver. (The dpi settings for both your driver and printer should be the same. A setting of 300 dpi is recommended.)
- the printer driver you are using. (You may need a different printer driver or the Universal Printer driver from Adobe. This free printer driver is available at www.adobe.com.)
- the halftone/graphics color adjustment for printing color on black and white printers (check the printer properties under Start > Settings > Printer). For more information, see the online help for the Acrobat Reader.
- the amount of available memory in your printer. (Insufficient memory can cause a document or graphics to fail to print.)

For additional information on printing problems, refer to the documentation for your printer or contact your printer manufacturer.

Contacting Adobe

If additional information is needed about Adobe Acrobat Reader or printing problems, see the Readme.pdf file that ships with Adobe Acrobat Reader or contact Adobe at www.adobe.com.
Documentation Conventions

Introduction

Candle documentation adheres to accepted typographical conventions for command syntax. Conventions specific to Candle documentation are discussed in the following sections.

Panels and figures

The panels and figures in this document are representations. Actual product panels may differ.

Revision bars

Revision bars (|) may appear in the left margin to identify new or updated material.

Variables and literals

In examples of command syntax, uppercase letters are actual values (literals) that the user should type; lowercase letters are used for variables that represent data supplied by the user. Default values are underscored.

LOGON APPLID (cccccccc)

In the above example, you type LOGON APPLID followed by an application identifier (represented by cccccccc) within parentheses.

Note: In ordinary text, variable names appear in italics.

Symbols

The following symbols may appear in command syntax:

Table 2. Symbols in Command Syntax

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Usage</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>The “or” symbol is used to denote a choice. Either the argument on the left or the argument on the right may be used. Example: YES</td>
</tr>
<tr>
<td></td>
<td>In this example, YES or NO may be specified.</td>
</tr>
<tr>
<td>[ ]</td>
<td>Denotes optional arguments. Those arguments not enclosed in square brackets are required. Example: APPLDEST DEST [ALTDEST]</td>
</tr>
<tr>
<td></td>
<td>In this example, DEST is a required argument and ALTDEST is optional.</td>
</tr>
</tbody>
</table>
Some documents use braces to denote required arguments, or to group arguments for clarity. Example:

```
COMPARE {workload} -
    REPORT={SUMMARY | HISTOGRAM}
```

The `workload` variable is required. The `REPORT` keyword must be specified with a value of SUMMARY or HISTOGRAM.

Default values are underscored. Example:

```
COPY infile outfile - [COMPRESS={YES | NO}]
```

In this example, the `COMPRESS` keyword is optional. If specified, the only valid values are YES or NO. If omitted, the default is YES.

### Table 2. Symbols in Command Syntax

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Usage</th>
</tr>
</thead>
</table>
| `{ }`  | Some documents use braces to denote required arguments, or to group arguments for clarity. Example:  

```
COMPARE {workload} -
    REPORT={SUMMARY | HISTOGRAM}
```

The `workload` variable is required. The `REPORT` keyword must be specified with a value of SUMMARY or HISTOGRAM. |
| `-`    | Default values are underscored. Example:  

```
COPY infile outfile - [COMPRESS={YES | NO}]
```

In this example, the `COMPRESS` keyword is optional. If specified, the only valid values are YES or NO. If omitted, the default is YES. |
What’s New

Introduction
This section details the new features and enhancements incorporated into OMEGAMON II for CICS Version 520.

Highlights
OMEGAMON II for CICS Version 520 includes the following new features and enhancements:

- Allows printing a SNAPSHOT of a CICS region.
- Added the Exchange Logname Status exception.
- Added Transaction Server 1.3 Task Monitoring Data and Statistics
- Enhanced RLIM Interval Settings
- Added User Defined Event Monitoring
- Enhanced ADABAS statistics reporting
- Added support for ADABAS 7.1

The following features are no longer supported by OMEGAMON II for CICS Version 520:

- Support for CICS/ESA Version 3.x.x
- Documentation for BookManager no longer supported
New Features and Enhancements

Print SNAPSHOT of CICS Region

The SNAP facility is composed of a sequence of pre-defined OMEGAMON II screens which contain every OMEGAMON Classic command you can use to report on the state and content of your CICS region.

This facility is now accessible in the C2/CUA interface to OMEGAMON II for CICS product. A new item was added to the Options/Controls pulldown which upon selection will route the output to the JES print queue under the common interface (Menu System) Job JCL.

Exchange Logname Status Exception

Exchange Logname status is a new OMEGAMON II for CICS exception added to the list of existing ones under the MRO/ISC. Once enabled the MRO/ISC light will alert users when the Exchange Log Name or XLN is 'Notdone' between two, APPC type connected, CICS systems.

Online Global Facility

The Online Global Facility is introduced to eliminate the requirement for re-assembly and linking of the product global data area module(s). Using the C2/CUA interface, this facility will enable users to SAVE the currently running global module to the library defined by the RKC2GLBL DD statement.

Using the Candle Installation/Configuration Assistance Tool (CICAT), users can edit and verify any of the existing global data area modules. Note that utilities are provided to migrate the previous versions of the global data area to the new format in V520. Refer to the OMEGAMON II for CICS Configuration and Customization Guide for more information.
What's New 25

**Transaction Server 1.3 Task Monitoring Data and Statistics**

The OMEGAMON II for CICS product has been enhanced to support the new performance monitoring data and statistics introduced in Transaction Server release 1.3. Non-3270 statistics such as WEB Send and Receive request counts are now displayable in active transactions as well as the Online History (ONDV) component.

The Task Time Analysis screens have been enhanced to include the newly introduced performance monitoring data such as JVM elapsed and suspend times, IMS(DBCTL) wait time, DB2 wait times, Socket I/O wait time, Global ENQ delay, among others. In addition, the Task Timings panels have been redesigned to display a categorical view of Timings attributed to a transaction or task.

**Resource Limiting (RLIM) Interval Settings**

The Resource Limiting feature of OMEGAMON II for CICS product has been enhanced to introduce a set of user defined intervals. This enhancement will allow users to activate the previously defined rules based on a user modifiable interval. The new RLIM interval may be set in three different ways:

- By TIME.
- By the number of EXEC CICS calls made by a task.
- By the number of Database calls made by a task.

**User Defined Event Monitoring**

The User Defined Event Monitoring (USREVNT1) describes a way for application programmers to clock and count the number of requests being made to an in-house database, program or procedure. Similar to other Third Party Products such as ADABAS, DATACOM, IDMS and SUPRA, this facility may be enabled from the Options pulldown in the C2/CUA interface under the CICS File/Database collection option.
New Features and Enhancements

ADABAS Statistics Reporting
ADABAS statistics in the OMEGAMON II for CICS product have been traditionally based on DB ID and File number. With the specification of a new operand in the product’s global data area module, users may request OMEGAMON to collect statistics based on DB ID, File number, and Command Code.

Support for ADABAS V7.1
The new release of ADABAS V7.1 supports DB IDs greater than 255. The relevant OMEGAMON II for CICS product panels were enhanced to display a 5-digit database ID.

Online Documentation
With version 520, Candle Corporation has moved OMEGAMON II for CICS manuals from IBM BookMaster to Adobe FrameMaker. This move was made to better enable us to address our customers’ needs by providing tools that enhance productivity.

One of the results of the move is that it is no longer possible to create BookManager versions of the OMEGAMON II for CICS manuals. However, the manuals remain available online in the Adobe PDF version on CD-ROM and are also available on the Candle Corporation website at www.Candle.com.

The documentation CD being provided with this release has robust and easy-to-use search capabilities. You can search for information in multiple volumes, multiple versions, and across products. The CD also provides easy setup of search indexes with a single click of the mouse.

If you want to order printed copies of the documentation, please contact your Candle Support Services representative.
Chapter Overview

The realtime monitor includes two user interfaces: the CUA and menu system interface. This section provides information about the menu system interface. Refer to Part 1 of this manual and the OMEGAMON II for CICS User’s Guide for information on using the CUA interface of OMEGAMON II.

Chapter Contents

Overview .................................................................................................................. 28
Signing Onto the Menu System Interface Directly .................................................. 30
  VTAM mode ....................................................................................................... 30
  ISPF mode ....................................................................................................... 30
  TSO mode ....................................................................................................... 31
  Dedicated mode .............................................................................................. 31
OMEGAMON II Features ...................................................................................... 32
  Bottleneck analysis ......................................................................................... 32
  CICS system analysis ..................................................................................... 32
  Exception analysis ......................................................................................... 32
  Response time analysis .................................................................................. 32
  Storage analysis ............................................................................................. 33
  Task analysis (realtime and historical) ............................................................. 33
  File/database analysis .................................................................................... 33
  Impact analysis .............................................................................................. 33
  MVS analysis .................................................................................................. 33
Overview

Most chapters begin with an overview of an OMEGAMON II feature and describe how to use it to improve CICS performance. Sample display panels show typical OMEGAMON II data available through the menu system. Following the sample panels are definitions of significant fields with information about their importance in tuning CICS.

You will find these OMEGAMON II features as the subject of chapters in this part of the reference manual:

- bottleneck analysis
- CICS system analysis
- exception analysis
- file analysis
- database analysis
- impact analysis
- DASD performance
- MVS analysis
- response time analysis
- storage analysis
- realtime task analysis
- historical task analysis
- user profile facility
- group definition and activation

Refer to “OMEGAMON II Features” on page 32 for a detailed description of each of these features.

Information on the Control Options, a feature which lets you do such things as

- view the current status and start or stop the response time monitor, ONDV collection, bottleneck analysis, and impact analysis
- set response time monitor intervals
- control bottleneck analysis wait reasons

does not appear in a separate chapter but is incorporated in the pertinent chapters that cover a particular feature. The following table shows the pages where you can find information on the control options within the chapters.
### Table 3. Page Locations for Control Options Information

<table>
<thead>
<tr>
<th>Control Options</th>
<th>Pages</th>
</tr>
</thead>
<tbody>
<tr>
<td>RTA On, RTA Off, RTA Status, RTA Intervals, RTA Scale/Window</td>
<td>page 55 and page 63</td>
</tr>
<tr>
<td>ONDV On, ONDV Off, ONDV Status, Database Collectors</td>
<td>page 131–page 132, page 133</td>
</tr>
<tr>
<td>Bottleneck Control</td>
<td>page 146</td>
</tr>
<tr>
<td>Bottleneck Wait Reasons</td>
<td>page 137–page 138, page 147</td>
</tr>
<tr>
<td>INTR Control</td>
<td>See the OMEGAMON II for CICS Historical Reporting Guide.</td>
</tr>
<tr>
<td>Impact Analysis On</td>
<td>page 156</td>
</tr>
<tr>
<td>Impact Analysis Off</td>
<td>page 156</td>
</tr>
<tr>
<td>Impact Analysis Settings</td>
<td>page 163</td>
</tr>
<tr>
<td>CICS Shutdown Option</td>
<td>page 284</td>
</tr>
<tr>
<td>Resource Limiting On, Resource Limiting Off, Resource Limiting Status</td>
<td>page 114</td>
</tr>
</tbody>
</table>
Signing Onto the Menu System Interface Directly

OMEGAMON II can operate in standalone mode or under Candle’s OMEGAVIEW product. You can log onto the OMEGAMON II Menu System directly or through the CUA interface. Refer to Part 1 of this manual and the OMEGAMON II for CICS User’s Guide for information on using the CUA interface of OMEGAMON II. You can log on directly to the Menu System in four ways.

VTAM mode

To start an OMEGAMON II session under VTAM, issue the following command on a VTAM terminal:

```
LOGON APPLID(aaaaaaaa) DATA('CICS=cccccccc')
```

- `aaaaaaa` The VTAM APPLID specified to KOCVTMnn when OMEGAMON II was started.
- `cccccccc` The CICS jobname to be monitored (optional if the default is specified in the KOCVTMnn member of rhilev.RKANPAR).

ISPF mode

In ISPF mode, you sign onto OMEGAMON II from TSO/ISPF.

To start an OMEGAMON II session, choose one of the following methods:

- If you installed a selection for OMEGAMON II on your site’s ISPF Primary Options Menu or ISPF panel, select OMEGAMON II on the menu to invoke KOCLIST.
- If OMEGAMON II is not a selection on your site’s ISPF Primary Options Menu, invoke the following CLIST for TSO/E: `%KOCLIST`.

When you log on in ISPF mode, OMEGAMON II recognizes that you invoked KOCLIST in ISPF mode.

OMEGAMON II displays this ISPF panel.

**FIGURE 1. Signing onto OMEGAMON II through ISPF**

```
--------------------------- OCSPF - INVOCATION MENU ---------------------------
OPTION  ===> _
  1  ASSIGN KEYS   - ASSIGN SPLIT-SWAP PFK
  2  LOGON  KOCVTAM - START OMCICS VTAM SESSION
  X  EXIT          - EXIT THIS SCREEN

FOR OPTION 2, SPECIFY:

  USER SUFFIX ===> /C
  LROWS ===> 99
  FIRST SCREEN ===> 
  OBVTAM APPL ===> OBVTAMA
  CICS JOBNAME ===> PRODCICS
```
Select option 1 if you want to assign function keys. The default keys are F2 for the ISPF split function and F9 for the ISPF swap function.

Select option 2 to log on and provide appropriate values for the requested fields.

When your logon is successful, the first screen you see is the OMEGAMON II copyright screen. Press Enter to continue. OMEGAMON II is now running in ISPF mode. Split screen mode is allowed.

**TSO mode**

To start an OMEGAMON II session under TSO, invoke one of the following CLISTS:

```
%KOCLIST CICS(ccccccccc) (,added parameters as required) * for TSO/E
- OR -
%KOCLISTN CICS(ccccccccc) (,added parameters as required) * for non-TSO/E
```

Replace cccccccc with the CICS region you want to monitor, and add additional parameters as required.

When you log on in TSO mode, OMEGAMON II recognizes that you invoked KOCLIST in TSO mode.

The first screen you see is the OMEGAMON II copyright screen. Press Enter to continue. OMEGAMON II is now running in TSO mode.

**Dedicated mode**

You start an OMEGAMON II dedicated session on a locally attached terminal. This mode uses EXCP to ensure availability even if TSO or VTAM is not responding.

Verify that the terminal you use is not an MVS console or is not allocated to any other job or started task (including VTAM). A dedicated OMEGAMON II session requires the use of a locally-attached, non-SNA terminal.

Start a dedicated session.

- Prepare a member in rhilev.RKANPAR that contains an appropriate START command. Use the shipped sample member in the data library as a model. Refer to the OMEGAMON II for CICS Configuration and Customization Guide for more information on installing in dedicated mode.

- Enter the MVS MODIFY command shown below.

  `F KOCCI,EXEC cccccccc`

  cccccccc The name of the member in rhilev.RKANPAR that contains a START command.

The MVS console log indicates that the dedicated session has started. The first screen you see on the dedicated terminal is the OMEGAMON II copyright screen. The session automatically refreshes itself every few seconds.
OMEGAMON II Features

The following features of OMEGAMON II provide information to help you improve CICS performance.

Bottleneck analysis

A CICS task waits many times during normal processing. OMEGAMON II’s bottleneck analysis feature monitors and categorizes the resources for which CICS tasks are waiting. Typical waits might include I/O events, VSAM buffer and string waits, enqueue waits, and short-on-storage conditions.

As applications grow and change, so does the use of resources in the CICS system. By highlighting resources which contribute most to response time, OMEGAMON II helps you focus your tuning efforts where they will do the most good.

CICS system analysis

A CICS system at a typical installation is constantly undergoing change. OMEGAMON II’s CICS system analysis features display control blocks, parameter settings, and status bars that are internal and external to your CICS system. You can inquire on such items as:

- AID/ICE activity
- transient data usage
- temporary storage usage
- CICS table entries
- CICS control blocks

The CICS system analysis displays enable you to monitor the various control areas and tables and take immediate action to improve system performance.

Exception analysis

As tasks on a CICS system compete with each other for resources, problems may occur with the availability of these resources or the performance of the tasks.

OMEGAMON II’s exception analysis feature continually monitors CICS systems for such problems. When a user-specified threshold is met or exceeded, OMEGAMON II alerts you to the problem and enables you to respond to it before availability or performance is degraded.

Response time analysis

OMEGAMON II’s response time analysis feature provides displays of CICS internal response time for transactions, terminals, and programs, as well as end-to-end response time for VTAM Logical Units (LUs). OMEGAMON II compares response time against user-specified performance standards for any of these resources or groups of resources.
OMEGAMON II Features

Storage analysis
OMEGAMON II’s storage analysis feature enables you to monitor storage usage in both CICS and MVS and shows you the effects of any adjustments you make. The storage analysis displays are specifically tailored to CICS/MVS and CICS/ESA.

Task analysis (realtime and historical)
OMEGAMON II’s task analysis feature monitors currently running CICS tasks and provides an instantaneous display of system activity. As tasks complete, OMEGAMON II saves pertinent resource usage data for online viewing and batch reporting.

OMEGAMON II also includes an historical collection feature that captures CICS system and task-related performance data and then writes it to SMF for batch reporting. The reports you can create include information about response time, task volume, resource usage, your CICS environment, and usage by user ID or terminal.

File/database analysis
OMEGAMON II’s file analysis feature reports on file activity within CICS. You can examine:

- files defined to CICS, STEPLIB, JES, DFHRPL, IMS, and journals
- VSAM files
- local shared resource pools
- VSAM string and buffer waits
- DB2 connection status
- DL/I database activity and status information
- third-party database activity

Impact analysis
OMEGAMON II’s impact analysis feature identifies other workloads running on MVS that are impacting CICS by competing with it for MVS resources. These workloads can be batch jobs, started tasks, TSO users, or even other CICS regions. The displays not only identify the main sources of impact, but also show how CICS is being affected so you can take immediate action to address those areas that will result in the most significant improvement.

MVS analysis
Since MVS factors can influence CICS availability and response time, OMEGAMON II’s MVS analysis feature provides information on such areas as DASD, CPU, paging, and Task Control Block (TCB) structure.
Chapter Overview

The menu system is OMEGAMON II’s classic interface that provides access to the complete set of OMEGAMON II functions.

Chapter Contents

Menu System Main Menu ..................................................36
Menu System Navigation .....................................................37
INFO-line .............................................................................39
Menu System Function Keys .................................................40
Menu System Colors ..........................................................41
Menu System Zooming .........................................................42
Fast Pathing in the Menu System ........................................43
Menu System Help Panels .....................................................44
Menu System Displays .........................................................46
Menu System Main Menu

The menu system provides a set of menus and menu-driven displays to help you analyze and solve CICS system performance problems. When you enter the menu system, the OMEGAMON II for CICS Performance Monitor System menu, or main menu appears.

FIGURE 2. Menu System Main Menu

Options on the main menu are arranged to reflect the logical order that you may follow when analyzing system problems.
Menu System Navigation

From any menu system panel, you can navigate using PF keys or by entering the letter of an option at the top left (the home position) of the panel.

Most menu system performance displays include horizontal menus. These panels list menu options across the top of the panel and display OMEGAMON II output for the selected option below, in the body of the panel. The figure below shows an example of a panel with horizontal menu options A through H. This is the All Tasks option (A) which is the initial option on the Tasks path (T).

**FIGURE 3. Tasks Panel Showing Horizontal Menu**

<table>
<thead>
<tr>
<th>TASK</th>
<th>Number of tasks selected: 28 Skipped: 0</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tran</td>
<td>Task</td>
</tr>
<tr>
<td>ID</td>
<td>Number</td>
</tr>
<tr>
<td>------</td>
<td>--------</td>
</tr>
<tr>
<td>CDLI</td>
<td>28444</td>
</tr>
<tr>
<td>EXC1</td>
<td>28443</td>
</tr>
<tr>
<td>CDME</td>
<td>28425</td>
</tr>
<tr>
<td>EXC1</td>
<td>28339</td>
</tr>
<tr>
<td>EXC1</td>
<td>27909</td>
</tr>
<tr>
<td>EXC1</td>
<td>25732</td>
</tr>
<tr>
<td>CSNC</td>
<td>19</td>
</tr>
<tr>
<td>CSSY</td>
<td>5</td>
</tr>
<tr>
<td>CSTP</td>
<td>2</td>
</tr>
<tr>
<td>TDdomain</td>
<td>None</td>
</tr>
<tr>
<td>SMdomain</td>
<td>None</td>
</tr>
<tr>
<td>CSSY</td>
<td>16</td>
</tr>
<tr>
<td>CSSY</td>
<td>34</td>
</tr>
</tbody>
</table>

The Control, Utilities, and Profile options on the main menu, however, use vertical menus (menus that list options vertically).
FIGURE 4. Profile Panel Showing Vertical Menu

Menu System Navigation

>_ PF1 Help PF3 Exit PF10 Save Profile
> Enter a selection letter on the top line.
> 
> PROFILE OPTIONS AND MAINTENANCE
> 
> Profile Maintenance
> A EXCEPTIONS ....... Set exception analysis thresholds
> B CONFIGURE ......... Set default startup configuration
> C SAVE/DELETE ...... Save, delete, list profiles
> 
> Session Controls
> D COLOR ............ Set colors, color mode, intensities
> E BACKGROUND ....... Set XLF, ASF, and TSF
> F AUTO ON .......... Turn automatic updating on (VTAM mode only)
> G AUTO OFF......... Turn automatic updating off (VTAM mode only)
> H LOGGING .......... Log/XLFLOG output options, log on, log off, log print
> 
> Altered settings become permanent when you save your profile. To do this,
> press PF10/22 from any screen.

> ===========================================================================
> "OMEGAMON II for CICS Reference Manual, Volume 2, Version 520"
INFO-line

You enter the selection letter of menu options in the input area of the INFO-line which is the top line of a panel. The following figure shows the INFO-line, which provides status information about your session.

FIGURE 5. INFO-line Format

Note that the symbols for the logging status (LOG), automatic screen facility status (A), and bell status (B) appear on the INFO-line only when those features are in use. Otherwise, the field is blank.
Menu System Function Keys

The function keys are standard throughout the menu system as follows:

- **PF1 (PF13)**: Displays current panel help from a menu or display panel. Displays General Help from any help panel.
- **PF2 (PF14)**: Undefined.
- **PF3 (PF15)**: Returns to the previous panel.
- **PF4 (PF16)**: Reinitializes menu system variables and returns to the main menu.
- **PF5 (PF17)**: Undefined.
- **PF6**: Prints current display on the screen log.
- **PF7 (PF19)**: Scrolls backward.
- **PF8 (PF20)**: Scrolls forward.
- **PF9 (PF21)**: Undefined.
- **PF10 (PF22)**: Saves currently defined user or installation profile.
- **PF11 (PF23)**: Zooms to more detail about item displayed at current cursor position.
- **PF12 (PF24)**: Undefined.
- **PF18**: Goes to color settings panel (PF3 returns to current panel).
- **PA2 (default)**: Returns to CUA Interface.
Menu System Colors

OMEGAMON II is designed for an extended color terminal. Colors show you which fields are zoomable and highlight the status of key fields:

- **Turquoise text**: Comment line or non zoomable text.
- **White text or field**: Zoomable field.
- **Blue**: Number of items selected or skipped.
- **Turquoise field**: Normal field value.
- **Green reverse video**: Normal status.
- **Yellow reverse video**: Warning status.
- **Red reverse video**: Critical status.
- **Turquoise reverse video**: Idle (no activity).

Colors may be different for the text description of a field and the actual field value. If the text is turquoise and the field is yellow, then the value shown is considered abnormal, but may **not** be cursor selected with the zoom key. If the text is white, however, then the field may be cursor-selected.
Menu System Zooming

When a large amount of information is available (about tasks or files, for example), menu system panels show only the initial or critical data. To get more information, move the cursor to the item you want more data about and press **PF11**. This zooms you to another panel where more detail is available.

Zooming is available when **PF11 Zoom** displays in the PF key line at the top right of the panel. On extended color terminals, zoomable fields are highlighted in white.

To return to the original panel, press **PF3**.
Fast Pathing in the Menu System

Fast pathing provides a quick way to navigate to panels throughout the menu system. At the INFO-line, type the selection letter of each menu and submenu option separated by a period. For example, to go directly to the Transaction Rate panel from any panel, enter T.H (Tasks, Rate) on the INFO-line. Entering T.F.D. (Tasks, Other, DLI) takes you directly to the Tasks Using DLI panel.

From any panel, to go directly to the initial panel of a main menu option, enter the letter of the main menu option followed by a period. For example, to reach the initial panel of the Exceptions option, enter E. on the INFO-line.

Do not enter panel names (such as ZEXCPS) directly; this deactivates menu system variables.
OMEGAMON II provides help panels that give you an explanation of the current panel when you press **PF1**. Help is available when **PF1 Help** appears on the PF key line at the top of the panel. For example, if you are in an Exceptions panel and you want help, press **PF1** to see the following panel.

**FIGURE 6. Typical Help Panel**

To display the General Help menu, press **PF1** again from any help panel.
The Index option (A) provides an index of CICS and performance topics. From the Index you can select a topic and navigate directly to its display panel. The Index Usage option (D) tells you how to use the Index.

The News option (B) tells you the highlights of the current release.

The remaining options provide general information about how to use the menu system.

Below the options, there is a list of support center telephone numbers for various locations, if you need assistance.
Menu System Displays

By default, OMEGAMON commands convert a numeric value to \( \text{xxxK} \) and then to \( \text{xxxM} \) as the value increases. A field value is not converted if it contains a decimal point or if the field length is less than 4. A value that overflows the field length is displayed as a row of asterisks (*****).
Chapter Overview

OMEGAMON II provides two overviews of CICS information: CICS Regions Summary and Performance Overview. The first panel summarizes activity on all active CICS regions, and if you are using OMEGAMON II in the Menu System, enables you to switch regions that you want to monitor. The second panel provides a snapshot of key CICS performance indicators, alerting you to problems in CICS that require further analysis.

To access this information, select main menu options REGIONS (W) and Overview (V).

Chapter Contents

Displaying CICS Regions .........................................................48
Performance Overview ............................................................50
Displaying CICS Regions

To display all the active CICS regions running on the same Central Electronic Complex (CEC) as the current CICS region being monitored, select the REGIONS option (W) on the main menu or enter fast path (W.) from any panel. The region summary appears as in the following figure.

FIGURE 8. Summary of CICS Regions Panel (W.)

This panel only lists regions swapped in. For each active CICS jobname, the panel provides the start date and time, the CICS release, the VTAM application ID, and the total CPU time since region startup. You can use this information to determine which regions are currently available and whether any regions are using excessive CPU time.

If you are using OMEGAMON II in the Menu System mode, this panel also indicates whether you may switch monitoring to another region. The ability to switch monitoring is not supported if:

- the new region is not a supported level of CICS
- you are operating with OMEGAVIEW
  See the OMEGAVIEW documentation for additional information.
- the new CICS is not using the same XMIT suffix as OMEGAMON II
  See the OMEGAMON II for CICS Configuration and Customization Guide for additional information.
- the global module load for the new region failed
- you have zoomed into the Menu System from the CUA interface

On extended color terminals, colors differentiate the switch status:

- Current region is highlighted in yellow.
- Switchable regions are highlighted in white.
- Non-Switchable regions are turquoise.
You can switch monitoring to another region without having to log off the current OMEGAMON II session and log onto a new session. Simply place the cursor on the line describing the region and press PF11 (the zoom key). You will then see the copyright screen for the new session. If the new region is secured, you will also see an entry validation screen with a logon prompt.

Use the REGIONS option at any time to return to monitoring the current region or to proceed to monitor another region.
The Performance Overview panel is a comprehensive display of current CICS system status.

**FIGURE 9. Performance Overview Panel (V.)**

<table>
<thead>
<tr>
<th>Resource</th>
<th>Resource</th>
<th>Short Term Information</th>
<th>Long Term Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>DISPATCH</td>
<td>QR_TCB</td>
<td>2 &gt; . . . . .</td>
<td>2 &gt; . . . . .</td>
</tr>
<tr>
<td>EKCWAIT</td>
<td>SINGLE</td>
<td>6 &gt; . . . . .</td>
<td>6 &gt; . . . . .</td>
</tr>
<tr>
<td>FCIOWAIT</td>
<td><em>TOTAL</em></td>
<td>1 &gt; . . . . .</td>
<td>1 &gt; . . . . .</td>
</tr>
<tr>
<td>DEG</td>
<td>( 1) &gt; . . . .</td>
<td>( 1) &gt; . . . .</td>
<td></td>
</tr>
<tr>
<td>FCPSWAIT</td>
<td><em>TOTAL</em></td>
<td>7 &gt; . . . . .</td>
<td>7 &gt; . . . . .</td>
</tr>
<tr>
<td>DEG</td>
<td>( 7) &gt; . . . .</td>
<td>( 7) &gt; . . . .</td>
<td></td>
</tr>
<tr>
<td>KC_COMPAT</td>
<td>CICS</td>
<td>1 &gt; . . . . .</td>
<td>1 &gt; . . . . .</td>
</tr>
<tr>
<td>KC_ENQ</td>
<td><em>TOTAL</em></td>
<td>81 &gt;----------&gt;</td>
<td>81 &gt;----------&gt;</td>
</tr>
<tr>
<td>ENQWAIT</td>
<td>(81) &gt;----------&gt;</td>
<td>(81) &gt;----------&gt;</td>
<td></td>
</tr>
<tr>
<td>RUNNING</td>
<td>RUNNING</td>
<td>1 &gt; . . . . .</td>
<td>1 &gt; . . . . .</td>
</tr>
</tbody>
</table>

**TASK WAITING**

<table>
<thead>
<tr>
<th>Tran</th>
<th>Task</th>
<th>Task</th>
<th>Facility</th>
<th>Resource</th>
<th>Resource</th>
<th>CPU</th>
</tr>
</thead>
<tbody>
<tr>
<td>DEGV</td>
<td>60</td>
<td>Dispatch</td>
<td>Task</td>
<td>DISPATCH</td>
<td>QR_TCB</td>
<td>0.895</td>
</tr>
<tr>
<td>CECI</td>
<td>57</td>
<td>Suspend</td>
<td>Trm=M489</td>
<td>ZCIOWAIT</td>
<td>DFHZARQ1</td>
<td>0.006</td>
</tr>
<tr>
<td>OEN2</td>
<td>44</td>
<td>Suspend</td>
<td>Task</td>
<td>KC_ENQ</td>
<td>ENQWAIT</td>
<td>0.000</td>
</tr>
<tr>
<td>OEN2</td>
<td>43</td>
<td>Suspend</td>
<td>Task</td>
<td>KC_ENQ</td>
<td>ENQWAIT</td>
<td>0.000</td>
</tr>
<tr>
<td>OEN2</td>
<td>42</td>
<td>LastDisp</td>
<td>Task</td>
<td>EKCWAIT</td>
<td>SINGLE</td>
<td>0.001</td>
</tr>
</tbody>
</table>

**ENQ**

<table>
<thead>
<tr>
<th>Tran</th>
<th>Task</th>
<th>Enqueue</th>
<th>Owning</th>
<th>Owning</th>
<th>Owning</th>
<th>Owning</th>
</tr>
</thead>
<tbody>
<tr>
<td>OEN2</td>
<td>43</td>
<td>ENQWAIT</td>
<td>OEN2</td>
<td>42</td>
<td>EKCWAIT</td>
<td>SINGLE</td>
</tr>
<tr>
<td>OEN2</td>
<td>44</td>
<td>ENQWAIT</td>
<td>OEN2</td>
<td>42</td>
<td>EKCWAIT</td>
<td>SINGLE</td>
</tr>
</tbody>
</table>
Press Enter to refresh the panel for the latest information. This panel summarizes several of the most important OMEGAMON II features: exception, bottleneck, task, and enqueue analysis.

The overview display is divided into four sections and provides information on the following:

- **Exception Analysis**: OMEGAMON II automatically tests dozens of conditions against predefined thresholds and reports any potential problems by displaying a warning message with an exception name. For additional information on the exception analysis feature, see “Exception Analysis” on page 65.

- **Bottleneck Analysis**: OMEGAMON II monitors CICS activity and reports on any condition causing CICS to wait. The wait reasons listed here are internal to CICS. Contention caused by other workloads running on this processor are detected by impact analysis and can be accessed by selecting the Bottlenecks option (B) on the main menu. For more information on OMEGAMON II’s bottleneck analysis feature, see “Bottleneck Analysis” on page 135.

- **Task Analysis**: A list of all tasks in a wait condition displays automatically. The transaction ID and task number are included as well as the name and type of resource causing the wait. For a list of associated wait reasons, select All Tasks (A) on the Tasks menu or enter T. to fast path, and then press PF1 for Help. For more information on OMEGAMON II’s task analysis feature, see “Task Analysis” on page 89.

- **Enqueue Analysis**: Any task holding a resource causing another task to wait is detected and displayed by Enqueue Analysis. The task name and number as well as the name of the resource being waited for is listed. For additional information on the enqueue analysis feature, see “Enqueues” on page 149.

For an explanation of an exception condition and recommendations for resolving it, place the cursor on the exception line and press PF11. To obtain more information about a wait-reason, waiting task, or enqueue resource, move the cursor to the line describing the item and press PF11.
Chapter Overview

OMEGAMON II collects, analyzes, and displays CICS response time for predefined groups of transactions, terminals, and programs. It also collects end-to-end response time data for LU groups, if the End-to-End™ (ETE) feature is active.

To collect and analyze response time data, you must define one or more response time groups and their thresholds. You may change one or more groups and their thresholds for the duration of an ongoing OMEGAMON II session or permanently. See “Group Definition and Activation” on page 325 for information on changing response time groups for the duration of a session, and the OMEGAMON II for CICS Configuration and Customization Guide for information on changing them permanently.

When you define response time thresholds, you can raise alert conditions when the response time exceeds those thresholds. These alerts can be communicated to OMEGAVIEW or the exception analysis component of OMEGAMON II. (See “Exception Analysis” on page 65, as well as the OMEGAVIEW User’s Guide for more information.)

Chapter Contents

CICS Transaction Response Time ................................................................. .54
Response Time Data Status ................................................................. .55
Network Response Time ................................................................. .56
Response Time Periods ................................................................. .57
  Fixed time period ................................................................. .57
  Moving time period ................................................................. .58
User-defined time intervals ................................................................. .62
Response Time Data Collection Settings ................................................ .63
  Time intervals ................................................................. .63
  Time scale ................................................................. .63
  Thresholds ................................................................. .63
  Time window ................................................................. .64
CICS Transaction Response Time

The response time for a transaction is the elapsed time for a transaction or conversation. In CICS/MVS versions, OMEGAMON II uses the CICS Global User Exit facility to determine transaction response time and resource usage. This operates independently of the CICS Monitoring facility to allow you to collect this data with minimal overhead. Each conversation is considered as a separate transaction. The transaction start time occurs when CICS first dispatches the task. The transaction end time occurs when CICS detaches the task. Therefore, the delay in waiting for a task to be attached due to a CMXT condition would not appear as part of the response time.

In CICS/ESA, OMEGAMON II uses CICS Monitoring to determine transaction response time. The CONV=YES parameter in the CICS monitor control table (MCT) determines whether records are written for each conversation. For conversational transactions, CICS Monitoring includes the terminal input wait time as part of the conversation’s elapsed time. If you do not want this time included, you can direct OMEGAMON II to remove terminal input/output wait time from its elapsed time. See the CONVTIME operand on the global data area parameter in OMEGAMON II for CICS Configuration and Customization Guide for more information.

In an MRO/ISC environment performing function shipping or distributed program link, each request handled by a mirror transaction may be treated as a separate transaction, depending on the request and, for MRO, the MROLRM SIT parameter setting. Consult the IBM CICS documentation for details of mirror transaction processing.
Response Time Data Status

You can view the current data collection status of the response time monitor by selecting the RTA Status option (C) on the Control path or entering fast path O.C from any panel. This status display includes the status, start date/time, and current scale and window display options for the response time monitor.
Network Response Time

The network response time of VTAM LUs, or end-to-end response time, is the elapsed time between the user’s pressing a key (ENTER, PF1 through PF24, PA1, PA2, PA3 or CLEAR) and receiving a response at the terminal.

In order to capture this data, Candle’s End-to-End Response Time feature (ETE) must be installed at your facility. See the OMEGAMON II for CICS Configuration and Customization Guide for information on installing ETE. ETE places itself inside one of the VTAM SNA layers to measure network response time. In this location, ETE can time all SNA traffic that flows through VTAM. The measured time begins when a request flows through VTAM toward the application; it ends when VTAM receives the definite response from the terminal controller. For detailed information on the capabilities of this feature, see the End-to-End Response Time Feature (ETE) Reference Manual.
Response Time Periods

There are three ways to view response time data: by fixed time periods, by moving time periods, and by user-defined time periods.

Fixed time period

A fixed time period display shows the average transaction response time and transaction count for specific time periods within the last 24 hours. The time periods are defined in the global data area (see the OMEGAMON II for CICS Configuration and Customization Guide for more information). Statistics appear for a single element, a group of elements, or for all monitored elements.

To display fixed period response time, select the CICS Today option (G) on the Response Time path or enter fast path R.G from any panel. The panel in the following figure displays, showing average response times by daily time slot for each transaction monitored (defined in a transaction group).

FIGURE 10. Transaction Response Times by Intervals Panel (R.G)

<table>
<thead>
<tr>
<th>CSLT</th>
<th>ID</th>
<th>00:00-08:00</th>
<th>08:00-08:15</th>
<th>08:15-08:30</th>
<th>08:30-08:45</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>CD</td>
<td>0.329</td>
<td>0.377</td>
<td>0.471</td>
<td>0.415</td>
</tr>
<tr>
<td>+</td>
<td>CDCE</td>
<td>0.663</td>
<td>1.050</td>
<td>1.022</td>
<td>0.753</td>
</tr>
<tr>
<td>+</td>
<td>DDS</td>
<td>0.227</td>
<td>0.330</td>
<td>0.398</td>
<td>0.262</td>
</tr>
<tr>
<td>+</td>
<td>CLI</td>
<td>1.165</td>
<td>1.100</td>
<td>1.616</td>
<td>1.748</td>
</tr>
<tr>
<td>+</td>
<td>DMM</td>
<td>0.506</td>
<td>1.290</td>
<td>1.398</td>
<td>0.815</td>
</tr>
<tr>
<td>+</td>
<td>DNE</td>
<td>0.902</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>+</td>
<td>CPA</td>
<td>0.968</td>
<td>0.696</td>
<td>1.159</td>
<td>1.352</td>
</tr>
<tr>
<td>+</td>
<td>AVERAGES</td>
<td>0.304</td>
<td>0.361</td>
<td>0.518</td>
<td>0.427</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>cnt</td>
<td>CD</td>
<td>192</td>
<td>25</td>
<td>29</td>
<td>25</td>
</tr>
<tr>
<td>+</td>
<td>CDCE</td>
<td>4</td>
<td>3</td>
<td>6</td>
<td>6</td>
</tr>
<tr>
<td>+</td>
<td>DDS</td>
<td>150</td>
<td>21</td>
<td>25</td>
<td>25</td>
</tr>
<tr>
<td>+</td>
<td>CLI</td>
<td>300</td>
<td>37</td>
<td>38</td>
<td>48</td>
</tr>
<tr>
<td>+</td>
<td>DMM</td>
<td>20</td>
<td>1</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>+</td>
<td>DNE</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>+</td>
<td>CPA</td>
<td>24</td>
<td>11</td>
<td>7</td>
<td>6</td>
</tr>
<tr>
<td>+</td>
<td>TOTALS</td>
<td>692</td>
<td>98</td>
<td>111</td>
<td>117</td>
</tr>
</tbody>
</table>

On this panel, time periods that start and end later in the day than the current time and that contain transaction counts and response times, represent transactions that ran yesterday.
To display additional time slots, place a number from 1 through 9, or A, or B, in front of CSLT. For example, 1 displays the second group of 4 time slots and A displays the eleventh group of 4 time slots. Specify blank or 0 to display the first 4 time slots.

To display fixed-time periods for a particular group, select the Groups Today option (I) on the Response Time path or enter fast path R.I from any panel. You will then view a display similar to the one shown in the previous figure except that all elements will belong to the group specified.

**Moving time period**

Moving time periods show the response time within the last ten minutes for ID groups and elements. The data can be displayed numerically or graphically.

**Numeric response times**

To display an overview of numeric response times as shown in the following figure, select the Overview option (A) on the Response Time path or enter fast path R. from any panel.

**FIGURE 11. Groups with Response Time Activity in Last 10 Minutes Panel (R.)**

This panel displays the response times for each minute of the last 10 minutes for any ID group that experienced activity during the last 10 minutes. Whenever the response time exceeds the group or element threshold, it appears in reverse video on color graphics terminals as follows:

- **Turquoise**  No activity.
- **Green**  Below threshold.
- **Yellow**  Threshold exceeded.
- **Red**  Twice the threshold has been exceeded.
If a group is composed of LUs, three lines of information are displayed:

- **LU-ETE**: End-to-end response time, consisting of host plus network response times.
- **LU-Net**: Network response time, the amount of elapsed time attributed to sending data between terminal and host.
- **LU-Host**: Host response time, the amount of elapsed time as viewed within CICS.

You can zoom on a group number for detailed response time information for all elements within that group.

Response time path options B through E display the last 10 minutes’ response times for the following types of response time:

- **Option B**: CICS response times for transaction groups.
- **Option C**: CICS response times for terminal groups.
- **Option D**: CICS response times for program groups.
- **Option E**: ETE response times for VTAM LU groups.

**Graphical**

To display a graphic representation of moving time period response time data as shown in the following figure, select the Graphical option (F) on the Response Time path or enter fast path R.F from any panel.
This screen shows a moving time slot analysis of response time for elements experiencing response time problems. The vertical scale on the left side represents response time in tenths of a second. The time window at the bottom represents the length of time, in minutes, for which response times are displayed.

The horizontal dashed line for each element represents its threshold setting. The element ID name and the most recent response time for that element are shown at the top of each graph. Elements appear only if their response time within a defined time window exceeds their response time threshold. A time window starts at the current minute and extends back up to 10 minutes.

In this example, each line on the scale represents 2 seconds. The plus sign (+) highlights elements with response times exceeding the top end of the scale.

When graphing VTAM LUs, the response time for each element is differentiated between the host component (s) and the network component (n) of end-to-end response time.

**End-to-End moving time periods**

To display end-to-end response times for monitored VTAM LUs as shown in the following figure, select the VTAM LUs option (K) on the Response Time path or enter fast path R.K from any panel.
This panel shows the end-to-end response times for all VTAM LUs within their defined groups. The fields displayed are:

<table>
<thead>
<tr>
<th>Group/LU</th>
<th>Groups and LUs being monitored. You must define LUs in LU group(s) prior to starting the response time monitor.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Response History</td>
<td>Status for the current interval and the last 16 intervals. Red bars indicate exceeded thresholds and green dots indicate normal conditions. Refer to “Response Time Data Collection Settings” on page 63 for setting thresholds.</td>
</tr>
<tr>
<td>Current Samples</td>
<td>Number of samples in the current interval.</td>
</tr>
<tr>
<td>Host Response</td>
<td>Average host response time in the current interval. This field is red if the host threshold was exceeded during the current interval.</td>
</tr>
<tr>
<td>Network Response</td>
<td>Average network response in the current interval. This field is red if the network threshold was exceeded during the current interval.</td>
</tr>
<tr>
<td>Total Response</td>
<td>Average total response in the current interval. This field is red if the total threshold was exceeded during the current interval.</td>
</tr>
</tbody>
</table>

The panel shows all the ID groups that are associated with LUs. Under the response history, you can see the status for the last 16 intervals. The default interval is one minute. Refer to “Response Time Data Collection Settings” on page 63 for information on changing the time interval.

You can limit this display to LUs in a particular group, those that have activity in the current sample, or those that exceeded the threshold in the current sample. Refer to the help screen using PF1 for more information.
To display all VTAM LUs that have end-to-end response times, select the ETE Current option (L) on the Response Time path or enter fast path R.L from any panel. To display all VTAM LUs that have exceeded their thresholds, select the ETE Exceeded option (M) on the Response Time path (fast path R.M).

**User-defined time intervals**

You can display the average response time over three overlapping time intervals. These intervals reflect short, medium, and long-term response times. Each interval is expressed in minutes where the medium-term interval is a multiple of the short-term interval and the long-term interval is a multiple of the medium-term interval. Refer to “Time intervals” on page 63 for information on changing the interval length.

You invoke the time intervals display as shown in the following figure, by selecting the Averages option (J) on the Response Time path or entering fast path R.J from any panel.

**FIGURE 14. Average Transaction Response Times Panel (R.J)**

```
<table>
<thead>
<tr>
<th>CRSP</th>
<th>ID</th>
<th>(00:15) 00:08:48</th>
<th>(00:30) 00:23:48</th>
<th>(01:00) 00:23:48</th>
</tr>
</thead>
<tbody>
<tr>
<td>ATIM</td>
<td>AVERAGES</td>
<td>0.470</td>
<td>0.526</td>
<td>0.526</td>
</tr>
<tr>
<td>ATCN</td>
<td>TOTALS</td>
<td>498</td>
<td>1153</td>
<td>1153</td>
</tr>
</tbody>
</table>
```

This panel shows for each interval, the interval length in minutes in parentheses followed by the elapsed time for the interval. The average response time and the number of occurrences for each element ID are shown for all elements having some activity.

Elements can be selected by group number, and you can choose to display only group averages by modifying the `time` and `cnt` statements below CRSP. Refer to the help screen using PF1 for more information.
Response Time Data Collection Settings

The following settings can be changed from an OMEGAMON II session.

- time intervals
- time scale for moving time periods (Time Scale)
- thresholds
- period in moving time period for determining exceeded threshold (Time Window)

In order to change any settings, you must first stop collecting response time data. This is necessary to clear any accumulated data. Select the Control option (O) on the main menu and then select the RTA Off option (B) or enter fast path O.B from any panel to deactivate response time analysis. After changing the settings, restart data collection by selecting the RTA On option (A) on the Control path or entering fast path O.A from any panel.

The settings that affect the collection and display of response time data are defined in the global data area. See the OMEGAMON II for CICS Configuration and Customization Guide for information on the global data area.

You can modify a subset of these settings from an OMEGAMON II session. The changes remain in effect for all sessions monitoring that CICS region until you change them or stop OMEGAMON II.

Time intervals

You can set the time intervals for the short, medium and long-term response time periods as well as the time interval on the end-to-end response time graph by selecting the RTA Intervals option (D) on the Control path or entering fast path O.D from any panel.

Time scale

The time scale affects the graphical moving time period display. There are 10 points on the vertical axis for this display. The scale represents the time interval in tenths of a second for each point. The allowable range is .1 seconds to 9.9 seconds. Set the time scale by selecting the RTA Scale/Window option (E) on the Control path or entering fast path O.E from any panel. Note that the time scale must be identical for all elements that OMEGAMON II monitors.

Thresholds

ID groups and elements within a group have associated response time thresholds. Any occurrences of the threshold being exceeded can be highlighted on the displays. Additionally, an alert can be communicated to exception analysis or OMEGAVIEW.

For LU elements and groups, you can set three thresholds corresponding to the host, network, and total ETE response time.

See “Group Definition and Activation” on page 325 for more information on setting thresholds.
Response Time Data Collection Settings

Time window

The time window affects the graphical moving time period display. Only those elements that exceed their threshold during the time window are displayed. The window must be identical for all elements that OMEGAMON II monitors.

You specify the window as a number from 1 through 10. For example, if you specify 3, elements are displayed only if their response time exceeds their threshold during the last three minutes. By specifying a value of 10, you include an element if it exceeds its threshold any time during the last 10 minutes.

Select the RTA Scale/Window option (E) on the Control path or enter fast path O.E. to set the time window.
OMEGAMON II continually monitors CICS for conditions that may affect resource availability and system performance. When a condition falls outside the range of a predetermined threshold, OMEGAMON II generates an exception and alerts you by displaying a warning. If you need helpremedying the problem noted by the exception, you can access an OMEGAMON II recommendation screen that suggests the appropriate actions to take.

Although OMEGAMON II exceptions are shipped with default settings, you can customize them by individually adjusting thresholds, changing display characteristics, and disabling specific exceptions. Changes such as these can be saved, and either shared across sessions, or retained in a separate profile for specific users.

Exceptions can generate color-coded alerts for OMEGAVIEW and the Region Status panel of OMEGAMON II. Refer to the OMEGAVIEW User’s Guide and the OMEGAMON II for CICS User’s Guide for more information.

Two other OMEGAMON II features, the exception logging facility (XLF) and the automatic screen facility (ASF), provide automatic handling of exceptions. Refer to the OMEGAMON II for CICS Configuration and Customization Guide and “Background Facilities (ASF, TSF, XLF)” in Volume 1 of this manual for more information.

Chapter Contents

Displaying Exceptions ................................................................. 66
  Current exceptions ............................................................... 66
  OMEGAMON II session exceptions ........................................... 67
  Exception recommendations .................................................... 68
Global CPU Threshold .............................................................. 69
CICS Exceptions ...................................................................... 70
Customizing Exceptions ............................................................ 83
  DISPLAY parameters ............................................................... 84
  THRESHOLD parameters ........................................................ 85
  XLF parameters .................................................................. 85
  Box parameters .................................................................. 86
  CYCLE parameters ............................................................... 87
VSAM Analysis ........................................................................ 88
Displaying Exceptions

You can display exception information for two types of exceptions:
- those that are presently occurring
- those that took place during your OMEGAMON II session

You can customize each exception message for characteristics such as color, highlighting, whether it generates an audible alarm, and others. See “Customizing Exceptions” on page 83 for details.

Current exceptions

For current exceptions, select the Exceptions option (E) on the main menu or enter fast path E. from any panel. An example of the exception messages displayed appears below.

FIGURE 15. Current Exceptions Panel (E.)

Each exception is identified by a unique 4-character name beginning in column 3 of the display. For a list of all possible exceptions, see “CICS Exceptions” on page 70.

The above display shows four exceptions, see “CICS Exceptions” on page 70.

If no current exceptions were triggered, OMEGAMON II displays a message to that effect.
OMEGAMON II session exceptions

For exceptions that occurred during your OMEGAMON II session, select the Exceptions this Session option (B) on the Exceptions path or enter fast path E.B from any panel. An example of this display appears in the following figure.

FIGURE 16. Summary of Exceptions this Session Panel (E.B)

This screen provides a summary of all exceptions that occurred during this OMEGAMON II session, displaying their worst value and their most recent value. The fields that compose the Exceptions Summary screen are:

- **Name**: Four-character identifier for the exception. See “CICS Exceptions” on page 70 for a list of all possible exceptions.
- **Last Value**: Value at the time the last exception occurred.
- **Last Occurrence**: Date and time of the last occurrence.
- **Worst Value**: Value of the worst occurrence during your session.
- **Worst Occurrence**: Date and time of the worst occurrence.
Exception recommendations

Exception recommendations are panels that provide advice or the causes and possible resolutions for exception conditions. Each recommendation provides an explanation of the exception condition and suggests ways to diagnose and/or resolve the problem causing the exception. In addition it enables you to modify the threshold settings for the exception without having to navigate to another panel.

To access an exception recommendation display, place the cursor on the line containing the 4-character exception name and press PF11. The following figure shows an example of a recommendation screen for the exception VCAS, VSAM CA splits.

FIGURE 17. Exception Recommendation Panel (Accessed by Zoom)
Global CPU Threshold

Exception analysis detects when CICS transactions exceed a specified CPU time threshold. Unlike other exception thresholds, this one is defined globally for all sessions monitoring a CICS region. To display or change the global resource limit CPU threshold as shown in the following figure, select the MAXR option (K) on the Exception Settings path (under the Profile menu) or enter fast path **P.A.K** from any panel.

**FIGURE 18. Global Resource Limit Panel (P.A.K)**

The CPU threshold is specified in seconds. A value of 0 deactivates CPU exception reporting. CPU exception reporting is in effect for all transactions in your system, except for program names beginning with DFH. Measurement reporting takes effect for all transactions or conversations that start after MAXR is activated.

The threshold you set is in effect for the duration of your session. It is not saved when you save your profile. To permanently change the threshold, see the chapter on the Global Data Area in the *OMEGAMON II for CICS Configuration and Customization Guide*. 
CICS exceptions

Following is an alphabetical list of OMEGAMON II exceptions:

**AIDs**
The number of AIDs (Automatic Initiate Descriptors) is high.
An AID is created in CICS when a task issues a request for the use of a terminal. The terminal can be a physical terminal or a system.

**AMXP**
Percent of AMAXTASKS that are currently active.
The limit tested by AMXP analysis is the maximum number of active tasks set by the AMAXTASKS option of the master terminal transaction or by the AMXT parameter of the SIT.
The analysis checks the number of active tasks in the system against the AMAXTASKS value, and displays a message when the percentage is greater than the threshold you specify.

*Note: This exception is not valid in CICS Version 4.*

**AMXT**
Tasks at or over AMAXTASKS.
AMXT analysis checks the current number of active tasks against the AMAXTASKS number. Whenever CICS is at AMAXTASKS, if there is not an ongoing stall situation, any new transactions being entered are started but suspended. At this time, CICS users can notice a delay in the CICS response time. The limit imposed by AMAXTASKS is meant to prevent stall situations where too many tasks strain the use of CICS resources.

In a heavily loaded system, more tasks may be in the dispatcher active chain than specified by AMXT. When this occurs, those tasks on the active chain beyond the AMXT point are not considered for dispatch, even if they are ready to run.

*Note: This exception is not valid in CICS Version 4.*

**CMXP**
Class max task threshold exceeded.
Like AMXP, CMXP analysis computes the percentage of active tasks in a class against the limit specified in the SIT, through RDO, or through the master terminal transaction, and compares that percentage with the CMXP threshold specified.

**CMXT**
The system is at class max task.
The number of tasks that belong to a transaction class is equal to the limit for that transaction class. There may also be tasks waiting to be attached. If this message appears consistently, it means that tasks defined in a class are not initiated because Class Max Tasks (CMXT = in SIT) has been reached. CMXT limits the number of concurrent tasks within a defined transaction class.

**CPHI**
CPU utilization is high.
This CPU utilization is the fraction of the total CPU used by the address space over the last OMEGAMON II cycle.

**CPLO**
CPU utilization is low (< n%).
This CPU utilization is the fraction of the total CPU used by the address space over the last OMEGAMON II cycle.
**DBMN**  
DLI DB monitor is active.  
The DB Monitor has high overhead and can potentially impact both DLI and CICS performance.

**DBON**  
Monitored CICS region is not attached to DB2.

**DBUP**  
CICS is attached to DB2 during shutdown processing.  
If DB2 is not detached before or during shutdown, CICS hangs and shutdown processing stops.

**DB21**  
Current RCT entries with insufficient threads.  
When the percentage of threads currently in use exceeds the threshold percentage, OMEGAMON II generates a message. If the thread use count exceeds the number of dedicated threads, OMEGAMON II displays a count of the waiting tasks. Only the first RCT entry in a group entry will appear. The thread pool is treated as RCT entry ID POOL.

If you specified TWAIT=POOL in the RCT entry, the RCT entry may be using pool threads. In this case, the message will be **tasks overflowed to pool = n**. The RCT entry is ignored if it has no dedicated threads.

**DB22**  
Percentage of RCT entries with significant thread waits since CICS started.  
DB22 produces a message when the number of waits and rollovers compared to the number of requests for threads exceeds the percentage threshold you set for any RCT entry. Only the first RCT entry in a group entry will be displayed. The thread pool is treated as RCT entry ID POOL.

If you specified TWAIT=POOL in the RCT entry, it may be rolling over to use pool threads. In this case, the message will read **overflowed to pool**. An RCT entry is ignored if it has no dedicated threads.

**DB2A**  
Percentage of abending DB2 transactions.  
The percentage of transactions that abend while holding a DB2 thread.

**DB2M**  
Maximum active threads per RCT entry is high.  
The maximum active threads limit for an RCT entry is defined in the DSNCRCT table. It is not detrimental to achieve a high percentage of use of the maximum active thread limit. However, when the ratio frequently nears 100%, you should revise the thread assignment for this transaction in the DSNCRCT. Choose the DATABASE path to view the current thread limits for the RCT entry.

**DB2T**  
Percentage of DB2 threads in use per RCT entry is high.  
If this situation occurs frequently, it indicates that the number of maximum active threads defined (THRDA in the DSNCRCT) is not adequate for the volume of the DB2 activity.

**DB2W**  
Percentage of waits per DB2 RCT entry is high.  
The percentage of DB2 tasks having to wait for a thread to become available is greater than expected. The level of DB2 requests for the tasks with this RCT entry is greater than the current number of maximum active threads. If this situation occurs frequently, it indicates that the number of maximum active threads defined (THRDA in the DSNCRCT) is not adequate for the current volume of this RCT entry.
CICS Exceptions

DLCL  The CICS Database Control facility for IMS (DBCTL) is inactive. Use the CICS transaction CDBC to initiate the connection.

DLDB  Number of DMBs that stopped or failed initialization > nn.

DLPB  Number of unavailable local PSBs > nn.

DLTH  DLI threads in use > nn. If 100% utilization is reached, DLTH analysis displays how many tasks are waiting for threads to become available.

DMBP  DMB pool utilization > nn.

This storage pool is acquired from the CICS dynamic storage area and should be specified large enough to accommodate all DMBs used in CICS, including shared databases. If the pool is not large enough, an operating system close/open of databases may become necessary to service new database requests.

DNRS  DASD devices not responding.

The performance of a telecommunications system such as CICS is highly dependent on the timely completion of I/O requests. DNRS analysis produces a message if an I/O issued to any DASD device allocated to CICS takes longer than one OMEGAMON II cycle to complete. Suppose, for example, that CICS issues an I/O against device CICS02, which is currently RESERVEd by another CPU. If DNRS analysis sees this same I/O waiting for the device two OMEGAMON II cycles in a row, it produces a warning message.

When the I/O finally completes, the message is removed. Note that a RESERVE can only be stated as a possible reason for the delay; it could also be head-of-string contention, since MVS I/O architecture makes it impossible to distinguish between the two. However, if a delay lasts long enough for DNRS to report, it is likely to be shared DASD contention.

DNRS also detects a problem if CICS tries to issue an I/O to a device that has dropped ready. Note that DRDY exception analysis would also produce a message in this case.

Please note that a problem cannot be spotted unless the I/O takes longer than one OMEGAMON II cycle.

DPRO  OMEGAMON II dispatching priority is lower than CICS.

DRDY  DASD devices are dropped ready.

DRDY analysis produces a warning message if any DASD device allocated to CICS enters the dropped ready state. If any I/O was in progress on this device at the time of failure, the DNRS exception shows the cylinder address.
CICS Exceptions

**DSAV**
Number of pages available before SOS for any DSA below the 16M line.
CICS can have more than one DSA depending on the release. The names of the DSAs that are part of the exception message are as follows:

- **DSA**
  For CICS releases 2.1.2 through 3.2.1, the area below the 16M boundary.

- **CICS DSA**
  For CICS release 3.3, the area below the 16M boundary for CICSKEY storage.

- **USER DSA**
  For CICS release 3.3, the area below the 16M boundary for USERKEY storage.

- **EDSA**
  For CICS release 3.2.1, the area above the 16M boundary.

- **CICS EDSA**
  For CICS release 3.3, the area above the 16M boundary for CICSKEY storage.

- **USER EDSA**
  For CICS release 3.3, the area above the 16M boundary for USERKEY storage.

- **READ ONLY EDSA**
  For CICS release 3.3, the area above the 16M boundary used to load reentrant programs.

**DSAV** produces a warning when the number of pages available in the dynamic storage area is less than the specified threshold.

If the amount of available storage is insufficient to satisfy a GETMAIN request, CICS can go short-on-storage. This will seriously impact currently active transactions until enough storage is freed, either voluntarily by CICS transactions or by CICS purging transactions.

Set the DSAV threshold so that it is only tripped when the number of available pages before SOS is critically small. Change the region size parameter for the CICS address space, or limit the maximum number of tasks that can execute concurrently. If your CICS system is under hardware restraints, assigning a unique class to transactions that require an unusually high number of pages may be a good choice to minimize the possibility of CICS going short-on-storage.

If the GETMAIN that tripped this exception also caused an SOS condition the available page count is negative, displaying the amount of storage cushion used.

**Note:** This exception is not valid in CICS Version 4.
DSHI
Utilization is high for any DSA below the 16M line.
DSHI analysis produces a message when the utilization percentage of the DSA or DSALIMIT is greater than the user specified threshold.
In versions prior to CICS Version 4, DSHI computes utilization on the number of pages available plus the size of the storage cushion. High utilization is likely to become a CICS short-on-storage condition, especially if the storage cushion has already been broken into because of previous short-on-storage situations.
In CICS/ESA Version 4, DSHI computes utilization on the amount of storage either unallocated, or in extents which have no pages allocated. High utilization indicates that a DSA may be unable to extend, therefore leading to a CICS short-on-storage condition.
The measures described for the DSAV section also apply to situations where the DSHI exception is tripped.
For information on the various types of DSAs, see the DSAV exception.

DSIZ
Total size analysis for the DSA below the 16M line.
DSIZ verifies that the total size of the DSA is within the user-specified threshold.

Note: This exception is not valid in CICS Version 4.

DSLO
Utilization is low for any DSA or the DSALIMIT below the 16M line.
DSLO analysis produces a message when the utilization percentage of the DSA or DSALIMIT is less than the user-specified threshold.
In versions prior to CICS/ESA Version 4, DSLO computes the storage utilization percentage for each DSA on the number of pages available plus the size of the storage cushion. The DSLO exception is useful for monitoring over-allocation of storage.
In CICS/ESA Version 4, DSLO computes utilization on the amount of storage either unallocated, or in extents which have no pages allocated.
For information on the various types of DSAs which this exception applies to, see the DSAV exception.

DSTO
Storage available for DSAs to extend is low.
DSTO produces a message when the amount of storage available for CICS to extend a DSA below the line is less than the user-specified threshold.
Set the DSTO threshold so that is only tripped when the available storage before SOS is critically small. Change the DSALIMIT parameter for the CICS address space to increase the storage available to CICS.

Note: The DSTO exception applies only to CICS/ESA Version 4 systems.

DUMP
CICS is requesting a system dump.
DXAB  Bottleneck analysis abended.
The Bottleneck Analysis task monitors CICS tasks at a predefined interval of time. If during a task scan bottleneck analysis encounters an unusual situation, it may abend and, depending on the circumstances, stop its analysis.

When this message appears, select the Utilities option (U) on the main menu and then the Debug option (O) or enter fast path U.O from any panel. Follow the instructions that appear on the screen. You may then restart the bottleneck analysis collector by selecting the Control option (O) on the main menu and then the Bottleneck Ctl option (I) or by entering fast path O.I from any panel. For help in determining the cause of the abend, contact Candle Support Services.

ENQC  The number of enqueue conflicts (number of tasks that are waiting or enqueues) is high. Task wait time, due to enqueues, may be responsible for slow response time and can affect CICS availability. By noting the frequency and number of waiting tasks to an enqueued resource, you may identify bottlenecks in your system. For example, specifying recovery that is not necessary increases task waits from enqueues on recoverable resources and system log I/O.

ENQP  PI enqueue pool utilization > nn.
The maximum amount of storage that can be used is set by the ENQPL parameter of the SIT. PI enqueue pool storage is GETMAINed out of OSCOR, and a transaction that cannot be serviced because of an OSCOR shortage, or because the ENQPL maximum has been reached, is abended with a U775.

For IMS 1.3 and above, if IRLM is active (DLIRLM=YES specified in the SIT) this exception is bypassed. The IRLM address space contains the program isolation enqueue pool.

ENQW  The number of tasks waiting for a particular enqueue is high.
Task wait time, due to enqueues, may be responsible for slow response time and can affect CICS availability. By noting the frequency and number of waiting tasks to an enqueued resource, you may identify bottlenecks in your system. For example, specifying recovery that is not necessary increases task waits due to enqueues on recoverable resources and system log I/O.

ESAV  Number of pages available before SOS for any DSA above the 16M line.
See the DSAV exception for further information.

ESHI  Utilization is high for any EDSA or EDSALIMIT.
See the DSHI exception for further information.

ESIZ  Total size analysis for any DSA above the 16M line.
See the DSIZ exception for further information.

Note: This exception is not valid in CICS Version 4.

ESLO  Utilization is low for any EDSA of the EDSALIMIT.
See the DSLO exception for further information.
CICS Exceptions

**ESOS**
CICS short-on-storage message for any DSA above the 16M line.
See the XSOS exception for further information.

**ESTO**
Storage available for EDSAs to extend is low.
See the DSTO exception for further information.

**GRSP**
Response time for any element within a group exceeds its threshold.
Elements can be transactions, programs, terminals, or VTAM LUs. For information on defining elements in groups and specifying their thresholds, see “Group Definition and Activation” on page 325.

**ICES**
The number of ICEs (Interval Control Elements) in CICS is high.
An ICE is created in CICS when a task issues a timer dependent request to create a new task or resume its own execution.

**INAB**
Interval Record collector subtask abended.
When the message appears, select the Utilities option (U) on the main menu and then the Debug option (O) or enter fast path U,O from any panel. Follow the instructions that appear on the panel. You may then restart the Interval Record collector by selecting the INTR option (K) on the Control path or entering fast path O,K from any panel. For help in determining the cause of the abend, contact Candle Support Services.

**INAB** Interval Recorder stopped SMF error.
For help in determining the reason that INTR stopped, add DEBUG to the INTR command (start from option O,K). Look for the message:

```
INTR ERROR RETURN FROM SMFWTM MACRO, CODE=rrrrrrrr
```
where rrrrrrrrr is the SMFWTM return code as detailed above.

**IOHI**
CICS I/O rate is high.
IOHI analysis produces a warning when the I/O rate for the CICS address space is greater than the user-specified threshold of \( n \) EXCPs per second. This I/O rate is calculated as the number of EXCPs issued by the region over the last OMEGAMON II cycle (default = 10 seconds in automatic update mode) divided by the length of the cycle.

**JCJS**
Journals are waiting for a valid WTOR response.
This exception trips when a WTOR response is needed and none has been issued by the operator, or when a response has been issued but it is not what CICS is expecting.

**LSQA**
Largest contiguous LSQA area is smaller than the threshold specified in \( n \)Ks of storage.
MAXP Percentage of MXT exceeded threshold.
The MXT parameter of the SIT allows you to specify the maximum number of tasks that can be initiated in CICS. Use MXT instead of AMXT for systems which are predominantly pseudo-conversational.
Task initiation requests from a terminal are queued in VTAM and use little or no CICS resources, while AMXT tasks are queued within CICS. The IBM CICS Performance Guide explains the use of this parameter in more detail and gives guidelines to determine what its setting should be.
MAXP analysis computes the percentage of initiated tasks against the MXT limit and compares the percentage with the threshold specified for MAXP.

MAXR Tasks over the threshold for CPU consumption.
The MAXR exception displays all tasks currently over the global resource threshold for CPU consumption.

MAXT Number of executing tasks is at or over the MXT limit.
Whenever CICS goes into a max task situation, the terminal control program does not attach new tasks resulting from transactions entered at a terminal. However, the task control program does not stop honoring attach requests from tasks already running. This may cause the number of initiated tasks to exceed the limit specified in the SIT with the MXT= parameter, or the limit set with the MAXTASKS option of the master terminal transaction. When this is detected by MAXT analysis, OMEGAMON II displays a message.

NDMP More than $nn$ transaction dumps generated.

OSCH Contiguous OSCOR area is high.
OSCH analysis produces a warning message when the largest contiguous OSCOR area is larger than the size in Ks specified as the threshold. This exception can help you tune the amount of OSCOR that needs to be allocated when CICS starts up.

OSCL Contiguous OSCOR area is low.
OSCL analysis computes the largest contiguous OSCOR area and produces a message when the size of the area is less than the threshold. Once the largest contiguous OSCOR area is smaller than the threshold, restrict all dynamic file open/close activities to an absolute minimum, since that is the major cause for OSCOR fragmentation. Eventually, depending on how small the largest area is, it may be impossible to open or close any files, causing loss of functions in your CICS system.
CICS Exceptions

PAGE
Page-in rate per second is high.
The CICS private and common area page-in statistics are sampled, during each OMEGAMON II cycle, and a rate of page-ins per second computed. PAGE analysis compares the rate against the PAGE threshold and produces a message if the threshold is exceeded.
A page-in can cause the CICS job to wait for the page fault to resolve. Any delay during this process, regardless of the cause, degrades response time for all CICS tasks.
I/O contention on the paging string or volume, excessive paging activity by any job in the system, or simply a shortage of real memory affects the paging subsystem and may cause severe degradation.
PAGE analysis, together with device not-ready/dropped-ready analyses, can provide a timely evaluation of the cause of excessive paging or slow page fault resolution.

PCRT
Program compression rate per minute. This exception is valid only for CICS/MVS.

PSBP
PSB utilization > nn.
The PSB (Program Specification Block) storage pool is acquired from the CICS dynamic storage area. It should be specified large enough to accommodate all PSBs used in CICS, including shared databases. If the pool is not large enough, operating system close/open of databases may become necessary to service new database requests.

RMTH
MRO/ISC links in use > nn%.

RMTT
Waits for MRO/ISC links > nn.

SDMP
More than nn system dumps generated.

SRHm
Active strings for CICS LSR pool m > nn%.
The value of m may be 1–8.

SRLM
The buffer lookaside ratio for an LSR pool m < nn%.
VSAM read requests that are satisfied without initiating I/O because the CI was already resident in the buffer pool are considered successful lookasides.

SRTm
String waits for CICS LSR pool m > nn.
The value of m may be 1–8.

STIO
Percentage of I/Os waiting for strings exceeds threshold.
STIO computes the percentage of I/O requests issued for a file that are waiting for strings to be available.

STRU
Percentage of strings in use per file is high.
STRU issues a message when the string utilization for a VSAM file exceeds the user-specified threshold.
**STRW**

Total number of string waits per file is high.

When all strings for a file are in use, new requests against it are queued until a string is released. String waits by many concurrent tasks may eventually lead to new tasks being forced to wait on the active max task limit. Some string waits for a file may be inevitable, but they should be monitored so as not to cause extreme situations in CICS.

STRW produces a message when the number of string waits for a file exceeds the user-specified threshold.

**STRX**

Current number of string waits per file is high.

This value reflects the number of tasks that are now waiting for a string.

**SVSY**

Storage violations total > nn.

Storage violations can become the cause of many problems in CICS, including errors in management modules a long time after the storage violation is detected. The first tool in eliminating them is complete application testing. Once a transaction enters the production environment, debugging after the fact (and probably after the transaction that incurred the violation is long gone from the system) is a difficult task.

Because of the potential damage to system availability, dependability, and data integrity, storage violations must be eliminated as quickly as possible from a production system. Their impact is also felt in response time because of the necessity to enter storage recovery and, in some cases, the time it takes to produce a storage violation dump.

SVSY produces a message when the number of terminal and/or transaction storage violations exceeds the threshold.

The first line of the display is identical to the output from the SVTK exception, and the second line is identical to output from the SVTR exception.

SVSY trips if the total count from either the PCT or TCT storage violation counter exceeds the SVSY exception threshold.

Note that CICS increments both the PCT and TCT storage counters for a single violation when appropriate, so the total number of violations may be less than the sum of the two figures. Once a storage violation has been detected, CICS integrity is suspect.

*Note: Once a storage violation has occurred, SVSY causes both the PCT and the TCT to be scanned, which increases overhead. Use SVSY with caution. You may use the Storage Exception Settings panel (fast path PA.G) to reset exception thresholds if you have frequent storage violations.*

**SVTK**

Storage violations per transaction > nn.

SVTK displays a message when the number of storage violations caused by any one transaction exceeds the user-specified threshold.

*Important: Once a storage violation has occurred, SVTK causes the PCT to be scanned, which increases overhead. Use SVTK with caution. You may use the Storage Exception Settings panel (fast path PA.G) to reset exception thresholds if you have frequent storage violations.*
SVTR Storage violations per terminal > nn.
SVTR displays a message when the number of storage violations associated with any one terminal exceeds the user-specified threshold.

**Note:** Once a storage violation has occurred, SVTR causes the TCT to be scanned which increases overhead. Use SVTR with caution. You may use the Storage Exception Settings panel (fast path PA.G) to reset exception thresholds if you have frequent storage violations.

TDBU Percentage of transient data buffers in use > nn%.

TDBW Number of current transient data buffer waits > nn.
This exception indicates that the number of transient data buffer waits exceeds the threshold.

TDCI Percentage of transient data CIs in use > nn%.
This exception indicates that the percentage of transient data CIs in use exceeds the threshold.

TDHI Transient data queue over trigger level.
TDHI checks the length of each intrapartition destination and compares it with its trigger level (if the level is nonzero). If the number of records in the queue exceeds the trigger level by more records than specified in the TDHI threshold, a message is produced.

TDQU Transient data queue records > nn.
TDQU checks the queue level on each intrapartition destination against the TDQU threshold and displays a message when the number of records in the queue is greater than the threshold.

TDSH Active strings for transient data > nn%.

TDST Total string waits for transient data > nn.

TNRS Tape device not responding to I/O request.
TNRS analysis produces a warning message if an I/O issued to any tape device allocated to the CICS address space takes longer than one OMEGAMON II cycle to complete. Suppose, for example, that a CICS log tape I/O was issued against device 631 and another tape drive on that string is in the middle of a long burst of chained I/O. If TNRS sees the same I/O waiting for the device two OMEGAMON II cycles in a row, it produces a warning message. When the I/O finally completes, the message is removed.

TNRS also detects a problem if CICS tries to issue an I/O to a device that has dropped ready. Note that TPDR exception analysis also produces a message in this case.

TPDR Tape device dropped ready.
TPDR analysis produces a warning message if any tape device allocated to the CICS address space enters the dropped ready state. Note that if any I/O is in progress on this device at the time of failure, the TNRS exception probably produces an additional warning naming the current user.
The total transaction rate is low. A low transaction rate may be a symptom of a short-on-storage condition, bottleneck, or other CICS problem. The transaction rate is calculated per second or per minute depending on the UNIT specified on the RATE command. Verify whether CICS task limit settings have been set too low: max tasks, active max tasks, and class max tasks.

Temporary storage buffers in use >nn%.

Temporary storage buffer waits >nn.

Auxiliary temporary storage percent utilization > nn%. If auxiliary storage is exhausted, severe degradation of CICS performance occurs. This exception may indicate that the temporary storage dataset is closed to being filled.

TSPU computes the percentage of control intervals used in the temporary storage dataset and displays a message when the percentage exceeds the user-specified threshold.

Active strings for temporary storage > nn%.

Total string waits for temporary storage > nn.

CA splits are high.

VSAM split/extent analysis checks the VSAM files allocated to the CICS task every nn minutes, as defined by the XVSC command. If a file has incurred control area splits over the threshold specified in VCAS, a message is displayed.

CI splits are high.

Control interval splits are monitored by VCIS analysis, on every cycle, as defined by the XVSC command.

Index component splits/ extents.

Index split/extent analysis is monitored by VINX analysis, on every cycle, as defined by the XVSC command. VINX checks for any occurrence of CA splits, CI splits, or new extents incurred by an index object. When one of these is detected, VINX analysis displays a message.

Extensions per file.

Extent analysis is monitored by VMEX, on every cycle, as defined by the XVSC command. VMEX produces a message when a new extension is detected for a VSAM file, also showing the current total number of extents.

VTAM ACB not open message.
CICS Exceptions

WSHI Working set size > nK.

WSHI analysis produces a warning when the working set size for the CICS address space is greater than the user-specified threshold of nK (where 1K = 1024 bytes). The working set size is defined as the number of central storage pages the region currently has in memory.

WSLO Working set size < nK.

WSLO analysis produces a warning when the working set size for the CICS address space is less than the specified threshold of nK. Working set size is the number of real pages the region currently has in memory.

XRFA Alternate XRF system is not active.

XSOS CICS short-on-storage message for any DSA below the 16M line.

The short-on-storage situation in CICS degrades your CICS response time. Tasks may be abended due to the stall interval having elapsed.

Avoid the short-on-storage situation by monitoring DSA utilization and using CICS limit parameters.

For information on the various types of DSAs, see the DSAV exception.

XTOD CICS Time of Day (T.O.D.) clock is not updated.

When a task goes into a loop and the CICS task dispatcher does not get control, the CICS time of day clock field in the common system area is not updated by task control.

XTOD verifies that the CSA time of day field changes every OMEGAMON II cycle; if not, a message is displayed.

Note that when monitoring a CICS that is not heavily used, the XTOD message can appear as a result of the user causing OMEGAMON II to cycle more than once during the CICS exit interval (ICV).
Customizing Exceptions

The exception parameters you can customize appear in the following sections.

When you change any of these settings, they remain in effect for the duration of your session. If you save them in your profile, they will be available for subsequent sessions that use the same profile. For more information on user-defined profiles, see *OMEGAMON II for CICS Configuration and Customization Guide*.

To customize an exception, select the Exceptions option (A) on the Profile menu (main menu option P) or enter fast path P.A from any panel. Then, follow the instructions on the panel to display the current settings for the exception you want. In the following figure, the settings for the DBON exception are displayed.

**FIGURE 19. Database Exception Settings Panel (P.A)**

To change an option, enter a new value over the displayed value. If you want to change another exception, enter the 4-character exception name after XACB LIST=.

You can select another exception category from the options on the horizontal menu. Each option lists all the exception names and their descriptions belonging to that category.
Customizing Exceptions

DISPLAY parameters

These parameters include monitoring or ignoring an exception, and setting characteristics of the alert.

State  One of the following:

- **NDSP**: Suppresses the display of exceptions. OMEGAMON II treats the exception as ON, but the exception does not appear. Instead, it can be logged to the XLFLOG, or can trigger an automatic screen space sequence when it occurs.
- **ON**: Invokes this exception during the current OMEGAMON II session.
- **OFF**: Does not invoke this exception during the current OMEGAMON II session.
- **TEST**: Forces a sample warning message, even if the exceptional condition is not presently occurring, for purposes of training or demonstration. (When TEST state forces a message to display, a T appears in column 2 of the exception display line.

Group  2-character exception group identifier. OMEGAMON II is shipped with exception groups predefined.

Bell  Whether the audible alarm on the terminal sounds when this exception occurs. The bell must be activated by selecting the Display Options option (A) on the Configure path or entering fast path PB from any panel.
**THRESHOLD parameters**

These parameters include setting threshold values for applicable exceptions, and modifying characteristics such as color and highlighting.

**Threshold**

Exception threshold. For exceptions that are either ON or OFF and do not have a numeric threshold, this entry is blank.

**Display**

Sets the exception display color or intensity. Can be set to the variables Clr1 through Clr7. The values are associated with the colors listed below and follow the same order. Optionally, this value can be HI or LO on 4-color or noncolor terminals and one of the following on terminals that support the extended data stream.

- **RE**: Red
- **BL**: Blue
- **YE**: Yellow
- **PI**: Pink
- **GR**: Green
- **TU**: Turquoise
- **WH**: White
- **NONE**: Hardware default colors

*Note: The presentation of the intensity or color level on your terminal is determined by the type of terminal and the settings of the .SCC keywords.*

**Attribute**

Sets an additional highlight attribute for the box surrounding the exception message.

- **BLINK**: Turns on blinking for the exception.
- **RVRS**: Displays the exception message in reverse video.
- **UNDR**: Underscores the exception message.
- **NONE**: Uses the default extended highlight attributes.

These attributes take effect only in modes other than ISPF on terminals that support the extended data stream.

**XLF parameters**

These parameters deal with exception logging.

They enable you to perform operations such as stop issuing an exception message after the nth occurrence, or issue a series of predefined screen spaces. See Appendix B for more information.
Box parameters

Box parameters define the characteristics of the exception box that encapsulates the exception message. You might want to use the box for exception messages that require immediate attention.

There might be several exception messages generated on one screen. By using a box around a particular exception, you can draw attention to it.

**BOXCHAR**

Box character which makes up the box, enclosed in single quotes. The default is a plus sign (+). Do not use a single quote as a box character, since it is the delimiter.

Enter NOBOX without quotes to turn off boxing for an exception. If Boxchar=NOBOX, then the BOXCLR and BOXATTR parameters have no effect.

**BOXCLR**

Color or intensity of the exception box. The Boxclr= keyword settings follow the same format as the threshold parameter, Display=.

**BOXATTR**

Additional highlight attribute for the box on seven-color terminals modes other than ISPF:

- **BLINK**
  Turns on blinking for the exception.

- **RVRS**
  Displays the exception message in reverse video.

- **UNDR**
  Underscores the exception message.

- **NONE**
  Specifies the hardware default attributes.

If you set Boxchar=NOBOX, then the Boxclr and Boxattr parameters have no effect.

If you do not set color and highlighting attributes for the box, OMEGAMON II uses those that you set for the exception.
CYCLE parameters

These parameters indicate how often an exception is checked and how often it is allowed to be triggered.

**EXNCYC**

Sets the frequency for checking the exception at every $n$ OMEGAMON II cycles. If this parameter is set to 0 or 1, it will be tested every OMEGAMON II cycle. If it is set to a higher number, it will only be tested each time that number of cycles elapses. The default setting for EXNCYC is 0.

This parameter is provided so that you can tailor high overhead exceptions for your own environment. You can avoid using CPU time to test them every cycle. For example, if you have many devices in the class being examined by an exception (such as DASD or tape), you may want to set this parameter for corresponding exceptions in the hardware group.

When an exception that is not tested every cycle trips, the exception message appears on the screen as usual. In the following cycles during which it is not scheduled for testing, the exception message redisplay on the screen below the primary exception analysis display.

**STOP=n (m)**

Sets a limit on the number of times an exception is allowed to trip. After the exception trips $n$ times, the exception will not be tested or displayed during the current OMEGAMON II session, unless the user resets this parameter. The $m$ value, which is informational only, indicates the number of times the exception has already tripped since the user last reset the Stop parameter. The default value for Stop is 0, which means that there is no limit to how many times the exception can be tested and displayed.

**CUMULATIVE**

Indicates how many times the exception has tripped during the current OMEGAMON II session. You may not alter this value.
Detecting CI/CA splits and newly created extents for VSAM datasets could result in high overhead if done during every cycle. Therefore OMEGAMON II maintains a separate interval time to determine the number of minutes between updates for these exceptions. To display the current interval or to change the interval, select the VSAM option (I) on the Exception Settings path or enter fast path **P.A.I** from any panel. An example of the VSAM Exceptions settings panel is shown in the following figure.

**FIGURE 20. VSAM Exception Settings Panel (P.A.I)**

At the bottom of this panel, the XVSC statement displays the currently defined number of minutes between split and extent analysis. To change this interval, enter a number from 0–1440 immediately following XVSC (0 requests that the interval be every cycle).

Any changes to XVSC are in effect for the duration of your session. They are not saved when you save your profile.
Chapter Overview

Task analysis provides realtime analysis of currently running tasks. OMEGAMON II monitors all running CICS transactions and provides an instantaneous display of task activity. As transactions complete, OMEGAMON II optionally saves pertinent resource usage data for online viewing.

Chapter Contents

- Task Summary ................................................................. 90
- Task Detail ........................................................................ 91
  - Task Detail Information section ........................................ 92
  - Remote Information section ............................................ 94
  - Current Storage Usage section ....................................... 95
  - Storage Statistics section ............................................... 97
  - Time Statistics section .................................................... 98
  - General Statistics section ............................................... 98
  - File Control Statistics section ....................................... 99
  - Database Statistics section ............................................ 99
  - Unit-of-Work Information section ................................. 100
  - Additional task detail .................................................... 101
- Categorizing Task Information ....................................... 102
  - Other task selections .................................................... 102
- Killing a Task ................................................................. 105
- Transaction Rate ............................................................. 109
- Resource Limiting ........................................................... 111
  - Description .................................................................... 111
  - Default RLIM testing frequency .................................... 112
  - Setting RLIM testing intervals ...................................... 112
  - Enabling resource limiting .......................................... 112
  - Defining resource limiting thresholds ............................ 113
  - If a transaction reaches its resource limit ....................... 113
- Starting and Stopping Resource Limiting ......................... 114
Task Summary

You can access the complete range of task analysis features through the Tasks path. Several task options display summary information on tasks that fit a selected category (such as waiting tasks or tasks exceeding MAXR, the global CPU time limit threshold). Some of the task options provide detailed information on a single task that fits the selected category (such as the currently running task). In addition, the Tasks path includes an option to terminate unwanted tasks and an option to view short- and long-term transaction rates.

Start on the Tasks path by selecting the Tasks option (T) on the Main Menu, or entering fast path T. from any panel. The initial display as shown in the following figure summarizes all tasks in the system.

**FIGURE 21. All Tasks in System Panel (T.)**

This panel and any other summary tasks panel in the Tasks path show the transaction ID, task number, status, facility type, wait resource type, wait resource name, and CPU time used for the tasks that fit the selected category.

By analyzing the wait resource type and name you can determine what state each task is in and what might be delaying further task execution. For more information on wait reasons in CICS/MVS, see “Wait Reasons” on page 140. For CICS/ESA wait reasons, see IBM’s CICS Problem Determination Guide and for additional CICS/ESA wait reasons provided by OMEGAMON II, press PF1 for Help from the All Tasks panel.
Task Detail

To see detailed information on an individual task, place the cursor on the line for that task and press Enter from any task summary display. OMEGAMON II collects the detailed task statistics using exit facilities in CICS and, for CICS/ESA, the CICS Monitoring facility.

The task detail display consists of titled sections which may comprise several panels. You can scroll through them using PF8 (Forward) and PF7 (Backward). Although one section on the task detail panel immediately follows another, each section is discussed here separately.

**Note:** You have the option of displaying only particular sections by including the `DETAIL` keyword in the `TASK` statement.

For example,

```
TASK NUMBER=00028459 DETAIL=(section)
```

When issuing the command, replace `section` with one or more of the following: ADabas, DAtacom, DB2, DLI, File, General, Idms, Remote, STATistics, STOrage, SUpra, Time, UMbrella UOw, USrevnt1, Zoom, or ALl.

It is necessary to specify only as many characters as needed to uniquely identify the keyword or required section. The minimum letters for each selection are capitalized in the preceding list.
Task Detail Information section

The first section, Task Detail Information appears as shown in Figure 22 on page 92.

FIGURE 22. Task Detail Panel - Task Detail Information Section (T.F.P)

Note: This panel is from a CICS/ESA Version 3 system. Other versions will vary from the above.

The Task Detail Information section includes:

Transaction ID  
Transaction identifier for the task.

Task number  
Specific task number which identifies the task.

Resource type  
Type of resource that the task is waiting on. For CICS/MVS systems, see “Wait Reasons” on page 140 for a list of all possible resource types. For CICS/ESA, see the CICS Problem Determination Guide.

Resource name  
Certain resource types show the name of the resource the task is waiting to access. For example, for a file wait the resource is the file name and for an enqueue wait the resource is the enqueue name.

Userid  
Eight character user’s signon ID.

Task state  
Current state of this task such as: running, suspended, or resumed.
<table>
<thead>
<tr>
<th>Task parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Task purgeable</td>
<td>Whether the task is purgeable due to suspend timeout. Possible values for CICS/MVS are: St, Te, Stall, Term, or No. Possible values for CICS/ESA are Yes or No.</td>
</tr>
<tr>
<td>Originated by</td>
<td>Originating transaction ID for this task.</td>
</tr>
<tr>
<td>Purge status</td>
<td>Current purge status: No purge or Pending.</td>
</tr>
<tr>
<td>Task queue</td>
<td>Which queue the task belongs to such as: Executable, Dispatchable, or Resumed (CICS/ESA).</td>
</tr>
<tr>
<td>Time of suspend</td>
<td>Point in time when the task was suspended.</td>
</tr>
<tr>
<td>Suspend timeout due</td>
<td>Point in time when the task will exceed the suspend timeout threshold.</td>
</tr>
<tr>
<td>Time in suspend</td>
<td>Amount of time the task has been suspended.</td>
</tr>
<tr>
<td>Suspend type</td>
<td>Suspended or Nonexecutable.</td>
</tr>
<tr>
<td>Attaching domain</td>
<td>Domain that attached this task (CICS/ESA).</td>
</tr>
<tr>
<td>TCB affinity</td>
<td>Which CICS TCB will handle the task: resource-owning, concurrent, quasi-reentrant (CICS/ESA), or FEPI.</td>
</tr>
<tr>
<td>Dispatching priority</td>
<td>PCT dispatching priority in CICS/MVS; TCB aging time in CICS/ESA.</td>
</tr>
<tr>
<td>TQE flag</td>
<td>Value of the TQE flag for this task or No TQE (CICS Version 3).</td>
</tr>
<tr>
<td>Facility ID</td>
<td>Terminal ID or destination ID.</td>
</tr>
<tr>
<td>Facility type</td>
<td>Type of facility identified above: term or dest.</td>
</tr>
<tr>
<td>Real transaction ID</td>
<td>Transaction ID by which CICS knows this task.</td>
</tr>
<tr>
<td>Umbrella transaction ID</td>
<td>Transaction ID assigned by Umbrella Services.</td>
</tr>
<tr>
<td>Umbrella program</td>
<td>Program name assigned by Umbrella Services.</td>
</tr>
<tr>
<td>Suspend area address</td>
<td>Location of the task’s suspend area (CICS/ESA).</td>
</tr>
<tr>
<td>DTA address</td>
<td>Location of the task’s Dispatcher Task Area (DTA) (CICS/ESA).</td>
</tr>
<tr>
<td>XMXNC address</td>
<td>Location of the task’s Transaction Manager transaction control block (CICS Version 4).</td>
</tr>
<tr>
<td>TQE address</td>
<td>Location of the task’s Task Queue Element (TQE) (CICS Version 3).</td>
</tr>
<tr>
<td>System TCA address</td>
<td>Location of the task’s system Task Control Area (TCA).</td>
</tr>
<tr>
<td>User TCA address</td>
<td>Location of the task’s user TCA.</td>
</tr>
<tr>
<td>TMA address</td>
<td>Location of the task’s Transaction Monitoring Area (TMA) used by CICS Monitoring to store performance data.</td>
</tr>
<tr>
<td>OC task area address</td>
<td>Location of the task’s Monitor Work Area.</td>
</tr>
</tbody>
</table>
Remote Information section

The Remote Information section of the task detail panel appears as shown in this figure only if the task is part of a function shipping or transaction routing request.

FIGURE 23. Task Detail Panel - Remote Information Section

This section includes:

Session ID  Remote session ID.
System ID    System ID of remote system.
Transaction ID  CICS transaction ID of remote task.
Facility ID   Remote file ID, TS queue, or TD queue. This field may also contain the value of 'Sync Pt', which indicates that the session is in Sync Pt communication.
Facility type Remote type of facility identified above. Possible values include:
- TrnRout (Transaction Route)
- FC (File Control)
- TD (Transient Data)
- IC (Interval Control)
- TS (Temporary Storage)
- JC (Journal Control)
- DLI (DL/I Request)
- Funcshp (Function Ship Request)
- DTP (Distributed Transaction Processing)
Session side Side (Frontend or Backend) of the conversation on which the task resides.
Session I/O Mode of the task. Can be RECEIVE (waiting for session to respond) or SEND (initiating the next request).
**Current Storage Usage section**

The Current Storage Usage section of the task detail panel includes statistics collected by the Storage Manager Domain for CICS/ESA and statistics based on an examination of all storage chained to the task’s TCA for CICS/MVS. For CICS/MVS, this section appears as shown in this figure.

FIGURE 24. Task Detail Panel - Current Storage Usage Section (CICS/MVS)

<table>
<thead>
<tr>
<th>+</th>
<th>Current Storage Usage</th>
</tr>
</thead>
<tbody>
<tr>
<td>+</td>
<td>User storage. . . . . : 23K</td>
</tr>
<tr>
<td>+</td>
<td>Terminal storage. . . . : 360</td>
</tr>
<tr>
<td>+</td>
<td>&gt;16M storage. . . . . . : 0</td>
</tr>
</tbody>
</table>

For CICS/MVS, this panel shows:

- **User storage**: Amount of storage allocated from the task subpool in the DSA.
- **User storage elems**: Number of storage elements allocated from the task subpool in the DSA.
- **Terminal storage**: Amount of storage allocated from the teleprocessing subpool in the DSA.
- **Terminal storage elems**: Number of storage elements allocated from the teleprocessing subpool in the DSA.
- **> 16M storage**: Amount of user storage allocated above the line.
- **> 16M storage elems**: Number of storage elements allocated above the line.
For CICS/ESA, current storage usage appears as shown in the following figure.

**FIGURE 25. Task Detail Panel - Current Storage Usage Section (CICS/ESA)**

For CICS/ESA, this panel shows:

- **Storage elements < 16M**: Number of storage elements obtained below the line.
- **Storage elements > 16M**: Number of storage elements obtained above the line.
- **Storage used < 16M**: Amount of storage actually used below the line.
- **Storage used > 16M**: Amount of storage actually used above the line.
- **Storage allocated < 16M**: Amount of storage allocated below the line.
- **Storage allocated > 16M**: Amount of storage allocated above the line.
Storage Statistics section

The Storage Statistics section of the task detail panel includes statistics from the CICS Monitoring Facility for CICS/ESA and from OMEGAMON II’s collection facility for CICS/MVS as shown in the this figure.

FIGURE 26. Task Detail Panel - Storage Statistics Section

This section includes:

- **Getmains < 16M**: Number of storage getmains from below the line.
- **Getmains > 16M**: Number of storage getmains from above the line.
- **HWM < 16M**: Highest amount of storage from below the line.
- **HWM > 16M**: Highest amount of storage from above the line.
- **Occupancy < 16M**: Measure of storage used over time for storage below the line (CICS/ESA only).
- **Occupancy > 16M**: Measure of storage used over time for storage above the line (CICS/ESA only).
- **HWM of pgm storage < 16M**: Highest amount of program storage from below the line.
- **HWM of total pgm storage**: Highest amount of program storage from above or below the line.
- **Terminal storage**: Amount of storage allocated to TIOAs.

Occupancy measures the area under the curve of task storage in use against elapsed time. The unit of measure is byte-unit where byte is storage byte and unit is 1024 microseconds. For example, a task occupying 256 bytes for 125 milliseconds (122 units) incurs 31232 byte-units.
Time Statistics section

The Time Statistics section of the task detail panel shows only the CPU time and Overall elapsed time for CICS/MVS. For CICS/ESA, this section shows CPU time, elapsed time, dispatch time, and various wait times as collected by the CICS Monitoring Facility. For CICS/ESA, this section appears as shown in this figure.

FIGURE 27. Task Detail Panel - Time Statistics Section (CICS/ESA)

<table>
<thead>
<tr>
<th>Time Statistics</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>CPU time</td>
<td>0.000</td>
</tr>
<tr>
<td>Total wait time</td>
<td>n/a</td>
</tr>
<tr>
<td>Exception wait time</td>
<td>0.000</td>
</tr>
<tr>
<td>TD VSAM I/O wait time</td>
<td>0.000</td>
</tr>
<tr>
<td>JC I/O wait time</td>
<td>0.000</td>
</tr>
<tr>
<td>MRO wait time</td>
<td>0.000</td>
</tr>
<tr>
<td>Transaction class delay</td>
<td>0.000</td>
</tr>
<tr>
<td>ENQ delay</td>
<td>0.000</td>
</tr>
<tr>
<td>LU62 wait time</td>
<td>0.000</td>
</tr>
<tr>
<td>RMI elapsed time</td>
<td>0.000</td>
</tr>
<tr>
<td>Overall elapsed time</td>
<td>8:30.788</td>
</tr>
<tr>
<td>Re-dispatch wait time</td>
<td>0.000</td>
</tr>
<tr>
<td>TS VSAM I/O wait time</td>
<td>0.000</td>
</tr>
<tr>
<td>TC I/O wait time</td>
<td>n/a</td>
</tr>
<tr>
<td>1st dispatch delay time</td>
<td>0.000</td>
</tr>
<tr>
<td>Max tasks delay</td>
<td>0.000</td>
</tr>
<tr>
<td>LU61 wait time</td>
<td>0.000</td>
</tr>
<tr>
<td>FEPI wait time</td>
<td>0.000</td>
</tr>
<tr>
<td>RMI suspend time</td>
<td>0.000</td>
</tr>
<tr>
<td>VSAM I/O wait time</td>
<td>0.000</td>
</tr>
<tr>
<td>File I/O wait time</td>
<td>0.000</td>
</tr>
</tbody>
</table>

General Statistics section

The General Statistics section of the task detail panel includes the number of TD gets, puts, and purges; TS gets and puts (to auxiliary and main); program control loads, links, and transfers of control; interval control starts; journal control writes; synchpoint requests; input and output messages and characters for primary and secondary terminals; and Basic Mapping Support (BMS) input, output, map, and total requests as shown in this figure. Fields marked with * apply only to CICS/ESA.

FIGURE 28. Task Detail Panel - General Statistics Section

<table>
<thead>
<tr>
<th>General Statistics</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Primary term input msgs</td>
<td>1</td>
</tr>
<tr>
<td>Primary term input chars</td>
<td>34</td>
</tr>
<tr>
<td>Sec term input msgs</td>
<td>0</td>
</tr>
<tr>
<td>Sec term output chars</td>
<td>0</td>
</tr>
<tr>
<td>Sec lu62 input chars</td>
<td>0</td>
</tr>
<tr>
<td>Sec lu62 output chars</td>
<td>0</td>
</tr>
<tr>
<td>TD gets</td>
<td>0</td>
</tr>
<tr>
<td>TD purges</td>
<td>0</td>
</tr>
<tr>
<td>TS puts to aux</td>
<td>0</td>
</tr>
<tr>
<td>PC links</td>
<td>0</td>
</tr>
<tr>
<td>PC xctls</td>
<td>0</td>
</tr>
<tr>
<td>IC starts</td>
<td>0</td>
</tr>
<tr>
<td>BMS requests</td>
<td>0</td>
</tr>
<tr>
<td>BMS in requests</td>
<td>0</td>
</tr>
</tbody>
</table>
File Control Statistics section

The File Control Statistics section of the task detail panel appears as shown in this figure.

**FIGURE 29. Task Detail Panel - File Control Statistics Section**

```
+           File Control Statistics
+           Browses . . . . . . . . : 1  Gets. . . . . . . . . . : 4
+           Adds. . . . . . . . . . : 0  Puts. . . . . . . . . . : 0
+           Deletes . . . . . . . . : 0  Total requests. . . . : 5
+           Total VSAM calls. . . : 4
```

This section includes the total number of requests made by the task for each filename.

Database Statistics section

Statistics for DLI and third-party database products are collected for a task if you enabled the collection facility (see “Controlling file level statistics” on page 133). Fields for DLI Statistics correspond to the different types of DLI calls that a task can issue. For third-party databases, this section shows the total number or requests. There is a separate section for each database product.

DLI statistics appear as shown in this figure.

**FIGURE 30. Task Detail Panel - DLI Statistics Section**

```
+           DL/I Statistics
+           PSB schedule. . . . . : 1  PSB schedule time . . . : 0.657
+           PSB terminate . . . . . : 0  PDB terminate time . . . : 0.000
+           Get Unique. . . . . . . : 0  Get Unique time . . . . : 0.000
+           Get Next. . . . . . . . : 0  Get Next time . . . . . : 0.000
+           Get Next in Parent. . . : 0  Get Next in Parent time : 0.000
+           Get Hold Unique . . . . : 2  Get Hold Unique time. . : 0.948
+           Get Hold Next . . . . . : 1  Get Hold Next time . . : 0.000
+           Get Hold Next in Parent : 0  GHN in Parent time . . : 0.000
+           Insert. . . . . . . . . : 0  Insert time . . . . . . : 0.000
+           Delete. . . . . . . . . : 0  Delete time . . . . . . : 0.000
+           Replace . . . . . . . . : 0  Replace time . . . . . : 0.000
+           Total requests. . . . . : 4  Elapsed time . . . . : 1.605
```

This panel shows the number of requests for each type of DLI call and the amount of elapsed time taken to satisfy the requests.

An ADABAS section which shows total requests and elapsed time appears as shown in this figure. Similar statistics also appear for DB2, DATACOM, SUPRA, IDMS, and USREVNT1.
FIGURE 31. Task Detail Panel - ADABAS Statistics Section

![Adabas Statistics panel]

The following figure shows the Umbrella user data work area. This work area is available for use by an application for reading and storing information. It is displayed in this panel in both character and hexadecimal formats. For more information on using Umbrella services, see the _OMEGAMON II for CICS Configuration and Customization Guide_.

FIGURE 32. Task Detail Panel - Umbrella Data Section

![Umbrella Data panel]

**Unit-of-Work Information section**

The Unit-of-Work Information section of the task detail panel appears as shown in this figure.

FIGURE 33. Task Detail Panel - Unit-of-Work Information Section

![Unit-of-work Information panel]

The unit of work section includes:

**Netname**

Fully qualified name by which the originating system is known to the VTAM network. For CICS/ESA, the Netname is the LU of the originating terminal. For CICS/MVS, the Netname is the LU of the originating CICS region. If non-VTAM, it is `networkid.generic_applid`. If a DLI batch session, it is `jobname.stepname.procname` from the originator.

**CICS token**

Name by which the unit-of-work is known within the originating system. Uses an STCK-derived token when locally attached or the unit-of-work ID (UOWID) that is part of the ISC/IRC attach-header.

For MRO or ISC, unit-of-work ID combined with netname uniquely identifies a task, because UOWID is unique only to the originating CICS.
Additional task detail

From any task detail display, you can zoom to further displays linked to selected fields. Zoomable fields, when applicable, are highlighted in white. Zoomable task detail display fields and their destinations are listed in the following table:

Table 4. Task Detail Display Zoom Destinations

<table>
<thead>
<tr>
<th>Zoomable Field</th>
<th>Destination</th>
</tr>
</thead>
<tbody>
<tr>
<td>Facility ID (local)</td>
<td>TCT entry</td>
</tr>
<tr>
<td>Read transaction ID</td>
<td>PCT entry</td>
</tr>
<tr>
<td>Program ID - first</td>
<td>PPT entry</td>
</tr>
<tr>
<td>Program ID - current</td>
<td>PPT entry</td>
</tr>
<tr>
<td>Suspend area address</td>
<td>Hex dump of suspend area</td>
</tr>
<tr>
<td>DTA address</td>
<td>Hex dump of DTA</td>
</tr>
<tr>
<td>XMXNC address</td>
<td>Hex dump of XMXNC</td>
</tr>
<tr>
<td>TQE address</td>
<td>Hex dump of TQE</td>
</tr>
<tr>
<td>System TCA address</td>
<td>Hex dump of system TCA</td>
</tr>
<tr>
<td>User TCA address</td>
<td>Hex dump of user TCA</td>
</tr>
<tr>
<td>TMA address</td>
<td>Hex dump of TMA</td>
</tr>
</tbody>
</table>

Note: Additional zooming may be available from these zoom destinations.

There are also displays on the File, Database, Bottleneck, and Overview paths in the menu system that list tasks from which you can zoom to task detail in the same manner as above.
Categorizing Task Information

You can obtain a summary or single task detail display for tasks that fit a specified category by selecting the various options on the menu that appears at the top of each task display. Summary task displays are similar except that the tasks included are limited by the category chosen. Task detail displays are similar except that they only include the sections that are applicable to the task. There are several task selection options that only apply to CICS/ESA.

Across the top of the All Tasks display and the displays for the other options listed is a menu of options that provides various categories of tasks.

FIGURE 34. Horizontal Menu Showing Task Categories

The available selections on this menu are as follows:

All: All tasks in the CICS region.

Master: Tasks in the application manager’s master queue. These are the tasks in the application domain. This display applies only to CICS Version 3 and above.

Waiting: All waiting tasks.

Over MAXR: Tasks that have exceeded the MAXR threshold. MAXR is a global CPU time limit which you set using the MAXR option on the Exception Settings menu in the Profile path (fastpath P.A.K).

Running: Task detail for the currently executing task.

Other: Additional task categories from which you can choose. See “Other task selections” on page 102.

Kill: Summary of all tasks from which you can isolate a task for termination. See “Killing a Task” on page 105.

Rate: Short-term and long-term transaction rates that exceed a specified threshold. See “Transaction Rate” on page 109.

Other task selections

If you select the Other option (F) on the Tasks path or enter fast path T.F from any panel, you can access additional task categories which are listed in a menu across the top of each display. When you select Other, the initial panel lists tasks in Transaction Class 0 as shown in the following figure.
The options available on the menu listed across the top of this panel provide additional categories of tasks which you may choose. Some options provide summaries and others provide detail of a single task. Some options apply to both CICS/MVS and CICS/ESA while others apply only to CICS/ESA.

The additional task categories include the following:

- **Class**: Tasks within the transaction class you specify. Transactions in Class 0 display by default.
- **CMAX**: Tasks in the application domain’s class max held chain. This display applies only to CICS/ESA.
- **CO**: Tasks in the concurrent TCB dispatchable queue. These are tasks that are ready to dispatch but are waiting for the concurrent TCB to become available. This display applies only to CICS/ESA.
- **DLI**: Tasks using DLI. To limit the display to tasks using DBCTL, you can replace DLI after the TASK statement with DBCTL.
- **DTA**: Detail for the task with the Dispatcher Task Area (DTA) address you specify. This display applies only to CICS/ESA.
- **Exec**: Tasks in the dispatch domain’s executable queue. This display applies only to CICS/ESA.
- **FID**: Tasks with the initiating facility ID (terminal or destination ID) that you specify.
- **FTYPE**: Tasks with the initiating facility type (task, terminal-attached, or destination-attached) that you specify.
- **Handpost**: Tasks in the dispatcher domain’s handpostable queue. This display applies only to CICS/ESA.
Categorizing Task Information

<table>
<thead>
<tr>
<th>Category</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Journal</td>
<td>Journal tasks. These are system tasks that write, open, or close journals.</td>
</tr>
<tr>
<td>Last</td>
<td>Detail for the task last dispatched. This display applies only to CICS/ESA.</td>
</tr>
<tr>
<td>MAXT</td>
<td>Tasks in the application manager’s maxtask queue. These are tasks in the application domain that are held because of a MAXTASK condition in CICS. This display applies only to CICS/ESA.</td>
</tr>
<tr>
<td>New</td>
<td>Tasks in the dispatcher domain’s new queue. These are held tasks that have never been dispatched because the maximum number of active tasks was reached. This display applies only to CICS Version 3 and above.</td>
</tr>
<tr>
<td>Non-Journ</td>
<td>All tasks in CICS except the CICS system journal tasks.</td>
</tr>
<tr>
<td>Non-exec</td>
<td>Tasks in the dispatcher domain’s non-executable queue. These are held tasks that have exceeded the MAXTASK limit. This display applies only to CICS Version 3 and above.</td>
</tr>
<tr>
<td>Task No.</td>
<td>Detail for the task number that you specify.</td>
</tr>
<tr>
<td>QR</td>
<td>Tasks in the quasi-reentrant dispatchable queue. These are tasks that are ready to dispatch but are waiting for the quasi-reentrant (QR) TCB (the main CICS TCB which is used for all applications) to become available. This display applies only to CICS/ESA.</td>
</tr>
<tr>
<td>Resume</td>
<td>Tasks in the dispatcher domain’s resume queue. This display applies only to CICS Version 3.</td>
</tr>
<tr>
<td>RO</td>
<td>Tasks in the resource-owning dispatchable queue. These are tasks that are ready to dispatch but are waiting for the resource-owning (RO) TCB to become available. This display applies to CICS/ESA only.</td>
</tr>
<tr>
<td>SOS</td>
<td>Tasks that are waiting because of a short-on-storage (SOS) condition in CICS.</td>
</tr>
<tr>
<td>Taskreq</td>
<td>Tasks started by the special key that you specify, which may be a PA key, PF key, light pen, magnetic card reader, or operator card.</td>
</tr>
<tr>
<td>Terminal</td>
<td>Task(s) at the specific or generic terminal ID that you specify.</td>
</tr>
<tr>
<td>Token</td>
<td>Detail for the task with the MRO token ID that you specify.</td>
</tr>
<tr>
<td>TQE</td>
<td>Detail for the task with the Task Queue Element (TQE) address that you specify. This only applies to CICS Version 3.</td>
</tr>
<tr>
<td>Tran</td>
<td>Task(s) with the specific or generic transaction ID that you specify.</td>
</tr>
<tr>
<td>User</td>
<td>Task(s) with the specific or generic user ID that you specify.</td>
</tr>
<tr>
<td>Utran</td>
<td>Tasks with the umbrella transaction ID that you specify. An umbrella transaction ID is a single transaction used by a fourth generation language for all generated tasks.</td>
</tr>
</tbody>
</table>

Pressing PF3 from any of these options returns you to the All Tasks display and the initial tasks menu.
Killing a Task

You might want to purge a task when, for example, a task is looping, consuming excessive resources, holding locks that are preventing other tasks from running, or causing a short-on-storage condition.

From OMEGAMON II, you can remove a task from CICS either by issuing a CEMT PURGE request to CICS via the operating system console, or by using the OMEGAMON II kill mechanism.

OMEGAMON II must be initialized in the CICS region before the task that you want to kill is started.

You should carefully consider the risks of losing data integrity or terminating CICS when you choose to purge a task. To prevent unauthorized use, OMEGAMON II is shipped with these facilities secured by default (see the OMEGAMON II for CICS Configuration and Customization Guide).

To purge a task, first select the Kill option (G) on the Tasks path or enter fast path T.G from any panel. The Kill Tasks panel appears as shown in the following figure.

FIGURE 36. Kill Tasks Panel (T.G)

The Kill Tasks panel displays a summary of all tasks in the system. Scroll through the summary to find the task you want to purge. To select a task for termination, place the cursor
on the line describing the task and press PF11. A kill confirmation panel appears as shown in the following figure.

**FIGURE 37. Kill Task Detail Panel (Accessed by Zoom)**

The Kill Task Detail panel warns of any conditions that should be considered prior to confirming the kill request. For example, in the previous figure, you are warned that this is a CICS system task. Attempting to purge this task carries a far greater chance of terminating CICS.
Depending on your release of CICS and what state the task is in, OMEGAMON II issues an 
OCKC, S0C6, or EI0KI abend when a task is killed. OMEGAMON II issues these abends under 
the conditions listed in the following table.

<table>
<thead>
<tr>
<th>Abend</th>
<th>CICS Version</th>
<th>Task Condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>OCKC</td>
<td>CICS/MVS</td>
<td>Suspended tasks; KCP not waiting</td>
</tr>
<tr>
<td>S0C6</td>
<td>CICS/MVS</td>
<td>Task currently running or KCP waiting on VSAM I/O</td>
</tr>
<tr>
<td>EI0KI</td>
<td>CICS/ESA</td>
<td>Tasks waiting, but not in VSAM I/O</td>
</tr>
<tr>
<td>S0C6</td>
<td>CICS/ESA</td>
<td>Currently running task (QR, RO, CO TCB only; the FEPI TCB, ZS, is not checked)</td>
</tr>
<tr>
<td>—</td>
<td>CICS/ESA</td>
<td>When a task is waiting on file I/O, OMEGAMON II issues a force purge</td>
</tr>
</tbody>
</table>

Before trying the Kill option, first try using CEMT. To do so, enter a hyphen (-) preceding the 
OCMD statement on this panel. This issues a CEMT PURGE of the selected task for you. 
Keep pressing Enter until you see a message stating whether or not the purge took place.

Because of the changes in task management and the introduction of the dispatcher domain, 
the kill mechanism works very differently for CICS/ESA than it does for CICS/MVS. In 
CICS/ESA, we recommend that you initialize OMEGAMON II in the monitored CICS region 
(via PLTPI program KOCOME00 or transaction OMEG INIT) for the full range of kill features 
to be available.

To confirm an OMEGAMON II kill of the selected task, enter YES in the entry field below the 
KILL statement. When the kill has been requested, you will see a message below the KILL 
statement telling you what method will be used to perform the kill or explaining why it was 
unsuccessful. For more information about the message, see the Messages Manual.

If other methods do not work, you can enter FORCE after the KILL statement to bypass 
certain integrity checks. For example,

**KILL NUMBER=12345 FORCE**

You still must enter YES to confirm the kill. The FORCE option enables you to purge tasks in 
a dispatcher wait. When you issue a FORCE purge in CICS/ESA, look for messages on the 
operating system console to say whether the kill was successful (use fast path U.A).

If you prefer to cancel the kill and return to the summary panel, press PF3. By default, only 
the General and Remote Task detail sections are displayed through the Kill command.

**Note:** You have the option of displaying only those sections that are of interest to you by 
including the DETAIL keyword in the KILL statement.

For example,

**KILL NUMBER=00028459 DETAIL=(section)**
When issuing the command, replace **section** with one or more of the following: ADABas, DATAcom, DB2, DLI, FILE, GENERal, IDMS, REMOte, STATistics, STORage, SUPRa, TIME, UMBRella, UOW, UE1, ZOOM, or ALL.

It is necessary to specify only as many characters as needed to uniquely identify the keyword or required section. The minimum letters for each selection are capitalized in the preceding list.

See “Task Detail” on page 91 for a description of the displayed detail sections.
Transaction Rate

The transaction rate is a good indication of CICS system throughput. OMEGAMON II calculates the transaction rate at a short-term interval (one minute) and at a long-term interval (user-specified) for individual transactions as well as all transactions.

To display transaction rate, select the Rate option (H) on the Tasks path or enter fast path T.H from any panel. The Transaction Rate panel appears as shown in the following figure.

FIGURE 38. Transaction Rate Panel (T.H)

This panel shows the number of transactions per minute for each transaction that has exceeded the specified transaction rate threshold. Short-term and long-term rates are displayed.

The overall total, shown at the bottom of the panel, represents the total number of transactions attached by CICS during the interval and is not equivalent to the sum of the rates of the individual transaction IDs listed.

You may see high transaction rates with a low total transaction rate because no new transactions are attached, but those already attached are being dispatched by CICS. A high total transaction rate, however, with a low transaction rate may indicate a problem, in that
CICS is attaching new transactions that are not being dispatched. The RATE statement includes several options that you can modify to alter the display:

**THRESHOLD**  
Specifies a threshold transaction rate. The panel displays only those transactions whose dispatch rates exceed the threshold.

**LONGTERM**  
Sets the time interval for the long-term portion of the display. The short-term interval is fixed at one minute.

**SCALE**  
Sets the scale for the graphic portion of the display.

**UNIT**  
Sets the transaction rate to either transactions per minute or transactions per second. If the transaction rate in minutes overflows (the field displays as a series of asterisks), consider specifying the UNIT as second instead of minute.

To clear the transaction rates displayed and pick up any new transactions that have been added to the system, enter **RESET** after the RATE statement.

**RATE RESET**
Resource Limiting

Description

Resource limiting allows you to predetermine the amount of CICS resources that a task may use. Any task that reaches a usage threshold will be abended by OMEGAMON II. The CICS resources that OMEGAMON II can monitor, on a task basis are:

- CPU time
- elapsed time
- number of file and database requests
- current amount of CICS task storage in use

For each resource in the global data area, you set a threshold and identify the tasks that must comply with the threshold. You can specify tasks using wildcard characters. All tasks, except those specified in an exclude list, are subject to a resource limit. If a task has more than one limit for a resource, the lowest limit is used.

Once resource limiting has been enabled, OMEGAMON II tests transactions to determine whether the threshold criteria have been met. OMEGAMON II’s testing can either be performed following each CICS EXEC call or database request, or can be set to perform testing after a specified number of calls or period of time.

OMEGAMON II determines whether a threshold has been reached when a CICS transaction issues EXEC level commands. Transactions with EXEC CICS calls are tested based upon the resource usage of all prior CICS requests, while exclusively MACRO level CICS transactions are not tested and are not subject to resource limiting. Database requests are tested at the time any number of them are received.

A separate threshold is available for each type of file and database request. Currently these requests are:

- EXEC level file control
- EXEC and CALL DL/I requests
- DB2 requests
- third-party database (IDMS, ADABAS, DATACOM, USREVNT1, and SUPRA) requests

OMEGAMON II purges any transactions performing function shipping in the CICS application owning region (AOR) that exceed the threshold.

For storage usage, there is one threshold for task storage used in the DSA (<16M) and one threshold for all task storage used in the DSA and EDSA (<16M & >16M), respectively. OMEGAMON II compares the amount of task storage currently in use with the amount requested to determine whether a limit has been reached.
Resource Limiting

Default RLIM testing frequency

The point at which OMEGAMON II performs resource limiting testing depends on both the resource, and whether or not you have specified RLIM interval settings.

The following table displays each resource and the frequency of its limit testing. The subsequent section discusses how to set RLIM testing intervals that can be used in place of these defaults.

Table 5. Task Resources and Limit Testing

<table>
<thead>
<tr>
<th>Resource</th>
<th>Tested . . .</th>
</tr>
</thead>
<tbody>
<tr>
<td>CPU time</td>
<td>At every EXEC CICS call.</td>
</tr>
<tr>
<td>Elapsed time</td>
<td>At every EXEC CICS call.</td>
</tr>
<tr>
<td>File Control request</td>
<td>At every EXEC CICS file control request.</td>
</tr>
<tr>
<td>DL/I request</td>
<td>At every EXEC CICS call. It is not tested during EXEC DLI or CALLDLI requests, therefore, OMEGAMON II does not abend a task until the next EXEC CICS request.</td>
</tr>
<tr>
<td>DB2 request</td>
<td>At every EXEC DB2 call.</td>
</tr>
<tr>
<td>Database request</td>
<td>At every database request.</td>
</tr>
<tr>
<td>Storage</td>
<td>At every GETMAIN request. A conditional GETMAIN that causes a task to reach or exceed its limit is abended even if the GETMAIN request fails due to a lack of storage.</td>
</tr>
</tbody>
</table>

Setting RLIM testing intervals

Resource limiting testing intervals may be set to change the frequency of threshold testing from previously defined resource limits or rules. The benefit of this feature is that, properly set, it can reduce the amount of CPU usage attributed to RLIM processing.

There are two general types of RLIM testing intervals:

- Time-based interval settings allow you to specify the period of time that must pass between threshold tests. This interval is specified in seconds, and may be set for any number up to a period of one week (614800 seconds).
- Command-instance interval settings allow you to specify the number of CICS EXEC or database calls that must be made between threshold tests. Any number of EXEC or database calls may be specified.

Once RLIM has been activated, a non-zero setting for any of the interval types will cause that interval to be applied to all transactions. Also, any previous settings are ignored if a new setting is specified. Setting all interval types to 0 will result in the defaults being used.

Enabling resource limiting

When you initialize OMEGAMON II in the CICS region, you automatically enable resource limiting based on parameters that you supplied in the global data area (REOURSE_LIMITINGnn) module.
Defining resource limiting thresholds

You define the limits for resources in your global data area (RESOURCE_LIMITINGnn) module and specify the limits in the RESOURCE_LIMITING parameter. See the OMEGAMON II for CICS Configuration and Customization Guide for information on these two parameters.

If a transaction reaches its resource limit

If OMEGAMON II finds a CICS transaction that has reached its resource limit, that transaction will be abended or a warning message will be issued. The abend code depends on the resource limit that was reached, while the warning message depends upon the LIMIT parameter that was set in the Resource Limiting component of the global data area. For a list of the resource limiting codes, see the appendix listing the codes in the Messages Manual.
Starting and Stopping Resource Limiting

OMEGAMON II performs resource limiting when it initializes its data collection component in the CICS region. The program KOCOME00 normally does this during PLTPI. You can also perform the OMEG INIT or OMEG SHUT transaction from CICS to start or stop the data collection component.

While the data collection component is running, you can start and stop resource limiting from the Control path of the Menu System.

1. Enter O on the Info-line of the main menu to display the Control Options menu.

The Control Options menu displays.

2. From the Control Options menu, enter R, S, or T to start, stop, or display the current status of resource limiting.
If you stop resource limiting using option \textit{S} (Resource Limiting Off), you must then select \textit{R} (Resource Limiting On) to start it later. Performing the OMEG SHUT transaction followed by the OMEG INIT transaction does not automatically restart resource limiting in this case.
Starting and Stopping Resource Limiting
Chapter Overview

The task history feature provides analyses of tasks that have completed. Online historical data viewing (ONDV) enables you to select transactions with specified transaction and terminal IDs for viewing from the historical datastore. You can filter the historical display to include tasks that ran in a specified time period, exceeded certain thresholds, or terminated with certain abend codes.

OMEGAMON II can also record task analysis data for completed tasks to SMF, producing batch reports for offline analysis. To allocate the historical dataset through CICAT™, select option 5, Allocate historical dataset(s), on the Customization menu. Refer to the OMEGAMON II for CICS Configuration and Customization Guide to see an example of this panel.

Chapter Contents

Historical Task Analysis ........................................................................................................... 118
Historical Summary .................................................................................................................. 119
Historical Detail ........................................................................................................................ 121
File Level Statistics .................................................................................................................. 124
Historical Task Selection ........................................................................................................... 129
Controlling Online Historical Viewing Collector (ONDV) ...................................................... 131
  Historical collector status ....................................................................................................... 131
  Starting and stopping the historical collector ........................................................................ 132
  Controlling file level statistics .............................................................................................. 133
Historical Task Analysis

OMEGAMON II collects performance related statistics at the end of each conversation or task and saves them for later viewing.
Historical Summary

To access task-related historical data, select the History option (H) on the main menu. The initial display on this path is the Historical Transaction Overview, which is a summary of all tasks on the current log file as shown in the following figure.

FIGURE 41. Historical Transaction Overview Panel (H.)

<table>
<thead>
<tr>
<th>Start Time</th>
<th>Tran ID</th>
<th>Task ID</th>
<th>Task Number</th>
<th>Term Type</th>
<th>CPU</th>
<th>Resp Time</th>
<th>Storage</th>
<th>File Time</th>
<th>Abend Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>13:47:08</td>
<td>MSA2</td>
<td>28054</td>
<td>0165</td>
<td>TRM</td>
<td>.1</td>
<td>2.8</td>
<td>99152</td>
<td>64</td>
<td>1114</td>
</tr>
<tr>
<td>13:47:09</td>
<td>MIMI</td>
<td>28055</td>
<td>0066</td>
<td>TRM</td>
<td>.0</td>
<td>1.3</td>
<td>1792</td>
<td>0</td>
<td>16</td>
</tr>
<tr>
<td>13:47:12</td>
<td>EXC1</td>
<td>28027</td>
<td>0461</td>
<td>TRM</td>
<td>.0</td>
<td>0.0</td>
<td>1792</td>
<td>0</td>
<td>470</td>
</tr>
<tr>
<td>13:47:14</td>
<td>CRSR</td>
<td>28060</td>
<td>E1</td>
<td>TRM</td>
<td>.0</td>
<td>0.0</td>
<td>800</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>13:47:13</td>
<td>CDLI</td>
<td>28059</td>
<td>0270</td>
<td>TRM</td>
<td>.0</td>
<td>0.6</td>
<td>1792</td>
<td>0</td>
<td>16</td>
</tr>
<tr>
<td>13:47:14</td>
<td>XCI</td>
<td>28061</td>
<td>0270</td>
<td>ATI</td>
<td>.0</td>
<td>0.0</td>
<td>1792</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>13:47:14</td>
<td>CRSR</td>
<td>28062</td>
<td>E1</td>
<td>TRM</td>
<td>.0</td>
<td>0.0</td>
<td>800</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>13:47:16</td>
<td>EXC1</td>
<td>28027</td>
<td>0461</td>
<td>TRM</td>
<td>.0</td>
<td>0.3</td>
<td>1792</td>
<td>0</td>
<td>823</td>
</tr>
<tr>
<td>13:47:16</td>
<td>MSA2</td>
<td>28065</td>
<td>0255</td>
<td>TRM</td>
<td>.0</td>
<td>0.1</td>
<td>43136</td>
<td>36</td>
<td>969</td>
</tr>
<tr>
<td>13:47:18</td>
<td>CSPQ</td>
<td>28067</td>
<td>n/a</td>
<td>ATI</td>
<td>.0</td>
<td>0.2</td>
<td>944</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>13:47:18</td>
<td>EXC1</td>
<td>28027</td>
<td>0461</td>
<td>TRM</td>
<td>.0</td>
<td>0.2</td>
<td>1792</td>
<td>0</td>
<td>617</td>
</tr>
<tr>
<td>13:47:18</td>
<td>EXC1</td>
<td>28063</td>
<td>0270</td>
<td>ATI</td>
<td>.0</td>
<td>0.1</td>
<td>1792</td>
<td>0</td>
<td>855</td>
</tr>
<tr>
<td>13:47:19</td>
<td>EXC1</td>
<td>28027</td>
<td>0461</td>
<td>TRM</td>
<td>.0</td>
<td>0.1</td>
<td>1792</td>
<td>0</td>
<td>812</td>
</tr>
<tr>
<td>13:47:21</td>
<td>EXC1</td>
<td>28027</td>
<td>0461</td>
<td>TRM</td>
<td>.0</td>
<td>0.0</td>
<td>1792</td>
<td>0</td>
<td>711</td>
</tr>
<tr>
<td>13:47:21</td>
<td>EXC1</td>
<td>28063</td>
<td>0270</td>
<td>ATI</td>
<td>.0</td>
<td>0.1</td>
<td>1792</td>
<td>0</td>
<td>883</td>
</tr>
</tbody>
</table>
On the historical overview display, you can see:

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tran ID</td>
<td>CICS transaction ID or the umbrella transaction ID if supplied.</td>
</tr>
<tr>
<td>Task Number</td>
<td>Number sequentially assigned by CICS to uniquely identify the task. An S following the task number indicates that CMF created a syncpoint performance record for the task; an F indicates a long-running transaction.</td>
</tr>
<tr>
<td>Type</td>
<td>How the transaction was started:</td>
</tr>
<tr>
<td></td>
<td>ATI Automatic task initiation.</td>
</tr>
<tr>
<td></td>
<td>DCT Trigger level from a DCT entry.</td>
</tr>
<tr>
<td></td>
<td>IC Interval control request.</td>
</tr>
<tr>
<td></td>
<td>SYS System internal task (CICS/MVS only).</td>
</tr>
<tr>
<td></td>
<td>TRM Terminal request.</td>
</tr>
<tr>
<td>CPU Time</td>
<td>Number of CPU seconds the task used.</td>
</tr>
<tr>
<td>Resp Time</td>
<td>Task response time in seconds.</td>
</tr>
<tr>
<td>Storage HWM</td>
<td>Highwater mark for all user storage above and below the 16M line.</td>
</tr>
<tr>
<td>File Req</td>
<td>Total count of all file control, DB2, DLI, and third-party database requests.</td>
</tr>
<tr>
<td>Term I/O</td>
<td>Character count of all input and output messages.</td>
</tr>
<tr>
<td>Abend Code</td>
<td>Transaction abend code if applicable.</td>
</tr>
</tbody>
</table>
To view detailed historical data on a specific task, place the cursor on the transaction and press PF11. An example of a detailed historical task display is shown in the following figure.

**FIGURE 42. (Part 1) Historical Transaction Detail Panel (Accessed by Zoom)**

<table>
<thead>
<tr>
<th>ZZONDV</th>
<th>VTM</th>
<th>$CICSTOR V520/I SYSA 02/03/99 14:01:04</th>
<th>&gt; PF1 Help PP3 Back PP4 Main Menu PP7 Up PP8 Down</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>HISTORICAL TRANSACTION DETAIL</td>
<td></td>
</tr>
<tr>
<td>ONDV</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Task Detail Information</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>General Information</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Transaction ID: CDLI</td>
<td>Task number: 28059</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Userid: CSDB04</td>
<td>Luname: R310H00</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Facility ID (local): 0270</td>
<td>Facility type (local): Term</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Real transaction ID: CDLI</td>
<td>Umbrella transaction ID: None</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Program ID - first: DFHCRP</td>
<td>Umbrella program: None</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Time Statistics</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>CPU time: 0.000</td>
<td>Overall elapsed time: 0:29:58</td>
</tr>
<tr>
<td></td>
<td></td>
<td>* Total wait time: 0.151</td>
<td>Re-dispatch wait time: 0.050</td>
</tr>
<tr>
<td></td>
<td></td>
<td>* Exception wait time: 0.000</td>
<td>TS VSAM I/O wait time: 0.000</td>
</tr>
<tr>
<td></td>
<td></td>
<td>* TD VSAM I/O wait time: 0.000</td>
<td>File I/O wait time: 0.000</td>
</tr>
<tr>
<td></td>
<td></td>
<td>* TC I/O wait time: 0.000</td>
<td>TC I/O wait time: 0.000</td>
</tr>
<tr>
<td></td>
<td></td>
<td>* MRO wait time: 0.000</td>
<td>1st dispatch delay time: 1.435</td>
</tr>
<tr>
<td></td>
<td></td>
<td>* Transaction class delay: 0.000</td>
<td>Max tasks delay: 0.000</td>
</tr>
<tr>
<td></td>
<td></td>
<td>* ENQ delay: 0.000</td>
<td>LU61 wait time: 0.000</td>
</tr>
<tr>
<td></td>
<td></td>
<td>* LU62 wait time: 0.000</td>
<td>FEPI wait time: 0.000</td>
</tr>
<tr>
<td></td>
<td></td>
<td>* RMI elapsed time: 0.000</td>
<td>RMI suspend time: 0.000</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>General Statistics</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Primary term input msgs: 1</td>
<td>Primary term output msgs: 0</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Primary term input chars: 34</td>
<td>Primary term output chars: 0</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Sec term input msgs: 0</td>
<td>Sec term output msgs: 0</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Sec term input chars: 0</td>
<td>Sec term output chars: 0</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Sec lu62 input msgs: 0</td>
<td>Sec lu62 output msgs: 0</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Sec lu62 input chars: 0</td>
<td>Sec lu62 output chars: 0</td>
</tr>
<tr>
<td></td>
<td></td>
<td>* TD gets: 0</td>
<td>* TD puts: 0</td>
</tr>
<tr>
<td></td>
<td></td>
<td>* TD purges: 0</td>
<td>* TS gets: 0</td>
</tr>
<tr>
<td></td>
<td></td>
<td>* TS puts to aux: 0</td>
<td>* TS puts to main: 0</td>
</tr>
<tr>
<td></td>
<td></td>
<td>* PC links: 0</td>
<td>* PC loads: 0</td>
</tr>
<tr>
<td></td>
<td></td>
<td>* PC xctls: 0</td>
<td>* JC writes: 0</td>
</tr>
<tr>
<td></td>
<td></td>
<td>* IC starts: 0</td>
<td>* Synchpoint requests: 0</td>
</tr>
<tr>
<td></td>
<td></td>
<td>* BMS requests: 0</td>
<td>* BMS map requests: 0</td>
</tr>
<tr>
<td></td>
<td></td>
<td>* BMS in requests: 0</td>
<td>* BMS out requests: 0</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
FIGURE 43. (Part 2) Historical Transaction Detail Panel (Accessed by Zoom)
This panel displays detailed statistics for the transaction history record you have selected. The fields on this panel are the same as on the task detail panels in the Tasks path. (See “Task Detail” on page 91 for descriptions of the task detail fields.) You may need to scroll forward \((PF8)\) to see applicable file and database request statistics for the task. Zooming is available when the field is highlighted in white. Fields marked with an asterisk (*) apply only to CICS/ESA. The asterisks are notational; they are not part of the panel’s contents.
File Level Statistics

Fields on the task detail display such as File Control Statistics, DL/I Statistics, and third-party database statistics are zoomable if there was any activity. You can view file level statistics by zooming on these titles, which are highlighted in white. Then, from the file or database statistics panel, you can zoom again on an individual file or database for counts of each type of request or call to it.

To obtain File Control statistics for each file on the Historical Transaction Detail panel, scroll forward to the File Control Statistics title, position the cursor on the title, and press PF11. An example of File Control statistics appears in Figure 45 on page 124.

FIGURE 45. Historical File Summary for Selected Task (Accessed by Zoom)

This panel shows counts and elapsed times for each type of file operation as well as a summary of file operations per file name. Elapsed time is the wall-clock difference between the time that the file control request was received by the CICS EXEC interface and the time CICS returns control to the application. This value includes all CICS management module execution times and wait times involved in servicing the request.

See "Controlling file level statistics" on page 133 and the “Global Data Area” chapter in the OMEGAMON II for CICS Customization Guide for more information on defining file level collection options.

Note: VSAM file-level statistics are collected by OMEGAMON only when a file request invokes the EXEC interface program, DFHEIP. Detailed statistics will not be collected for a file, therefore, for any transaction that does not access the file through an EXEC CICS call. For example, detailed statistics for file DFHCSD are not available for transaction CEDA.
If you zoom on DLI Statistics from the Historical Transaction Detail display (“(Part 1) Historical Transaction Detail Panel (Accessed by Zoom)” on page 121), a panel appears as shown in Figure 46 on page 125.

**FIGURE 46. DLI Statistics (Accessed by Zoom)**

<table>
<thead>
<tr>
<th></th>
<th>Requests</th>
<th>Elapsed Time</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Name</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PC2COINQ</td>
<td>1</td>
<td>2.912</td>
</tr>
<tr>
<td>BE2LORDR</td>
<td>9</td>
<td>5.408</td>
</tr>
<tr>
<td>BE2PCUST</td>
<td>1</td>
<td>1.141</td>
</tr>
</tbody>
</table>

If you zoom on ADABAS Statistics from the Historical Transaction Detail display, a panel appears as shown in the following figure.

**FIGURE 47. ADABAS Statistics (Accessed by Zoom)**

<table>
<thead>
<tr>
<th></th>
<th>Requests</th>
<th>Elapsed Time</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Name</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Open user</td>
<td>0</td>
<td>0.000</td>
</tr>
<tr>
<td>Process ISN</td>
<td>0</td>
<td>0.000</td>
</tr>
<tr>
<td>Search</td>
<td>0</td>
<td>0.000</td>
</tr>
<tr>
<td>File operation</td>
<td>7</td>
<td>37.224</td>
</tr>
<tr>
<td>Checkpnt/backout</td>
<td>0</td>
<td>0.000</td>
</tr>
<tr>
<td>Misc request</td>
<td>4</td>
<td>21.440</td>
</tr>
<tr>
<td>End trans</td>
<td>0</td>
<td>0.000</td>
</tr>
<tr>
<td>Close user</td>
<td>0</td>
<td>0.000</td>
</tr>
<tr>
<td><strong>Database</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Requests</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Elapsed Time</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>004-007</td>
<td>8</td>
<td>40.506</td>
</tr>
<tr>
<td>004-006</td>
<td>1</td>
<td>6.240</td>
</tr>
<tr>
<td>004-005</td>
<td>1</td>
<td>6.642</td>
</tr>
<tr>
<td>004-004</td>
<td>1</td>
<td>5.245</td>
</tr>
</tbody>
</table>
If you zoom on DATACOM Statistics from the Historical Transaction Detail display, a panel appears as shown in Figure 48 on page 126.

**FIGURE 48. DATACOM Statistics (Accessed by Zoom)**

```
+   DATACOM Statistics
+   Add . . . . . . . . : 0 Add time. . . . . . : 0.000
+   Backout . . . . . . : 0 Backout time. . . . : 0.000
+   Count . . . . . . . : 0 Count time. . . . . : 0.000
+   Delete . . . . . . . : 0 Delete time . . . . : 0.000
+   Get next . . . . . . : 0 Get next time . . . : 0.000
+   Locate generic . . . : 0 Locate generic time .: 0.000
+   Locate specific . . : 1 Locate specific time.: 2.132
+   Log operation . . . : 0 Log operation time. : 0.000
+   Read . . . . . . . . : 12 Read time . . . . : 4.557
+   Release . . . . . . . : 0 Release time. . . . : 0.000
+   Select . . . . . . . : 0 Select time . . . . : 0.000
+   Select set . . . . . : 0 Select set time . . : 0.000
+   System/Other . . . . : 0 System/Other time .: 0.000
+   Update . . . . . . . : 4 Update time . . . : 1.200
+   Database Requests Elapsed
+   Time
+   -------- -------- ----
+   POH001 16 7.989
+```

If you zoom on IDMS Statistics from the Historical Transaction Detail display, a panel appears as shown in the following figure.

**FIGURE 49. IDMS Statistics (Accessed by Zoom)**

```
+   IDMS Statistics
+   Bind RU . . . . . : 1 Bind RU time. . . . : 0.226
+   Record operation . . . . : 6 Record operation time .: 12.210
+   Area operation . . . : 0 Area operation time . . : 0.000
+   Set operation . . . : 0 Set operation time . . : 0.000
+   Commit/Rollback . . : 0 Commit/Rollback time .: 0.000
+   Accept statistics . . : 0 Accept statistics time.: 0.000
+   Accept/Curr. key . . : 0 Accept/Curr. key time : 0.000
+   LRF . . . . . . . . : 0 LRF time. . . . . . : 0.000
+   Proc/Logic . . . . : 0 Proc/Logic time . . : 0.000
+   Finish RU . . . . . : 1 Finish RU time. . . : 0.145
+   Database Requests Elapsed
+   Time
+   -------- -------- ----
+   MASTY01 6 12.210
+```

If you zoom on USREVNT1 Statistics from the Historical Transaction Detail display, a panel appears as shown in
If you zoom on SUPRA Statistics from the Historical Transaction Detail display, a panel appears as shown in Figure 51 on page 127.

The elapsed time for an operation represents the time that the task issued the request until the time the request completed and CICS redispatched the task.

You can zoom on an individual file to see detailed statistics by individual type of call or request for a file (or database) by positioning the cursor on the line containing the file name and pressing PF11. The panel shown in the following figure appears.
This panel shows statistics for each type of request, call, or command which accessed the file or database you selected.

File control statistics by filename are accumulated for EXEC level requests only. For function shipped requests, statistics are collected in the Application Owning Region (AOR) under the application transaction and in the File Owning Region (FOR) under the mirror transaction.

DL/I statistics are accumulated for both EXEC level and CALL level DLI to local, remote, and DBCTL databases. Local and remote database statistics display by DBD name. DBCTL databases display PSB name. For function shipped requests, statistics are collected in the AOR.
Historical Task Selection

You can limit the task history records displayed by specifying selection criteria. To specify selection criteria, select the History Record Selection option (B) on the History path or enter fast path H.B from any panel. The display to define the criteria is shown in the following figure.

**FIGURE 53. Set Criteria for Selecting Historical Records Panel (H.B)**

This panel shows the current settings for historical record selection. To change a setting, replace it with the new value. To erase a value, enter blanks.

Any changes to selection criteria take effect only for your OMEGAMON II session. They remain in effect until changed again or until you terminate your session.
Time values can range from .1 to 999.9 seconds. Start and end dates select transactions based on their start and end date/time. A start date without a start time defaults to 12 midnight on that date. An end date without an end time defaults to 11:59 pm on that date. Entering a time without a date is ignored.

You can enter dates in European date format, if that format was specified in your user or installation profile. See the **OMEGAMON II for CICS Configuration and Customization Guide** for more information.

If you enter **YES** in the ABENDS field, any transactions that abended are selected. If you enter a specific abend, such as **ASRA**, any transactions that abended with that code are selected. If you enter **NO**, abend codes are not used in record selection.

The SCAN field limits the number of records OMEGAMON II retrieves to satisfy a request. Use this option to prevent excess response time when a selection criteria could possibly cause a very large number of records to be examined for inclusion.

For a record to be selected it must meet all the criteria specified by the above fields: time, date, counts, abends, and records.

In addition, inclusion and exclusion criteria are interpreted as follows:

- First records are selected only if they meet any inclusion criteria.
- If no inclusion criteria are specified, then all records are selected.
- Then, each record is excluded if it matches any of the exclusion criteria.

Enter items for inclusion or exclusion separated by a comma or space. If these items cannot fit on a single line, specify them as an OMEGAMON II group. See the “**Group Definition and Activation**” on page 325 for more information.

You can use the asterisk (*) as a wildcard character. All input text is converted to upper case.

The following examples illustrate how the selection criteria works.

```plaintext
INC-TRANS=’TX* SERT N*
INC-TERMID=’N2* V2’
```

This example selects transaction SERT, or those transactions beginning with either TX or N, or those transactions whose terminal ID begins with either N2 or V2.

```plaintext
INC-GROUPS=’1 2’
EXC-TRANS=’CEMT’
```

This example assumes group 1 is a transaction group defined as C* and group 2 is a terminal group defined as NT*. The example selects only those transactions with a terminal ID beginning with NT or a transaction ID beginning with C, but it excludes transaction ID CEMT.

The Reverse option only appears if your on-line historical data is saved in a VSAM dataset only (that is, you specified **DATA_STORE_TYPE=FILEONLY** in the ONLINE_VIEWER parameter of the global data area.) Refer to the **OMEGAMON II for CICS Configuration and Customization Guide** for more information.
Controlling Online Historical Viewing Collector (ONDV)

In order to view task-related historical data online, the online historical data viewing collector (ONDV) must be active. Also, you can dynamically select for which file or database products you want to collect statistics. There are four options on the Control menu (main menu option O) to activate, deactivate, and view the status of ONDV, and to control file statistics.

**Historical collector status**

To display the current status of ONDV, select the ONDV Status, option (H) on the Control menu or enter fast path O.H from any menu system panel. The status appears as shown in the following figure.

**FIGURE 54. Historical Collector Status Panel (O.H)**

```plaintext
<table>
<thead>
<tr>
<th>ZCHSTAT</th>
<th>VTM</th>
<th>TDCLS01</th>
<th>V520/C SYSA</th>
<th>02/03/99 12:02:48</th>
</tr>
</thead>
<tbody>
<tr>
<td>&gt; PF1 Help</td>
<td></td>
<td>PF4 Main Menu</td>
<td></td>
<td></td>
</tr>
<tr>
<td>&gt; A-RTA On</td>
<td>B-RTA Off</td>
<td>C-RTA Status</td>
<td>D-RTA Intervals</td>
<td>E-RTA Scaling</td>
</tr>
<tr>
<td>&gt; F-ONDV On</td>
<td>G-ONDV Off</td>
<td>H-ONDV Status</td>
<td>I-Bottleneck Ctl</td>
<td>J-Wait Reasons</td>
</tr>
<tr>
<td>&gt; K-INTR Ctl</td>
<td>L-IANL On</td>
<td>M-IANL Off</td>
<td>N-IANL Settings</td>
<td>O-IANL Groups</td>
</tr>
<tr>
<td>&gt; P-Collection</td>
<td>Q-Shutdown</td>
<td>R-RLIM On</td>
<td>S-RLIM Off</td>
<td>T-RLIM Status</td>
</tr>
</tbody>
</table>

ONDV STATUS

| Status . . . . . . . : | Active | Data store wraparound . : | 0 |
| Start time . . . . . : | 10:57:30 | Start date . . . . . : | 02/03/99 |
| Data store type . . . : | File | Display requests . . . : | 0 |
| Data store size . . . : | 956K | Xmem posts . . . . . : | 0 |
| Data store size (recs) : | 921 | Cycle time (seconds) . : | 2 |
| Records received . . . : | 15 |

Function | Elapsed Time | CPU Time | Paging |
---------|-------------|----------|--------|
Initial | 0.001 | 0.001 | 0 |
Collect | 0.277 | 0.079 | 0 |
Display | 0.000 | 0.000 | 0 |
Wait | 1:05:16 | n/a | n/a |
```

===============================================================================

---

Controlling Online Historical Viewing Collector (ONDV)
The control information fields displayed on this panel are:

- **Status**: Collector status which may be Active, Quiesce, Initial, Abended, Inactive, or Reply.
  A status of Reply indicates that the allocated data store is incompatible with the collector version started. The collector will remain suspended until you enter a response to message OCO417 from the console.

- **Data store wraparound**: Number of wraparounds that occurred in the data store.

- **Start date/time**: Date and time that the collector was started.

- **Data store type**:
  - **DSPACE**: Dataspace only (MVS/ESA)
  - **FILE**: Dataspace backed up by linear VSAM dataset (MVS/ESA)
  - **FILEONLY**: Linear VSAM dataset only
  - **FILEOCMP**: Linear VSAM dataset only with compression

- **Display requests**: Number of requests from the ONDV display.

- **Data store size**: Size of the data store in K bytes.

- **Xmem posts**: Number of times the collector was asked to retrieve data from CICS excluding the instances when the collector normally retrieves data in the default 2 second interval. If this exceeds 2 or 3, the buffers in CICS are becoming depleted because of a high transaction rate. If the data is not collected frequently enough from CICS, it can be lost. In this case, check the CICS SYSLOG messages signaling this event. To increase the number of buffers in CICS, reassemble the global module.

- **Index wraparound**: (if FILEONLY parameter has been set in the Global Data Area) Number of times the index area of the VSAM datastore has “wrapped” or been overlayed.

- **VSAM Dataset**: (if FILEONLY parameter has been set in the Global Data Area) Name of the VSAM dataset being used by ONDV as the repository for historical data.

- **Data store size (recs)**: Maximum number of records in the data store.

- **Cycle time**: Interval in seconds that the collector polls CICS to retrieve records.

- **Records received**: Number of records retrieved from CICS.

The lower portion of the ONDV Status panel shows by function (collector component) the CPU usage, response time, and paging rate.

**Starting and stopping the historical collector**

You can easily activate or deactivate ONDV by selecting the ONDV On option (F) or the ONDV Off option (G) on the Control Options path (main menu option O). Or you can enter fast paths O.F and O.G from any panel to start and stop ONDV.
Controlling file level statistics

You can dynamically control the collection of access statistics for VSAM, DLI, and third-party database products. For these products, you can decide whether you want only statistics by task or you also want to collect statistics by file or database. For DB2, only task statistics may be collected. For VSAM, task statistics are always collected if CICS Monitoring is active, but you may decide whether you want file statistics. Select the Collection Control option (P) on the Control Options path (main menu option O) or enter fast path O.P from any panel to access the Database Collection Control panel as shown in the following figure.

**FIGURE 55. Control Database Collectors Panel (O.P)**

<table>
<thead>
<tr>
<th>COLL</th>
<th>Product</th>
<th>Task-lvl</th>
<th>File-lvl</th>
<th>Write to</th>
<th>Write to</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>VSAM</td>
<td>ON</td>
<td>ON</td>
<td>ON</td>
<td>ON</td>
</tr>
<tr>
<td></td>
<td>DB2</td>
<td>ON</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td></td>
<td>DLI</td>
<td>ON</td>
<td>ON</td>
<td>ON</td>
<td>ON</td>
</tr>
<tr>
<td></td>
<td>IDMS</td>
<td>OFF</td>
<td>OFF</td>
<td>OFF</td>
<td>OFF</td>
</tr>
<tr>
<td></td>
<td>ADABAS</td>
<td>OFF</td>
<td>OFF</td>
<td>OFF</td>
<td>OFF</td>
</tr>
<tr>
<td></td>
<td>SUPRA</td>
<td>OFF</td>
<td>OFF</td>
<td>OFF</td>
<td>OFF</td>
</tr>
<tr>
<td></td>
<td>DATACOM</td>
<td>OFF</td>
<td>OFF</td>
<td>OFF</td>
<td>OFF</td>
</tr>
<tr>
<td></td>
<td>USREVNT1</td>
<td>ON</td>
<td>ON</td>
<td>ON</td>
<td>OFF</td>
</tr>
</tbody>
</table>

This panel controls the collection of file statistics for online historical displays (ONDV) and SMF records. One line displays for each product specified in the global module. You can turn on or turn off monitoring for each product by overtyping the current value with **ON** or **OFF**.

You may collect task statistics without collecting file statistics. If you turn off task statistics, file statistics automatically turn off. If you want to turn on file statistics, you must also turn on task statistics.

File statistics for DB2 are not collected, but you may decide whether you want DB2 task statistics.

Task statistics for VSAM are collected as long as CICS Monitoring is active. Therefore, the task-level field for VSAM is only informational.

The columns Write to ONDV and Write to SMF refer only to file level statistics. Task level statistics are always written as long as task level monitoring is ON.
Controlling Online Historical Viewing Collector (ONDV)
Bottleneck Analysis

Chapter Overview

A significant part of CICS transaction response time consists of waiting for resources to become available or events to complete. In order to minimize response time, you must identify which resources are responsible for these waits. Bottleneck analysis is a diagnostic tool that analyzes and categorizes the resources responsible. By identifying those resources with the longest waits, bottleneck analysis allows you to direct your tuning efforts to areas with the most critical need.

Chapter Contents

How Bottleneck Analysis Works ................................................................. 136
  Data sampling and collection ................................................................. 136
  Excluding tasks from analysis ............................................................... 136
  Customization procedures .................................................................. 136
Bottleneck Analysis Displays ................................................................. 137
  Main bottleneck analysis display ......................................................... 137
  Bottleneck analysis graphical summary ............................................... 138
  Bottleneck analysis group summary .................................................... 138
  Bottleneck analysis detail .................................................................. 139
Wait Reasons ....................................................................................... 140
  Nondispatchable conditions ................................................................ 140
  Remote processing waits ..................................................................... 144
  Dispatchable conditions ...................................................................... 144
Operational Considerations ................................................................. 145
  Bottleneck analysis control display .................................................... 146
Enqueues .............................................................................................. 149
  Main enqueue display .......................................................................... 149
  Displaying enqueue resources ............................................................ 150
  Enqueue detail display ....................................................................... 152
How Bottleneck Analysis Works

OMEGAMON II’s bottleneck analysis feature samples CICS task data at a specified interval, conducts statistical analyses of the accumulated data, and displays pertinent wait condition information. You can view the information numerically, graphically, and at several levels of granularity.

Data sampling and collection

OMEGAMON II samples CICS data at a default interval of 2 seconds to determine the current state of all the tasks. This interval is known as the cycle time or sampling interval. In order for the sample to be representative, it should contain at least 30 observations. Smaller samples may not be statistically significant and should not be used.

For each wait reason, OMEGAMON II collects the sampling data into short- and long-term intervals. The default settings are 10 minutes for the short-term interval and 30 minutes for the long-term interval. As a short-term interval expires, it is refreshed. As a long-term interval expires, data samples collected during the latest short-term interval are rolled into it.

Excluding tasks from analysis

Internal CICS tasks are excluded to ensure that the results reflect the state of CICS applications. These internal tasks have the following transaction IDs:
- CSSY
- CSJC
- CVST
- CSSX
- CSGX
- CSNC
- DSNC

You can also exclude additional tasks as well as wait reasons from bottleneck analysis. To exclude tasks, refer to the bottleneck analysis parameter described in the OMEGAMON II for CICS Configuration and Customization Guide. To exclude wait reasons, refer to the wait reason parameter described in the same manual. You can also exclude wait reasons in the menu system by selecting the Wait Reasons option (J) on the Control Options path or entering fastpath O.J from any panel.

Customization procedures

You can permanently change a number of bottleneck analysis parameters, so that they are in effect each time you start OMEGAMON II. These include the sampling interval, the short- and long-term interval, the resource types that are displayed, wait reasons, and transactions to exclude from analysis. Refer to “Customizing the Global Data Area” in the OMEGAMON II for CICS Configuration and Customization Guide.

If you want to temporarily change the above settings, refer to “Operational Considerations” on page 145. In this case, the changes take effect when they are made and remain in effect until OMEGAMON II is recycled.
This section describes the principal bottleneck analysis displays and their features, and explains how to use them.

Main bottleneck analysis display

To access bottleneck analysis, select the Bottlenecks option (B) on the Bottlenecks path or enter fastpath B.B from any panel. The Bottlenecks panel appears as shown in the following figure.

This panel shows CICS wait conditions that are degrading the CICS workload. Note that wait reasons are different for CICS/ESA and CICS/MVS. Although every CICS wait reason is detected, only those specified with On appear. Select option J (Wait Reasons) on the Control Options menu to specify On or Off for each wait reason (fastpath O.J).

If *OVRLFW* is displayed, insufficient variable buckets have been defined. Consider increasing the variable bucket limit using the VARIABLE_BUCKETS parameter of the DEX command (see “Bottleneck analysis control display” on page 146) on the BOTTLENECK_OPTIONS parameter in the global data area.
Bottleneck analysis graphical summary

The same information can be displayed graphically by selecting the Bottleneck Graph option (A) on the Bottlenecks path or entering fastpath B.A as shown in the following figure.

**FIGURE 57. Bottleneck Graph Panel (B.)**

This panel displays the long-term wait reasons in order of descending percentage. If the number of samples is not sufficient, OMEGAMON II displays a message.

For terminals with extended color, the display appears in the colors set for levels 5, 6 and 7. The graph appears in level 5 color, the wait condition labels in level 7 color, and the lines pointing from the wait condition labels to the graph in level 6 color.

Bottleneck analysis group summary

By selecting the Group Bottlenecks option (D) on the Bottlenecks path or entering fastpath B.D, you can display the wait reasons for only those transactions belonging to a particular transaction, program or terminal group. Bottleneck analysis does not support VTAM LU groups. See “Group Definition and Activation” on page 325 for more information on creating and maintaining groups.
Bottleneck analysis detail

For more detail about a wait reason listed on the Bottlenecks panel (fastpath B.B), place the cursor on the line containing the resource type and press PF11. The following figure shows the Wait Reason Detail display produced.

FIGURE 58. Wait Reason Detail Panel (Accessed by Zoom)

This panel shows you details describing the wait as well as which of your defined groups are affected by a particular wait as follows:

**ID for BLST**

Four character code that refers to the wait reason. You can suppress a wait reason from appearing on a display by using this code. See “Operational Considerations” on page 145 for more information.

**CICS issuing module**

Name of the CICS module that issues this wait, or MULTIPLE, if more than one CICS module can issue this wait.

**Resource type and name**

Described in “Wait Reasons” on page 140.

**Dispatcher call**

In CICS/ESA when you issue a wait request, the dispatcher performs a specific type of wait. For example, WAITOLDC maps onto the DFHKC wait type. See IBM’s CICS Problem Determination Guide for further information.

**Task type**

In CICS/ESA this indicates the category of tasks (User, System, or Both) that can be in this type of wait. See IBM’s CICS Problem Determination Guide for more information.
Wait Reasons

Each wait reason consists of a resource type and name. It is version specific. For CICS/MVS, OMEGAMON II analyzes the system environment for each task to determine the wait reason. For CICS/ESA, OMEGAMON II uses the wait reasons supplied by CICS in the task’s DTA.

Wait reasons for CICS/MVS appear in the following table. For CICS/ESA, refer to IBM’s CICS/ESA Problem Determination Guide for a complete description.

### Nondispatchable conditions

- **DB2-thrd**: DB2 thread wait.
  
  Percentage of degradation caused by tasks waiting for a DB2 thread.

- **DB2-Wait**: DB2 wait.
  
  Percentage of degradation caused by tasks waiting for completion of a DB2 request.

- **Dump-ctl**: DUMP control.
  
  Percentage of total degradation caused by tasks waiting for a dump control request to complete.

- **ENQ-Susp**: ENQ wait.
  
  Percentage of degradation caused by each task waiting for resources via DFHKC TYPE=ENQ. This is followed by a list of individual ENQ names and the percentage of degradation caused by tasks waiting for each ENQ. If the ENQ name exceeds 8 characters, only the first 8 characters are displayed.

- **File-I/O**: I/O event wait.
  
  Percentage of degradation caused by tasks waiting for FILE I/O to complete. This is followed by a list showing the percentage degradation caused by tasks waiting by FILE ID. The file I/O wait percentages are broken down by VSAM, BDAM, and individual database products. If you use a third-party database, this wait reason will appear with the file name you specified when the database transaction becomes nondispatchable.

- **File-st**: File state change.
  
  CICS task is waiting for a file to be opened or dynamically allocated.

- **Intv-ctl**: Interval control.
  
  Percentage of degradation caused by tasks waiting for completion of requests issued through DFHIC services.

- **Jrnl-Ctl**: Journal control.
  
  Percentage of degradation caused by tasks waiting for a journal control request to complete. This is followed by a list indicating the journal ID and the percentage of degradation caused by tasks waiting.
<table>
<thead>
<tr>
<th>Reason</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>LSR-Buff</td>
<td>LSR buffer wait. Percentage of degradation caused by tasks waiting for completion of a VSAM file control request that had to wait for an available buffer within the LSR pool. If this figure is large, it indicates that the LSR pool is too small and forced writes of modified buffers are being made in order to read in more data.</td>
</tr>
<tr>
<td>LSR-strn</td>
<td>LSR string wait. Percentage of degradation caused by tasks waiting for completion of a VSAM file control request that had to wait for an available string to the LSR pool.</td>
</tr>
<tr>
<td>Map-Load</td>
<td>Map load wait. Percentage of total degradation caused by tasks waiting for a BMS map to be loaded.</td>
</tr>
<tr>
<td>Pgrm-Ctl</td>
<td>PC load wait. Percentage of degradation caused by tasks waiting for nonresident programs to be loaded.</td>
</tr>
<tr>
<td></td>
<td><strong>Note:</strong> In an MRO environment, the terminal-owning region shows two very fast transactions with PC LOAD as the major degradation. The transaction processing region reflects normal processing. This is due to the CICS implementation of MRO in using the terminal control program (DFHTCP) to write to the CICS mirror in the destination region.</td>
</tr>
<tr>
<td></td>
<td>- this appears as one short transaction</td>
</tr>
<tr>
<td></td>
<td>- there is no activity while the destination region does its processing</td>
</tr>
<tr>
<td></td>
<td>- there is another short transaction as the terminal control program does the read</td>
</tr>
<tr>
<td></td>
<td>- then, the output goes back to the terminal</td>
</tr>
<tr>
<td>RSLC-xxx</td>
<td>External RSLC. CICS task is waiting for approval from an external security manager, such as RACF, to access a resource protected by the resource security level checking specification.</td>
</tr>
<tr>
<td>SC-Susp</td>
<td>Storage control suspended. Percentage of degradation caused by tasks that were suspended by the storage control program due to a shortage of storage.</td>
</tr>
<tr>
<td>Start JES</td>
<td>JES interface. CICS task is waiting for the completion of a JES function requested by the CICS interface with JES.</td>
</tr>
<tr>
<td>STRING</td>
<td>Get string wait. Percentage of degradation caused by tasks waiting for completion of a VSAM file control request that had to wait for an available string. CICS waits for a read-only string, if it is a read-only request and no strings are available.</td>
</tr>
</tbody>
</table>
Wait Reasons

**STRNOG**
- String wait.
- Percentage of degradation caused by tasks waiting for completion of a VSAM file control request that had to wait for an available string that is not read-only (STRNOG).

**TC-BMS**
- Terminal control (BMS).
- Percentage of degradation caused by tasks waiting for terminal input using the services of basic mapping support.

**TC-I/O**
- Terminal control.
- Percentage of degradation caused by tasks waiting for terminal input.
- These are generally conversational transactions.

**Tmp-Stor**
- Temporary storage wait.
- Percentage of total degradation caused by tasks waiting for a temporary storage operation to complete. The wait is due to the actual I/O required for the operation, not a suspend due to a shortage of resources.

**Transdat**
- Transient data wait.
- Percentage of total degradation caused by tasks waiting for a transient data request to complete.

**TS-Susp**
- Temporary storage suspended.
- Total percentage of degradation caused by tasks suspended by the temporary storage program due to a shortage of temporary storage.

**Wait-LST**
- List of ECBs.
- Percentage of degradation caused by tasks that issued a DFHKC TYPE=WAIT,DCI=LIST request. This shows a wait for the completion of more than one event.

**Wt-Amaxt**
- AMAXT(total) wait.
- Percentage of degradation caused by tasks that have become nondispatchable due to an active max task condition.

**Wt-CICS**
- CICS event wait.
- Percentage of degradation caused by tasks waiting for a CICS system event. This is displayed when a DFHKC TYPE=WAIT,DCI=CICS request is issued. This request is issued by many of the CICS management modules, and is intended as a means of serializing certain resources.

**Wt-Cmaxt**
- CMAXT(class) wait.
- Percentage of degradation caused by tasks that became nondispatchable due to a class active max task condition.

**Wt-Datal**
- Data interchange.
- Percentage of degradation caused by tasks waiting for completion of a data interchange request.

**Wt-DLI**
- DLI wait.
- Percentage of degradation caused by tasks waiting for completion of a DLI request. This is followed by a list indicating the percentage of degradation for all of the DLI wait reasons.
<table>
<thead>
<tr>
<th>Wait Reason</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wt-Other</td>
<td>Undetermined wait. Percentage of degradation caused by tasks that are nondispatchable for reasons that cannot be determined. Most Wt-Other wait reasons are given for suspended user tasks that are running under CEDF. In this case, the CEDF transaction takes control and suspends the user task each time the user task issues an EXEC CICS command. CEDF resumes the suspended user task when the user continues the command.</td>
</tr>
<tr>
<td>Wt-Page</td>
<td>Anticipatory page. Percentage of degradation caused by tasks waiting due to anticipatory paging.</td>
</tr>
<tr>
<td>Wt-Pflt</td>
<td>Page fault wait. Percentage of degradation caused by tasks waiting due to a CICS page fault.</td>
</tr>
<tr>
<td>Wt-Sbtsk</td>
<td>Wait on a subtask. Percentage of degradation caused by tasks waiting for the completion of an MVS subtask. This event does not include waits resulting from VSAM, external security, or JES spool requests.</td>
</tr>
<tr>
<td>Wt-Sin</td>
<td>Single event wait. Percentage of degradation caused by tasks that issued a DFHKC TYPE=WAIT,DCI=SINGLE request. This shows a wait for the completion of a single event.</td>
</tr>
<tr>
<td>Wt-SRB</td>
<td>SRB mode process. Percentage of degradation caused by tasks waiting for the completion of services that were scheduled by CICS to operate in SRB mode. An example of a service performed in SRB mode is the VTAM high performance option.</td>
</tr>
<tr>
<td>Xclusive</td>
<td>CI exclusive control. Percentage of degradation caused by tasks waiting for completion of a VSAM file control request that had to wait for the control interval (CI) to be free. CICS attempts to ENQ on the key field of a record (if exclusive control is specified in the FCT, which is the default) and then pass the request to VSAM. If another task is updating a different record in the same CI, the task waits.</td>
</tr>
</tbody>
</table>
Remote processing waits

The following wait reasons can be displayed in either MRO or ISC environments:

- **ISC-Sess**: Session Wait.
- **MRO-Sess**: Session Wait.
- **MRO-Fnsh**: Function Ship.
- **ISC-Fnsh**: Function Ship.
- **MRO-Mirr**: Mirror Wait.
- **ISC-Mirr**: Mirror Wait.
- **MRO-TrRT**: Transaction Route.
- **ISC-TrRT**: Transaction Route.
- **MRO-DTP**: Distributed Transaction Processing.
- **ISC-DTP**: Distributed Transaction Processing.
- **MRO-RTC**: Remote TC-I/O.
- **ISC-RTC**: Remote TC-I/O.

Dispatchable conditions

- **>ACTIVE<**: Executing.
  A task was executing when the sample was taken.
- **Wt-Dspch**: Dispatching wait.
  Percentage of total degradation caused by tasks currently dispatchable, but waiting for the CPU.
Operational Considerations

You can define parameters that affect the collection and display of bottleneck analysis data either in the global data area or from an OMEGAMON II session. Changes to the global data area are effective for all CICS regions monitored after the global data area is changed. Changes from an OMEGAMON II session are effective only for the duration that OMEGAMON II is monitoring that CICS region.

For more information on the global data area, see the OMEGAMON II for CICS Configuration and Customization Guide.

You can make the following changes from an OMEGAMON II session:

- starting and stopping bottleneck analysis collection
- clearing the short- and long-term statistics
- changing the cycle timer that determines how often OMEGAMON II samples the CICS tasks
- changing the threshold to determine which wait reasons are displayed
- changing the display indicators to determine which wait reasons are displayed
- changing the short- and long-term collection intervals
Bottleneck analysis control display

To display the bottleneck analysis control panel as shown in the following figure, select the Bottleneck Control option (I) on the Control Options menu or enter fastpath O.I from any panel.

FIGURE 59. Bottleneck Analysis Control Panel (O.I)

To start or stop collection, enter **Start** or **Stop** in place of SET next to DEX on the panel.

To change the cycle timer, short-term interval, long-term interval, or display threshold, enter the new values over the current ones, following SET.

- The cycle time is expressed in seconds with a range from 0.1–9.9.
- The short-term interval is expressed in minutes with a range from 0–999. A value of zero clears the bucket on every timer cycle.
- The long-term interval is expressed in minutes with a range from the short-term interval to 999. A value of 0 prevents the bucket from being cleared. A value of CLEAR for either interval clears the buckets.
- The threshold is expressed as a percent from 1–99.
- The variable bucket count is the number of variable buckets that bottleneck analysis has allocated.
- The variable bucket limit is the maximum number of variable buckets that bottleneck analysis can allocate. The value may range from 0–32767. If bottleneck analysis runs out of variable buckets, overflow buckets are used. These overflow buckets do not distinguish among different resource names, and display as "OVRFLW" by PDEX.
If you change the short- or long-term interval, the accumulators will be cleared.

To view and change the display indicators for the wait reasons, select the Wait Reasons option (J) on the Control Options menu or enter fastpath O.J from any panel. A partial display of wait reasons for a CICS/ESA system is shown in the following figure.

**FIGURE 60. Control Bottleneck Analysis Wait Reason Buckets Panel (O.J)**

<table>
<thead>
<tr>
<th>ZCDLST</th>
<th>VTM</th>
<th>$CICSTOR</th>
<th>V520/I</th>
<th>SYSA</th>
<th>02/03/99 12:57:59</th>
</tr>
</thead>
<tbody>
<tr>
<td>&gt; PF1</td>
<td>Help</td>
<td>PF3 Back</td>
<td>PF4 Main Menu</td>
<td>PF7</td>
<td>Up</td>
</tr>
<tr>
<td>&gt; A-RTA On</td>
<td>B-RTA Off</td>
<td>C-RTA Status</td>
<td>D-RTA Intervals</td>
<td>E-RTA Scaling</td>
<td></td>
</tr>
<tr>
<td>&gt; F-ONDV On</td>
<td>G-ONDV Off</td>
<td>H-ONDV Status</td>
<td>I-Bottleneck Ctrl</td>
<td>J-Wait Reasons</td>
<td></td>
</tr>
<tr>
<td>&gt; K-INTR Ctrl</td>
<td>L-IANL On</td>
<td>M-IANL Off</td>
<td>N-IANL Settings</td>
<td>O-IANL Groups</td>
<td></td>
</tr>
<tr>
<td>&gt; P-Collection</td>
<td>Q-Shutdown R-RLIM On</td>
<td>S-RLIM Off</td>
<td>T-RLIM Status</td>
<td></td>
<td></td>
</tr>
<tr>
<td>---------------------------------------------------------------</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>_______________ ZCDLST VTM $CICSTOR V520/I SYSA 02/03/99 12:57:59</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&gt; PF1 Help PF3 Back PF4 Main Menu PF7 Up PF6 Down PF11 Zoom</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&gt; A-RTA On B-RTA Off C-RTA Status D-RTA Intervals E-RTA Scaling</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&gt; F-ONDV On G-ONDV Off H-ONDV Status I-Bottleneck Ctrl J-Wait Reasons</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&gt; K-INTR Ctrl L-IANL On M-IANL Off N-IANL Settings O-IANL Groups</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&gt; P-Collection Q-Shutdown R-RLIM On S-RLIM Off T-RLIM Status</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>================================================================================</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&gt; CONTROL BOTTLENECK ANALYSIS WAIT REASON BUCKETS</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>BLST</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>+ ---- Off Type Name Module Description</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>+ ID</td>
<td>Resource Resource Issuing Wait Reason</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>+ ===</td>
<td>Resource Resource Issuing Wait Reason</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>: SY1W ON (none)</td>
<td>DFHDUIO DU: Dump dataset I/O</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>: SY2W ON (none)</td>
<td>DFHTISR TI: Timer service rq</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>: DLCN ON (none)</td>
<td>DFHDBTC DBCTL: Work element</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>: DLCO ON (none)</td>
<td>DFHDCON DBCTL: Connection</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>: DMUT ON (none)</td>
<td>DFHDMWQ DM: Work queue</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>: LMQU ON (none)</td>
<td>DFHLMLM LM: Lock request</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>: TCAL ON ALLOCATE (varies)</td>
<td>DFHALP TC: Session allocate</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>: TDAB ON any_MBCB (varies)</td>
<td>DFHTDSUB TD: I/O Buffers</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>: TDAR ON any_MRCB (varies)</td>
<td>DFHTDSUB TD: VSAM String</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>: DLIN ON AP_INIT CSADLEC</td>
<td>DFHSII1 AP: DLI Restart</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>: TCEC ON AP_INIT ECBTCP</td>
<td>DFHAPSIP AP: TCP Synchronize</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>: DMEC ON AP_INIT SPODMTEC</td>
<td>DFHAPSIP AP: SPODMTEC Synchronize</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>: TCVC ON AP_INIT TCTVCCB</td>
<td>DFHSII1 AP: TC Restart</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>: CSAS ON AP_QUIES CSASSI2</td>
<td>DFHSTP AP: Stage 2 quiesce</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>: SHEC ON AP_QUIES SCREDB</td>
<td>DFHSTP AP: Domain quiesce</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>: STPD ON AP_TERM SP.Done</td>
<td>DFHAPDM AP: SP.Done Synchronize</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>: CCST ON CCSTWAIT VSMSTRNG</td>
<td>DFHCCCC CC: VSMSTRNG Synchronize</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>: CCV1 ON CCVSAMWT</td>
<td>DFHCCCC CC: VSMSTRNG Synchronize</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>: CCV2 ON CCVSAMWT</td>
<td>EXCLOGER CC: Exception logger</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>: DBCT ON DBCTL DLSSUSPND</td>
<td>DFHDBCX DBCTL: Suspend</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>: DBXE ON DBDBXED (none)</td>
<td>DFHDXSTM DBCTL: XRF uncond</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>: DBXI ON DBDBXINT (none)</td>
<td>DFHDXSTM DBCTL: XRF interval</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>: TCOO ON DISPATCH CO_TCB UNKNOWN</td>
<td>DS: Concurrent TCB</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>: TCQR ON DISPATCH QR_TCB UNKNOWN</td>
<td>DS: Quasi-reent TCB</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>: TCOO ON DISPATCH RO_TCB UNKNOWN</td>
<td>DS: Resource own TCB</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>: DL1W ON DLI (varies)</td>
<td>DFHDLR DLI: Initialization</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>: DLSU ON DLSSUSPND DBCTL</td>
<td>DFHDBCX DBCTL: DLI Request</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>: DSHA ON DS_HELD AMXT UNKNOWN</td>
<td>DS: AMXT Bound</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>: DSHM ON DS_HELD MXT UNKNOWN</td>
<td>DS: MXT Bound</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>: PCBF ON FCBFWAIT (varies)</td>
<td>DFHPFCVR FC: VSAM Buffer</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
You can control whether bottleneck analysis displays statistics for a particular wait reason by entering **On** or **Off** in the On/Off column next to the Resource Type. This option affects the display characteristics, not the actual collection of data.

For more information on resource types in CICS/MVS, see “Wait Reasons” on page 140. For CICS/ESA, see the IBM *CICS/ESA Problem Determination Guide* for a complete description.

Ten buckets are reserved for Third Party Product Support (TPPS) products. These buckets have BLST IDs ZTP0 through ZTP9. The first third party product that incurs a wait in a specific CICS region gets ZTP0; the next third party product to incur a wait gets ZTP1, and so on.
Enqueues

An enqueue is a request to the CICS enqueue service, allowing you to serialize access to a resource or address. This technique is useful when, for example, you need to prevent concurrent database or file updates or maintain single threads in parts of a reentrant program’s execution.

OMEGAMON II’s enqueue display allows you to determine the type and number of enqueues waiting in the system, and their impact on CICS system performance.

Main enqueue display

To access information on enqueues as shown in the following figure, select the Enqueues option (H) on the Bottlenecks path or enter fastpath B.H from any panel.

FIGURE 61. Enqueues with Tasks Waiting Panel (B.H)

This screen lists all tasks currently waiting on an enqueue held by another task. You can use it to quickly determine whether one or more tasks are causing degradation due to enqueue wait. If a task is listed multiple times in the Owning task columns, then that task may be causing enqueue degradation.
In the above figure, the fields are defined as follows:

- **Tran ID**  Transaction ID of the task waiting for the enqueue.
- **Task Number**  Number of the task waiting for the enqueue.
- **Enqueue Resource**  First 8 characters of the enqueue name or address.
- **Owning Tran ID**  Transaction ID of the task currently holding the enqueue.
- **Owning Task Number**  Number of the task holding the enqueue.
- **Owning Resource Type**  Type of resource that the owning task is currently waiting for.
- **Owning Resource Name**  Resource that the owning task is waiting for.

You can often use the owning resource type and name data as a debugging step to determine if the enqueue problem is a symptom of some other bottleneck in your system.

**Displaying enqueue resources**

The top portion of the display shown in Figure 61 on page 149 contains instructions for displaying enqueues. When you use the ENQ statement with the RES parameter, you get a list of names or addresses for which an enqueue has been issued. You can use the display to either identify enqueues that have many tasks waiting or to obtain more specific information on an enqueue.

If you want to display all enqueues in the system, enter `RES=*` after the ENQ statement. You get a display resembling that shown in Figure 62 on page 151. Note that the Resource Length field is the number of characters in the resource name. A plus sign (+) in the Enqueue Resource column indicates that the resource name is composed of more than 8 characters.

If you want to display subgroups of enqueues, you can use the asterisk as a wildcard character. For example,

```
RES=AB*
```

displays all enqueued resources beginning with the string AB.
### Enqueues with Tasks Waiting Panel Using RES=* (B.H)

To display all enqueue resources, enter RESOURCE=* after ENQ. For a summary of enqueues matching a resource, enter RESOURCE=cccccccc after ENQ. For enqueue detail, place the cursor on your choice and press PF11.

<table>
<thead>
<tr>
<th>Resource</th>
<th>Length</th>
<th>Tran ID</th>
<th>Task No.</th>
<th>Owning</th>
<th>Owning</th>
<th>Owning</th>
<th>Waiting</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENQWAIT</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
<td>EN2</td>
<td>EKCWAIT</td>
<td>EKCWAIT</td>
<td>1</td>
</tr>
<tr>
<td>ENQWAIT</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
<td>EN2</td>
<td>EKCWAIT</td>
<td>EKCWAIT</td>
<td>0</td>
</tr>
<tr>
<td>80148561</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
<td>EN2</td>
<td>EKCWAIT</td>
<td>EKCWAIT</td>
<td>0</td>
</tr>
<tr>
<td>80148568</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
<td>EN2</td>
<td>EKCWAIT</td>
<td>EKCWAIT</td>
<td>0</td>
</tr>
</tbody>
</table>
Enqueues

Enqueue detail display

To obtain detailed information on an enqueue resource, move your cursor to the resource you want and press PF11. The panel shown in the following figure appears.

FIGURE 63. Enqueue Resource Detail Panel (Accessed by Zoom)

You can select any task on the display and use the zoom key (PF11) to obtain more information on a task. For example, you may want to zoom on the owning task to uncover more information on a problem source. For more information on the task detail display see “Task Detail” on page 91.

You can also zoom on the QEA Address, the control block that describes the enqueue. In this case, a dump of that control block displays.
Chapter Overview

Impact analysis extends the diagnostic capabilities of bottleneck analysis. It identifies workloads that run on MVS and compete with CICS for MVS resources. These workloads can be batch jobs, started tasks, TSO users, other CICS regions, or the CICS region itself. Whereas bottleneck analysis locates the sources of performance degradation within a CICS region, impact analysis assesses the effect of MVS or other address spaces on a CICS region.

OMEGAMON II’s impact analysis displays identify the main sources of impact and describe their effects on CICS. This allows you to take prompt action to reduce competing workloads and improve CICS performance.

Chapter Contents

How Impact Analysis Works ................................................................. 154
Starting and Stopping Impact Analysis Collection ................................. 155
Impact Analysis Displays ................................................................. 156
  Display parameters ................................................................. 156
  Productivity analysis and interval description area ............................. 157
  Display body ........................................................................... 157
  Impact detail display ................................................................. 159
Workload Impact Profile (IPRO) ......................................................... 161
Adjusting Collection and Display Parameters .................................... 163
  Controlling the sampling interval ................................................ 163
  Impact analysis time-out facility .................................................. 164
## How Impact Analysis Works

Impact analysis monitors selected CICS regions at periodic intervals and determines which of the following three execution states categorize each observation.

<table>
<thead>
<tr>
<th>State</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Productive</strong></td>
<td>CICS is performing useful work, such as using CPU or performing I/O.</td>
</tr>
<tr>
<td><strong>Unproductive</strong></td>
<td>CICS is ready but unable to perform work. If CICS must wait for an MVS resource that another address space is using, that address space is said to be contending with CICS. Impact analysis shows it as affecting CICS performance. When CICS is unproductive, impact analysis identifies the specific address spaces that are using the resources for which CICS is waiting. Examples of unproductive states are CPU dispatching waits and time spent queued for I/O. This option displays as <strong>Contention</strong>.</td>
</tr>
<tr>
<td><strong>Other</strong></td>
<td>CICS is not performing work due to normal reasons. OMEGAMON II disregards these states, since they do not indicate performance degradation. This option is not shown in impact analysis displays. Waiting for work and STIMER are examples of idle states.</td>
</tr>
</tbody>
</table>

After activating the impact analysis collector, allow accumulation of enough intervals (at least 30), so that the data displayed is statistically valid.
Starting and Stopping Impact Analysis Collection

To use the impact analysis displays, you must turn the feature on. Options Impact Analysis On (L) and Impact Analysis Off (M) on the Control Options menu start and stop impact analysis collection (fast paths O.L and O.M).
Impact Analysis Displays

You access impact analysis from the main menu through the Bottlenecks path (main menu option B). Options E, F, and G on the Bottlenecks menu allow you to invoke the three types of impact analysis displays: Overview, Summary, and Detail (fast paths B.E, B.F, and B.G).

All impact analysis displays follow the same basic format. The following figure shows a sample Summary display. Descriptions of its main parts follow.

FIGURE 64. Workload Impact Analysis Panel (B.E)

Display parameters

The first row of the impact analysis screen is the input options area (beneath the menu options and panel title).

IANL CICSA IAST=.9 IATH=5 IACS=1 IACL=5

Immediately following the IANL statement is the name of the region being analyzed. On the right are the collection and display parameters in effect. In this example, the parameters are set as follows:

- Sampling interval (IAST) is .9 seconds.
- Plot threshold (IATH) is 5%.
- Short-term interval (IACS) is 1 minute.
- Long-term interval (IACL) is equal to 5 short-term intervals.

“Adjusting Collection and Display Parameters” on page 163 explains these parameters and their default settings.
Productivity analysis and interval description area

The following two rows of the display show productivity analysis data, collection elapsed times, and the number of samples collected.

<table>
<thead>
<tr>
<th>Productive/Contention/Other</th>
<th>10.8% 83.7% 5.5%</th>
<th>38.7% 52.5% 8.8%</th>
</tr>
</thead>
</table>

Productive/Contention/Other information is a tripartite breakdown of how CICS spends its time. In the example above, 10.8 percent is productive time, 83.7 percent is in contention with MVS or CICS resources, and 5.5 percent falls in neither of those categories.

The short-term interval contains information collected over the past 3 minutes and 24 seconds, during which there were 88 observations. The long-term interval spans 13 minutes and 24 seconds, during which 361 observations were made.

Display body

The display body, as in the following figure, shows the various sources of contention, and the degree to which they are impacting CICS, for both short- and long-term collection intervals.

Contending Address Spaces lists jobs that compete with CICS for resources. The short-term statistics refer to time elapsed since the short-term buckets have cleared and to the number of samples taken during that interval. The long-term statistics summarize the last $n$ intervals.

FIGURE 66. Display Body Example

Contention data

At the right of each impact source is the percent of non-idle time that CICS was waiting for one or more resources being used by the contender.

The graphs highlight the percent contention data:

- If contention is less than 30 percent, the body of the arrow is composed of hyphens only (---).
- If contention is greater than 30 percent, the portion of the graph between thirty and sixty percent is composed of equal signs (---=---=).
- If contention is greater than 60 percent, the portion of the graph between 60 and 100 percent is represented by greater-than signs (>>>).
**Total contention**
The first line of the display body shows total contention, which may not be equal to the sum of the contention from all impact sources shown below it. This is because only the main impact sources are shown on the default display. In this case, only those that account for 5 percent or more of the non-idle time are included.

**Self-contention**
The second line of the display body always shows self-contention, if it exists. In this example, OMEGAMON II is analyzing a single CICS region (CICSA). Self-contention in single-region analysis indicates that tasks within the region are in competition for MVS resources.

**Impact sources**
The next three lines show three impact sources: a batch job (RELOADDB), a started task (TESTCICS), and a TSO user (USER01). Next to each name, the display shows the JES job number of the impact source and the performance group in which it is executing. Note that the job numbers each begin with a letter denoting the type of job:

- **J** Batch job.
- **S** Started task.
- **T** TSO user.

If the job number field contains SBSYS, it means that the contender is a subsystem.

In the example, RELOADDB is clearly the largest short-term impact source, accounting for 37.5 percent of non-idle time. However, the long-term display shows USER01 to be the major impact source over a longer period of time, even though it is not currently impacting CICS at all.

**System contention**
The last line of the display shows system contention. This is usually contention that is detected, but is not attributable to any particular address space.
Impact detail display

Detail displays show the specific I/O devices and enqueue types in contention. To request a detail display, select the Impact Detail option (G) on the Bottlenecks path or enter fast path B.G from any panel. The following figure shows an example of a detail display.

**FIGURE 66. Workload Impact Analysis Detail Panel (B.G)**

---

RELOADDB is impacting CICSA in three ways:

- I/O contention on one or more devices
- CPU contention
- holding one or more enqueues
These are the ways in which an address space can impact CICS performance:

**Contending I/O**  CICS is queued for an I/O device and the address space is causing the device to be unavailable. (The detail display shows the specific devices under contention. This display is described in “Impact detail display”.)

**Using CPU**  CICS is waiting to be dispatched on the CPU while the address space is using it.

**Using Real Storage**  When CICS is waiting for page-in, impact analysis identifies each address space that is using real storage and weights the contention, based upon how much real storage each address space is using.

**Holding Enqueue**  The address space is holding an enqueue on a resource while CICS is waiting for it. (The detail display shows the major enqueue name(s) being held. “Impact detail display” shows this display.)

**Mount Pending**  CICS is waiting for a DASD or tape mount. This is considered system contention and is not attributed to competing address spaces.

**SRM Delay**  There are four categories of SRM delay:
- enqueue exchange swaps (ENQ)
- exchange swaps (EXC)
- out and ready (MPL)
- unilateral swaps (UNI)

Since production CICS systems are usually nonswappable, contention due to SRM delay is generally seen for test systems only.

**Holding CML Lock**  CICS is waiting for its local lock while the impact source is holding it as a Cross-Memory Local (CML) lock.

MVS uses locks to serialize access to resources. Each address space needs control over its local lock to get dispatched in the CPU. Another address space can, however, take control of that local lock by obtaining the CML lock.

When this type of contention appears, it indicates that the impacting address space has obtained the CML lock and has gained control over the CICS region's local lock. CICS must wait until the CML lock is released before it can regain control over its local lock.
Workload Impact Profile (IPRO)

The Impact Profile option (F) on the Bottlenecks path (fast path B.F) displays a workload impact profile (IPRO). Note that IPRO cannot be used to initiate monitoring; you must first start monitoring the job or group.

The workload impact profile is another form of overview display in impact analysis. It shows a graphic illustration of current contention on your system. The following figure shows a typical display.

**FIGURE 67. Workload Impact Analysis Profile Panel (B.F)**

![Workload Impact Profile Graph](image)

The percentage of impact on this CICS region is represented by the amount of indentation. Contenders are listed in order of decreasing severity, except for self-contention, which is always first, and system contention, which is always last. In this example, job RELOADDB is having the greatest impact on CICS.

The profile displays only the long-term wait condition figures available with impact analysis (IANL), instead of the short-term ones, to ensure a statistically significant value.

For terminals with extended color in effect, the Workload Impact Profile appears in the colors set for Levels 5, 6, and 7. The graph itself appears in the Level 5 color, the impact source labels are in the Level 7 color, and the lines pointing from the impact source labels to the graph are in the Level 6 color. For information about turning on extended color and setting the color for each level, see the *OMEGAMON II for CICS Configuration and Customization Guide*. 
As with all impact analysis displays, you should be aware that the workload impact profile becomes most useful when a CICS region is experiencing response time problems. When response time is acceptable, the profile provides a picture of normal contention, and no tuning is required. If response time worsens due to contention from other MVS address spaces, the workload impact profile may also change, indicating a possible cause of the response time problem.
Adjusting Collection and Display Parameters

The impact analysis feature uses preset defaults for use with a wide variety of configurations. However, as you gain experience using it, you may want to customize the displays to better suit the unique requirements of your installation.

Controlling the sampling interval

You can set the sampling interval for impact analysis collection by selecting the Impact Analysis Settings option (N) on the Control Options path (main menu option O) or by entering O.N to fast path to the Workload Impact Analysis Settings panel, shown in the following figure.

FIGURE 68. Workload Impact Analysis Settings Panel (O.N)

Scroll to the IAST statement to display or reset the sampling interval to specify how often the impact analysis collector checks the status (execution state) of CICS regions. By default, CICS regions are checked every .9 seconds, or just slightly more than 66 times per minute. (This interval length is set to an irregular value to avoid accidental synchronization with other system events.)
Smaller sampling intervals provide more data and improve accuracy, but do so at the expense of CPU utilization. Conversely, setting larger intervals reduces the CPU requirements of impact analysis, but can reduce the accuracy of the data.

Impact analysis time-out facility

While the impact analysis collector is active, it is consuming resources. Since it is possible to start impact analysis collection and then move on to other kinds of analysis without turning the collector off, the impact analysis time-out facility automatically terminates the collector after a period of time. This time period is equal to the short-term collection interval multiplied by the number of short-term intervals in the long-term interval. For example, if the short-term interval is 1 minute and the long-term interval is 5 short-term intervals (the defaults), impact analysis times out after 5 minutes. You can set the long-term interval by scrolling to the IACL statement. The format is:

\[ \text{IACL} \]

- \( \text{b or 0} \): Displays the current long-term bucket clearing interval.
- \( 1–5 \): Sets the long-term bucket clearing interval at 1–5 short-term intervals. The default is 5.

For example, if you set IACL to 1, there will be no difference between the short- and long-term intervals in the impact analysis display. If you set IACL to 3, the long-term part of the impact analysis display will include the current short-term interval, plus the two previous short-term intervals.

You can set the short-term interval by scrolling to the IACS statement. The format is:

\[ \text{IACS} \]

- \( \text{b or 0} \): Displays the current short-term bucket clearing interval, and clears the short-term bucket immediately. OMEGAMON II does not clear the bucket again until the IACL statement is re-entered with a numeric operand.
- \( 1–99 \): Sets the short-term bucket clearing interval at 1–99 minutes. The default is 1 minute.

You may use the IACS statement at any time during a session. OMEGAMON II automatically clears the buckets as soon as you use this option.

You can set the number of groups that will be monitored for the impact analysis display by scrolling to the IANC statement. The format is:

\[ \text{IANC} \]

- \( \text{b or 0} \): Displays the current maximum number of CICS regions or groups monitored by impact analysis.
- \( 1–5 \): Sets the maximum number of CICS regions or groups to 1–5. The default is a maximum of 5 CICS regions or groups.
If you wish to monitor fewer than five regions or groups, you must reduce the maximum with the IANC statement before you begin the session (that is, before you use IANL the first time). Upon execution, IANC issues a message informing you of the new maximum number.

You cannot change the maximum number of regions while the collector is running; you must either do so before you start the collector, or you must stop the collector, change the number of regions, and then restart collection.

You can set the severity threshold for the impact analysis display by scrolling to the IATH statement. The format is:

\[\text{IATHnn}\]

You can enter the IATH statement at any time during a session.

- **b** Displays the current value.
- **0** Displays all impact sources.
- **1–99** Causes impact analysis to display impact sources that account for the indicated percentage or more of non-idle time of the CICS region or group. By default, impact sources that account for 5% or more of the total non-idle time of the CICS region or group are shown in the display.

For example, to limit impact analysis displays to impact sources that account for 10% or more of the non-idle time, enter the following:

\[\text{IATH10}\]

The resulting message shows you the new threshold value.

**FIGURE 69. Plot Percentage Message Example**

\[\text{IATH} \gg \text{IA2006 Plot percentage threshold is 10%} \ll\]

Notice that the operand is expressed as a percentage and that the statement is not commented out (preceded by >) after execution.
Adjusting Collection and Display Parameters
Chapter Overview

Virtual storage availability is necessary for CICS systems to function properly. When virtual storage usage goes above critical levels, serious degradation of CICS performance may occur. In some cases, the resulting problems can be so severe as to require restarting CICS.

There are two levels of storage to monitor in your CICS system.

- CICS manages storage for its internal components and applications. It has its own storage management component for that purpose.
- The operating system manages the remaining storage. This includes, for example, allocating and freeing storage as files are opened and closed.

CICS/ESA versions manage storage differently from CICS/MVS versions. CICS/ESA uses domain architecture to manage more than one Dynamic Storage Area (DSA), with up to 255 domain subpools in each DSA. CICS/ESA Version 3.2.1 uses two DSAs: one for managing storage below 16M, the other for storage above 16M. CICS/ESA Version 3.3 manages five DSAs, which can be used to implement subsystem storage protection. CICS/ESA Version 4.1 manages eight DSAs, which can be used to implement subsystem storage protection and transaction isolation.

OMEGAMON II enables you to monitor storage utilization and assess the effects of any adjustments you might make for both CICS and the operating system. The first part of the chapter addresses CICS storage management, and the second part, the operating system (in those sections referred to as MVS). Both parts describe the OMEGAMON II displays, specifically tailored to CICS/MVS and CICS/ESA versions, in detail, and advise you on their use.

Chapter Contents

- CICS Storage Management ................................................................. 169
  - CICS main storage areas .......................................................... 169
  - CICS private area storage (OSCOR) ........................................ 169
  - CICS subpool groupings ......................................................... 169
  - CICS/ESA subsystem storage protection .................................. 170
- CICS Storage Analysis Displays .................................................. 171
  - Storage Summary panel ......................................................... 171
  - Storage violations ............................................................... 174
CICS Storage Management

CICS applications frequently make requests for storage. If the operating system were to handle these requests, other CICS applications would be delayed until the request was completed. Further, unconditional requests to the operating system for storage that cannot be serviced cause the CICS system to abend. To avoid these types of situations, CICS manages storage for its applications.

CICS main storage areas

CICS maintains and manages storage by allocating one or more dynamic storage areas at initialization. CICS/MVS issues an MVS conditional GETMAIN for all below-the-line storage and proceeds with initialization. At the appropriate point in the initialization process, CICS attempts an MVS conditional GETMAIN for the amount of storage specified in the OSCOR SIT parameter. If this request cannot be satisfied in full (and under most circumstances it will not be satisfied), CICS issues an MVS FREEMAIN for the amount of storage specified in the OSCOR SIT parameter. Above the line storage for CICS/MVS is essentially managed by MVS with CICS providing services for allocation and deallocation.

In CICS/ESA Version 3, storage is allocated by requesting a fixed amount using SIT parameters for each individual DSA.

In CICS/ESA Version 4, individual DSA size is not fixed. CICS/ESA Version 4 manages dynamic storage as two pools, one above the 16M boundary, and one below. The maximum size of these pools is limited by the values specified on the DSALIM and EDSALIM SIT parameters respectively.

CICS/ESA Version 4 allocates initial extents for the 4 DSAs below the 16M line and the 4 above from within the appropriate pools. Individual DSA size varies according to demand as CICS allocates new extents for or removes extents from DSA.

CICS private area storage (OSCOR)

This area is used for requests for operating system storage subpools 0 through 127, 250 and 252. It includes any unallocated area below the top of the region plus the IEALIMIT extension. It does not include any storage in the LSQA.

One of OSCOR’s major uses is in dynamically opening and closing files. If your CICS systems performs these operations, you should monitor OSCOR usage to ensure that sufficient storage is available.

Although CICS/ESA dropped the OSCOR SIT parameter in favor of defining the DSA size directly, OSCOR is still used to describe storage managed below the line by the operating system. OSCOR in CICS/ESA is what remains after DSA has been allocated.

CICS subpool groupings

For efficient management and allocation of storage, CICS allocates storage out of subpools. In CICS/MVS, there are six subpools: control, program, RPC, shared, task, and TP. CICS/ESA extended subpools to allow up to 255 domain subpools in a single DSA. These subpools have eight character IDs that are defined by the component that owns the subpool.
CICS/ESA subsystem storage protection

In CICS/ESA version 3.3, CICS introduced subsystem storage protection that protects CICS storage from being overwritten by applications. It performs this function by dividing storage into three key types:

- **READ ONLY**: Used to load reentrant programs and cannot be modified (provided reentrant storage protection has been selected in the SIT via the RENTPGM keyword).
- **USER**: User-key storage, which is used for applications and is not protected.
- **CICS**: CICS-key storage, which is used for CICS and cannot be overwritten by applications running in user-key (provided subsystem storage protection has been selected in the SIT via STGPROT and the hardware supports system storage protection).

CICS manages storage for each of the keys with five DSAs, one above the line for each of the keys, and a user and CICS key DSA below the line. For further information, see the *CICS Version 3.3 Release Guide*.

You can monitor each of the DSAs by specifying the KEY= parameter after the STOR statement, or by zooming on a particular DSA in the storage summary screen (fast path S.). For displays of subpool groups or tasks, the key value can be used as a filter to display only those subpool groups or tasks that use the specified protection key.
CICS Storage Analysis Displays

OMEGAMON II presents the following types of analysis for CICS storage management. Access the Storage path by selecting the Storage option (S) on the main menu.

Storage Summary panel

The Storage Summary panel, shown in the following figure for a CICS/ESA Version 4.1 system, provides an overview of storage utilization. The following list summarizes the storage for different versions of CICS.

<table>
<thead>
<tr>
<th>Version</th>
<th>Summary</th>
</tr>
</thead>
<tbody>
<tr>
<td>CICS/MVS</td>
<td>1 DSA</td>
</tr>
<tr>
<td>CICS/ESA Version 3.1.1</td>
<td>1 DSA and 1 EDSA</td>
</tr>
<tr>
<td>CICS/ESA Version 3.2.1</td>
<td>1 DSA and 1 EDSA</td>
</tr>
<tr>
<td>CICS/ESA Version 3.3</td>
<td>summarizes all 5 DSAs,</td>
</tr>
<tr>
<td></td>
<td>■ CDSA</td>
</tr>
<tr>
<td></td>
<td>■ USDA</td>
</tr>
<tr>
<td></td>
<td>■ ECDSA</td>
</tr>
<tr>
<td></td>
<td>■ EUDSA</td>
</tr>
<tr>
<td></td>
<td>■ ERDSA</td>
</tr>
<tr>
<td>CICS/ESA Version 4.1</td>
<td>summarizes all 8 DSAs,</td>
</tr>
<tr>
<td></td>
<td>■ CDSA</td>
</tr>
<tr>
<td></td>
<td>■ USDA</td>
</tr>
<tr>
<td></td>
<td>■ SDSA</td>
</tr>
<tr>
<td></td>
<td>■ RDSA</td>
</tr>
<tr>
<td></td>
<td>■ ECDSA</td>
</tr>
<tr>
<td></td>
<td>■ EUDSA</td>
</tr>
<tr>
<td></td>
<td>■ ESDSA</td>
</tr>
<tr>
<td></td>
<td>■ ERDSA</td>
</tr>
</tbody>
</table>

Move the cursor to a DSA Summary or EDSA Summary title line and press **PF11** to display a detailed breakdown of that DSA.
FIGURE 70. Storage Summary Panel (S.)

<table>
<thead>
<tr>
<th>ZSTOR</th>
<th>VTM</th>
<th>TDOCS01</th>
<th>V520./C SYSG 02/03/93 13:57:56</th>
</tr>
</thead>
<tbody>
<tr>
<td>&gt; PF1 Help PF3 Back PF4 Main Menu PF7 Up PF8 Down PF11 Zoom</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&gt; A-Summary B-Violations C-Task Storage D-DSA E-EDSA</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&gt; F-PAM DSA G-PAM EDSA H-Subpool Groups I-Region Storage J-Compressions</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

STORAGE SUMMARY

STORAGE INFORMATION

- DSA limit: 5120K
- EDSA limit: 6144K
- DSA storage allocated: 1280K
- EDSA storage allocated: 3040K
- DSA storage in use: 1024K
- EDSA storage in use: 1024K
- DSA area currently in SOS: No
- EDSA area currently in SOS: No
- Total storage violations: 0
- Storage recovery option: No
- Storage protection: No
- Transaction isolation: No
- Total storage notifies: 0
- Statistics last reset: 0:00:01
- Current free OSCOR: 1597K
- Largest free OSCOR: 1516K

CICS Key DSA Summary

- DSA size: 512K
- Cushion size: 64K
- Current free space: 204K
- Largest free area: 204K
- Extents allocated: 2
- Extents in use: 2
- Current tasks suspended: 0
- Total tasks suspended: 0
- Currently SOS: No
- Total times SOS: 0

User Key DSA Summary

- DSA size: 256K
- Cushion size: 64K
- Current free space: 256K
- Largest free area: 256K
- Extents allocated: 1
- Extents in use: 1
- Current tasks suspended: 0
- Total tasks suspended: 0
- Currently SOS: No
- Total times SOS: 0

Shared DSA Summary

- DSA size: 256K
- Cushion size: 64K
- Current free space: 252K
- Largest free area: 252K
- Extents allocated: 1
- Extents in use: 1
- Current tasks suspended: 0
- Total tasks suspended: 0
- Currently SOS: No
- Total times SOS: 0

Read Only DSA Summary

- DSA size: 256K
- Cushion size: 64K
- Current free space: 72K
- Largest free area: 72K
- Extents allocated: 1
- Extents in use: 1

===============================================================================

This panel shows the following fields:

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>DSA limit</strong> (CICS/ESA Version 4.1 only)</td>
<td>The total amount of storage the DSA's below the 16Meg line are allowed to allocate. This value is specified in the SIT or can be overridden via the CEMT transaction.</td>
</tr>
<tr>
<td><strong>EDSA limit</strong> (CICS/ESA Version 4.1 only)</td>
<td>The total amount of storage the DSA's above the 16Meg line are allowed to allocate. This value is specified in the SIT or can be overridden via the CEMT transaction.</td>
</tr>
<tr>
<td><strong>DSA storage allocated</strong> (CICS/ESA Version 4.1 only)</td>
<td>The current total storage allocated by the DSA's below the 16Meg line.</td>
</tr>
<tr>
<td><strong>EDSA storage allocated</strong> (CICS/ESA Version 4.1 only)</td>
<td>The current total storage allocated by the DSA's above the 16Meg line.</td>
</tr>
<tr>
<td><strong>DSA storage in use</strong> (CICS/ESA Version 4.1 only)</td>
<td>The current storage allocated by DSA extents below the 16Meg line which have at least one page in use.</td>
</tr>
<tr>
<td><strong>EDSA storage in use</strong> (CICS/ESA Version 4.1 only)</td>
<td>The current storage allocated by DSA extents above the 16Meg line which have at least one page in use.</td>
</tr>
<tr>
<td><strong>DSA area currently SOS</strong> (CICS/ESA Version 4.1 only)</td>
<td>Whether any of the DSA's below the 16Meg line are currently short on storage.</td>
</tr>
<tr>
<td><strong>EDSA area currently SOS</strong> (CICS/ESA Version 4.1 only)</td>
<td>Whether any of the DSA's above the 16Meg line are currently short on storage.</td>
</tr>
<tr>
<td><strong>Total storage violations</strong></td>
<td>Count of storage violations detected by CICS. Each violation constitutes an instance of a CICS application writing into storage that it doesn’t own. While CICS can usually recover from these errors, the recovery process is time consuming and degrades application response time. To find out which transactions encountered storage violations, select the Violations option (B) on the Storage path (fast path S.B). Note that the count for this field is reset every time CICS resets the system statistics for CICS/ESA.</td>
</tr>
<tr>
<td><strong>Storage recovery option</strong></td>
<td>Whether CICS will attempt to recover from storage violations. This option is set in the CICS System Initialization Table (SIT).</td>
</tr>
<tr>
<td><strong>Storage protection</strong> (CICS/ESA Version 4.1 only)</td>
<td>Whether CICS will attempt to protect CICS internal storage against corruption from user applications.</td>
</tr>
<tr>
<td><strong>Transaction isolation</strong> (CICS/ESA Version 3.3 and above)</td>
<td>Whether CICS will attempt to protect user storage against corruption from other CICS user tasks.</td>
</tr>
<tr>
<td><strong>Total storage notifies</strong> (CICS/ESA only)</td>
<td>How many times the Storage Manager domain has notified other domains that the DSA is approaching a short-on-storage (SOS) condition. The closer CICS approaches SOS, the more frequently this count increases.</td>
</tr>
<tr>
<td><strong>Statistics last reset</strong></td>
<td>Time of day when CICS storage statistics were last reset.</td>
</tr>
<tr>
<td><strong>OSCOR requested</strong> (CICS/MVS only)</td>
<td>The total amount of OSCOR storage requested for this startup.</td>
</tr>
</tbody>
</table>
Storage violations

A storage violation occurs when a transaction overwrites storage owned by another program. When CICS detects a storage violation, it performs a recovery process that may affect the response times of other CICS applications. If CICS cannot recover, it terminates. Therefore, in order to maintain acceptable CICS system performance, it is important to determine the sources of storage violations.

CICS attributes a storage violation to a transaction if the damaged storage is transaction-related, or to a terminal, if the damaged storage is terminal-related. If transaction A overwrites storage owned by transaction B, CICS associates a storage violation with transaction B. As a result, determining the problem source is not always straightforward. CICS contains a diagnostic facility that analyzes all CICS storage chains during every storage request, in order to promptly detect violations. See the *CICS Problem Determination Guide* for more information.

To display storage violations as shown in the following figure, select the Violations option (B) on the Storage menu or enter fast path S.B from any panel.
This panel displays all recorded storage violations as a result of scanning the PCT and the TCT. The storage violation count kept by CICS/ESA storage management, shown on the Storage Summary display (Figure 70 on page 172), is reset during every statistics interval. The PCT and TCT storage violation statistics are also reset every statistics interval for CICS/ESA.
Storage usage by task

Select the Task Storage option (C) on the Storage path (fast path S.C) to see the Storage Usage by Task display for CICS/ESA as shown in the following figure.

FIGURE 72. Task Storage Panel (S.C)

This panel displays an entry for each task in the system with a Task Control Area (TCA). It shows you how much storage is used by each task. You can use this display to determine which tasks are using excessive storage when storage problems are occurring. For detailed information about a specific task, place the cursor on the line describing the task and press PF11.

For CICS/ESA Version 3.3 and above, the display shows storage allocated in any of the protection keys. To filter the display by a particular storage key for CICS Version 3.3, enter the following after the STOR TASK statement:

```
KEY=(USER|READ|CICS)
```

To filter the display by a particular storage key for CICS Version 4.1, enter the following after the STOR TASK statement:

```
KEY=(USER|READ|CICS|SHRD)
```
DSA/EDSA

Select the DSA option (D) on the Storage path to see the Dynamic Storage Area display for CICS/ESA, as shown in the following figure. For CICS/MVS, see Figure 75 on page 180. Note that some fields are common to both releases.

FIGURE 73. Dynamic Storage Area Panel for CICS/ESA Version 4.1 (S.D)
### DSA size
Size of the DSA. For CICS/MVS, this size is the amount remaining after CICS allocates storage for resident programs, tables, and OSCOR. For CICS/ESA, this size is specified in the SIT.

### Cushion size
Amount of storage set aside in the DSA and EDSA that if needed signals that CICS is going SOS. The amount is specified in the SIT.

### Current tasks suspended
Number of tasks currently suspended due to a lack of storage in the DSA or EDSA.

### Currently SOS
Whether CICS is short-on-storage.

### Current free space
Amount of free space, including cushion size, in the DSA or EDSA.

### Largest Free Area
Largest contiguous area in the DSA or EDSA.

### % DSA allocated
For CICS/ESA only: The percentage of the DSA currently in use.

### Page size
Either 2K or 4K depending on the size specified in the SIT for CICS/MVS. For CICS/ESA the page size is always 4K.

### Extents allocated
(CICS/ESA Version 4.1 only) The number of extents currently allocated to this DSA.

### Extents in use
(CICS/ESA Version 4.1 only) The number of extents in this DSA that have at least one page allocated.

### Getmain requests
Count of getmain requests.

### Freemain requests
Count of freemain requests.

### Total tasks suspended
Total number of tasks suspended due to short-on-storage.

### HWM tasks suspended
Highwater mark of tasks suspended during one occurrence of a short-on-storage.

### Times cushion released
Number of times CICS had to satisfy a getmain request from the storage cushion.

### Total times SOS
Number of times CICS went short-on-storage.

### LWM free space
For CICS/ESA only: The smallest amount of free space ever available.

### HWM free space
For CICS/ESA only: The largest amount of free space ever available.

### Add subpool requests
Count of requests to add a subpool. This request is usually done only by CICS internal functions.

### Delete subpool requests
Count of requests to delete a subpool. This request is usually done only by CICS internal functions.

### Purged while suspended
Number of tasks that CICS purged while short-on-storage.

### Getmain failures
Number of getmain requests that could not be satisfied due to an SOS.

### Total time SOS
Amount of time CICS was SOS.

### Time last went SOS
The time that CICS was last short on storage in this DSA.
Storage Analysis 179

CICS Storage Analysis Displays

FIGURE 74. Dynamic Storage Area Panel for CICS/ESA (S.D)

Storage violations  Amount of time CICS was SOS.
Statistics Last Reset  Time of day when CICS storage statistics were reset.
Address of PAM  Address of the Page Allocation Map that maps out the DSA and EDSA.
Size of extent  The size of this extent within the DSA.
% DSA allocated  The percentage of the DSA currently in use.
Start address  Starting address of the DSA or EDSA.
End address  Ending address of the DSA or EDSA.

Figure 75 on page 180 shows the DSA display for a CICS/MVS system.
The following DSA display fields apply only to CICS/MVS.

**Global Storage > 16M**  
Shared storage allocated above the line, in bytes.

**Task Storage > 16M**  
Total above-the-line storage allocated to individual tasks, in bytes.

**Total Getmains > 16M**  
Total number of storage allocations above the line.

For CICS/MVS, the bottom part of the display shows the amount of storage allocated to each of the six subpools. For CICS/ESA, storage subpools are shown on a different display. (See Figure 78 on page 184.)
Page allocation map

A Page Allocation Map (PAM) indicates, for each page of storage in the DSA, whether the page is allocated and, if so, to which storage subpool. Select the PAM DSA option (F) on the Storage path or enter fast path S.F, to see the PAM for CICS/ESA, as shown in the following figure.

**FIGURE 76. Storage Allocated in the DSA Panel for CICS/ESA (S.F)**

Each letter shown in the display represents a group to which the storage belongs. This grouping is an OMEGAMON II convention. It allows you to view up to 255 types of storage subpools, based on their intended use. The key legend used in the map is defined below.
Note that lines are not displayed if they are not allocated.

A  Application domain.
D  Transient Data storage.
F  File storage.
L  Loader storage (programs).
M  Monitoring storage.
O  Other.
S  Temporary storage.
T  Task storage.
Z  Terminal storage.

The PAM for CICS/MVS is shown in the following figure.

FIGURE 77. Storage Allocated in the DSA Panel for CICS/MVS (S.F)
For CICS/MVS, the PAM shows the following types of subpools.

<table>
<thead>
<tr>
<th>Subpool Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control</td>
<td>Contains CICS control blocks such as the DCA, AIDs, and ICEs.</td>
</tr>
<tr>
<td>Programs for deletion</td>
<td>Program storage that will be deleted when the programs are no longer in use. See “Program compressions (CICS/MVS only)” on page 186 for the conditions when CICS will flag programs for deletion.</td>
</tr>
<tr>
<td>Program</td>
<td>Program storage of dynamically loaded programs.</td>
</tr>
<tr>
<td>RPL</td>
<td>Storage used by VTAM.</td>
</tr>
<tr>
<td>Shared</td>
<td>Storage not associated with a specific task which must be explicitly freed. An example is main temporary storage.</td>
</tr>
<tr>
<td>Task</td>
<td>Storage associated with a particular task. This storage is freed when the task terminates.</td>
</tr>
<tr>
<td>Resident Programs</td>
<td>Programs that have been originally loaded as resident outside of the DSA but are now loaded into the DSA due to a master terminal NEWCOPY request.</td>
</tr>
<tr>
<td>TP</td>
<td>Storage associated with terminal I/O.</td>
</tr>
</tbody>
</table>

Storage subpools (CICS/ESA only)

CICS manages its storage using subpools, which are areas of storage dedicated to common uses. CICS/ESA allows up to 255 subpools per DSA. In order to aid viewing of so many different types of subpools, OMEGAMON II categorizes these subpools into one of nine groups.

To access the Storage Subpool Group display as shown in the following figure, select the Subpool Groups option (H) on the Storage path or enter fast path S.H from any panel.
Storage in the task subpool group is allocated to satisfy getmain requests for storage by CICS applications. CICS domains and components use the other subpool groups to satisfy their storage requests.

A getmain results in one element being created in the DSA or EDSA for a particular subpool. The corresponding freemain releases that storage element. Therefore, the number of elements in the DSA and EDSA show the number of outstanding getmains for each subpool group.

You can zoom on a subpool group by moving the cursor to the line containing the group and pressing PF11. A detail display of the LOADER subpool group is shown in the following figure.
A detail display of a task subpool group is shown in the following figure.
When a getmain request is issued that would cause CICS to allocate storage from the storage cushion, CICS attempts program compression to reclaim storage no longer in use. If program compression fails, a short-on-storage (SOS) condition occurs.

In order to avoid fragmentation, CICS allocates storage in the program subpool from the high end of DSA, and allocates storage for other subpools in the low end. When program compression frees up unneeded program storage, some program storage might be left in the middle of two free areas of the DSA.

Since CICS will not allocate any nonprogram storage past the point of the lowest addressed program, this can have the effect of blocking off free storage for many storage requests. Therefore as part of program compression, CICS will also mark program storage at the lowest addressed part of DSA as deletable. When the program is no longer needed, it will be deleted.

Select the Compressions option (J) on the Storage path for program compressions in CICS/MVS (fast path S.J). The program compression rate over the last 5 minutes is shown in the following figure.
Program compressions can affect the response time of CICS applications so their occurrence should be kept down to not more than once every few minutes. You can reduce the program compression rate by reducing OSCOR size to increase the DSA size, or using MAXTASKS to limit task throughput rate.
MVS Storage Management

MVS storage management can play an important role in tuning CICS regions and troubleshooting problems. An insufficient amount of storage in the private area of CICS address space can lead to 80A or 40D abends. Excessive paging may cause response time degradation.

With OMEGAMON II, you can:

- Analyze storage usage by MVS subpools. This aids you in determining the source of excessive storage use.
- Display and alter the contents of virtual storage and dataspaces, in order to troubleshoot problems.
- Examine CICS address space storage utilization, including the MVS Common Area, to ensure that each area has sufficient storage available.
- View the working set size and paging rate of the CICS region. This helps you assess whether response time is being degraded due to an insufficient amount of real storage and excessive paging.
MVS Storage Management Displays

OMEGAMON II can help you to analyze the following areas.

- MVS subpools
- contents of virtual storage and dataspaces
- storage utilization
- working set size

MVS subpools

MVS manages virtual storage for each job by associating the storage with the MVS subtask that requested the storage and categorizing the storage into a subpool. These subpools, numbered 0–255, are different than the subpools associated with CICS.

By selecting the Subpools option (F) on the MVS path or entering fast path M.F from any panel, you can see virtual storage allocations for each MVS subpool as shown in the following figure.
This panel shows virtual storage allocations per MVS subtask starting with the jobstep TCB which should be DFHSIP. Enter X preceding the SUBP statement on this panel to display all TCBs starting with the region control task TCB.
The first portion of the display for each TCB shows:

- **Sbp-K** Subpool number and storage protection key.
- **Alloc** Amount of virtual storage currently allocated to the subpool in 4K increments.
- **Real** Amount of real storage backing the virtual storage allocation.
- **#Blks** Number of 4K blocks allocated to the subpool.
- **Addr** Address of the first block in the subpool.
- **Free** Number of free bytes in hexadecimal in that subpool.
- **#Blks** Number of free blocks within the subpool.
- **Mxfree** Size of the largest free block in hex within the subpool.
- **Program** Program name of the TCB associated with the subpool.
- **Own | Shr** Allocations marked SHR are displayed for each TCB that shares the allocation. Allocations marked OWN appear only for the owning TCB.

The next portion of the display summarizes the storage for that TCB.

- **PVT-Lo** Summary of user storage allocated to the TCB. This is from subpools 0–127 and 250–252.
- **PVT-Hi** Summary of LSQA storage allocated to the TCB.
- **Subtot** Total of user and LSQA storage allocated to the TCB.

The final section which appears after all the TCBs are listed, summarizes the storage for the address space.

- **Tot-Lo** Summary of all user storage allocated to the address space. This is from subpools 0–127 and 250–252.
- **Tot-Hi** Summary of all LSQA storage allocated to the address space.
- **Totals** Total of user and LSQA storage allocated to the address space.
**Region Storage**

OMEGAMON II can display the storage utilization within the private area of the CICS region. It shows the maximum region available, the portion currently in use, and the various areas within the region. To view this information, select the Region Storage option (I) on the Storage path or enter fast path S.I from any panel.

An example of the Region Storage display is shown in Figure 83 on page 192.

**FIGURE 83. CICS Region Storage Panel (S.I)**

```
ZREGN VTM TDOS01 V520./C SYSG 02/03/93 14:00:54
PF1 Help PF3 Back PF4 Main Menu PF7 Up PF8 Down

A-System  B-Violations  C-Task Storage  D-DSA  E-EDSA
F-PAM DSA  G-PAM EDSA  H-Subpool Groups  I-Region Storage  J-Compressions

CICS REGION STORAGE

PEEK TDOS01 ASID=112 >> OB8112: Data Collection Initiated << amap
+ ===== 2 Gig Line ===== <= 7FFFFFFF Highest 31-bit address
+ | <= 7FFFFFFF Top of Extended Private
+ /////////////
+ /// System Area /// >-------- 4K ELSQA/SWA unallocated
+ /////////////
+ <= 7F6E6000 Current bottom of ELSQA/SWA
+ Available >-------- 1,863M Avail. for ELSQA/SWA only
+ <= 0AEFFFFF Extended User Area Limit
+ Available >-------- 89,176K Avail. for ELSQA/SWA/USER
+ <= 0573FFF User Area Limit
+ = 16 Meg Line = <= 00FFFFFF Highest 24-bit address
+ <= 006FFFFF Top of Private
+ /////////////
+ /// System Area /// >-------- 4K LSQA/SWA unallocated
+ /////////////
+ <= 006B8000 Current bottom of LSQA/SWA
+ Available >-------- 1,296K Avail. for LSQA/SWA only
+ <= 00573FFF User Area Limit
+ Available >-------- 1,016K Avail. for LSQA/SWA/USER
```
This panel displays a virtual storage map of the CICS address space. You should ensure sufficient LSQA/SWA/USER(OSCOR) space to prevent S40D and S80A abends. For CICS/ESA, decreasing DSA size increases the free OSCOR space.

This panel provides the following information.

**Highest 31-bit address**
- Highest possible address in 31-bit architecture.

**Top of extended private**
- Highest address within the extended private area.

**ELSQA,SWA unallocated**
- Amount of storage not currently allocated within the extended system area.

**Fragmented free space**
- Amount of free storage within allocated pages of the extended system area.

**Current bottom of ELSQA,SWA**
- Lowest address allocated within the extended private area for the extended system area.

**Avail. for ELSQA/SWA only**
- Amount of unallocated storage between the current bottom of the extended system area and the limit of the extended user area.

**Avail. for ELSQA/SWA/USER**
- Amount of unallocated storage between the extended user area limit and the current top of extended user area. Note that the extended system area can allocate storage within this area.

**Current Top of Ext. User Area**
- Highest address currently allocated within the extended private area for the extended user area.

**Largest free block**
- Largest contiguous piece of unallocated storage within the extended user area.

**Extended User unallocated**
- Amount of storage not allocated within the extended user area.

**Fragmented free space**
- Amount of free storage within allocated pages of the extended user area.

**Bottom of Extended Private**
- Lowest address currently allocated within the extended private area for the extended user area.
Area descriptions for below the 16M line are as follows:

<table>
<thead>
<tr>
<th>Description</th>
<th>Detailed Information</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Highest 24-bit address</strong></td>
<td>Highest possible address in 24-bit architecture.</td>
</tr>
<tr>
<td><strong>Top of Private</strong></td>
<td>Highest address below the common area (start of CSA).</td>
</tr>
<tr>
<td><strong>LSQA/SWA unallocated</strong></td>
<td>Total of contiguous 4K areas including LSQA, SWA and subpools 229/230.</td>
</tr>
<tr>
<td><strong>Fragmented free space</strong></td>
<td>Total of areas within LSQA which are each less than the 4K available for allocation as defined by FQEs.</td>
</tr>
<tr>
<td><strong>Current bottom of LSQA/SWA</strong></td>
<td>Lowest address allocated to LSQA/SWA subpools.</td>
</tr>
<tr>
<td><strong>Avail. for LSQA/SWA only</strong></td>
<td>Total space available for LSQA/SWA allocation.  This includes the LSQA/SWA unallocated value and the amount of space in the region available area.</td>
</tr>
<tr>
<td><strong>User Area Limit</strong></td>
<td>Highest address available for user allocation (region size plus IEALIMIT).</td>
</tr>
<tr>
<td><strong>Avail. for LSQA/SWA/USER</strong></td>
<td>Amount of space available for problem program allocations, not including unallocated areas within the region used.</td>
</tr>
<tr>
<td><strong>Current top of User Area</strong></td>
<td>Highest address currently allocated for problem program use.</td>
</tr>
<tr>
<td><strong>Largest free block</strong></td>
<td>Largest contiguous area available within the region used.</td>
</tr>
<tr>
<td><strong>User unallocated</strong></td>
<td>Total of the contiguous 4K areas within the region used which are available for problem program use.</td>
</tr>
<tr>
<td><strong>Bottom of Private</strong></td>
<td>Lowest address within the private area (above the resident nucleus rounded up to the next 64K boundary).</td>
</tr>
<tr>
<td><strong>Prefixed Storage Area</strong></td>
<td>Fixed storage location starting with absolute zero.</td>
</tr>
</tbody>
</table>
Storage Display and Alteration

OMEGAMON II allows you to display, modify and scan the virtual storage of any CICS region or owned dataspace. Refer to “Viewing and Modifying Storage” on page 316 for information on using these features.
Chapter Overview

Files such as VSAM and BDAM are key resources to CICS applications. A typical CICS application accepts a request from a terminal-user, searches through or updates files, and sends the results back to the terminal. File access is often the largest component of CICS response time and therefore should be monitored and well-tuned.

In addition to application files, CICS dumps, traces, transient data, and auxiliary temporary storage all reside in VSAM datasets. A VSAM dataset experiencing string or buffer waits, or excessive CI or CA splits, can adversely affect CICS performance.

CICS dump and trace datasets also need to be monitored in case they are filling up too fast. Insufficient library space or improper load library concatenations for STEPLIB or DFHRPL can also cause CICS problems.

Chapter Contents

Accessing the Files Path ................................................................. 198
File Allocation and Activity .......................................................... 199
    Selecting datasets .................................................................. 200
    File detail ............................................................................ 202
    Application datasets .............................................................. 202
    CICS datasets ...................................................................... 203
    STEPLIB datasets .................................................................. 204
    JES datasets ........................................................................ 204
    DFHRPL datasets ................................................................... 205
    Journal datasets ..................................................................... 205
    IMS datasets ......................................................................... 205
    SYSIN dataset ....................................................................... 206
VSAM Information ................................................................. 207
    VSAM datasets ..................................................................... 207
    LSR pools ............................................................................. 210
    String waits ......................................................................... 214
Accessing the Files Path

To analyze files such as VSAM, BDAM, load libraries, or journals, select the Files option (F) on the main menu or enter fast path F. from any panel. This displays the Application Datasets panel, which is the initial panel on the Files path. A horizontal menu of the remaining file-related topics appears in the upper portion of each panel in the Files path. For example, see the horizontal menu in the upper part of the panel in Figure 84 on page 199. To directly navigate to the other file options, enter the fast path Fx, where x is the selection letter.

In addition, you can find task-specific file statistics on any task detail display. To access a Task Detail panel, zoom on a specific task from any task summary display. You can find task summaries on the Tasks Path, the Historical Transaction Overview panel (fast path H.A), the VSAM String and Buffer Waits display (fast path F.I), several options on the Databases path, and the Enqueue Resource Detail display (fast path B.H). Scroll through the task detail information until you find file statistics. These statistics consist of counts by type of request for each VSAM or BDAM file accessed by the task.
File Allocation and Activity

To display a summary of all the files allocated to CICS as shown in the following figure, select the Files option (F) on the main menu and then the All Datasets option (H) on the Files path or enter fast path F.H from any panel.

**FIGURE 84. All Datasets Allocated to CICS Panel (F.H)**

For each dataset allocated to this CICS region, the dataset summary panel shows the ddname, dataset name, volser, and attributes.

Attributes vary depending on the type of dataset. For CICS datasets, the attribute describes the type of dataset. For IMS datasets, the attribute is IMS/DLI. For CICS journals, the attribute
describes the status. For application datasets, the attribute describes the status or number of strings in use. For all other datasets, the attribute describes a JES-related status or disposition.

For a more detailed display of a specific dataset, place the cursor on your choice and press PF11 to zoom.

**Selecting datasets**

To limit a dataset summary to a specific or generic ddname, enter `FILE=ccccccc*` (* indicates generic) after the `FILE` statement. For example, for ddnames starting with TEST:

```
FILE FILE=TEST*
```

To limit a dataset summary to a specific or generic high-level dsname qualifier, enter `DSN=ccccccc*` (* indicates generic) after the `FILE` statement. For example, for files with high-level dsname CICSTEST:

```
FILE DSN=CICSTEST
```

To limit a dataset summary to files on a specific or generic volser, enter `VOL=volser*` (* indicates generic) after the `FILE` statement. For example, for files on volsers starting with DEV1:

```
FILE VOL=DEV1*
```

To limit a dataset summary to files with a specific disposition, enter `DISP=disp` after the `FILE` statement, where disp may be MOD, NEW, OLD, or SHR. For example, for all files allocated to CICS with DISP=SHR:

```
FILE DISP=SHR
```

Also, you can limit the summary display to datasets that meet several different criteria at once. To help you specify the selection criteria, select the Select Files option (L) on the Files path or enter fast path `F.L` from any panel.

The summary display is identical to the one in the previous figure but the `FILE` statement includes the various parameters you can use to filter the summary display. The `FILE` statement is shown in the following figure.
You can enter a specific or generic value for the ddname, high-level dataset name qualifier, volser, or disposition. A generic name is specified as any number of characters followed by an asterisk (*). The * by itself specifies ALL.

For example, to display datasets with ddname starting with ABC, a high-level dsname qualifier of TEST, that reside on volser CICS01, and are of any disposition:

```
FILE DDNAME=ABC* DSNHILEV=TEST VOL=CICS01 DISP=* 
```
### File detail

To view detailed information on a particular file, place the cursor on the dataset line of your choice on a dataset summary display and press PF11. The detailed display contains information common to all file types followed by an additional segment that varies depending on the file type. The following figure shows the information common to all file types.

**FIGURE 86. File Detail Panel (Accessed by Zoom)**

<table>
<thead>
<tr>
<th>FILE</th>
<th>DD=DEG</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dataset name . . . . . :</td>
<td>TDCICS1.TOC.TDOCS01.DEGFILE</td>
</tr>
<tr>
<td>Volume serial number . :</td>
<td>OMON2S</td>
</tr>
<tr>
<td>Device address . . . . :</td>
<td>30B</td>
</tr>
<tr>
<td>Organization . . . . . :</td>
<td>VSAM</td>
</tr>
<tr>
<td>Record format . . . . . :</td>
<td>VSAM</td>
</tr>
<tr>
<td>Record length . . . . . :</td>
<td>n/a</td>
</tr>
<tr>
<td>Blocksize . . . . . . . :</td>
<td>n/a</td>
</tr>
<tr>
<td>EXCP count . . . . . . . :</td>
<td>46</td>
</tr>
<tr>
<td>Primary allocation . . :</td>
<td>n/a</td>
</tr>
<tr>
<td>Secondary allocation . :</td>
<td>n/a</td>
</tr>
<tr>
<td>Number of extents . . . :</td>
<td>n/a</td>
</tr>
<tr>
<td>Disposition . . . . . . :</td>
<td>Shr</td>
</tr>
<tr>
<td>Creation date . . . . . :</td>
<td>04/18/90</td>
</tr>
<tr>
<td>Expiration date . . . . :</td>
<td>None</td>
</tr>
</tbody>
</table>

This panel displays file allocation and usage information for the selected file.

For further information on the file, place the cursor on a zoomable field and press PF11. Zoomable fields are highlighted in white.

### Application datasets

Application datasets are those datasets defined in the File Control Table (FCT). For CICS/ESA, you may define files via CEDA. To display application datasets, select the Application Datasets option (A) or enter fast path F.A from any panel.

For each dataset, you can see the ddname, dataset name, volser, and attributes. The Attributes field describes the status in the FCT:

- number of strings in use (yellow if some strings or red if all strings)
- closed (if VSAM)
- open/disabled (if VSAM)
- open/LSR (if VSAM, open, enabled, no strings in use, LSR)
- open/NSR (if VSAM, open, enabled, no strings in use, no LSR)
- open BDAM
- closed BDAM
You can limit the application datasets summary to specific or generic ddnames, dsnames, volumes or dispositions by entering selection parameters after the `FILE SELECT=FCT` statement (see “Selecting datasets” on page 200).

The additional segment in the application file detail display shows statistics from the File Control Table entry. See “File Control Table (FCT)” on page 250 for more information about the FCT entry.

**CICS datasets**

CICS datasets begin with DFH except that DFHRPL and journals have separate options on the Files path. To display CICS datasets, select the CICS Datasets option (B) on the Files path or enter fast path **F.B** from any panel.

The Attributes field describes the dataset:

- **Trace (A/B)**: Trace datasets DFHAUXT and DFHBUXT.
- **RDO status**: CICS system definition dataset DFHCSD.
- **Dump (A/B)**: CICS dump datasets DFHDMPA and DFHDMPB.
- **Catalog**: Global catalog dataset DFHGCD.
- **TranData**: Transient data dataset DFHINTRA.
- **Jrn/Arch**: Journal output dataset DFHJOUT.
- **Jrn/Arch**: Journal partition dataset DFHJPDS.
- **Catalog**: Local catalog dataset DFHLCD.
- **Sysout**: Sysout datasets DFHSNAP or SYSUDUMP.
- **Sysprint**: Sysprint dataset DFHPRINT.
- **Restart**: Restart dataset DFHRSD.
- **Stats**: Statistics datasets DFHSTM and DFHSTN.
- **TempStor**: Temporary storage dataset DFHTEMP.
- **XRF/Cavm**: Extended recovery control dataset (CAVM) DFHXRCTL.
- **XRF/Msds**: Extended recovery facility messages dataset DFHRMSG.

You can limit the CICS datasets summary to specific or generic ddnames, dsnames, volumes, or dispositions by entering selection parameters after the `FILE SELECT=CICS` statement (see “Selecting datasets” on page 200).
For CICS datasets, the additional segment in the file detail display is related to the type of file as follows:

- **Trace dataset**: Trace component overview.
- **RDO dataset**: FCT entry.
- **Dump dataset**: Dump component overview.
- **Catalog dataset**: VSAM dataset information.
- **TD dataset**: Transient data overview.
- **TS dataset**: Temporary storage overview.
- **Restart dataset**: VSAM dataset information.
- **XRF dataset**: Extended recovery facility status.

**STEPLIB datasets**

The STEPLIB summary contains all datasets in the STEPLIB concatenation in the order defined in the CICS job. To display STEPLIB datasets, select the STEPLIB option (C) on the Files path or enter fast path **F.C** from any panel.

The Attributes field shows the blocksize of each dataset. If the leading library in the concatenation is overridden with a larger blocksize, the attribute field still shows the true blocksize rather than the blocksize currently used.

The additional segment in the STEPLIB file detail display shows all the MVS loaded modules in the CICS address space. The list of modules is loaded from all datasets in the concatenation sequence, not necessarily from the one you selected by zooming.

**JES datasets**

To display JES datasets allocated to the CICS region, select the JES Datasets option (D) on the Files path or enter fast path **F.D** from any panel.

The attribute field describes a JES-related status or disposition such as Sysout, Sysprint, Nullfile, DISP=Mod, New, Old, or Shr.

You can limit the JES dataset summary to specific or generic ddnames, dsnames, volumes, or dispositions by entering selection parameters after the **FILE SELECT=JES** statement (see “Selecting datasets” on page 200).
DFHRPL datasets

To display DFHRPL datasets, select the DFHRPL option (G) or enter fast path F.G from any panel.

The attributes field shows the blocksize of each dataset. If the leading library in the concatenation is overridden with a larger blocksize, the attribute field still shows the true blocksize rather than the blocksize currently used.

You can determine from which load library a load module originates. This can help you to identify whether the appropriate version or library is being used.

Space allocation, extent count, and creation date can help you anticipate the need to reorganize and compress libraries. This data displays when you request file detail. The additional segment of the file detail display for a DFHRPL dataset shows the PPT entries associated with that library.

Journal datasets

To display journal datasets, select the Journal Datasets option (J) on the Files path or enter fast path F.J from any panel.

The summary display shows all journals allocated to CICS. The attribute field shows the status of the journal from among the following:

- in use
- closed
- switching
- waiting for an outstanding WTOR
- tapelog
- no JCT entry found in the Journal Control Table

A status of **Waiting for an outstanding WTOR** needs immediate attention as CICS transactions using that journal might not be able to continue until the WTOR is resolved.

You can limit the journal datasets display to generic or specific ddnames, dsnames, volumes, or dispositions by entering selection parameters after the FILE SELECT=JCT statement (see “Selecting datasets” on page 200).

The additional segment in a journal file detail display is the JCT entry.

IMS datasets

The IMS summary display shows IMS datasets that begin with DFS, IMS or PROCLIB, that are allocated to the CICS region. To display IMS datasets, select the IMS Datasets option (K) on the Files path or enter fast path F.K from any panel.

You can limit the IMS datasets to specific or generic ddnames, dsnames, volumes, or dispositions by entering selection parameters after the FILE SELECT=IMS statement (see “Selecting datasets” on page 200).

The additional segment in the IMS file detail display contains DLI status information.
SYSIN dataset

The SYSIN dataset is available by selecting the All Datasets option (H) on the Files path. This dataset contains overrides to the CICS System Initialization Table values. The additional segment in the SYSIN file detail display shows the SIT.
VSAM Information

VSAM information shows you activity related to:

- open VSAM datasets for which you can display string waits, I/O activity, and CI/CA splits
- LSR pools for which you can display string activity and successful lookaside ratios for strings and buffers in each pool

VSAM datasets

To display summary information for all open VSAM files as shown in the following figure, select the VSAM Datasets option (E) on the Files path or enter fast path F.E from any panel.

FIGURE 87. VSAM Summary Panel (F.E)
This panel shows a summary of all open VSAM files including:

- ddname or FCT entry name
- current file status if FCT-defined
- current number of string waits
- total string waits since file opened
- EXCPs on the data component
- number of control interval splits in the data component
- number of control area splits in the data component

A high number of splits, especially CA splits, can significantly degrade the time to access the file. String waits cause tasks to wait and too many can degrade response time.

To view detailed statistics on a particular VSAM file, position the cursor anywhere on the line describing the file and press PF11 or enter the 1- to 8-character file ID following the VSAM statement. For example, to view details for file APFM910, enter:

`VSAM APFM910`

The VSAM File Detail panel appears as shown in the following figure.
The VSAM file detail panel shows:

- general information such as dname, organization, ACB information, string information, open/close error code, active strings, and whether the file is using LSR
- data and index component information such as number and type of accesses, splits, freespace, extents, writechecks, and shareoptions
- FCT statistics if the file is FCT-defined
- temporary storage or transient data usage statistics if the file contains TS or TD

**Note:** Depending on the file organization or whether the file uses LSR or NSR, you may receive different data on the panel.
LSR pools

To display summary information for local shared resource (LSR) pools in CICS, either for VSAM files or local DL/I databases, select the LSR Pools option (F) on the Files path or enter fast path **F.F** from any panel.

The LSR summary display appears as shown in the following figure.

**FIGURE 89. LSR Pool Summary Panel (F.F)**

---

This panel shows both CICS and VSAM information.

You should tune the number of strings for each pool to keep any string waits down to an absolute minimum. Overspecifying strings to eliminate string waits uses additional virtual storage.

The lookaside ratio shows the percentage of input requests that were able to be serviced from the buffers in virtual storage instead of having to read the file.

If CEDA was used to define the LSR pool, the index component buffers are separated from the data component buffers. In this case the lookaside ratio is based on the combined index and data component buffers. An LSR pool created without CEDA has no index component; its index and data components share buffers.

No buffer or Hiperspace statistics display for closed LSR pools. Hiperspace statistics do not exist for LSR pool 00.

CICS creates each LSR pool when the first file that uses it is opened, and deletes the pool when the last file that uses it is closed. OMEGAMON II collects all available statistics for each pool that has had at least one open dataset since OMEGAMON II startup.

To limit the summary to only DLI or CICS pools, enter **IMS** or **CICS** after the **LSR** statement. For example, to display all DLI LSR pools, enter:
LSR IMS

For a detailed view of an individual LSR pool, place the cursor on the line describing the pool and press PF11.

Or you can enter `POOL=nn` after the `LSR` statement. For example, to display detail for LSR pool 01, enter:

```
LSR POOL=01
```

The LSR Pool Detail panel appears as shown in the following figure.
If you used CEDA to define the LSR pool, this panel displays separate data and index component buffers and Hiperspace buffers.

Lookaside success ratios for Hiperspace buffers are normally high, because CICS does not retrieve records from Hiperspace unless it determines that the record is likely to be there. CICS makes this determination by hashing the record to obtain a synonym and then checking its synonym table for the synonym. If CICS is swapped out, the Hiperspace buffers are
discarded, but the synonym table remains. This can cause the success ratio to fall. CICS regions that use Hiperspace buffers should be specified nonswappable.

To see the files using this LSR pool, place the cursor on the **Number of Open ACBs** field, and press PF11 to zoom.

The File Using Specific LSR Pool panel appears as shown in the following figure.

**FIGURE 91. Files Using Specific LSR Pool (Accessed by Zoom)**

This panel is a FCT summary display for FCT entries specifying LSR Pool 01 which shows:

- ddname or FCT name
- since LSR, access method is always VSAM
- status such as open, closed, enabled, disabled
- record format such as fixed blocked or variable blocked
- number of active strings
- if remote, SYSID of remote system where file resides

For more information about FCT displays, see “File Control Table (FCT)” on page 250.
String waits

To display the files currently experiencing VSAM string or LSR buffer waits, select the VSAM String Waits option (I) on the Files path or enter fast path F.I from any panel. The VSAM String and Buffer Waits panel appears as shown in the following figure.

**FIGURE 92. String and Buffer Waits Panel (F.I)**

Each string represents a concurrent request for access to a VSAM file. The summary display shows, for each file, the tasks that are currently using strings and the tasks that are waiting for strings and LSR buffers. Information appears only for files that are defined in the FCT.

For tasks holding strings, OMEGAMON II displays the wait reason and resource causing the wait. Since certain waits, such as a TC-I/O wait for terminal input could be long-running, you might want to purge that task to free up the string.

You can display detailed information for the task by placing the cursor on the transaction ID and pressing PF11. For information on the task detail display and the steps required to purge a task, see “Task Detail” on page 91 and “Killing a Task” on page 105.

To see detailed information on a file, place the cursor on the filename and press PF11. OMEGAMON II displays detailed file information as shown in Figure 88 on page 209.
Chapter Overview

Databases such as DLI or DB2 are key resources to major CICS applications. A typical CICS application accepts a request from a terminal-user, searches through or updates database(s), and sends the results back to the terminal. Large, complex applications rely on integrated data accessible through a database or sets of interrelated databases. Database access is often the slowest part of CICS response time and therefore should be monitored and well-tuned.

Chapter Contents

Accessing the Databases Path ................................................................. 216
DB2 Interface ....................................................................................... 217
DLI Analysis ......................................................................................... 219
  DLI Summary panel ........................................................................ 219
  DLI General Information panel ...................................................... 221
  DLI databases .................................................................................. 222
  DLI subpools .................................................................................... 224
  DLI ECBs .......................................................................................... 225
  DLI addresses .................................................................................. 226
DBCTL .................................................................................................... 227
Accessing the Databases Path

To access DLI or DB2 information, select the Databases option (D) on the main menu or enter fast path D from any panel. The initial panel on the Database path varies depending on the type of database system installed in your CICS region; it may be DLI Summary, DB2 Interface, or DBCTL Interface. A horizontal menu of the remaining database-related topics appears in the upper portion of each panel in the Databases path. To directly navigate to the other database options, enter one of the selection letters listed on the horizontal menu. Or enter the fast path D.C from any menu system panel.

In addition, you can find task-specific database statistics on any task detail display. These statistics consist of counts by type of request or call for each DLI or third-party database. To access a Task Detail display, zoom on a specific task from any task summary display. You can find task summaries on several options on the Tasks path (fast path T.), the Historical Transaction Overview display (fast path H.), the VSAM String and Buffer Waits display (fast path Fl), several options on the Databases path, and the Enqueue Resources Detail display (fast path B.H). Note that one of the options on the Tasks path is a summary of Tasks using DLI (fast path T.FD).
To display information on the status of the CICS/DB2 attachment facility as well as transaction activity, select the Databases option (D) on the main menu or enter fast path D. from any panel. The DB2 display is the initial selection on the Databases path if DB2 is attached to this CICS region.

DB2 interface information is shown in Figure 93 on page 217.

**FIGURE 93. CICS/DB2 Interface Panel (D.)**

The General Information portion of this panel shows DSNCRCT TYPE=INIT specifications. For information about these fields, refer to IBM's *DB2 System and Administration Guide*. 
In the lower portion of the panel, you see a list of all transactions defined as part of the DB2 plan that have had some DB2 activity. Data is displayed by transaction, not task, as follows:

**Tran ID**
Transaction name.

**Count of Calls**
Number of SQL calls issued.

**Count of Waits**
Number of times the transaction had to wait for a thread.

**Count of Aborts**
Number of aborts.

**Max Act Threads**
Maximum number of active threads defined in the RCT.

**Threads Used HWM**
Maximum number of threads used since the connection was started.

**Threads In Use**
Current number of threads in use.

For detail information on an active transaction, place the cursor on the line containing the transaction ID and press PF11. For details about a transaction without an active thread, enter the transaction ID following the DB2 statement. For example, to display detail for inactive DB2 transaction D8CS, enter:

```
DB2 D8CS
```

DB2 transaction detail appears as in the following figure.

**FIGURE 94. DB2 Transaction Detail Panel (Accessed by Zoom)**

This panel shows a count of read-only commits only for DB2 release 2.2 and above.
OMEGAMON II provides information on local DLI and DBCTL databases. Local DLI database support includes activity for each database and the transactions currently accessing them. DBCTL support includes the status of the CICS/DBCTL connection.

**DLI Analysis**

**DLI Summary panel**

To display information on the status of DLI activity, select the DLI Summary option (B) on the Databases path or enter fast path D.B from any panel. The DLI Summary panel is the initial selection when local DLI (and not DB2) is installed in the CICS region.

The DLI Summary panel appears as shown in the following figure.

**FIGURE 95. DLI Summary Panel (D.B)**
The Activity Summary portion of this panel reflects subpool usage for local DLI requests as follows:

- **Thread Wait**: Number of transactions which had to wait for a DLI thread to become available.
- **DMBPL Wait**: Number of transactions for data management block pool storage.
- **PSBPL Wait**: Number of transactions for program specification block pool storage.
- **DLTHREAD**: Total number of DLI threads defined in the SIT.
- **DMBPL Size**: Size of data management block pool defined in the SIT followed by amount in use and percentage used.
- **PSBPL Size**: Size of program specification block pool defined in the SIT followed by amount in use and percentage used.
- **ENQPL Size**: Size of the enqueue pool defined in the SIT followed by amount in use and percentage used.
- **Calls Active**: Current number of active DLI calls.
- **Calls Active HWM**: Highwater mark of active DLI calls.

The ISB Subpool Summary portion in the lower part of the DLI Summary panel shows any transactions with scheduled PSBs as follows:

- **Tran ID**: Transaction ID for this transaction.
- **Task Number**: Task Number assigned by CICS to this transaction.
- **Program Name**: Name of the scheduling program.
- **Schedule Time**: Time when ISB was scheduled.
- **PSB Name**: Name of the PSB for this transaction.
- **ISB Status**: Status of this ISB, such as waiting or scheduled.
- **PST Address**: Address of assigned PST.

For detailed information about a transaction that has scheduled a PSB, place the cursor on the line containing the task and press PF11. See “Task Detail” on page 91 for a description of the task detail fields displayed.
DLI General Information panel

To display DLI general information, select the DLI General Info option (C) on the Databases path or enter fast path D.C from any menu system panel. DLI general information includes static parameter settings. The display is shown in the following figure.

FIGURE 96. DLI General Information Panel (D.C)

This panel shows:

- **IMS Release**: IMS release level.
- **PDIR Suffix**: PSB directory suffix from the SIT.
- **DDIR Suffix**: DMB directory suffix from the SIT.
- **DLI Startup Option**: DLI startup options, such as Cold or Emergency.
- **DLI Log Record No**: Record number of the next log record to be written.
- **Scheduling Lock Count**: Number of scheduling locks for this DLI.
- **PI Scheduling**: Whether program isolation scheduling is in use.
- **DLI Modules from LPA**: Whether the DLI modules from the LPA will be used.
- **IMS Lock Trace**: Whether the IMS lock tracing is enabled.
- **DBM Monitor**: Whether the DB Monitor is enabled.
- **DLXCPVR**: Whether DLI trace is active.
- **IMS Module Trace**: Whether DLI trace is active.
- **IRLM**: Whether IRLM is active, inactive, or unavailable.
- **DBRC**: Whether DBRC is active, inactive, or unavailable.
DLI databases

To display DLI databases, select the DLI Databases option (D) on the Databases path or enter fast path D.D from any menu system panel. You can see DLI database activity for all databases that are defined in the database directory (DDIR). The display is shown in the following figure.

**FIGURE 97. DLI Databases Panel (D.D)**

<table>
<thead>
<tr>
<th>DBD name</th>
<th>GU</th>
<th>GN</th>
<th>ISRT</th>
<th>REPL</th>
<th>DLET</th>
</tr>
</thead>
<tbody>
<tr>
<td>BE1CHKPT</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>BE2ORDER</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>BE2ORDRX</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>BE2PARTS</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>BE2PCUST</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

For each locally defined database (DBD), this summary display shows the number of get unique, get next, insert, replace and delete operations performed.

For counts of each call type performed for a particular database, place the cursor on the line containing the database name and press PF11.

The Database Detail panel appears as shown in Figure 98 on page 223.
For the selected local database, this panel displays the DBD name, the DDIR entry name, and statistics for the following types of access:

- **GU**: Get Unique.
- **GN**: Get Next.
- **GHU**: Get Hold Unique.
- **GNP**: Get Next in Parent.
- **ISRT**: Insert.
- **GHN**: Get Hold Next.
- **REPL**: Replace.
- **GHNP**: Get Hold Next in Parent.
- **DLET**: Delete.
DLI subpools

To display DLI subpool statistics as shown in the following figure, select the DLI Subpools option (E) on the Databases path or enter fast path D.E from any panel.

FIGURE 99. DLI Subpool Statistics Panel (D.E)

This panel displays information about the ISAM/OSAM pools as defined in the DFSVSAMP dataset for local DLI files.

There is a one line display for each buffer size which includes the buffer size, the number of buffers, successful lookasides, reads, writes, and purges. There is a ratio of lookasides to reads which is lookasides as a percentage of lookasides plus reads.

The last line of the display shows the total virtual storage used by the ISAM/OSAM pools, plus all related control blocks (such as IBPOOL and ISUBPL).
DLI ECBs

To display DLI interface event control blocks (ECBs), select the DLI ECBs option (F) on the Databases path or enter fast path D.F from any panel. The DLI Interface ECBs section of the panel shows the ECB status of various DLI functions. The last task requesting DLI services displays at the bottom of the panel. The DLI ECBs panel appears as shown in the following figure.

FIGURE 100. CICS/DLI Interface ECBs Panel (D.F)

This panel shows the addresses and current settings for the CICS/DLI interface event control blocks (ECBs) located in control block DLP. If any of the ECBs are not posted, a red waiting message displays on color terminals. The message is highlighted on noncolor terminals.

The last line displays the addresses of the ISB, PST, and TCA for the last task to call DLI.
**DLI addresses**

To display DLI interface addresses, select the DLI Addresses option (G) on the Databases path or enter fast path **D.G** from any panel. The DLI Interface Addresses panel appears as shown in the following figure.

**FIGURE 101. CICS/DLI Interface Addresses Panel (D.G)**

This panel displays the addresses of various local DLI control blocks such as the PDIR, DDIR, ISB pool, and PST pool.
If CICS is connected to DBCTL, OMEGAMON II displays the status of the connection and any transactions that have active requests pending with DBCTL. To access the DBCTL interface display, select the DBCTL option (H) on the Databases path or enter fast path D.H from any panel. When you select the Databases option (D) on the main menu, DBCTL is the initial panel on the Databases path if DBCTL (and not DLI and not DB2) is installed in this CICS region. The DBCTL panel appears as shown in Figure 102 on page 227.

This panel displays CICS/DBCTL interface information and all transactions currently using DBCTL. For a description of fields on this panel, refer to "DBCTL" in the chapter on Resources in Volume 1 of this manual.

For task detail, place the cursor on a specific task and press PF11. Zoomable fields, including database statistics, are highlighted in white. For a description of the task detail display see “Task Detail” on page 91.
Chapter Overview

CICS is a dynamic environment. Control tables and settings can be modified dynamically. In maintaining the availability of CICS, it is helpful to view current control block entries and settings. In the CICS path, OMEGAMON II displays control blocks, control tables, facilities, exits, parameter settings, and status indicators that are internal to the region.

Looking at the contents of internal control blocks and the usage of exits and internal facilities can help you to isolate system and application problems in CICS. For example, exits or control tables entries may be incorrectly defined, or there may be an excessive accumulation of: tasks on chains, temporary storage or transient data queues, dumps, or traces.

Chapter Contents

Accessing the CICS Path ................................................................. 231
Accessing control tables ......................................................... 232
Automatic Initiate Descriptors (AIDs) ........................................... 233
AID Kill ................................................................. 235
Common System Area (CSA) .................................................... 236
Destination Control Table (DCT) .................................................. 238
DLI Data Management Block Directory (DDIR) ............................. 242
DLI Program Specification Block Directory (PDIR) ....................... 244
CICS Dumps ............................................................. 246
CICS Exits ............................................................... 247
Extended Recovery Facility (XRF) ................................................ 249
File Control Table (FCT) ....................................................... 250
Interval Control Elements (ICEs) ............................................... 255
ICE Kill .............................................................. 257
Journal Control Table (JCT) ..................................................... 258
Processing Program Table (PPT) ............................................... 261
System Initialization Table (SIT) ................................................ 264
Terminal Control Table Prefix (TCTFX) ....................................... 266
Temporary Storage Usage ....................................................... 267
Temporary Storage Queues ...................................................... 269
Terminal Control Table (TCT) ................................................... 271
CICS Trace ............................................................... 276
Program Control Table (PCT) ................................................................. 278
Transient Data ................................................................................... 281
CICS Shutdown Option ..................................................................... 284
Accessing the CICS Path

To access the CICS internals displays, select the CICS option (C) on the Main Menu or enter fast path C. from any panel. This option starts you on the CICS path. The initial panel on the CICS path is a 2-column menu of CICS options in alphabetical order, as shown in the following figure.

**FIGURE 103. CICS Options Menu Panel (C.)**

When you select an option from this menu, the display includes a horizontal menu of CICS path options across the upper portion of the panel. The display of the control block or facility appears in the lower portion of the panel. Subsequent displays on the CICS path include the horizontal menu.

All of the panels on this path are display only. You can view relevant control blocks and control tables. But, you must make any updates or corrections through the usual IBM-provided facilities, such as resource definition online (RDO).

Several levels of detail are often available and can be accessed by zooming.

The CICS path also includes two Storage Options: PAM DSA (option O) and PAM EDSA (option P). These options take you directly to a map of the storage allocated to DSA or EDSA in the Storage path. From there you can choose other storage-related options from the horizontal storage menu.

In addition, the CICS path includes the DLI option (E) which takes you directly to the Databases path.
Accessing control tables

CICS control tables define all resources in CICS. CICS uses these control tables to find out the attributes of its resources and also to dynamically track their usage. Incorrect table entries may cause problems. When an application problem arises, it is helpful to check the relevant control table entries.

You define control table entries through macros or Resource Definition Online (RDO). Table entries include the parameters you specify, the contents of RDO profiles, and CICS indicators.

You access the contents of all the control tables in the same way as follows:

1. First, you see a list of attribute categories relevant to the specific table.
2. When you zoom (PF11) on a category, one of which is All Table Entries, you then see a summary of table entries that fit the category.
3. The summary panel displays key elements for each entry.
4. You can zoom (PF11) on a specific entry to display it in full detail.
Automatic Initiate Descriptors (AIDs)

An AID represents a request to CICS to start a task where CICS is unable to do so because a resource such as a terminal or system link is not available. A common reason for an accumulation of AIDs is a printer, terminal, or remote connection out of service.

To view a summary display of all AIDs in your CICS region, select the AIDs option (A) on the CICS path or enter fast path C.A from any panel. A summary appears as shown in the following figure.

**FIGURE 104. Automatic Initiate Descriptors (AIDs) Panel (C.A)**

This panel shows:

- **Tran ID**: Transaction identifier of the task the AID will start.
- **Term ID**: Terminal device on which the task will start.
- **Term Status**: Terminal status of the device on which the task will start. For example, ACQ INS means that the device is acquired and in service.
- **Owning System**: Which CICS system owns the particular device.
- **AID Type**: Current AID type which may be:
  - **BMS Sch**: Scheduled by Basic Mapping Support (BMS).
  - **ICP Sch**: Interval Control Put data request.
  - **IC Init**: Interval Control Initiate.
  - **TDP Sch**: Scheduled by Transient Data.
  - **ISC Sch**: Scheduled by Intersystem Communication.
  - **Rem Del**: Remote Delete request.
Automatic Initiate Descriptors (AIDs)

Request ID  Request identifier associated with this AID.
AID Address  Location of the AID in memory.

You can limit the AID summary display to AIDs associated with a terminal or transaction by entering **TERM=cccc** or **TRAN=cccc** after the AIDS statement where **cccc** is a specific or generic terminal or transaction ID. Use * to specify a generic ID. For example,

```
AIDS TRAN=AB*
```

displays the AIDs associated with transactions starting with AB.

To display detailed information about an AID, place the cursor on the line describing the AID and press **PF11**.

A detail display appears as shown in Figure 105 on page 234.

**FIGURE 105. AID Detail Panel (Accessed by Zoom)**

```
ZZAID  VTM  CICSP01  V520./I SYSA 02/03/99 16:28:43
> PF1 Help PF3 Back  PF4 Main Menu  PF7 Up  PF8 Down  PF11 Zoom

===================================================================
> AID DETAIL

+ ADDRESS=00121090
+ Transaction ID . . . . : CRSR  AID address . . . . . . . . : 00121090
+ Request ID . . . . . . : None  Owning sysid . . . . . . . : TDOCSIRS
+ AID type . . . . . . . : IC Init  Userid . . . . . . . . . . : None
+ AID status . . . . . . : Waiting for target system
+ Terminal Information
+ Terminal ID. . . . . . : MIRS  TCTTE address . . . . . : 0013B1B0
+ Terminal type. . . . : System  Terminal model . . . . : None
+ Session status . . . . : n/a  VTAM netname . . . . : TDOCSIRS
+ Service status . . . . : Ins  Session create status . . : n/a

===================================================================
```

The AID detail display helps you to analyze the target terminal so that you can find out why the AID is delayed. For more information on the target terminal, place the cursor on the Terminal ID field and press **PF11**.

For a hexadecimal and character equivalent of the AID, place the cursor on AID address and press **PF11**.
AID Kill

You can terminate either a single AID or a group of AIDs. To identify AIDs to kill, select the AID Kill option (B) on the CICS path or enter fast path C.B from any panel. A summary of all AIDs appears that is the same as the AIDs summary in Figure 104 on page 233.

To select a specific AID for termination, scroll through the AIDs Kill Summary, place the cursor on the AID, and press PF11. To kill all AIDs associated with a terminal or transaction, enter TERM=cccc or TRAN=cccc after the AIDK statement, followed by KILL. cccc indicates a specific or generic terminal or transaction ID. Use * to specify a generic ID. For example,

AIDK TRAN=AB* KILL

kills the AIDs associated with transactions starting with AB.

When you request AIDs termination, a prompt panel appears for confirmation. Enter YES to continue with termination or press PF3 to cancel the request and return to the summary display.

You can use the AIDK limit keyword to limit the number of AIDs killed when you use the terminal or transaction ID qualifier. For example, the command

AIDK TERM=M444 KILL LIMIT=10

will eliminate the 10 first aids found for terminal M444.
Common System Area (CSA)

The CSA is a common area in CICS that contains status indicators and controls CICS activity. The CSA display presents selected fields from the CSA in four categories: general, counts and limits, addresses, and status. Status information highlights certain exceptional conditions such as short-on-storage (SOS) or MAXTASKS.

To display the CSA as shown in Figure 106 on page 236, select the CSA option (C) on the CICS path or enter fast path C.C from any panel.

You can enter CMXT or DUMP after CSA to display Classes or the dump.

FIGURE 106. Common System Area (CSA) Panel (C.C)
**Note:** In CICS/ESA Version 4, the Classes 1-10 max tasks field does not appear under the Counts and units section of this panel.

There are several fields for which additional detail is available. To select a field for more detail, place the cursor on the field and press PF11. These fields include: CSA address, Classes max tasks, ICE chain, SIT, and TCT prefix. Zoomable fields are highlighted in white.
Destination Control Table (DCT)

The DCT contains entries for extrapartition and intrapartition transient data queues (Dest IDs). Extrapartition queues provide access to sequential files outside of the CICS region. Intrapartition queues provide access to sequential queues within the CICS region and are often used with Automatic Transaction Initiation (ATI) to trigger transactions on another terminal.

To display DCT entry attributes as shown in the following figure, select the DCT option (D) on the CICS path or enter fast path C.D from any panel.

**FIGURE 107. Destination Control Table Attributes Panel (C.D)**

To select destinations with a specific attribute, place the cursor on the line describing the attribute and press PF11. To select a specific destination, you can enter **ID=queue name** after **DCT**.

**TABL DCT,ID=DFH***

For a DCT entry in dump format, enter **DUMP** after **queue name**.

**TABL DCT,ID=queue name DUMP**

To select destinations with several attributes, enter **SEL=** followed by a list of attributes. The syntax is:

**TABL DCT,SEL=(attr1,attr2,....,attrn)**

---

*To select destinations with a specific attribute, place the cursor on the line describing the attribute and press PF11. To select a specific destination, you can enter **ID=queue name** after **DCT**.

**TABL DCT,ID=DFH***

For a DCT entry in dump format, enter **DUMP** after **queue name**.

**TABL DCT,ID=queue name DUMP**

To select destinations with several attributes, enter **SEL=** followed by a list of attributes. The syntax is:

**TABL DCT,SEL=(attr1,attr2,....,attrn)**

---

*To select destinations with a specific attribute, place the cursor on the line describing the attribute and press PF11. To select a specific destination, you can enter **ID=queue name** after **DCT**.

**TABL DCT,ID=DFH***

For a DCT entry in dump format, enter **DUMP** after **queue name**.

**TABL DCT,ID=queue name DUMP**

To select destinations with several attributes, enter **SEL=** followed by a list of attributes. The syntax is:

**TABL DCT,SEL=(attr1,attr2,....,attrn)**

---

*To select destinations with a specific attribute, place the cursor on the line describing the attribute and press PF11. To select a specific destination, you can enter **ID=queue name** after **DCT**.

**TABL DCT,ID=DFH***

For a DCT entry in dump format, enter **DUMP** after **queue name**.

**TABL DCT,ID=queue name DUMP**

To select destinations with several attributes, enter **SEL=** followed by a list of attributes. The syntax is:

**TABL DCT,SEL=(attr1,attr2,....,attrn)**

---

*To select destinations with a specific attribute, place the cursor on the line describing the attribute and press PF11. To select a specific destination, you can enter **ID=queue name** after **DCT**.

**TABL DCT,ID=DFH***

For a DCT entry in dump format, enter **DUMP** after **queue name**.

**TABL DCT,ID=queue name DUMP**

To select destinations with several attributes, enter **SEL=** followed by a list of attributes. The syntax is:

**TABL DCT,SEL=(attr1,attr2,....,attrn)**

---

*To select destinations with a specific attribute, place the cursor on the line describing the attribute and press PF11. To select a specific destination, you can enter **ID=queue name** after **DCT**.

**TABL DCT,ID=DFH***

For a DCT entry in dump format, enter **DUMP** after **queue name**.

**TABL DCT,ID=queue name DUMP**

To select destinations with several attributes, enter **SEL=** followed by a list of attributes. The syntax is:

**TABL DCT,SEL=(attr1,attr2,....,attrn)**

---

*To select destinations with a specific attribute, place the cursor on the line describing the attribute and press PF11. To select a specific destination, you can enter **ID=queue name** after **DCT**.

**TABL DCT,ID=DFH***

For a DCT entry in dump format, enter **DUMP** after **queue name**.

**TABL DCT,ID=queue name DUMP**

To select destinations with several attributes, enter **SEL=** followed by a list of attributes. The syntax is:

**TABL DCT,SEL=(attr1,attr2,....,attrn)**

---

*To select destinations with a specific attribute, place the cursor on the line describing the attribute and press PF11. To select a specific destination, you can enter **ID=queue name** after **DCT**.

**TABL DCT,ID=DFH***

For a DCT entry in dump format, enter **DUMP** after **queue name**.

**TABL DCT,ID=queue name DUMP**

To select destinations with several attributes, enter **SEL=** followed by a list of attributes. The syntax is:

**TABL DCT,SEL=(attr1,attr2,....,attrn)**

---

*To select destinations with a specific attribute, place the cursor on the line describing the attribute and press PF11. To select a specific destination, you can enter **ID=queue name** after **DCT**.

**TABL DCT,ID=DFH***

For a DCT entry in dump format, enter **DUMP** after **queue name**.

**TABL DCT,ID=queue name DUMP**

To select destinations with several attributes, enter **SEL=** followed by a list of attributes. The syntax is:

**TABL DCT,SEL=(attr1,attr2,....,attrn)**

---

*To select destinations with a specific attribute, place the cursor on the line describing the attribute and press PF11. To select a specific destination, you can enter **ID=queue name** after **DCT**.

**TABL DCT,ID=DFH***

For a DCT entry in dump format, enter **DUMP** after **queue name**.

**TABL DCT,ID=queue name DUMP**

To select destinations with several attributes, enter **SEL=** followed by a list of attributes. The syntax is:

**TABL DCT,SEL=(attr1,attr2,....,attrn)**

---

*To select destinations with a specific attribute, place the cursor on the line describing the attribute and press PF11. To select a specific destination, you can enter **ID=queue name** after **DCT**.

**TABL DCT,ID=DFH***

For a DCT entry in dump format, enter **DUMP** after **queue name**.

**TABL DCT,ID=queue name DUMP**

To select destinations with several attributes, enter **SEL=** followed by a list of attributes. The syntax is:

**TABL DCT,SEL=(attr1,attr2,....,attrn)**

---

*To select destinations with a specific attribute, place the cursor on the line describing the attribute and press PF11. To select a specific destination, you can enter **ID=queue name** after **DCT**.

**TABL DCT,ID=DFH***

For a DCT entry in dump format, enter **DUMP** after **queue name**.

**TABL DCT,ID=queue name DUMP**

To select destinations with several attributes, enter **SEL=** followed by a list of attributes. The syntax is:

**TABL DCT,SEL=(attr1,attr2,....,attrn)**

---

*To select destinations with a specific attribute, place the cursor on the line describing the attribute and press PF11. To select a specific destination, you can enter **ID=queue name** after **DCT**.

**TABL DCT,ID=DFH***

For a DCT entry in dump format, enter **DUMP** after **queue name**.

**TABL DCT,ID=queue name DUMP**

To select destinations with several attributes, enter **SEL=** followed by a list of attributes. The syntax is:

**TABL DCT,SEL=(attr1,attr2,....,attrn)**

---

*To select destinations with a specific attribute, place the cursor on the line describing the attribute and press PF11. To select a specific destination, you can enter **ID=queue name** after **DCT**.

**TABL DCT,ID=DFH***

For a DCT entry in dump format, enter **DUMP** after **queue name**.

**TABL DCT,ID=queue name DUMP**

To select destinations with several attributes, enter **SEL=** followed by a list of attributes. The syntax is:

**TABL DCT,SEL=(attr1,attr2,....,attrn)**

---

*To select destinations with a specific attribute, place the cursor on the line describing the attribute and press PF11. To select a specific destination, you can enter **ID=queue name** after **DCT**.

**TABL DCT,ID=DFH***

For a DCT entry in dump format, enter **DUMP** after **queue name**.

**TABL DCT,ID=queue name DUMP**

To select destinations with several attributes, enter **SEL=** followed by a list of attributes. The syntax is:

**TABL DCT,SEL=(attr1,attr2,....,attrn)**

---

*To select destinations with a specific attribute, place the cursor on the line describing the attribute and press PF11. To select a specific destination, you can enter **ID=queue name** after **DCT**.

**TABL DCT,ID=DFH***

For a DCT entry in dump format, enter **DUMP** after **queue name**.

**TABL DCT,ID=queue name DUMP**

To select destinations with several attributes, enter **SEL=** followed by a list of attributes. The syntax is:

**TABL DCT,SEL=(attr1,attr2,....,attrn)**

---

*To select destinations with a specific attribute, place the cursor on the line describing the attribute and press PF11. To select a specific destination, you can enter **ID=queue name** after **DCT**.

**TABL DCT,ID=DFH***

For a DCT entry in dump format, enter **DUMP** after **queue name**.

**TABL DCT,ID=queue name DUMP**

To select destinations with several attributes, enter **SEL=** followed by a list of attributes. The syntax is:

**TABL DCT,SEL=(attr1,attr2,....,attrn)**
You can use the wildcard character * in queuename. For example:

- **ID=DFH**
  - Specifies queuenames beginning with DFH.
- **ID=*YZ**
  - Specifies queuenames ending with YZ.
- **ID=A*B**
  - Specifies queuenames beginning with A and having a B anywhere but at the end of the name.

If you zoom on the **All Table Entries** field, a DCT summary panel appears as shown in the following figure.

**FIGURE 108. DCT Summary Panel (Accessed by Zoom)**
For each destination ID that fits the selected category, this panel shows:

**Dest ID**  
Transient data queue name.

**Dest Type**  
Whether this is an intrapartition, extrapartition, indirect, or remote queue.

**Dest Status**  
Whether this destination is OPEN, ENABLED, OPIP (Open in Progress), or CLIP (Close in Progress).

**Indirect Queue**  
Final destination name for indirect queues.

**ATI Facility**  
Terminal or destination ID for automatic transaction initiation.

**ATI Tran ID**  
Transaction ID for automatic transaction initiation.

**Trigger Level**  
Transient data trigger level for automatic transaction initiation.

To display detailed information on a particular Dest ID (queue name), place the cursor on that line and press PF11.

The detailed information displayed depends on the type of queue. For an extrapartition queue entry, the panel appears as shown in the following figure.

**FIGURE 109. Extrapartition DCT Entry Panel (Accessed by Zoom)**

For a detailed indirect intrapartition queue entry, the panel appears as shown in the following figure.

---

**TABLE VTM $CICSTOR V520/I SYSA 02/03/99 12:21:39**

---

240 OMEGamon II for CICS Reference Manual, Volume 2, Version 520
FIGURE 110. Indirect Intrapartition DCT Entry Panel (Accessed by Zoom)
**DLI Data Management Block Directory (DDIR)**

The DDIR contains entries describing each DLI database in the CICS region.

To display DDIR entry attributes as shown in Figure 111 on page 242, select the DDIR option (F) on the CICS path or enter fast path C.F from any panel.

**FIGURE 111. DLI DMB Directory Attributes Panel (C.F)**

To select DMBs with a specific attribute, place the cursor on the line describing the attribute and press PF11. To select a specific DMB, you can enter `ID=dmbname` after DDIR as in the following example.

```
TABLE DDIR, ID=BASE*
```

For a DMB entry in dump format, enter DUMP after `dmbname`:

```
TABLE DDIR, ID=dmbname DUMP
```

To select DMBs with several attributes, enter `SEL=` followed by a list of attributes. The syntax is:

```
TABLE DDIR, SEL=(attr1,attr2,.....attrn)
```

You can use the wildcard character * in dmbname. For example:

- `ID=DFH*` Specifies DMBs beginning with DFH.
- `ID=*YZ` Specifies DMBs ending with YZ.
- `ID=A*B*` Specifies DMBs beginning with A and having a B anywhere but at the end of the name.

If you zoom on the All Table Entries field, a DDIR summary appears as shown in the following figure.
For each database definition in the selected category, this panel shows:

**DMB ID**
Identifies the Data Management Block.

**Database Status**
Current status of this database such as Started or Stopped.

**Access Level**
Access level of this DMB: Read, Read Only, Update, and Exclude.

**DMB Number**
Number of the current DMB.

**Core Address**
Location of this DMB in storage.

**DMB Size**
Size of this DMB.

**Active PSTs**
Number of currently active PSTs.

To display detailed information on a particular DMB, place the cursor on that line and press PF11. The detailed information for a DMB includes the Database Share Level.
DLI Program Specification Block Directory (PDIR)

The PDIR is a table defining PSBs which DLI application programs use to access DLI databases.

To display PDIR entry attributes as shown in the following figure, select the PDIR option (G) on the CICS path or enter fast path C.G from any panel.

FIGURE 113. DLI PSB Directory Attributes Panel (C.G)

To select PSBs with a specific attribute, place the cursor on the line describing the attribute and press PF11. To select a specific PSB, enter \texttt{ID=psbname} after \texttt{PDIR} as in the following example.

\texttt{TABLE PDIR,ID=PC2*}

For a PDIR entry in dump format, enter \texttt{DUMP after psbname}.

\texttt{TABLE PDIR,ID=psbname DUMP}

To select PSBs with several attributes, enter \texttt{SEL=} followed by the list of attributes. The syntax is:

\texttt{TABLE PDIR,SEL=(attr1,attr2,.....attrn)}

You can use the wildcard character * in psbname. For example:

\texttt{ID=DFH*}  \hspace{1cm}  Specifies PSBs beginning with DFH.
\texttt{ID=YZ}  \hspace{1cm}  Specifies PSBs ending with YZ.
\texttt{ID=A*B*}  \hspace{1cm}  Specifies PSBs beginning with A and having a B anywhere but at the end of the name.

If you zoom on the \texttt{All Table Entries} field, a PDIR summary appears as shown in the following figure.
For each PSB entry in the selected category, this panel shows:

**PSB ID**
Identifies the Program Specification Block.

**Schedule Status**
Whether this PSB is scheduled.

**Readonly PSB**
Whether this is a read-only PSB.

**Schedule Origin**
Origin of the PSB schedule such as: CICS, Batchtype 2, and Batchtype 3.

**Core Address**
Location of this PSB in storage.

**PSB Size**
Size of the PSB in bytes.

**Intent List**
Address of the intent list for this PSB.

To display detailed information on a particular PSB, place the cursor on that line and press PF11.

The detailed information for a PSB includes whether the PSB is locked.
CICS Dumps

To view general information and dump table entries for the CICS dump component, which manages system and transaction dumps, select the Dumps option (H) on the CICS path or enter fast path C.H from any panel. The Dump Component panel appears as shown in the following figure.

**FIGURE 115. Dump Component Panel (C.H)**

For all CICS releases, this panel shows general information on the status of the dump datasets, the number of dumps taken, the suppression status, and the number of dumps suppressed.

For CICS/ESA regions, this panel includes a summary of the dumpcodes that are in the CICS dump code table. CICS maintains a list of 8-character system dumpcodes and 4-character user dumpcodes that allows attributes to be associated with a dump request. These attributes include whether the dump request will provide a system and/or transaction dump and the maximum number of dumps to be taken for that dumpcode.

To view detailed file information on the dump dataset, place the cursor on the dataset name and press PF11.
CICS Exits

Exits provide installation or product specific enhancements to CICS. Third party products, including OMEGAMON II, use CICS exits as part of their processing. To display the usage of these exits, select the Exits option (I) on the CICS path or enter fast path C.I from any panel. The Exits panel appears as shown in the following figure.

FIGURE 116. Exits Panel (C.I)

This display contains two segments: Global Exit Programs and Exit Program Blocks.

The first segment shows which Global User Exits (GLUEs) have been enabled:

- **Exit Name**
  - CICS defined exit point. For more information on an exit point, refer to the IBM CICS Customization Guide for the appropriate release of your CICS system.

- **Entry Name**
  - Name used when the exit was enabled.

- **Program Name**
  - CICS program where the exit code resides.

- **Global Address**
  - Address of the exit’s work area, if requested at exit enablement. If no area is requested, the value is 0.

- **Global Length**
  - Size of the exit’s work area.
The second segment shows which exit programs exist for either GLUEs or Task Related User Exits (TRUEs):

<table>
<thead>
<tr>
<th><strong>Exit Status</strong></th>
<th>Status of CICS at exit which may be Act (Active), Stop (Stopped but defined), Ena (enabled but not active), or Dis (disabled).</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>EPB Address</strong></td>
<td>Address of the Exit Program Block.</td>
</tr>
<tr>
<td><strong>Entry Name</strong></td>
<td>Name used when the exit was enabled.</td>
</tr>
<tr>
<td><strong>Global Address</strong></td>
<td>Address of the exit’s work area, if requested at exit enablement. If no area is requested, the value is 0.</td>
</tr>
<tr>
<td><strong>Global Length</strong></td>
<td>For GLUEs, the size of the global work area.</td>
</tr>
<tr>
<td><strong>Tsk Area Length</strong></td>
<td>For TRUEs, the size of the task work area. For GLUEs this value is 0.</td>
</tr>
<tr>
<td><strong>Exit Status</strong></td>
<td>Status of GLUEs and TRUEs at exit which may be: Act (Active), Stop (Stopped but defined), Ena (enabled but not active), or Dis (disabled).</td>
</tr>
<tr>
<td><strong>Interest Profile</strong></td>
<td>Interest profile schedule word for TRUEs, which defines the allowed calls to TRUEs. For GLUEs, this field is not applicable (n/a). The following characters indicate how the TRUE is invoked:</td>
</tr>
<tr>
<td>A</td>
<td>By application calls using the DFHRCAL macro.</td>
</tr>
<tr>
<td>T</td>
<td>At the start and end of every task.</td>
</tr>
<tr>
<td>C</td>
<td>During CICS termination.</td>
</tr>
<tr>
<td>S</td>
<td>By CICS sync point processing.</td>
</tr>
</tbody>
</table>
Extended Recovery Facility (XRF)

XRF provides recovery of a region by having a fully defined alternate region readily available to replace the operation of the failed region.

To display the health of your active and alternate CICS systems configured for XRF, select the XRF option (J) on the CICS path or enter fast path **C.J** from any panel. The Extended Recovery Facility Status panel appears as shown in the following figure.

**FIGURE 117. Extended Recovery Facility Status Panel (C.J)**

The heartbeat interval represents the rate in seconds at which the CICS Availability Manager (CAVM) writes records to the surveillance file. The last surveillance times for the CAVM and CICS indicate when the respective components initiated examination of surveillance data.

VTAM error data is collected as long as no XXRSTAT exit specifying a nonzero return code is active.

For information about the XRF-related SIT operands TAKEOVER, ADI, and JESDI, select the SIT option (R) on the CICS path (see “System Initialization Table (SIT)” on page 264).
File Control Table (FCT)

VSAM files, BDAM files, and datatables that are accessed in the CICS region are defined in the FCT. Remote files include a SYSID indicator for function shipping.

Applications access files by filename. The remaining file attributes such as dsname, type, disposition, LSR pool, status, and strings are defined in the FCT.

To display FCT entry attributes, select the FCT option (K) on the CICS path or enter fast path C.K from any panel.

A list of FCT entry attribute categories appears as shown in the following figure.

FIGURE 118. File Control Table Attributes Panel (C.K)

To select files with a specific attribute, place the cursor on the line describing the attribute and press PF11. To select a specific file, enter ID=filename after FCT.

**TABL FCT,ID=DFH**

For an FCT entry in dump format, enter DUMP after filename.

**TABL FCT,ID=filename DUMP**

To select files with several attributes, enter SEL= followed by a list of attributes. The syntax is:

**TABL FCT,SEL=(attr1,attr2,......attrn)**

To list all datatables, use:

**TABL FCT,SEL=DTB**

From there, you can zoom to detail information about a specific data table.
You can use the wildcard character * in filename. For example:

**ID=DFH***
- Specifies filenames beginning with DFH.

**ID=*YZ**
- Specifies filenames ending with YZ.

**ID=A*B***
- Specifies filenames beginning with A and having a B anywhere but at the end of the name.

If you zoom on the **All Table Entries** field, an FCT summary appears as shown in the following figure.

**FIGURE 119. FCT Summary Panel (Accessed by Zoom)**

For each file in the selected category, this panel shows:

**File ID**
- Identifies the file in the FCT.

**File Access**
- Access method such as: VSAM, BDAM, or OSAM.

**File Status**
- Whether the file is enabled, disabled, open, or closed.

**Data Format**
- How the file was formatted, such as FB (Fixed Blocked) or VB (Variable Blocked).

**Share Control**
- Local Shared Resource pool information.
If you have a large number of filenames at your site, some of the file summary displays may exceed your OMEGAMON II LROWS (logical rows) limit. To scroll down through a long files listing, enter a character immediately preceding the TABL FCT statement. This character specifies the number of display lines to skip. It may be 1–9 or A–Z, referring to 1–9 or 10–36 lines on the display to skip.

To display detailed information on a particular file, place the cursor on that line and press PF11.

The detailed information displayed depends on whether the file is VSAM, BDAM, remote, or a datatable. A VSAM entry appears as shown in the following figure.

**FIGURE 120. FCT Entry Panel for VSAM File (Accessed by Zoom)**

A BDAM entry appears as shown in the following figure.
Note: The time the file was opened is not available for CICS Version 2.1.2.

If an FCT entry is for a remote file, the following section appears after the Resource Security Level.

FIGURE 122. FCT Entry - Remote Information

For a remote entry, the next part of the display starts from the File Statistics section.

If the FCT entry is a datatable, the following section appears.
FIGURE 123. FCT Entry - Data Table Information

<table>
<thead>
<tr>
<th>CICS Data Table Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>Data table status . . . : Open</td>
</tr>
<tr>
<td>Data table recoverable : No</td>
</tr>
<tr>
<td>Entries (current) . . . : 104</td>
</tr>
<tr>
<td>Entries in use (current): 104</td>
</tr>
<tr>
<td>Data table size . . . : 4000</td>
</tr>
<tr>
<td>Successful reads . . . : 0</td>
</tr>
<tr>
<td>Records loaded . . . : 104</td>
</tr>
<tr>
<td>Adds/loads rejected . . : 0</td>
</tr>
<tr>
<td>Successful updates . . : 0</td>
</tr>
</tbody>
</table>

For more information about files in your CICS region, see “Files” in the chapter on Resources in volume 1 of this manual.
Interval Control Elements (ICEs)

An ICE is created whenever a time-dependent request for a CICS service is made. When the expiration time for the ICE is reached, the CICS service requested is initiated if the resources required for the service are available. If the requested service is task initiation, CICS creates an AID on ICE expiration. The AID will either initiate the task or wait until required resources become available.

To view a summary display of all ICEs in your CICS region as shown in the following figure, select the ICEs option (L) on the CICS path or enter fast path C.L from any panel.

FIGURE 124. Interval Control Elements (ICEs) Panel (C.L)

This panel shows:

- **Expiry Time**: Time of ICE expiration.
- **Expiry Date**: Day of ICE expiration.
- **Tran ID**: Transaction ID invoked when the ICE expires.
- **Term ID**: Terminal ID indicating the terminal device on which the task will start.
- **ICE Type**: The same types as AIDS except for Rem Del. Two additional types include:
  - **Wait**: ICE wait.
  - **Post**: ICE post.
- **Request ID**: Request identifier associated with this ICE.
- **ICE Address**: Location of ICE in memory.

To limit the ICE summary display to ICEs associated with a terminal or transaction, enter **TERM=cccc** or **TRAN=cccc** after the ICES statement where **cccc** is a specific or generic terminal or transaction ID. Use * to specify a generic ID. For example,

**ICES TRAN=AB**

displays the ICEs associated with transactions starting with AB.
To display detailed information about an ICE, place the cursor on the line describing the ICE and press PF11. An ICE Detail panel appears as shown in the following figure.

**FIGURE 125. ICE Detail Panel (Accessed by Zoom)**

For a hexadecimal and character equivalent of the ICE, place the cursor on **ICE address** and press PF11.
ICE Kill

You can kill either a single ICE or a group of ICEs. To select ICEs to kill, select the ICE Kill option (M) on the CICS path or enter fast path **C.M** from any panel. A summary of all ICEs appears which is the same as the summary shown in Figure 124 on page 255.

To isolate a specific ICE for termination, place the cursor on that ICE and press PF11. To kill all ICEs associated with a terminal or transaction, enter **TERM=cccc** or **TRAN=cccc** after the ICEK statement, followed by **KILL**. **cccc** indicates a specific or generic terminal or transaction ID. Use * to specify a generic ID. For example,

```
ICEK TRAN=AB* KILL
```

kills the ICEs associated with transactions starting with AB.

When you request ICE termination, a confirmation panel appears. Enter **YES** to continue with termination or press PF3 to cancel the request and return to the summary display.
Journal Control Table (JCT)

CICS journals contain before-images for dynamic transaction backout (DTB) and may contain afterimages for forward recovery of files or databases. Also, applications may write user journal records. Each journal used by the region is defined in the JCT. Journals are accessed by number.

To display JCT entry attributes as shown in the following figure, select the JCT option (N) on the CICS path or enter fast path C.N from any panel.

**FIGURE 126. Journal Control Table Attributes Panel (C.N)**

To select journals with a specific attribute, place the cursor on the line describing the attribute and press PF11. To select a specific journal, you can enter \texttt{ID=journalnumber} after JCT.

\texttt{TABL JCT,ID=0*}

The above statement produces a summary display of journals 1–9.

For a JCT entry in dump format, enter \texttt{DUMP} after journalnumber.

\texttt{TABL JCT,ID=journalnumber DUMP}

To select journals with several attributes, enter \texttt{SEL= followed by a list of attributes. The syntax is:}

\texttt{TABL JCT,SEL=(attr1,attr2,.....attrn)}

If you zoom on the All Table Entries field, a JCT summary appears as shown in the following figure.
For each journal, this panel shows:

**Journal ID**
Journal identifier in the JCT.

**Journal Type**
Type of journal such as Tape, Disk, or SMF.

**I/O Type**
Whether this is an input or output journal.

**Journal Status**
Whether this journal is open, closed, or switching.

**Current Extent**
CICS ddname for this journal.

**Switch Options**
Options this journal will use when switching and pausing.

**Error Options**
Options this journal will use when I/O errors are encountered, such as Retry and Crucial.

To display detailed information on a particular journal, place the cursor on that line and press PF11. The journal entry appears as shown in the following figure.
FIGURE 128. JCT Entry Panel (Accessed by Zoom)
**Processing Program Table (PPT)**

All programs (load modules) managed by CICS Program Management are defined in the PPT. PPT entries are defined through macros or RDO and also include information from the Loader Domain for CICS/ESA.

To display PPT entry attributes as shown in the following figure, select the PPT option (Q) on the CICS path or enter fast path **C.Q** from any panel.

**FIGURE 129. Processing Program Table Attributes Panel (C.Q)**

```
<table>
<thead>
<tr>
<th>ZPPT</th>
<th>VTM</th>
<th>$CICSTOR V520./I SYSA 02/03/93 9:37:59</th>
</tr>
</thead>
<tbody>
<tr>
<td>&gt; PF1 Help</td>
<td>PF3 Back</td>
<td>PF4 Main Menu</td>
</tr>
<tr>
<td>&gt; A-AIDs</td>
<td>B-AID Kill</td>
<td>C-CSA</td>
</tr>
<tr>
<td>&gt; H-Dumps</td>
<td>I-Exits</td>
<td>J-XRF</td>
</tr>
<tr>
<td>&gt; O-PAM DSA</td>
<td>P-PAM EDSA</td>
<td>Q-PPT</td>
</tr>
<tr>
<td>&gt; V-TCT</td>
<td>W-Trace</td>
<td>X-PCT</td>
</tr>
</tbody>
</table>
================================================================================
> PROCESSING PROGRAM TABLE (PROGRAMS)
TABL PPT
+ Assembler ........ : ASM
+ COBOL ............ : COB
+ C programs ........ : C
+ Disabled .......... : DIS
+ Enabled ........... : ENA
+ Macro level ........ : MAC
+ BMS map ........... : MAP
+ PL1 .............. : PL1
+ RPL loaded .......... : RPL
+ Non-zero use count .. : USE
+ All table entries ... : *
================================================================================
```

To select programs with a specific attribute, place the cursor on the line describing the attribute and press PF11. To select a specific program, you can enter **ID=program** after **PPT** as in the following example.

**TABL PPT ID=DFHABCD**

For a program entry in dump format, enter **DUMP** after **program**.

**TABL PPT,ID=program DUMP**

To select programs with several attributes, enter **SEL=** followed by a list of attributes. The syntax is:

**TABL PPT,SEL=(attr1,attr2,.....attrn)**
You can use the wildcard character * in program. For example:

**ID=DFH*** Specifies programs beginning with DFH.

**ID=*YZ** Specifies programs ending with YZ.

**ID=A*B** Specifies programs beginning with A and having a B anywhere but at the end of the name.

If you zoom on the **All Table Entries** field, a PPT summary appears as shown in the following figure.

**FIGURE 130. PPT Summary Panel (Accessed by Zoom)**

For programs in the selected category, this panel shows:

**Program Name** Program load module name.

**Program Attributes** Attributes of this program, such as enabled or disabled, and programming language.

**Note:** In a CICS/ESA Version 4 system, the programming language shown will be the deduced language. If the language has not been deduced, the defined language will be shown.

**Program Address** Location of the program in storage.

**Program Length** Size of the program.
To display detailed information on a particular program, place the cursor on that line and press PF11.

The PPT entry appears as shown in the following figure.

**FIGURE 131. PPT Entry Panel (Accessed by Zoom)**

| Load Count | Number of times this program has been loaded. |
| Current Usage | Current number of tasks using this program. |
| Total Usage | Number of times this program has been used in this CICS run. |

---

**Note:** The **Loaded from** field may contain the following values:

- **RPL** indicates a private copy of the module was loaded from the relocatable program library (RPL)
- **REGION** indicates a private copy of the module was loaded from either the STEPLIB or LINKLIST concatenation
- **LPA** indicates a shared version of the module from the Link Pack Area (LPA) is being used
The SIT is used by CICS at initialization time. The SIT contains global, startup parameters for the CICS region.

To display entries from the SIT, select the SIT option (R) on the CICS path or enter fast path C.R from any panel.

An alphabetical list of all SIT parameters showing the keyword, description and value appears. For more information on a keyword, refer to the appropriate IBM CICS publication.

The SIT contains numerous parameters. A partial example of the SIT display is shown in the following figure.
To display a particular keyword and all subsequent keywords in alphabetical order, enter

SEL=keyword

after the SIT statement on this panel.

To display the SIT in dump format, place the cursor on SIT address and press PF11. Several SIT parameters are zoomable. Look for zoomable fields which are highlighted in white.
Terminal Control Table Prefix (TCTFX)

The TCT prefix (TCTFX) includes options global to CICS terminal control and specific to autoinstall, the receive-any pool, and XRF.

To display entries from the TCT prefix as shown in the following figure, select the TCTFX option (S) on the CICS path or enter fast path C.S from any panel.

For the TCT prefix in dump format, place the cursor on the TCT ad and press PF11. Or, enter DUMP after TCTV.

**FIGURE 133. Terminal Control Table Prefix Panel (C.S)**

The zoomable fields on this screen are:

- TCT address
- Exit program name
- VTAM is XRF capable

**Note:** When HPO is not active, its value appears in yellow. When the VTAM ACT state is closed, its value appears in red.
**Temporary Storage Usage**

Temporary storage is used by CICS for application common areas and by CICS as well as applications for passing data between transactions. Each queue is accessed by an 8-character unique queue name. When an application creates a queue, it assigns the queue name. Each record in the queue is an item. Only recoverable or remote queues need to be defined in the Temporary Storage Table.

Temporary storage queues created by applications remain until an application program deletes it. This may result in the Temporary Storage dataset filling up. Once the dataset is full, problems arise because no new queues can be created. Also, high CA/CI split activity on the Temporary Storage dataset can degrade performance.

Queues remain available until a CICS or Temporary Storage cold start. Temporary Storage queues may be recoverable or nonrecoverable. Recoverable queues are indicated in the Temporary Storage Table (TST).

To display temporary storage file and usage statistics as shown in the following figure, select the TS option (T) on the CICS path or enter fast path C.T from any panel.

**FIGURE 134. Temporary Storage Panel (C.T)**

<table>
<thead>
<tr>
<th>ZTMPS</th>
<th>VTM</th>
<th>$CICSTOR V520./I SYSA 02/03/93 9:23:57</th>
</tr>
</thead>
<tbody>
<tr>
<td>&gt; PP1 Help</td>
<td>PF3 Back</td>
<td>PF4 Main Menu</td>
</tr>
<tr>
<td>&gt; A-AIDs</td>
<td>B-AID Kill</td>
<td>C-CSA</td>
</tr>
<tr>
<td>&gt; H-Dumps</td>
<td>I-Exits</td>
<td>J-XRF</td>
</tr>
<tr>
<td>&gt; O-PAM DSA</td>
<td>P-PAM EDSA</td>
<td>Q-PPT</td>
</tr>
<tr>
<td>&gt; V-TCT</td>
<td>W-Trace</td>
<td>X-PCT</td>
</tr>
<tr>
<td>===================================================================================</td>
<td></td>
<td></td>
</tr>
<tr>
<td>&gt; TEMPORARY STORAGE</td>
<td></td>
<td></td>
</tr>
<tr>
<td>+ General Temporary Storage Information</td>
<td></td>
<td></td>
</tr>
<tr>
<td>+ Common area address . . . : 00191028</td>
<td>Aux control area address: 001910D0</td>
<td></td>
</tr>
<tr>
<td>+ Byte map address . . . . : 00000000</td>
<td>Current queues . . . . : 0</td>
<td></td>
</tr>
<tr>
<td>+ Queues HWM . . . . . : 1</td>
<td>Total queues created . : 1</td>
<td></td>
</tr>
<tr>
<td>+ Items in any queue HWM : 1</td>
<td>Unit table compressions : 0</td>
<td></td>
</tr>
<tr>
<td>+ Requests suspended . . . : No</td>
<td>Total requests suspended: 0</td>
<td></td>
</tr>
<tr>
<td>+ Records PUTQ . . . . : 2</td>
<td>Records PUT . . . . : 0</td>
<td></td>
</tr>
<tr>
<td>+ Records PUT(Q) to main : 1</td>
<td>Records PUT(Q) to aux : 0</td>
<td></td>
</tr>
<tr>
<td>+ Records GET from main . : 1</td>
<td>Records GET from aux : 0</td>
<td></td>
</tr>
<tr>
<td>+ Entries per TSGID . . . : 8</td>
<td>TSGID extensions . . . : 0</td>
<td></td>
</tr>
<tr>
<td>+ Entries per initial UTE : 254</td>
<td>Unit table frees . . . : 0</td>
<td></td>
</tr>
<tr>
<td>+ Main Temporary Storage Information</td>
<td></td>
<td></td>
</tr>
<tr>
<td>+ Virtual storage used . : 0</td>
<td>Virtual storage used HWM: 164</td>
<td></td>
</tr>
<tr>
<td>+ Auxiliary Temporary Storage Information</td>
<td></td>
<td></td>
</tr>
<tr>
<td>+ No auxiliary temporary storage information available</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

---

*CICS System Analysis* 267
This panel includes:

<table>
<thead>
<tr>
<th>Description</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Common Area Address</td>
<td>Address of the common temporary storage area in memory.</td>
</tr>
<tr>
<td>Aux Control Area Addr</td>
<td>Address of the auxiliary control area in memory.</td>
</tr>
<tr>
<td>Byte Map Address</td>
<td>Location of the temporary storage control interval byte map.</td>
</tr>
<tr>
<td>Current Queues</td>
<td>Number of TS queues currently in existence.</td>
</tr>
<tr>
<td>Queues HWM</td>
<td>Highwater mark of the number of simultaneous TS queues for this CICS run.</td>
</tr>
<tr>
<td>Total Queues Created</td>
<td>Total number of TS queues created for this CICS run.</td>
</tr>
<tr>
<td>Items in any Queue HWM</td>
<td>Highwater mark of the number of simultaneous items in any queue.</td>
</tr>
<tr>
<td>Unit Table Compressions</td>
<td>Number of times the TS unit table has been compressed.</td>
</tr>
<tr>
<td>Requests Suspended</td>
<td>Whether TS requests are currently suspended.</td>
</tr>
<tr>
<td>Total Reqs Suspended</td>
<td>Total number of TS requests suspended for this CICS run.</td>
</tr>
<tr>
<td>Records PUTQ</td>
<td>Count of TS PUTQ records.</td>
</tr>
<tr>
<td>Records PUT</td>
<td>Count of TS PUT records.</td>
</tr>
<tr>
<td>Records PUT(Q) to Main</td>
<td>Count of records PUT(Q) to main TS.</td>
</tr>
<tr>
<td>Records PUT(Q) to Aux</td>
<td>Count of records PUT(Q) to auxiliary TS.</td>
</tr>
<tr>
<td>Records GET from Main</td>
<td>Count of record GETs from main TS.</td>
</tr>
<tr>
<td>Records GET from Aux</td>
<td>Count of record GETs from auxiliary TS.</td>
</tr>
<tr>
<td>Entries per TSGID</td>
<td>Number of entries per TS group identification.</td>
</tr>
<tr>
<td>TSGID Extensions</td>
<td>Number of extensions to TS group identification.</td>
</tr>
<tr>
<td>Entries per Initial UTE</td>
<td>Number of entries per initial unit table.</td>
</tr>
<tr>
<td>Unit Table Frees</td>
<td>Number of TS unit table frees for this CICS run.</td>
</tr>
<tr>
<td>Virtual Storage</td>
<td>Current amount of virtual storage usage by temporary storage.</td>
</tr>
<tr>
<td>Used Virtual Storage</td>
<td>Highwater mark of virtual storage usage for this CICS run.</td>
</tr>
<tr>
<td>Used HWM</td>
<td></td>
</tr>
</tbody>
</table>
**Temporary Storage Queues**

To display the current temporary storage queues, place the cursor on the Current Queues field and press PF11. Alternatively, you can select the TSQ option (U) on the CICS path or enter fast path C.U from any panel. Temporary storage queues appear as shown in the following figure.

**FIGURE 135. Temporary Storage Queues Panel (C.U)**

<table>
<thead>
<tr>
<th>Queue ID</th>
<th>Location</th>
<th>Items in Queue</th>
<th>Current Item</th>
<th>Queue Size</th>
<th>Overlen</th>
<th>Recovery Option</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACCTQ123</td>
<td>Main</td>
<td>12</td>
<td>3</td>
<td>14K</td>
<td>0</td>
<td>No</td>
</tr>
<tr>
<td>.NXQ....</td>
<td>Aux</td>
<td>14</td>
<td>1</td>
<td>26K</td>
<td>0</td>
<td>No</td>
</tr>
<tr>
<td>.NXQ....</td>
<td>Aux</td>
<td>14</td>
<td>1</td>
<td>26K</td>
<td>0</td>
<td>No</td>
</tr>
<tr>
<td>.NXQ....</td>
<td>Aux</td>
<td>14</td>
<td>1</td>
<td>26K</td>
<td>0</td>
<td>No</td>
</tr>
<tr>
<td>.NXQ....</td>
<td>Aux</td>
<td>14</td>
<td>1</td>
<td>26K</td>
<td>0</td>
<td>No</td>
</tr>
<tr>
<td>BATCHFIL</td>
<td>Aux</td>
<td>13</td>
<td>1</td>
<td>51K</td>
<td>13</td>
<td>No</td>
</tr>
<tr>
<td>CHECKDUP</td>
<td>Aux</td>
<td>1</td>
<td>2</td>
<td>64</td>
<td>0</td>
<td>No</td>
</tr>
</tbody>
</table>

---

*CICS System Analysis*  
269
This panel includes:

**Queue ID**
 Identifies the queue with an 8-character name. Queue names that start with ‘.’ are created by CICS when the length of the data record exceeds the CI size. Queues that start with ‘.NXQ’ are nonrecoverable while ‘.RXQ’ are recoverable queues.

**Queue Location**
 Location of the queue: Main Storage (Main) or Auxiliary Storage (Aux).

**Items in Queue**
 Count of records in the queue.

**Current Item**
 Item retrieved by the current READQ NEXT.

**Queue Size**
 Amount of space that this queue occupies, in bytes.

**Overlen Records**
 Number of TS records that are larger than a single CI. CICS can write TS records to a single TS queue only up to the CI size of the auxiliary TS dataset. To handle requests for larger amounts of data, CICS writes the data to CICS overflow queue(s).

If a queue contains overlength records, the queue size does not reflect data written to overflow queues.

**Recovery Option**
 Whether the queue is recoverable as specified in the CICS Temporary Storage Table.
Terminal Control Table (TCT)

Whether you define your terminals directly in the TCT or by autoinstall, there is a resulting TCT. With autoinstall, TCT entries exist only while terminals are active.

To display TCT entry attributes as shown in the following figure, select the TCT option (V) on the CICS path or enter fast path C.V from any panel.

FIGURE 136. Terminal Control Table Attributes Panel (C.V)

To select terminals with a specific attribute, place the cursor on the line describing the attribute and press PF11. To select a specific terminal, you can enter ID=termid after TCT as in the following example.

TABL TCT,ID=L624

For a terminal entry in dump format, enter DUMP after termid.

TABL TCT,ID=termid DUMP

To select terminals with several attributes, enter SEL= followed by a list of attributes. The syntax is:

TABL TCT,SEL=(attr1,attr2,.....attrn)
You can use the wildcard character * in termid. For example:

- **ID=DFH\*** Specifies terminals beginning with DFH.
- **ID=*YZ** Specifies terminals ending with YZ.
- **ID=A*B** Specifies terminals beginning with A and having a B anywhere but at the end of the name.

If you zoom on the **All Table Entries** field, a TCT summary panel appears as shown in the following figure.

**FIGURE 137. TCT Summary Panel (Accessed by Zoom)**

<table>
<thead>
<tr>
<th>Term ID</th>
<th>Term Type</th>
<th>Term Status</th>
<th>Initiate Status</th>
<th>Paging</th>
<th>VTAM</th>
<th>Active</th>
</tr>
</thead>
<tbody>
<tr>
<td>$TOR</td>
<td>Sys/LOC</td>
<td>Ins</td>
<td>Tti</td>
<td>Page</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CIMS</td>
<td>Sys/IRC</td>
<td>Ins</td>
<td>Ati Tti</td>
<td>Page</td>
<td>AACL</td>
<td></td>
</tr>
<tr>
<td>DB2E</td>
<td>Sys/IRC</td>
<td>Ins</td>
<td>Ati Tti</td>
<td>Page</td>
<td>$DB2CICS</td>
<td>None</td>
</tr>
<tr>
<td>ACEZ</td>
<td>3270</td>
<td>Rel Ins</td>
<td>Ati Tti</td>
<td>Page</td>
<td>AACL</td>
<td>None</td>
</tr>
<tr>
<td>ACFZ</td>
<td>3270</td>
<td>Rel Ins</td>
<td>Ati Tti</td>
<td>Page</td>
<td>AACL</td>
<td>None</td>
</tr>
<tr>
<td>AC0Z</td>
<td>LU2</td>
<td>Rel Ins</td>
<td>Ati Tti</td>
<td>Page</td>
<td>AACL</td>
<td>None</td>
</tr>
<tr>
<td>AC1E</td>
<td>3270</td>
<td>Rel Ins</td>
<td>Ati Tti</td>
<td>Page</td>
<td>AACL</td>
<td>None</td>
</tr>
<tr>
<td>AC1F</td>
<td>3270</td>
<td>Rel Ins</td>
<td>Ati Tti</td>
<td>Page</td>
<td>AACL</td>
<td>None</td>
</tr>
<tr>
<td>AC1Z</td>
<td>LU2</td>
<td>Rel Ins</td>
<td>Ati Tti</td>
<td>Page</td>
<td>AACL</td>
<td>None</td>
</tr>
<tr>
<td>AC10</td>
<td>LU2</td>
<td>Rel Ins</td>
<td>Ati Tti</td>
<td>Page</td>
<td>AACL</td>
<td>None</td>
</tr>
<tr>
<td>CERR</td>
<td>Console</td>
<td>Ins</td>
<td>Tti</td>
<td>Page</td>
<td>n/a</td>
<td>None</td>
</tr>
<tr>
<td>CNSA</td>
<td>Console</td>
<td>Ins</td>
<td>Tti</td>
<td>Page</td>
<td>n/a</td>
<td>None</td>
</tr>
<tr>
<td>CNSB</td>
<td>Console</td>
<td>Ins</td>
<td>Tti</td>
<td>Page</td>
<td>n/a</td>
<td>None</td>
</tr>
<tr>
<td>CNSC</td>
<td>Console</td>
<td>Ins</td>
<td>Tti</td>
<td>Page</td>
<td>n/a</td>
<td>None</td>
</tr>
<tr>
<td>CNSD</td>
<td>Console</td>
<td>Ins</td>
<td>Tti</td>
<td>Page</td>
<td>n/a</td>
<td>None</td>
</tr>
<tr>
<td>CNSE</td>
<td>Console</td>
<td>Ins</td>
<td>Tti</td>
<td>Page</td>
<td>n/a</td>
<td>None</td>
</tr>
<tr>
<td>CNSF</td>
<td>Console</td>
<td>Ins</td>
<td>Tti</td>
<td>Page</td>
<td>n/a</td>
<td>None</td>
</tr>
<tr>
<td>CNSL</td>
<td>Console</td>
<td>Ins</td>
<td>Tti</td>
<td>Page</td>
<td>n/a</td>
<td>None</td>
</tr>
<tr>
<td>CNS2</td>
<td>Console</td>
<td>Ins</td>
<td>Tti</td>
<td>Page</td>
<td>n/a</td>
<td>None</td>
</tr>
</tbody>
</table>

For terminals in the selected TCT category, this panel shows:

**Term ID** Terminal ID for this entry.

**Term Type** Type of terminal, such as: console, 3270, or LU2.

**Term Status** Status of this terminal, such as: in service, out of service, released, or acquired.

**Initiate Status** Method of initiation, such as TTI (Terminal Transaction Initiation) and ATI (Automatic Transaction Initiation).
Terminal Control Table (TCT)

**Paging Status**  Status of paging, such as Auto or Page.

**VTAM Netname**  Name VTAM uses for this terminal.

**Active Tran ID**  Transaction identifier currently running on this terminal.

To display detailed information on a particular terminal, place the cursor on that line and press PF11. The TCT entry varies depending on whether it is a 3270, BDAM, console, or remote terminal, or it is a system connection or link.

A TCT entry for a 3270 terminal is shown in the following figure.

**FIGURE 138. TCT 3270 Entry Panel (Accessed by Zoom)**

<table>
<thead>
<tr>
<th>______</th>
<th>ZZTABLE</th>
<th>VTM</th>
<th>$CICSTOR</th>
<th>V520 ./I SYSA 02/03/93 9:41:17</th>
</tr>
</thead>
<tbody>
<tr>
<td>&gt; PF1 Help</td>
<td>PF3 Back</td>
<td>PF4 Main Menu</td>
<td>PF7 Up</td>
<td>PF8 Down</td>
</tr>
</tbody>
</table>
| ====================================================================================
| > SELECTED TABLE ENTRY |
| ___________ TCT ID=’AC1E’ |
| + TABL | General Information |
| + Terminal ID . . . . . : AC1E  TCTTE address . . . . . . : 0015F8F0 |
| + Terminal type . . . : 3270  Terminal model . . . : 2 |
| + Session status . . . : Released  VTAM netname . . . . : AACLC030 |
| + Service status . . . : Ins  Session create status . : Create |
| + Initiate status . . . : Ati Tti  Paging status . . . : Page |
| + Screen size . . . . . : 24x80  Alternate screen size . : None |
| + Page size . . . . . : 24x80  Alternate page size . : 24x80 |
| + User area length . . : 8  Read timeout value . : 0 |
| + Auto-installed . . . : No  Shippable . . . . : Yes |
| + Terminal features . . : (Audalarm,Uctranselpen) |
| + Extended attributes . . : (Extlds,Color) |
| + Transaction Information |
| + Active transaction ID . . : None  Task number . . . . : n/a |
| + Next transaction ID . . : None  Commarea address . . : None |
| + Terminal Statistics |
| + Number of inputs . . . : 0  Transmission errors . . : 0 |
| + Number of outputs . . . : 0  Transaction errors . : 0 |
| + Number of transactions : 0  Storage violations . : 0 |

If you select a TCT entry for a BSAM terminal, the General Information section appears as shown in this figure.
If you select a TCT entry for a console terminal, the General Information section appears as shown in the this figure.

A connection entry shows the status and session traffic for a connection or group of links between CICS and another system (CICS or IMS). If you select a TCT entry for a connection, the entry appears as shown in this figure.
An IRC entry describes an individual link between CICS and another system (CICS or IMS). If you select a TCT entry for an IRC link, the entry appears as shown in this figure.

**FIGURE 142. TCT SYS/IRC Entry (Accessed by Zoom)**

<table>
<thead>
<tr>
<th>ZZTABLE</th>
<th>VTM</th>
<th>TDOCS01</th>
<th>V520.//C SYSA 02/03/93 14:05:02</th>
</tr>
</thead>
<tbody>
<tr>
<td>&gt; PF1 Help</td>
<td>PF3 Back</td>
<td>PF4 Main Menu</td>
<td>PF7 Up PF8 Down PF11 Zoom</td>
</tr>
<tr>
<td>================================</td>
<td>= textures start</td>
<td>= textures end</td>
<td></td>
</tr>
<tr>
<td>&gt; SELECTED TABLE ENTRY</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TABL TCT ID=‘RI1’</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>+ General Information</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>+ Terminal ID ...... : RI1 TCTTE address ...... : 00142BB0</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>+ Terminal type ...... : IRC Link Terminal model ...... : None</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>+ Session status ...... : n/a VTAM netname ...... : TDOCSIRS</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>+ Service status ...... : Ins Session create status : n/a</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>+ Transaction Information</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>+ Active transaction ID : None Task number ...... : n/a</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>+ Next transaction ID : None Commarea address ...... : None</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>+ Terminal Statistics</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>+ Number of inputs ...... : 0 Transmission errors ...... : 0</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>+ Number of outputs ...... : 0 Transaction errors ...... : 0</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>+ Number of transactions : 0 Storage violations ...... : n/a</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

If you select a TCT entry for a remote terminal, which is a terminal residing in another region, the General Information section appears as shown in this figure.

**FIGURE 143. TCT Remote Entry (Accessed by Zoom)**

<table>
<thead>
<tr>
<th>ZZTABLE</th>
<th>VTM</th>
<th>TDOCS01</th>
<th>V520.//C SYSA 02/03/93 14:05:02</th>
</tr>
</thead>
<tbody>
<tr>
<td>&gt; PF1 Help</td>
<td>PF3 Back</td>
<td>PF4 Main Menu</td>
<td>PF7 Up PF8 Down PF11 Zoom</td>
</tr>
<tr>
<td>================================</td>
<td>= textures start</td>
<td>= textures end</td>
<td></td>
</tr>
<tr>
<td>&gt; SELECTED TABLE ENTRY</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TABL TCT ID=‘RI1’</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>+ General Information</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>+ Terminal ID ...... : MMLL TCTTE address ...... : 001D7030</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>+ Terminal type ...... : Remote Terminal model ...... : None</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>+ Remote system name ...... : CICS Remote terminal id ...... : CCSS</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>+ Remote system netname ...... : TDOCS10</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
## CICS Trace

A CICS trace is a recording of CICS activity at points in CICS or application processing that aid in problem diagnosis. The places where activity is traced may be controlled by CICS or by application request. For example, activity that can be traced includes: I/O, storage acquisition, storage release, or transfer of control.

To view general information about the CICS trace component which manages CICS traces, select the Trace option (W) on the CICS path or enter fast path C.W from any panel. The display for CICS/ESA regions appears as shown in the following figure.

**FIGURE 144. CICS Trace Overview Panel for CICS/ESA (C.W)**

<table>
<thead>
<tr>
<th>ZTRAC</th>
<th>VTM</th>
<th>$CICSTOR V520. I SYSA 02/03/93 9:23:12</th>
</tr>
</thead>
<tbody>
<tr>
<td>&gt; PF1 Help</td>
<td>PF3 Back</td>
<td>PF4 Main Menu</td>
</tr>
<tr>
<td>&gt; A-AIDs</td>
<td>B-AID Kill</td>
<td>C-CSA</td>
</tr>
<tr>
<td>&gt; H-Dumps</td>
<td>I-Exits</td>
<td>J-XRF</td>
</tr>
<tr>
<td>&gt; O-PAM DSA</td>
<td>P-PAM EDISA</td>
<td>Q-PPT</td>
</tr>
<tr>
<td>&gt; V-TCT</td>
<td>W-Trace</td>
<td>X-PCT</td>
</tr>
</tbody>
</table>

---

<table>
<thead>
<tr>
<th>Trace Control Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>Internal trace status . . . : Started</td>
</tr>
<tr>
<td>Aux trace status . . . : Stopped</td>
</tr>
<tr>
<td>GTF trace status . . . : Stopped</td>
</tr>
<tr>
<td>Master system trace . . . : On</td>
</tr>
<tr>
<td>Aux trace dataset name : CICSV.V311.$TOR.DFHAUXT</td>
</tr>
</tbody>
</table>

---

<table>
<thead>
<tr>
<th>Component</th>
<th>Standard Tracing</th>
<th>Special Tracing</th>
</tr>
</thead>
<tbody>
<tr>
<td>AP</td>
<td>Application domain</td>
<td>1</td>
</tr>
<tr>
<td>BF</td>
<td>Built-in function</td>
<td>1</td>
</tr>
<tr>
<td>BM</td>
<td>BMS</td>
<td>1</td>
</tr>
<tr>
<td>DC</td>
<td>Dump compatibility</td>
<td>1</td>
</tr>
<tr>
<td>DI</td>
<td>Data interchange</td>
<td>1</td>
</tr>
<tr>
<td>DM</td>
<td>Domain manager</td>
<td>1</td>
</tr>
<tr>
<td>DS</td>
<td>Dispatcher domain</td>
<td>Off</td>
</tr>
<tr>
<td>DU</td>
<td>Dump domain</td>
<td>1</td>
</tr>
<tr>
<td>EI</td>
<td>Exec interface</td>
<td>1</td>
</tr>
<tr>
<td>FC</td>
<td>File control</td>
<td>1</td>
</tr>
<tr>
<td>GC</td>
<td>Global catalog</td>
<td>1</td>
</tr>
<tr>
<td>IC</td>
<td>Interval control</td>
<td>1</td>
</tr>
<tr>
<td>IS</td>
<td>ISC</td>
<td>1</td>
</tr>
<tr>
<td>JC</td>
<td>Journal control</td>
<td>1</td>
</tr>
<tr>
<td>KC</td>
<td>Task control</td>
<td>1</td>
</tr>
<tr>
<td>KE</td>
<td>Kernel</td>
<td>1</td>
</tr>
<tr>
<td>LC</td>
<td>Local catalog</td>
<td>1</td>
</tr>
<tr>
<td>LD</td>
<td>Loader domain</td>
<td>1</td>
</tr>
<tr>
<td>LM</td>
<td>Lock domain</td>
<td>1</td>
</tr>
<tr>
<td>ME</td>
<td>Message domain</td>
<td>1</td>
</tr>
<tr>
<td>MN</td>
<td>Monitoring domain</td>
<td>1</td>
</tr>
<tr>
<td>PA</td>
<td>Parameter domain</td>
<td>1</td>
</tr>
<tr>
<td>PC</td>
<td>Program control</td>
<td>1</td>
</tr>
</tbody>
</table>
In CICS/ESA, each component can have trace turned on or off independently. This panel shows which components are being traced and the level of trace, including whether special tracing and/or standard tracing is active. It also shows which of the three trace destinations is active: GTF, internal, or auxiliary. See the IBM CICS Problem Determination Guide for more information.

The display for CICS/MVS regions appears as shown in the following figure.

**FIGURE 145. CICS Trace Overview Panel for CICS/MVS (C.W)**

This panel shows the level of tracing and monitoring in your CICS system. You can zoom on the Program Check/Abend Trace Table field for more information about abends that have occurred. And you can zoom on the Trace Table Address field to see a dump of the trace table header.
**Program Control Table (PCT)**

All CICS transactions for the region are defined in the PCT. Transactions to be executed in another region include a SYSID indicator for transaction routing. The table entries shown include the parameters you define through macros or RDO as well as the attributes from the associated common RDO profile.

To display PCT entry attributes as shown in the following figure, select the PCT option (X) on the CICS path or enter fast path **C.X** from any panel.

**FIGURE 146. Program Control Table Attributes Panel (C.X)**

![Program Control Table Attributes Panel](image)

To select transactions with a specific attribute, place the cursor on the line describing the attribute and press PF11. To select a specific transaction, you can enter **ID=transid** after **PCT**.

**TABL PCT,ID=M2**

For a PCT entry in dump format, enter **DUMP** after **transid**.

**TABL PCT,ID=transid DUMP**

To select transactions with several attributes, enter **SEL=** followed by a list of attributes. The syntax is:

**TABL PCT,SEL=(attr1,attr2,.....attrn)**

You can use the wildcard character * in transid. For example:

**ID=DFH**

Specifies transactions beginning with DFH.

**ID=YZ**

Specifies transactions ending with YZ.

**ID=A*B**

Specifies transactions beginning with A and having a B anywhere but at the end of the name.
If you zoom on the All Table Entries field, a PCT summary appears as shown in the following figure.

**FIGURE 147. PCT Summary Panel (Accessed by Zoom)**

For each transaction in the selected category, this panel shows:

- **Tran ID**: Transaction identifier for this table entry.
- **Tran Status**: Status for this transaction (Enabled, Disabled).
- **Tran Priority**: Transaction priority for this transaction. Priority can be numbered up to 255.
- **Tran Class**: Transaction class (TCLASS) of the current transaction.
- **Program ID**: Identifier of the first program invoked by this transaction.
- **TWA Size**: Size of the Transaction Work Area for this transaction.
- **Use Count**: Size of the Transaction Work Area for this transaction.

To display detailed information on a particular transaction code, place the cursor on that line and press PF11. A PCT entry appears as shown in the following figure.
FIGURE 148. PCT Entry Panel (Accessed by Zoom)

<table>
<thead>
<tr>
<th>General Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>Transaction ID</td>
</tr>
<tr>
<td>Entry address</td>
</tr>
<tr>
<td>Program ID</td>
</tr>
<tr>
<td>Profile ID</td>
</tr>
<tr>
<td>TWA size</td>
</tr>
<tr>
<td>Transaction status</td>
</tr>
<tr>
<td>Transaction priority</td>
</tr>
<tr>
<td>Transaction class</td>
</tr>
<tr>
<td>Storage violations</td>
</tr>
<tr>
<td>Screen selection</td>
</tr>
<tr>
<td>Use count</td>
</tr>
<tr>
<td>Partitionset name</td>
</tr>
<tr>
<td>Task data location</td>
</tr>
<tr>
<td>Task data key</td>
</tr>
<tr>
<td>Storage clear</td>
</tr>
<tr>
<td>Task runaway</td>
</tr>
<tr>
<td>Transaction isolate</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Remote Attributes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dynamic routing</td>
</tr>
<tr>
<td>Local dyn/route count</td>
</tr>
<tr>
<td>Remote name</td>
</tr>
<tr>
<td>Remote system</td>
</tr>
<tr>
<td>Remote dyn/route count</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Recovery Attributes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Deadlock timeout</td>
</tr>
<tr>
<td>Stall purge</td>
</tr>
<tr>
<td>Terminal purge</td>
</tr>
<tr>
<td>Dump</td>
</tr>
<tr>
<td>Restart</td>
</tr>
<tr>
<td>Restart counter</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Security Attributes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Trans security</td>
</tr>
<tr>
<td>Trans security level</td>
</tr>
<tr>
<td>Resource security</td>
</tr>
<tr>
<td>Resource security level</td>
</tr>
</tbody>
</table>

**Note:** Fields preceded by an asterisk (*) appear only in CICS/ESA Version 4. The section titled Security Attributes appears only in CICS/MVS.
Transient Data

Intrapartition transient data queues reside on the Transient Data dataset. These queues provide sequentially accessible storage for CICS or applications. They can be created by application programs and may be deleted automatically after use or explicitly. Each queue is accessed by a 4-character queue name which must be defined in the DCT.

Extrapartition transient data queues are ordinary sequential datasets residing outside of CICS. In order to be accessed within CICS, they must be defined in the DCT as extrapartition queues.

CICS uses Transient Data to build queues of data for later processing, put messages on system queues for printing, initiate tasks based on a queue trigger level, and request logging for recovery.

Applications use Transient Data to print messages when a trigger level is reached (ATI), transfer data between tasks, and capture data for batch processing.

Transient Data looks at the Destination Control Table (DCT) for definitions of intrapartition queues (destinations) and extrapartition datasets. See “Destination Control Table (DCT)” on page 238 for more information on DCT entries.

Excessive CI/CA splits or insufficient space in the Transient Data dataset may degrade CICS performance.

To display Transient Data dataset statistics and usage as shown in the following figure, select the TD option (Y) on the CICS path or enter fast path C.Y from any panel.
This panel includes:

**Static Area Address**
Location of the transient data static area in storage.

**Buffer Common Area**
Location of the buffer common area in storage.

**String Common Area**
Location of the string common area in storage.

**Control Interval Size**
Size of the TD control interval, in bytes.

**Total Control Intervals**
Total number of currently formatted control intervals.

**CIS in use HWM**
Highwater mark of allocated control intervals.

**Control Intervals in Use**
Current number of allocated control intervals.

**% of CIs in Use**
Percentage of formatted CIs that are currently allocated.

**Total I/O Errors**
Number of transient data I/O errors.

**Times NOSPACE Returned**
Number of times the NOSPACE condition was returned for a TD request.

**Records GET**
Number of GET requests for TD records.

**Records PUT**
Number of PUT requests for TD records.

**Maximum Record Length**
Maximum record length of a TD record.
<table>
<thead>
<tr>
<th><strong>Minimum Record Length</strong></th>
<th>Minimum record length of a TD record.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Buffers Requested</strong></td>
<td>Number of buffers requested for TD processing.</td>
</tr>
<tr>
<td><strong>Buffers Allocated</strong></td>
<td>Number of buffers allocated for TD processing.</td>
</tr>
<tr>
<td><strong>Buffer Size</strong></td>
<td>Size of each buffer, in bytes.</td>
</tr>
<tr>
<td><strong>Total Buffers Used</strong></td>
<td>Total number of TD buffers used.</td>
</tr>
<tr>
<td><strong>Buffers in Use</strong></td>
<td>Number of TD buffers currently in use.</td>
</tr>
<tr>
<td><strong>Buffers in Use HWM</strong></td>
<td>Highwater mark of concurrent buffers in use by transient data.</td>
</tr>
<tr>
<td><strong>Current Buffer Waits</strong></td>
<td>Number of transient data requests currently waiting for buffers.</td>
</tr>
<tr>
<td><strong>Buffer Waits HWM</strong></td>
<td>Highwater mark of concurrent TD requests that had to wait for buffers.</td>
</tr>
<tr>
<td><strong>Total Buffer Waits</strong></td>
<td>Total number of TD requests that had to wait for buffers.</td>
</tr>
<tr>
<td><strong>Total Format Requests</strong></td>
<td>Total number of format requests.</td>
</tr>
<tr>
<td><strong>Strings Allocated</strong></td>
<td>Number of strings currently allocated.</td>
</tr>
<tr>
<td><strong>Total Strings Used</strong></td>
<td>Total number of strings currently used.</td>
</tr>
</tbody>
</table>
OMEGAMON II enables you to control whether or not and in what manner you want tasks to be purged when a CICS shutdown is issued. If OMEGAMON II is running, you can automatically purge tasks that are waiting for terminal output during CICS shutdown. CICS will not terminate during normal shutdown if these tasks are not purged.

Select CICS Shutdown Options (Q) on the Control Options path or enter fast path O.Q from any panel. The current CICS shutdown purge option appears as shown in the following figure.

**FIGURE 150. CICS Shutdown Purge Option**

This panel displays the current shutdown option as well as the available options and their descriptions. To modify the shutdown option, enter one of the following options after the OPT statement:

- **?** Displays the current shutdown purge option.
- **PURGE** OMEGAMON II purges all conversational tasks waiting for terminal input at CICS shutdown.
- **NOPURGE** No tasks are purged at CICS shutdown.
- **OPER** Operator specifies whether tasks are to be purged at shutdown time in response to a WTOR. Possible values are YES or NO.

PURGE enables you to automate the purge procedure. You can speed up CICS shutdown, because you do not have to rely on operator intervention.
Chapter Overview

MVS system factors can affect the availability and response time of your CICS system. In order to determine whether any key categories of MVS system activity are adversely affecting CICS, OMEGAMON II analyzes CPU utilization and paging activity. For additional levels of detail, OMEGAMON II also provides information on the PSW, the structure of currently running CICS Task Control Blocks (TCBs), and MVS load modules.

Chapter Contents

CPU and Paging Utilization ................................................................. 286
Program Status Word (PSW) .............................................................. 291
TCB Structure ................................................................................. 292
MVS Modules ................................................................................. 293
CPU and Paging Utilization

OMEGAMON II’s CPU utilization displays show TCB and SRB usage for the CICS region. This can indicate if your CICS region is in a loop or using excessive amounts of CPU.

CICS runs mainly on a single TCB, and is heavily impacted by page-ins.

OMEGAMON II provides information, such as private area statistics and working set size, to allow you to define the storage requirements for your region, and thereby minimize paging for a critical region.

You can display CPU and paging utilization in graphic or report format.

To produce a graph as shown in the following figure, select the System Graphs option (A) on the MVS path or enter M.A to fast path from any panel.

FIGURE 151. CICS System Analysis Panel (M.)

<table>
<thead>
<tr>
<th>ZMSYSA</th>
<th>VTM</th>
<th>CICSP01</th>
<th>VS20/I SYSA 02/03/99 16:37:07</th>
</tr>
</thead>
<tbody>
<tr>
<td>&gt; PF1 Help</td>
<td>PF3 Back</td>
<td>PF4 Main Menu</td>
<td></td>
</tr>
<tr>
<td>&gt; A-System Graph</td>
<td>B-System Summary</td>
<td>C-PSW</td>
<td>D-TCBs E-Modules F-Subpools</td>
</tr>
<tr>
<td>================================================================================</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>To complete initialization, press ENTER.</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>CSYS GRAPH</th>
<th>CICS System Environment</th>
</tr>
</thead>
<tbody>
<tr>
<td>+ System Data: Short</td>
<td>Long</td>
</tr>
<tr>
<td>TCB Time(%)</td>
<td>5.6</td>
</tr>
<tr>
<td>SRB Time(%)</td>
<td>.6</td>
</tr>
<tr>
<td>Page-ins/s_</td>
<td>3.8</td>
</tr>
<tr>
<td>Page-outs/s</td>
<td>.0</td>
</tr>
<tr>
<td>I/O’s/sec</td>
<td>25.7</td>
</tr>
<tr>
<td>SU’s/sec</td>
<td>1731</td>
</tr>
<tr>
<td>Working Set</td>
<td>3228K</td>
</tr>
<tr>
<td>Pg-in/CPU-s</td>
<td>62.6</td>
</tr>
<tr>
<td>================================================================================</td>
<td></td>
</tr>
</tbody>
</table>
The graph shows short and long-term figures for the following items.

<table>
<thead>
<tr>
<th>Metric</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>TCB Time (%)</strong></td>
<td>Displays current task control block (TCB) usage as a percentage of total CPU consumption for 1 CPU. TCB% is computed as CPU seconds attributed to all TCBs in an address space divided by the elapsed seconds in a reporting interval. For example, if .5 CPU seconds are used in 1 second, OMEGAMON II reports 50% TCB Time. Values over 100% represent the time of multiple TCBs running on a processor with multiple engines.</td>
</tr>
<tr>
<td><strong>SRB Time (%)</strong></td>
<td>Displays the service request block (SRB) time used by this address space as a percentage of total CPU consumption for 1 CPU. SRB% is computed as CPU seconds spent by the address space, in SRB mode, divided by the elapsed seconds in a reporting interval. For example, if .5 CPU seconds are used in 1 second, OMEGAMON II reports 50% SRB Time.</td>
</tr>
<tr>
<td><strong>Page-ins/s</strong></td>
<td>Number of page-ins that have occurred for this address space in the reporting interval divided by the elapsed seconds in that interval.</td>
</tr>
<tr>
<td><strong>Page-outs/s</strong></td>
<td>Number of page-outs that have occurred in this address space in the reporting interval divided by the elapsed seconds in that interval.</td>
</tr>
<tr>
<td><strong>I/O’s/sec</strong></td>
<td>Number of non-terminal I/O requests completed for this address space in the reporting interval divided by the elapsed seconds in that interval.</td>
</tr>
<tr>
<td><strong>SU’s/sec</strong></td>
<td>Number of MVS service units (SU) that have been used by the monitored address space in the reporting interval divided by the elapsed seconds in that interval.</td>
</tr>
<tr>
<td><strong>Working Set</strong></td>
<td>Amount of storage (1K=1024 bytes) frequently recalled to prevent this storage from being paged-out. This also may be viewed as the minimum amount of storage required for CICS to continue executing without having to wait for page-ins to complete.</td>
</tr>
<tr>
<td><strong>Page-ins/CPU-s</strong></td>
<td>Number of page-ins that have occurred for this address space in the reporting interval divided by the CPU seconds allocated to the address space in that interval.</td>
</tr>
</tbody>
</table>

To produce a comprehensive listing of MVS-related utilization information in report format, select the System Summary option (B) on the MVS path or enter M.B to fast path from any panel. The System Summary panel appears as shown in the following figure.
All information in the above display is address space related as follows:

- **Jobname**: Jobname of the CICS job.
- **Procstep**: Procedure stepname of the CICS job.
- **Stepname**: Name of the current step of the CICS job.
- **Total SRB time**: Total Service Request Block time used.
- **Total TCB time**: Total Task Control Block time used by the CICS job.
- **Total CPU Time**: Sum of the SRB and TCB times.
- **System Init Time**: Start time for the current CICS run.
- **System Init Date**: Start date for the current CICS run.
- **Elapsed Time**: Time elapsed since CICS was started.
<table>
<thead>
<tr>
<th><strong>Time in Transaction</strong></th>
<th>Time elapsed since the performance group of the CICS region changed or since a new IPS was set into effect.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Dispatching Algorithm</strong></td>
<td>Dispatching algorithm in use: Mean Time to Wait, Rotate, Time Slice, or Fixed.</td>
</tr>
<tr>
<td><strong>Dispatching Priority</strong></td>
<td>Address space control block dispatching priority.</td>
</tr>
<tr>
<td><strong>I/O Dispatching Priority</strong></td>
<td>Address space control block I/O dispatching priority.</td>
</tr>
<tr>
<td><strong>I/O Counts</strong></td>
<td>Number of I/Os since the start of the job.</td>
</tr>
<tr>
<td><strong>SRM Performance Group</strong></td>
<td>System Resources Manager (SRM) performance group number.</td>
</tr>
<tr>
<td><strong>SRM Domain Number</strong></td>
<td>System Resources Manager domain number.</td>
</tr>
<tr>
<td><strong>Highest UIC</strong></td>
<td>Highest unreferenced interval count.</td>
</tr>
<tr>
<td><strong>Fixed Frame Count</strong></td>
<td>Number of frames that are fixed in real storage.</td>
</tr>
<tr>
<td><strong>VIO Slot Count</strong></td>
<td>Number of slots for virtual I/O datasets.</td>
</tr>
<tr>
<td><strong>Non-VIO Slot Count</strong></td>
<td>Number of slots for nonvirtual I/O datasets.</td>
</tr>
<tr>
<td><strong>Total CPU Service Units</strong></td>
<td>Number of CPU service units used by this CICS.</td>
</tr>
<tr>
<td><strong>Total I/O Service Units</strong></td>
<td>Number of I/O service units used by this CICS.</td>
</tr>
<tr>
<td><strong>Storage Service Units</strong></td>
<td>Number of MSO service units used by this CICS.</td>
</tr>
<tr>
<td><strong>Total SRB Service Units</strong></td>
<td>Number of Service Request Block service units used by this CICS.</td>
</tr>
<tr>
<td><strong>Total Service units</strong></td>
<td>Total service units used by this CICS.</td>
</tr>
</tbody>
</table>
CPU and Paging Utilization

The remaining part of the display contains paging statistics for the CICS private area and the common area.

- **Page-in Count**: Number of page-ins for this job.
- **Page-out Count**: Number of page-outs for this job.
- **Page-in Time Units**: Category of time unit, in seconds, for page-in rate: RESIDENT, CPU, or ELAPSED.
- **Page-in Rate/Second**: Current page-in rate per second.
- **PPGRT(R) min**: Minimum private page-in rate.
- **PPGRT(R) max**: Maximum private page-in rate.
- **Target Working Set Size**: Target working set size chosen by SRM.
- **Real Working Set Size**: Size of the working set in real storage.
- **Expand Working Set Size**: Size of the working set in expanded storage.
- **Actual Working Set Size**: Current working set size (real and expanded).
- **Minimum Working Set Size**: Minimum working set size according to SRM.
- **Maximum Working Set Size**: Maximum working set size according to SRM.
- **CPGRT Minimum**: Minimum common page-in rate.
- **CPGRT Maximum**: Maximum common page-in rate.
Program Status Word (PSW)

To display information about the Program Status Word (PSW), select the PSW option (C) on the MVS path or enter fast path **M.C**. For CICS/ESA, the display in the following figure shows the PSW and the general purpose registers (GPRs) for the most significant CICS TCBs: the quasi-reentrant (QR), the concurrent (CO), and the resource-owning (RO). For CICS/MVS, the display shows only one PSW and set of registers.

The data is taken from the last time the CICS program request block (PRB) lost control of the CPU. You can use the PSW display to help debug CICS problems such as loops or unusual waits.

**FIGURE 153. PSW and Registers Panel (M.C)**

```plaintext
+ ZMPSW    VTM     SCI5STOR V520/I SYSA 02/03/99 16:11:13
> PF1 Help  PF3 Back  PF4 Main Menu  PF7 Up  PF8 Down
> A-System Graph  B-System Summary  C-PSW  D-TCBs  E-Modules  F-Subpools
===============================================================================
> PSW and REGISTERS
PSW
+ Quasi-Reentrant TCB
  + PSW : 078D1000 85108F0A
  + R0 . : 00000001  R1 . : 05690018  R2 . : 0568B2E8  R3 . : 85108308
  + R12 : 00000001  R13 : 05178A0A  R14 : 00000114  R15 : 807E22C9
  +
Concurrent TCB
  + PSW : 078D2000 85108FD2
  + R0 . : 00000001  R1 . : 05690018  R2 . : 0568B2E8  R3 . : 85108308
  +
Resource-Owning TCB
  + PSW : 078D2000 85108FD2
  + R0 . : 00000001  R1 . : 0568F018  R2 . : 0568B2A0  R3 . : 85108308
  + R12 : 0568B258  R13 : 05178A50  R14 : 0000011B  R15 : 807E33A0
===============================================================================
```
TCB Structure

Running a program under a TCB allows a certain amount of independence from other programs running in the same address space. This includes the ability of the program to be dispatched and perform work despite the fact that other tasks are waiting.

OMEGAMON II analyzes the structure of CICS TCBs, allowing you to assess how a program is performing. Further, since many third-party products attach multiple TCBs, you can use this feature to locate where they are attached.

To display the TCB structure in your CICS region, select the TCB option (D) on the MVS path or enter fast path M.D from any panel. The following figure shows the TCB Structure display for CICS/ESA.

FIGURE 154. CICS TCB Structure Panel (M.D)

For further information about each TCB, enter X preceding the TCBS statement which is below PEEK.
To display modules that have been loaded into the CICS region by an MVS load macro, select the Modules option (E) on the MVS path or enter fast path **M.E** from any panel. The MVS Loaded Modules panel appears as shown in the following figure.

**FIGURE 155. MVS Loaded Modules in the CICS Address Space Panel (M.E)**

<table>
<thead>
<tr>
<th>Module</th>
<th>Entry</th>
<th>Length</th>
<th>Users</th>
<th>Attributes</th>
</tr>
</thead>
<tbody>
<tr>
<td>#CA-ENF#</td>
<td>00001000</td>
<td>00001000</td>
<td>256</td>
<td>RENT, REUS, AUTH, AC=1</td>
</tr>
<tr>
<td>DFHSKTSK</td>
<td>000080C0</td>
<td>00000028</td>
<td>1</td>
<td>RENT, REUS, AUTH</td>
</tr>
<tr>
<td>DFHHMSNVC</td>
<td>85779250</td>
<td>00000790</td>
<td>1</td>
<td>RENT, REUS, AUTH</td>
</tr>
<tr>
<td>ACFP99SUB</td>
<td>00644730</td>
<td>000058D0</td>
<td>3</td>
<td>RENT, REUS, AUTH</td>
</tr>
<tr>
<td>ACFPEPCCS</td>
<td>00643820</td>
<td>00007E0</td>
<td>1</td>
<td>RENT, REUS, AUTH</td>
</tr>
<tr>
<td>ACF75DCM</td>
<td>0063F5A0</td>
<td>00002A60</td>
<td>1</td>
<td>RENT, REUS, AUTH</td>
</tr>
<tr>
<td>ACF70CMP</td>
<td>00639600</td>
<td>00005A00</td>
<td>1</td>
<td>RENT, REUS, AUTH</td>
</tr>
<tr>
<td>ACF61CMD</td>
<td>0062F090</td>
<td>00009F70</td>
<td>2</td>
<td>RENT, REUS, AUTH</td>
</tr>
<tr>
<td>ACFCMPLR</td>
<td>0062F090</td>
<td>00009F70</td>
<td>0</td>
<td>RENT, REUS, AUTH, ALIAS (ACF61CMD)</td>
</tr>
<tr>
<td>ACFDCMPL</td>
<td>0062F750</td>
<td>00009F70</td>
<td>0</td>
<td>RENT, REUS, AUTH, ALIAS (ACF61CMD)</td>
</tr>
<tr>
<td>ACFARENK</td>
<td>0058F288</td>
<td>00000578</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>ACFARENF</td>
<td>000433D8</td>
<td>00000598</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>ACFARACX</td>
<td>005EA3E0</td>
<td>00009C20</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>ACFARICX</td>
<td>005DB640</td>
<td>0000B9C0</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>ACFARDFH</td>
<td>005DB640</td>
<td>00006000</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>ACFAROMI</td>
<td>0054D0D8</td>
<td>000032F8</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>OCCCENFD</td>
<td>851D4BB8</td>
<td>00000240</td>
<td>1</td>
<td>RENT, REUS, AUTH</td>
</tr>
<tr>
<td>OCDBNFDF</td>
<td>8577A5A8</td>
<td>000008A0</td>
<td>1</td>
<td>RENT, REUS, AUTH</td>
</tr>
<tr>
<td>OCDBSGPD</td>
<td>851B2D88</td>
<td>00003E0</td>
<td>1</td>
<td>RENT, REUS, AUTH</td>
</tr>
<tr>
<td>OCDGSTOD</td>
<td>857B0E8</td>
<td>0002240</td>
<td>1</td>
<td>RENT, REUS, AUTH</td>
</tr>
<tr>
<td>OCEKEDFCF</td>
<td>005D3298</td>
<td>0000DE0</td>
<td>1</td>
<td>RENT, REUS, AUTH</td>
</tr>
<tr>
<td>OGCLUEFD</td>
<td>857AEB8</td>
<td>00016C0</td>
<td>1</td>
<td>RENT, REUS, AUTH</td>
</tr>
<tr>
<td>OCRUEFED</td>
<td>00595590</td>
<td>00000A00</td>
<td>1</td>
<td>RENT, REUS, AUTH</td>
</tr>
<tr>
<td>OCRQYCFD</td>
<td>851D4DF8</td>
<td>00002E0</td>
<td>1</td>
<td>RENT, REUS, AUTH</td>
</tr>
<tr>
<td>OXCMCRGD</td>
<td>85798748</td>
<td>0001640</td>
<td>1</td>
<td>RENT, REUS, AUTH</td>
</tr>
<tr>
<td>OXCMSTGOD</td>
<td>8527B640</td>
<td>0000740</td>
<td>1</td>
<td>RENT, REUS, AUTH</td>
</tr>
<tr>
<td>OCMOKRFD</td>
<td>851D3D08</td>
<td>00001320</td>
<td>1</td>
<td>RENT, REUS, AUTH</td>
</tr>
<tr>
<td>OCMOM00</td>
<td>005D1028</td>
<td>00001040</td>
<td>1</td>
<td>AUTH</td>
</tr>
<tr>
<td>DFRIRW00</td>
<td>84A666A0</td>
<td>00002228</td>
<td>1</td>
<td>RENT, REUS, AUTH</td>
</tr>
<tr>
<td>DFRJCCOP</td>
<td>00597278</td>
<td>00000DB0</td>
<td>1</td>
<td>AUTH</td>
</tr>
<tr>
<td>DFRWITI</td>
<td>8577C628</td>
<td>00029F8</td>
<td>1</td>
<td>RENT, REUS, AUTH</td>
</tr>
<tr>
<td>DFRXSS</td>
<td>00595F9C</td>
<td>0001148</td>
<td>1</td>
<td>RENT, REUS, AUTH</td>
</tr>
<tr>
<td>DFRHASY</td>
<td>00594690</td>
<td>0000990</td>
<td>2</td>
<td>RENT, REUS, AUTH</td>
</tr>
</tbody>
</table>

This panel includes the name of each module along with its entry point address, length, use count, and load module attributes. The modules displayed may include monitors, vendor packages, DB2, DLI, and certain nucleus modules. Note that the display does not include CICS programs loaded into DSA.
Chapter Overview

Heavily used DASD volumes will affect the response time of CICS applications. By viewing the activity on DASD volumes, you can better balance their usage.

Chapter Contents

- DASD Response Times ................................................................. 296
- Devices Exceeding a Threshold. .................................................. 298
- DASD Users ............................................................... 299
- Device Detail ............................................................... 300
  - DASD plot ............................................................... 302
DASD Response Times

To display the DASD response time for specified volumes, select the DASD option (A) on the I/O path or enter fast path IA from any panel. The CICS DASD Statistics panel appears as shown in the following figure.

**FIGURE 156. CICS DASD Statistics Panel (IA)**

This panel shows device statistics for all volumes allocated to your CICS region. To see all MVS allocated volumes, remove the F preceding the PDSK statement which is below CDEV. To select devices for display, enter a pattern containing the starting character of the volser followed by an * after the PDSK statement.
The start time, elapsed time of the RMF interval during which these statistics have been collected, and length are displayed to the right of the line beginning with the CDEV statement. The meanings of the columns are as follows:

<table>
<thead>
<tr>
<th><strong>Total I/O per second</strong></th>
<th>I/O rate for total usage of this device.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>CICS I/O per second</strong></td>
<td>I/O rate for usage of this device.</td>
</tr>
<tr>
<td><strong>Util %</strong></td>
<td>Device utilization percent.</td>
</tr>
<tr>
<td><strong>Avg Q</strong></td>
<td>Average I/O queue depth.</td>
</tr>
<tr>
<td><strong>Resp</strong></td>
<td>Average total device response time in milliseconds.</td>
</tr>
<tr>
<td><strong>IOSQ</strong></td>
<td>Average I/O queue time in milliseconds.</td>
</tr>
<tr>
<td><strong>Pend</strong></td>
<td>Average pending time in milliseconds.</td>
</tr>
<tr>
<td><strong>Conn</strong></td>
<td>Average connect time in milliseconds.</td>
</tr>
<tr>
<td><strong>Disc</strong></td>
<td>Average disconnect time in milliseconds.</td>
</tr>
</tbody>
</table>
To display the same statistics for devices exceeding a threshold, select the DASD Degradation option (B) on the I/O path or enter fast path I.B from any panel. The DASD Exceeding Thresholds panel appears as shown in the following figure.

**FIGURE 157. DASD Exceeding Thresholds Panel (I.B)**

This panel display DASD devices exceeding the specified threshold which in this case is 35 milliseconds of response time (_RSP035). Instead of RSP035, enter one or more threshold values beneath the CDEV statement from the following list:

- **AVQnnn**: Average length > nn.n.
- **RSPnnn**: Average total response time > nnn milliseconds.
- **IOSnnn**: Average IOS queue time > nnn milliseconds.
- **CONnnn**: Average device connect time > nnn milliseconds.
- **DSCnnn**: Average device disconnect time > nnn milliseconds.
- **DUTnnn**: Device utilization > nnn %.
- **PNDnnn**: Average request pending time > nnn milliseconds.

Only one of the above criteria must be met for a threshold to be exceeded.

**Note:** In order to use these thresholds for subsequent sessions, you must save them in your profile. See the OMEGAMON II for CICS Configuration and Customization Guide for details.

The **F** preceding the XDSK statement requests only CICS allocated volumes that meet the specified criteria. To display all volumes that meet the specified criteria, remove the **F** preceding the XDSK statement.
DASD Users

To find the current users of a device as shown in the following figure, select the DASD Users option (C) on the I/O path or enter fast path I.C from any panel.

**FIGURE 158. DASD Allocation, User, and Number of Open DCBs Panel (I.C)**

For each device, this panel shows:

- **DISK**: Volser.
- **DADR**: Device unit address.
- **DUSR**: User last allocated to the device (when device busy).
- **DOPN**: Number of open DCBs on this device.
Device Detail

To view detailed information for a particular device and a list of files allocated on that device, place the cursor on a volser on the DASD Users panel, as shown in the previous figure, and press PF11. The Examine One Device panel displays.

FIGURE 159. Examining a Specific Device (Accessed by Zoom)

The DEV statement and the statements below it display the following device information:

- **DEV ccc**: Device address.
- **DBsy**: D indicates device busy and S indicates suspended channel program.
- **IOQ**: Depth of I/O queue, where a plus sign (+) indicates more than 9.
- **IO#**: I/O number, where a greater than sign (>) indicates the start of I/O.
- **CPU**: Vertical bar (|) indicates dispatchable tasks and period (.) indicates nondispatchable tasks (no ready TCBs).
- **User**: User of the device.
- **Cyl**: Cylinder being accessed.
- **Nrdy**: N indicates that the device is not ready.
- **Resv**: R indicates that the device is reserved.
You can also obtain detailed information on a specific device by entering the DASD Detail option (D) on the I/O path or fast path I.D from any panel. The DASD Detail panel appears as shown in the following figure. You can then enter the device address.

**FIGURE 160. DASD Detail Panel (I.D)**

To select another device, replace the address following DEV with the unit address you want.

The DEV statement and the statements below it display the following device detail:

- **DEV**: Unit information.
- **DIO**: Device I/O count from RMF.
- **DIO.R**: Device I/O rate per second from RMF.
- **DIOQ**: Depth of I/O queue.
- **DOPN**: Number of open DCBs.
- **DUSR**: Current user of this device.
- **DRES**: Device reserve count.
- **DSTA**: Mount status of this volume (Private, Public or Storage).
### Device Detail

<table>
<thead>
<tr>
<th>DTYP</th>
<th>Device type.</th>
</tr>
</thead>
<tbody>
<tr>
<td>DVMP</td>
<td>Hex dump of UCB for this device.</td>
</tr>
</tbody>
</table>

### DASD plot

To view a plot of recent device activity as shown in the following figure, select the DASD Plot option (E) on the I/O path or enter fast path **I.E** from any panel.

#### FIGURE 161. DASD Plot Panel (I.E)

This graph displays 50 samples of activity on a selected device taken every nn milliseconds. Enter the number of milliseconds you want between each sample after the DPLT statement. For example,

```
DPLT05
```

sets the sampling interval to 5 milliseconds. The default setting is 1 millisecond.

Each column of the graph represents 1 sample. The symbol shown in the column represents the drive’s status during that interval. In particular, watch for an IOQ depth consistently greater than 1. A string of Ds across the graph indicates that the device is constantly busy.
Chapter Overview

The OMEGAMON II utility functions enable you to issue MVS console, CICS master terminal, and common interface commands. Also, this path includes debugging options which take a snapshot of your CICS region, print OMEGAMON II debugging panels, verify key OMEGAMON II components, and display current maintenance levels. In addition, there are several options that enable you to view, scan, or modify various types of storage: OMEGAMON II common interface, operating system common area, CICS, and dataspaces.

The options that issue commands, or list or modify storage, include statements that must be preceded by a hyphen (-). When the statement executes, the hyphen changes to >, making the statement a comment, and a message is returned. To reissue the statement, you must uncomment it. Instead of a hyphen, you may precede these statements with <. In this case, a message is returned but the statement remains, so that you can merely press Enter to reissue it.

Chapter Contents

Accessing Utilities ................................................................. 304
Issuing Commands ............................................................... 305
   Issuing operating system console commands .......................... 305
   Issuing CICS master terminal commands .............................. 306
   Issuing OMEGAMON II common interface commands .............. 307
Obtaining Diagnostics .......................................................... 308
   Taking a CICS snapshot ................................................... 308
   Obtaining OMEGAMON II diagnostics ................................. 309
   Verifying OMEGAMON II components ................................. 311
   Verifying OMEGAMON II maintenance levels ....................... 315
Viewing and Modifying Storage ............................................ 316
   Common interface or common area storage ......................... 316
   CICS storage ............................................................ 318
   Dataspace storage ...................................................... 320
Accessing Utilities

To access the Utilities menu, select the Utilities option (U) on the main menu or enter fast path U. from any panel. The Utilities menu appears.

FIGURE 162. Utilities Menu Panel (U.)

In order to maintain the integrity of your system, your installation may secure many or all of the options on this menu. If authorization is required, enter /PWD on the Info-line.

To select an option from the Utilities menu, enter the selection letter on the Info-line.

Press PF3 to return to the above menu and then make your next selection. You can also enter the fast path to navigate directly from one menu option to another.
Issuing Commands

The Utilities menu includes options to issue commands that can control MVS, JES, CICS, or the OMEGAMON II common interface.

Issuing operating system console commands

To issue an MVS or JES console command, select the Console option (A) on the Utilities menu or enter fast path U.A from any panel. The Operating System Console panel appears.

FIGURE 163. Operating System Console Panel (U.A)

To issue an operator command,

- If there is a > preceding the OCMD statement, replace it with a hyphen.
- Enter any MVS or JES2 command after the OCMD command, on the same line.

To display MVS/JES2 command output or MVS console output,

- Enter an MVS console ID after the CONS statement. Blanks after CONS indicate the master console.
- Replace 10 after the LINE statement with the number of console output bottom lines to display.

When issuing MVS or JES2 commands,

- OMEGAMON II will issue the command that you supply following the OCMD statement.
- OMEGAMON II has the same MVS console authority as the console you indicate.
- Omit the console ID to specify the master console.
- You may specify the console ID which is the UCMID (internal MVS identifier) of the console on which the MVS response displays.
- To see the console number for each of your MVS consoles, issue the D CONSOLES command at a real MVS console.

For example, to modify CICS and display the results on console 04, the KOCMD statement looks like this:

-OCMD04 F DBDCCICS,CEMT INQUIRE TASKS
Issuing CICS master terminal commands

The Utilities menu includes an option to display or modify the following master terminal settings: active max tasks, class max tasks, runaway task interval, scan delay interval, and region exit interval. To display or modify any other master terminal settings, select the Console option (A) on the Utilities menu (fast path U.A) and enter CEMT commands as if you were issuing them at a console. To display or modify the subset of CICS master terminal settings listed above, select the Master Terminal option (L) on the Utilities menu or enter fast path U.L from any menu system panel. The following panel appears.

FIGURE 164. Display or Change CICS Master Terminal Settings Panel (U.L)

To display the current setting of a parameter, enter one of the keywords shown on the panel following the -CMT statement. The current value displays and the hyphen preceding CMT changes to >. To display the value of another setting, replace the > preceding CMT with a hyphen and enter the keyword after CMT. To modify a setting, enter the new value over the current value displayed. Or you can enter the entire statement, which includes the keyword, a comma, and the new value after -CMT. For example,

-CMT AMX,20

sets the maximum number of active tasks in CICS to 20. The comma after the keyword and the hyphen preceding CMT are required.

Note: Use this option with care. Its access should be restricted in order to insure the integrity of your CICS region.
Issuing OMEGAMON II common interface commands

This path includes an option to issue commands to the OMEGAMON II common interface. Use it only when directed by Candle Customer Support. Select the Interface option (M) on the Utilities menu or enter fast path U.M from any panel. A panel of instructions appears to guide you as shown in the following figure.

FIGURE 165. Issue Common Interface Command Panel (U.M)

This panel shows the syntax required. The CICM statement issues an MVS modifier to the common interface address space. It allows you to perform functions such as displaying common interface subtasks, starting or stopping an interface subtask, or sending a message to the MVS console. For example,

**CICM DISPLAY**

displays all the subtasks that are currently active in the common interface.

The CONS statement displays lines from the specified MVS console so that you can view the results of the MVS modifier to the common interface address space.

To ensure the integrity of OMEGAMON II, this option should be used with care and its access should be restricted.
Obtaining Diagnostics

The Utilities path includes several diagnostic options which can take an OMEGAMON II snapshot of your CICS region, verify OMEGAMON II components and maintenance levels, and obtain debugging information for OMEGAMON II itself.

Taking a CICS snapshot

To help diagnose CICS problems, the Utilities menu includes the Snapshot option which takes a snapshot of key diagnostic factors in your CICS region. Select the Snapshot option (N) on the Utilities menu or enter fast path U.N from any panel. The Snapshot introductory panel appears.

![FIGURE 166. CICS Snapshot Panel (U.N)]

The Snapshot facility is composed of a sequence of predefined OMEGAMON II displays, similar to the realtime OMEGAMON II panels you are currently using in the menu system. This Candle-supplied sequence of displays reports on the state and content of CICS.

These panels execute without intervention. After invoking Snapshot, the next screen you see is the completion screen. There may be a short time interval between invoking Snapshot and completion. The time depends on the size and state of the CICS region being diagnosed.

The results of the snapshot appear on the screen log file. To print the screen log file, select the Profile option (P) on the main menu, then select the Logging option (H), and then select the Log Out option (D). Or you can enter fast path P.H.D from any panel.

Snapshot is a debugging aid to be used along with a CICS or MVS system dump. It is designed to facilitate your job of locating and chaining through storage.
Obtaining OMEGAMON II diagnostics

In the event that OMEGAMON II experiences a problem, Customer Support may ask you to capture debugging information. OMEGAMON II diagnostics use the Snapshot facility and produce both CICS and OMEGAMON II debugging information.

To obtain OMEGAMON II diagnostics, select the Debug option (O) on the Utilities menu or enter fast path **U.O** from any panel. A Debug introductory panel appears.

**FIGURE 167. OMEGAMON II Diagnostics Introductory Panel (U.O)**

If you proceeded by pressing Enter, a banner page appears as shown in the following figure.
This panel collects information about your site which will appear as a banner page when the OMEGAMON II diagnostics are printed. Type the requested information in the spaces provided. Then press Enter to proceed or if you prefer to bypass the diagnostics, press PF3 to cancel and return to the Utilities menu.

This option is composed of a sequence of predefined OMEGAMON II displays, similar to the realtime OMEGAMON displays you are currently using in the menu system. These Candle-supplied displays contain everything included in the Snapshot option (fast path U.N) which reports on the target CICS region. In addition, this option also produces extensive diagnostics and statistics about the OMEGAMON II region itself.

This Debug option is designed as a service and debugging aid for Candle Customer Support, to reduce the time taken to resolve problems with either CICS or OMEGAMON II.

The complete sequence of the Snapshot and Debug displays execute without any intervention on your part. After invoking Debug, the next panel you see is the completion panel. There will be a short time interval between invoking Debug and completing the process. The time period depends largely on the size and state of the CICS region being diagnosed.
These diagnostics appear directly on the JES print queue. Collect the printed output. Enter the information required on the leading banner page. Mail the diagnostics to Candle, with any accompanying documentation requested by Customer Support.

**Verifying OMEGAMON II components**

This option lets you verify the status of and, if necessary, enable major OMEGAMON II components. You may use this option to verify OMEGAMON II after installation. You can use this option at any time to verify and enable components, as an alternative to selecting individual options on the Control Options menu (main menu option O). If you are experiencing a problem, Customer Support may ask you to use this option and may walk through the data displayed with you.

The Verify display takes several panels. These panels consist of questions about whether each major component is available, followed by a display of the component’s status, followed by the model of a statement you can use to start the component.

Select the Verify option (P) on the Utilities menu or enter fast path U.P from any panel. The first of several verification panels (depending on the status of your system) appears as shown in the following figure.
Press PF8 to scroll to the next panel which appears as shown in the following figure.
Press PF8 to scroll forward again to the last verify panel as shown in the following figure. The row of equal signs (=) indicates the bottom of the data.
These panels show whether the following major components are enabled:

- CICS global and task related user exits
- bottleneck analysis
- response time monitor
- automatic response time collector
- online historical transaction viewing

If the OMEGAMON II program is not enabled as an exit, then the response time monitor, the automatic response time collector, and online historical transaction data viewing are unavailable. Check your PLT, PCT, and PPT entries, and check that the OMEGAMON II modules are in the DFHRPL concatenation in your CICS JCL. Also, look for any error message at CICS startup.

If the CICS exit is available, you can activate bottleneck analysis, the response time monitor, the automatic response time collector, or online historical transaction data viewing. To enable a component, remove the > preceding the START statement that follows the component's status and press Enter.
Verifying OMEGamon II maintenance levels

The Utilities path also includes an option to display current release levels, OMEGamon II maintenance information, and RMF settings. To view this information as shown in the following figure, select the Maintenance option (Q) on the Utilities menu or enter fast path U.Q from any panel.

**FIGURE 172. Current OMEGamon II Maintenance Panel (U.Q)**

The upper portion of this panel shows current release levels of CICS and the operating system, CPU serial numbers, and OMEGamon II maintenance. The OMEGamon II maintenance information is for use by Candle Customer Support. The bottom portion of the panel shows RMF version and version code, the current interval length, and the cycle time.
Viewing and Modifying Storage

Common interface private area, operating system common area, CICS, and dataspace storage are accessible through OMEGAMON II. For each of these storage types, the following options are available:

- List the storage beginning at a specified location.
- Scan for a specified string within the storage.
- Verify and modify (zap) the contents of a specified location.

Common interface or common area storage

Common interface storage is OMEGAMON II storage. Use the following options for common interface storage only as directed by Customer Support.

You can also use these options to view or modify the contents of the operating system common area, which includes the: Common Storage Area (CSA), System Queue Area (SQA), and nucleus.

To display common interface private area or operating system common area storage, select the OMEGAMON II Display option (B) on the Utilities menu or enter fast path U.B from any panel. The following panel appears.

FIGURE 173. Display OMEGAMON II or Common Area Storage Panel (U.B)

This panel describes the required syntax. Enter the parameters, as shown in the model, following the -MLST statement. You must specify the type of display format, the starting address of the storage, and the amount of storage in hexadecimal bytes that you want to display.

The addr field is very flexible. OMEGAMON II allows the field to be calculated using a small set of operators and address variables. It is similar to the syntax used by the TSO TEST command. See Figure 177 on page 319 for instructions on calculating the addr field.

To scan for a specified string within the common interface private area or the operating system common area, select the OMEGAMON II Scan option (C) on the Utilities menu or enter fast path U.C from any panel. The following panel appears.
This panel shows the required syntax and instructions for supplying necessary parameters. Enter the information required, as shown in the model, following the \texttt{-MSCN} statement. You must specify the type of display format, the starting storage address, the hexadecimal or character string for which you want to search, the amount of storage to scan, and the number of bytes to display when the string is found.

To modify the common interface private area or the operating system common area, select the OMEGAMON II Zap option (D) on the Utilities menu or enter fast path \texttt{U.D} from any panel. A panel appears as shown in the following figure.

\textbf{Note:} Modify OMEGAMON II storage only if instructed by Candle Customer Support. Modify common area storage with care.
This panel displays the required syntax. Follow the instructions for entering the necessary parameters. As shown in the model, enter the required information following the -MZAP statement. You must specify the beginning storage address of the memory to modify, the current hexadecimal value in that location for verification, and the hexadecimal value which should replace the current verified value. You can modify up to 32 bytes of storage at a time. The verify and replacement strings must be the same length.

If the common area storage that you modify resides in the Pageable Link Pack Area (PLPA), OMEGAMON II automatically does a long-term page fix to ensure that the storage remains modified. In this case, the message PAGE(S) FIXED appears.

**CICS storage**

You can display or modify CICS storage within any CICS region on the same Central Electronic Complex (CEC) as the currently monitored CICS. To list CICS storage, select the CICS Display option (E) on the Utilities menu or enter fast path U.E from any panel. The following panel appears.

**FIGURE 176. Display CICS Storage Panel (U.E)**

This panel displays the required syntax and an example. Enter the required information, as shown in the model, after the -XMLS statement. You must specify the type of display format, the CICS region jobname ($ indicates the currently monitored CICS), the starting address of storage, and the amount of storage in hexadecimal bytes that you want to display.

**Note:** The maximum number of bytes that you can display with the XMLS command is x'1000', or decimal 4096.

The addr field is very flexible. OMEGAMON II allows the field to be calculated using a small set of operators and address variables. It is similar to the syntax used by the TSO TEST command. See Figure 177 on page 319 for instructions on calculating the addr field.

OMEGAMON II provides a limited set of named virtual storage addresses: ASCB, CSA, DLP,
OPFL, and TCB. These names are equated to their virtual storage locations. They may be used as reference points in determining an address to be zapped.

OMEGAMON II also allows you to create your own named addresses. To do this, use the MDEF command on the Display CICS Address Space Storage panel. The syntax of the MDEF command is described in the following figure.

**FIGURE 177. Sample MDEF Command**

```
MDEF addr, name
  addr   Address calculation to be assigned. It should start with a
         hex value or an already defined MDEF string. Operators are
         allowed based on that value:
         +   Add the following value to the current pointer.
         -   Subtract the following value from the current pointer.
         %   Fullword at the current pointer is a 24-bit, indirect
             address to replace the current pointer.
         ?   Fullword at the current pointer is a 31-bit, indirect
             address to replace the current pointer.
  name  The name to be associated with the addr string.

EXAMPLES:
MDEF 10%, CVT       Define CVT via location 16.
MDEF CVT%+4%, TCB   OMEGAMON II’s current TCB.
MDEF TCB%, RB       OMEGAMON II’s current RB via current TCB.
```

You can also press F1 to view the help panel. The MDEF command and its syntax display.

To scan for a specified string within CICS storage, select the CICS Scan option (F) on the Utilities menu or enter fast path U.F from any panel. The following panel appears.

**FIGURE 178. Scan CICS Storage Panel (U.F)**

```
> XMSCc jobname,addr,string,slen,dlen is the syntax where:
  > c= Display format: Blank=dump, C=character, X=hex.
  > jobname = Enter $ for the currently monitored CICS region.
  > addr= Starting address of memory to scan.
  > string= Scan comparison string in hex or character.
  > slen= Hex scan length (default is 256 or x'100')
  > dlen= Hex display length (default is 16 or x'10').
-XMSC
```

Utilities 319
Viewing and Modifying Storage

This panel shows the required syntax. Enter the information required, as shown in the model, following the -XMSC statement. You must specify the type of display format, the CICS region jobname ($ indicates the currently monitored region), the starting storage address, the hexadecimal or character string for which you want to search, the amount of storage to scan, and the number of bytes to display when the string is found.

To modify CICS storage, select the CICS Zap option (G) on the Utilities menu or enter fast path U.G from any panel. The Modify CICS Storage panel appears as shown in the following figure.

**Note:** Perform this option with care in order to ensure the integrity of your CICS system.

FIGURE 179. Modify CICS Storage Panel (U.G)

This panel displays the required syntax. Follow the instructions for entering the necessary parameters. As shown in the model, enter the information following the -XMZP statement. You must specify the jobname of the CICS region ($ indicates the currently monitored region), the beginning storage address of the memory to modify, the current hexadecimal value in that location for verification, and the hexadecimal value which should replace the current verified value.

Dataspace storage

A dataspace is an operating system address space, apart from a CICS or OMEGAMON II address space. It is not a job and is used solely for storage of data.

To display dataspace storage associated with any CICS region within the same CEC as the currently monitored CICS, select the Dataspace Display option (H) on the Utilities menu or enter fast path U.H from any panel. The following panel appears.
FIGURE 180. Display Dataspace Storage Panel (U.H)

This panel displays the required syntax and an example. Enter the required information, as shown in the model, after the `-SLST` statement. You must specify the type of display format, the CICS region jobname ($ indicates the currently monitored CICS), the dataspace name, the starting address of storage, and the amount of storage in hexadecimal bytes that you want to display.

To scan for a specified string within dataspace storage associated with any CICS region within the same CEC as the currently monitored CICS, select the Dataspace Scan option (I) on the Utilities menu or enter fast path `U.I` from any panel. A panel displays as shown in the following figure.

FIGURE 181. Scan Dataspace Storage Panel (U.I)
This panel shows the required syntax. Enter the information required, as shown in the model, after the -SSCN statement. You must specify the type of display format, the CICS region jobname ($ indicates the currently monitored region), the dataspace name, the starting storage address, the hexadecimal or character string for which you want to search, the amount of storage to scan, and the number of bytes to display when the string is found.

To modify dataspace storage associated with any CICS region on the same CEC as the currently monitored CICS, select the Dataspace Zap option (J) on the Utilities menu or enter fast path U.J from any panel. A panel displays as shown in the following figure.

Note: Perform this option with care in order to insure the integrity of the data stored in the dataspace.

FIGURE 182. Modify Dataspace Storage Panel (U.J)

This panel displays the required syntax. Follow the instructions for entering the necessary parameters. As shown in the model, enter the required information following the -SZAP statement. You must specify the jobname of the CICS region ($ indicates the currently monitored region), the dataspace name, the beginning storage address of the memory to modify, the current hexadecimal value in that location for verification, and the hexadecimal value which should replace the current verified value.

You can list dataspaces associated with any CICS region on the same CEC as the currently monitored CICS as well as dataspaces associated with the common interface. Select the Dataspace List option (K) on the Utilities menu or enter fast path U.K from any panel. The following panel appears.
This panel lists the dataspaces associated with the CICS region being monitored, followed by the dataspaces associated with the OMEGAMON II common interface. For each dataspace, this panel shows:

<table>
<thead>
<tr>
<th>Name</th>
<th>Current Size</th>
<th>Maximum Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>00000VHS</td>
<td>60K</td>
<td>60K</td>
</tr>
<tr>
<td>00001VHS</td>
<td>80K</td>
<td>80K</td>
</tr>
<tr>
<td>00002VHS</td>
<td>120K</td>
<td>120K</td>
</tr>
<tr>
<td>00003VHS</td>
<td>120K</td>
<td>120K</td>
</tr>
<tr>
<td>00004VHS</td>
<td>60K</td>
<td>60K</td>
</tr>
<tr>
<td>00005VHS</td>
<td>80K</td>
<td>80K</td>
</tr>
<tr>
<td>00006VHS</td>
<td>120K</td>
<td>120K</td>
</tr>
<tr>
<td>00007VHS</td>
<td>120K</td>
<td>120K</td>
</tr>
</tbody>
</table>

To list dataspaces associated with another CICS region, replace the current CICS jobname with the new CICS jobname and press Enter.
Chapter Overview

This chapter describes the dynamic method of defining, modifying, and activating groups and their associated response time thresholds. For instructions on permanently changing the group and element definitions, see the OMEGAMON II for CICS Customization Guide.

Chapter Contents

Background ................................................................. 326
Stopping and Starting the Response Time Data Collector .................. 327
Group Definition Limits .................................................. 328
Element Names ............................................................. 329
Default Group Definitions ............................................... 330
Group Definition Panels .................................................. 331
  Summarizing groups .................................................... 331
  Displaying elements ................................................... 331
  Creating groups ......................................................... 332
  Adding elements ....................................................... 334
  Updating groups ......................................................... 335
  Updating elements ..................................................... 336
  Deleting elements ...................................................... 337
  Clearing groups ........................................................ 338
  Listing group types and elements .................................... 339
The OMEGAMON II response time monitoring and bottleneck analysis features collect and analyze data based on groups of like elements. These elements may be transactions, programs, VTAM Logical Units (LUs), or terminals. OMEGAMON II helps you organize the information you see on bottleneck analysis and response time displays by letting you define groups and assign resources (elements) to them. In fact, in order to obtain response time data on an element, it must be defined and it must belong to at least one monitoring group. Elements in your region that are not defined in a group, will not appear on response time displays. The primary bottleneck analysis display does not depend on groups, but the bottleneck analysis by group displays (fast paths B.C and B.D) do require predefined groups.

You can define groups of like elements using two methods: *permanent* and *dynamic*.

The permanent method allows you to change the system defaults and define groups that are available every time OMEGAMON II starts monitoring. To accomplish this, you change the group and element definitions in the Global Data Area module. After making the changes, you reassemble the module. In order to access the newly assembled global module, you must recycle the Common Interface to get a new copy into the address space.

The dynamic method of defining groups is performed through the Groups path. To start on the Groups path, select the Groups option (G) on the main menu or enter fast path G. from any panel. The changes made on this path remain in effect until OMEGAMON II is recycled and while the CICS region(s) being monitored are running. Even if you switch monitoring through an overview product (OMEGAVIEW) or through the REGIONS option (W) on the main menu, the dynamic group changes remain in effect while OMEGAMON II and the CICS region(s) are up.

Since dynamic changes are designed to be short-term, you should plan on using them when investigating current problems. For example, if your facility recently installed a new line that is experiencing problems, you can add a logical unit group and analyze its host and network response times.
Stopping and Starting the Response Time Data Collector

Before dynamically changing group definitions, you must turn off the response time data collector. Stopping response time monitoring also stops the interval record collector. Select the Control Options option (O) on the main menu and then select the RTA Off option (B) or enter fast path O.B from any panel.

After you finish changing your group and element definitions, restart the response time collectors to begin gathering response time data by selecting the RTA On option (A) on the Control Options path or enter fast path O.A from any panel. Restarting response time monitoring also restarts the interval record collector. For more information on the interval record collector and reporter see, *OMEGAMON II for CICS Historical Reporting Guide*. 
Group Definition Limits

Keep in mind the following group definition limits for a CICS region:

- You can define a total of up to 30 groups.
- Each group can contain one or more element names, such as a CICS transaction ID or terminal ID.
- All the elements in a group must be of the same resource type.
- A maximum aggregate of 2000 elements across all groups can be defined.
- The same element can appear in multiple groups.
Element Names

For CICS transactions, programs and terminals you can use a specific or generic name. A generic name is one or more characters followed by an asterisk (*). For example, a program element of TST* specifies all programs starting with TST. Generic names are not valid for VTAM LU groups.

When you define specific element names to a group, you will be able to see individual response times for each element. For example, if you define transactions ABCA, ABCB, and ABCD, you will be able to see individual response times for each of these three transaction IDs. However, when you define generic element names (using the wildcard character *), you will only see average response times for all the elements meeting the generic specification. For example, the transaction element ABC* can only show an average response time for the transaction IDs starting with ABC.
Default Group Definitions

If no group definition changes were made to the Global Data Area module, by default, OMEGAMON II uses the first letter of the transactions in the PCT to assign all transactions to transaction groups 1–26. Thus, transaction IDs beginning with A are assigned to Group 01 (TRAN=A*), those beginning with B are assigned to Group 02 (TRAN=B*), those beginning with C are assigned to Group 03 (TRAN=C*), and so on.
Group Definition Panels

The following panels enable you to view, create, update, and delete monitoring groups and their elements.

Summarizing groups

To view a list of the groups that are presently in use, select the Groups option (G) on the main menu or enter fast path G. from any panel. This is the first panel on the Groups path. The Group Summary panel appears as shown in the following figure.

FIGURE 184. Group Summary Panel (G.)

The Group Summary panel identifies each group by its number, resource type (transaction, program, terminal or LU), and name. The average threshold for each group refers to the response time threshold used by the interval record reporter for all elements within the group. The far right column lists the number of elements belonging to each group.

Displaying elements

To view the elements within a group, position the cursor on a group line in the Group Summary panel and press PF11. This produces a Group Detail Information panel as shown in the following figure.
This panel lists each element ID in the selected group. OMEGAMON II uses the response time threshold for each element to highlight those elements exceeding the threshold on response time displays.

If a group contains VTAM LUs, thresholds are defined separately for host and network response time. Otherwise, n/a (not applicable) is displayed.

Creating groups

To be monitored, elements must be contained in at least one group. To create a group, select the Create Group option (B) on the Groups path or enter fast path G.B from any panel. This produces a panel to create a group and specify its attributes as shown in the following figure.
Text on this panel explains how to define a new group. Enter the group number, a name for easy identification, the type of resource this group will contain, and the average response time for the elements within the group.

1. Begin by moving the cursor to the line containing the GRPS statement.
2. Remove the greater-than symbol (>) preceding GRPS.
3. Modify the group definition (GRPS) statement.
4. Follow the syntax shown in the figure and these guidelines:
   - Use group numbers from 1–30.
   - The group name is for informational purposes. It appears on certain displays to facilitate identification of a group’s contents.
   - The group type must be defined as either a transaction, terminal, program or LU group. All elements in the group must be of the type defined.
   - The average response time threshold is used to activate the interval record collector and highlight elements that exceed the threshold.

For example, to create group number 30 as a transaction group for the new Payroll application with an average CICS response time threshold of 1.2 seconds, the GRPS statement looks like this:

```
GRPS ADD,GROUP=30,NAME='PAYROLL',TYPE=TRAN,AVERAGE=1.2
```

To create group 27 as an LU group for line 15 with an average end-to-end response time of 1.8 seconds, the GRPS statement looks like this:

```
GRPS ADD,GROUP=27,NAME='LINE 15',TYPE=LU,AVERAGE=1.8
```

When transaction, programs, or terminals or monitored, OMEGAMON II obtains CICS response time. When LUs are monitored, OMEGAMON II uses the End-to-End Response Time Feature to obtain host, network, and ETE response times. Refer to the OMEGAMON II for CICS Configuration and Customization Guide and the End-to-End Response Time Feature (ETE) Reference Manual for additional information about end-to-end response time.
Adding elements

To be monitored, an element must be defined and contained within a group. To define new elements for an existing group, select the Add Element option (C) on the Groups path or enter fast path G.C from any panel. The elements you define must correspond with the group TYPE definition. You can define the same element in multiple groups. A panel to add one or more elements to a group appears as shown in the following figure.

**FIGURE 187. Add Elements to Group Panel (G.C)**

Follow the instructions on this panel to modify the GRPS ADD statement. Enter the group number. An asterisk (*) specifies all groups. Also supply the element (resource) type (TRAN, PROG, TERM, or LU), the element ID, and the appropriate response time threshold(s). If you add an LU group, you specify end-to-end response time for the RESP parameter, which is a total of host and network response time. Otherwise, the RESP parameter refers to CICS response time. Also, if it is an LU group, you must specify individual response times for the host and network components of ETE response time. Otherwise, HOST and NET do not apply.

For example, to add transaction ID SA21 to Group 01, with a response time threshold of 3.5 seconds, modify the GRPS statement on the last line of the display to look like this:

```
GRPS ADD,GROUP=1,TRAN=SA21,RESP=3.5
```
**Updating groups**

To modify the group name, group type, or average response time threshold for the group as a whole, select the Update Group option (D) on the Groups path or enter fast path G.D from any panel. A panel for updating group attributes appears as shown in the following figure.

**FIGURE 188. Update Group Panel (G.D)**

Follow the instructions on this panel to modify the GRPS UPD statement. Enter the group number, the group name (optional), the type of elements contained in the group, and the average group response time for all elements within the group. If it is an LU group, average response time is end-to-end; otherwise it refers to CICS response time.

For example, to change the average CICS response time for transaction group 30 to 2.1 seconds, the GRPS statement looks like this:

```
GRPS UPD,GROUP=30,AVERAGE=2.1
```

If you are changing the group type, you must first delete all elements in that group. To do so, select the Clear Group option (G) on the Groups path.
Updating elements

To update the response time thresholds for individual elements within a group, select the Update Element option (E) on the Groups path or enter fast path G.E from any panel. A panel for updating the attributes of an element in one or more groups appears as shown in the following figure.

**FIGURE 189. Update Elements in Group Panel (G.E)**

Follow the instructions on this panel to modify the GRPS UPD statement. Enter the type of element, the element ID, and the applicable response time(s) for the element. RESP refers to ETE response time if the element is an LU. If the element is a transaction, program, or terminal, RESP refers to CICS response time. If the element is an LU, the host and network response time components of ETE also apply.

For example, if you want to change the network response time threshold for LU L624001 to 4 seconds, modify the GRPS UPD statement to look like this:

```
GRPS UPD,LU=L624001,NET=4
```

This change effects all groups containing LU L624001.
Deleting elements

To delete individual elements from a group, select the Delete Element option (F) on the Groups path or enter fast path G,F from any panel. A panel for deleting one or more elements from a group appears as shown in the following figure.

FIGURE 190. Delete Elements from a Group Panel (G,F)

Follow the instructions on this panel to modify the GRPS DEL statement. Enter the **group number**, the **element type**, and a list of the **element IDs** that you want to delete from the group (separated by commas).

For example, to delete terminals AB01, CD06, and EF12 from Group 08, modify the GRPS DEL statement to look like this:

```
GRPS DEL, GROUP=08, TERM=(AB01,CD06,EF12)
```
Clearing groups

If you want to delete all elements from a group, select the Clear Group option (G) on the Groups path or enter fast path G.G from any panel. A panel for clearing groups appears as shown in the following figure.

FIGURE 191. Clear a Group Panel (G.G)

Follow the instructions on this panel to modify the GRPS CLR statement. Simply enter the number of the group that you want to clear out.

For example to clear out all elements of Group 12, modify the GRPS CLR statement to look like this:

GRPS CLR,GROUP=12
Listing group types and elements

To list groups of a specific type or find out which groups contain specific elements, select the List Group option (H) on the Groups path or enter fast path G.H from any panel. A panel for listing specified groups appears as shown in the following figure.

**FIGURE 192. List Groups Panel (G.H)**

Follow the instructions on this panel to modify the GRPS statements. To list groups of a specified element type, enter the element type (TRAN, TERM, PROG, or LU) after `TYPE=`. To list the groups that contain a particular element, enter the **element type** and the **element ID**.

For example, to list all terminal groups, modify the GRPS `TYPE=` statement to look like this:

```
GRPS TYPE=TERM
```

To list all the groups containing the transaction ID HJ14, modify the GRPS `elem=` statement to look like this:

```
GRPS TRAN=HJ14
```

Remember that all the updates to group definitions made through the Groups path in the menu system remain in effect only while your monitored CICS region(s) are running and for the duration of this OMEGAMON II session.
Introduction

The menu system Fastpath Index lists CICS performance monitoring topics and directions on how to find these topics in OMEGAMON II's menu system.

Appendix Contents

Using the Fastpath Index ............................................................... 342
Using the Fastpath Index

To use the index, locate a topic in the column labelled Topic and then follow the line across to find the fastpath that corresponds to that topic.

This index is also available online. To go to the online index, press PF1 from any menu system panel. This gives you associated help for the panel. Then press PF1 again to go to the General Help menu. From the General Help menu, select A to go to the index. Topics for A then appear. To see topics for another letter, enter that letter on the entry field. Scroll through the topics. When you find the topic you want, enter S in the entry field preceding the topic, or enter the fastpath on the INFO-line.

For advanced users who need to use commands, the online version of the fastpath index shows the corresponding command(s) for each topic listed.

A

<table>
<thead>
<tr>
<th>Subject</th>
<th>Main Menu Option</th>
<th>Fastpath</th>
</tr>
</thead>
<tbody>
<tr>
<td>ADABAS</td>
<td>H - History</td>
<td>H.A</td>
</tr>
<tr>
<td>ADABAS Statistics for a Task</td>
<td>T - Tasks</td>
<td>T.</td>
</tr>
<tr>
<td>Addresses, DLI</td>
<td>D - Databases</td>
<td>D.G</td>
</tr>
<tr>
<td>Add Element to Group</td>
<td>G - Groups</td>
<td>G.C</td>
</tr>
<tr>
<td>AIDs</td>
<td>C - CICS</td>
<td>C.A</td>
</tr>
<tr>
<td>AIDs Kill</td>
<td>C - CICS</td>
<td>C.B</td>
</tr>
<tr>
<td>All Clear Message</td>
<td>P - Profile</td>
<td>P.A.L</td>
</tr>
<tr>
<td>All Datasets Allocated to CICS</td>
<td>F - Files</td>
<td>F.H</td>
</tr>
<tr>
<td>All Tasks</td>
<td>T - Tasks</td>
<td>T.A</td>
</tr>
<tr>
<td>Another CICS Region, Switch to</td>
<td>W - REGIONS</td>
<td>W.</td>
</tr>
<tr>
<td>Application Datasets</td>
<td>F - Files</td>
<td>F.A</td>
</tr>
<tr>
<td>Application Domain Tasks</td>
<td>T - Tasks</td>
<td>T.B</td>
</tr>
<tr>
<td>Applied Maintenance</td>
<td>U - Utilities</td>
<td>U.Q</td>
</tr>
<tr>
<td>Automatic Screen Facility (ASF) On</td>
<td>P - Profile</td>
<td>P.E.F</td>
</tr>
<tr>
<td>Automatic Screen Facility (ASF) Off</td>
<td>P - Profile</td>
<td>P.E.G</td>
</tr>
<tr>
<td>Automatic Update Mode (AUP) On</td>
<td>P - Profile</td>
<td>P.F</td>
</tr>
<tr>
<td>Automatic Update Mode (AUP) Off</td>
<td>P - Profile</td>
<td>P.G</td>
</tr>
<tr>
<td>Averages, Response Time</td>
<td>R - Response</td>
<td>R.J</td>
</tr>
</tbody>
</table>
### Using the Fastpath Index

#### B

<table>
<thead>
<tr>
<th>Subject</th>
<th>Main Menu Option</th>
<th>Fastpath</th>
</tr>
</thead>
<tbody>
<tr>
<td>Blue and Other Color Settings</td>
<td>P - Profile</td>
<td>P.D</td>
</tr>
<tr>
<td>Bottleneck Analysis</td>
<td>B - Bottlenecks</td>
<td>B.B</td>
</tr>
<tr>
<td>Bottleneck Analysis Control</td>
<td>O - Control Options</td>
<td>O.I</td>
</tr>
<tr>
<td>Bottleneck Analysis in Overview</td>
<td>V - Overview</td>
<td>V.</td>
</tr>
<tr>
<td>Bottleneck Analysis Verify</td>
<td>U - Utilities</td>
<td>U.P</td>
</tr>
<tr>
<td>Bottleneck Analysis Wait Reasons</td>
<td>O - Control Options</td>
<td>O.J</td>
</tr>
<tr>
<td>Buffer Waits</td>
<td>F - Files</td>
<td>F.I</td>
</tr>
</tbody>
</table>

#### C

<table>
<thead>
<tr>
<th>Subject</th>
<th>Main Menu Option</th>
<th>Fastpath</th>
</tr>
</thead>
<tbody>
<tr>
<td>CEMT Functions</td>
<td>U - Utilities</td>
<td>U.L</td>
</tr>
<tr>
<td>CICS Control Blocks</td>
<td>C - CICS</td>
<td>C.</td>
</tr>
<tr>
<td>CICS Datasets</td>
<td>F - Files</td>
<td>F.B</td>
</tr>
<tr>
<td>CICS Dataspaces</td>
<td>U - Utilities</td>
<td>U.K</td>
</tr>
<tr>
<td>CICS Exception Settings</td>
<td>P - Profile</td>
<td>P.A.J</td>
</tr>
<tr>
<td>CICS Region Snapshot</td>
<td>U - Utilities</td>
<td>U.N</td>
</tr>
<tr>
<td>CICS Region Storage</td>
<td>S - Storage</td>
<td>S.I</td>
</tr>
<tr>
<td>CICS Shutdown Options</td>
<td>O - Control Options</td>
<td>O.Q</td>
</tr>
<tr>
<td>CICS Storage, List</td>
<td>U - Utilities</td>
<td>U.E</td>
</tr>
<tr>
<td>CICS Storage, Scan</td>
<td>U - Utilities</td>
<td>U.F</td>
</tr>
<tr>
<td>CICS Storage, Zap</td>
<td>U - Utilities</td>
<td>U.G</td>
</tr>
<tr>
<td>CICS Trace Overview</td>
<td>C - CICS</td>
<td>C.W</td>
</tr>
<tr>
<td>REGIONS</td>
<td>W - REGIONS</td>
<td>W.</td>
</tr>
<tr>
<td>Class, Tasks by</td>
<td>T - Tasks</td>
<td>T.FA</td>
</tr>
<tr>
<td>Clear Group</td>
<td>G - Groups</td>
<td>G.G</td>
</tr>
<tr>
<td>CMAX Held Tasks</td>
<td>T - Tasks</td>
<td>T.FB</td>
</tr>
<tr>
<td>CMXT Statistics</td>
<td>C - CICS</td>
<td>C.C</td>
</tr>
<tr>
<td>Collector, Interval Recording</td>
<td>O - Control Option</td>
<td>O.K</td>
</tr>
<tr>
<td>Collectors, Database</td>
<td>O - Control Option</td>
<td>O.P</td>
</tr>
<tr>
<td>Color Settings</td>
<td>P - Profile</td>
<td>P.D.A</td>
</tr>
<tr>
<td>Compressions, Storage</td>
<td>S - Storage</td>
<td>S.J</td>
</tr>
<tr>
<td>Subject</td>
<td>Main Menu Option</td>
<td>Fastpath</td>
</tr>
<tr>
<td>---------</td>
<td>-----------------</td>
<td>----------</td>
</tr>
<tr>
<td>Common Interface Command</td>
<td>U - Utilities</td>
<td>U.M</td>
</tr>
<tr>
<td>Common Interface Data Spaces</td>
<td>U - Utilities</td>
<td>U.K</td>
</tr>
<tr>
<td>Common Interface Storage, List</td>
<td>U - Utilities</td>
<td>U.B</td>
</tr>
<tr>
<td>Common Interface Storage, Scan</td>
<td>U - Utilities</td>
<td>U.C</td>
</tr>
<tr>
<td>Common Interface Storage, Zap</td>
<td>U - Utilities</td>
<td>U.D</td>
</tr>
<tr>
<td>Concurrent TCB Dispatchable Queue</td>
<td>T - Tasks</td>
<td>T.FC</td>
</tr>
<tr>
<td>Console Command</td>
<td>U - Utilities</td>
<td>U.A</td>
</tr>
<tr>
<td>Control Blocks, CICS</td>
<td>C - CICS</td>
<td>C.</td>
</tr>
<tr>
<td>Control Blocks, MVS</td>
<td>M - MVS</td>
<td>M.</td>
</tr>
<tr>
<td>Control Options for OMEGAMON II</td>
<td>P - Profile</td>
<td>P.B.B</td>
</tr>
<tr>
<td>Control Tables, CICS</td>
<td>C - CICS</td>
<td>C.</td>
</tr>
<tr>
<td>Create Group</td>
<td>G - Groups</td>
<td>G.B</td>
</tr>
<tr>
<td>CSA</td>
<td>C - CICS</td>
<td>C.C</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Subject</th>
<th>Main Menu Option</th>
<th>Fastpath</th>
</tr>
</thead>
<tbody>
<tr>
<td>Daily Overview, CICS Response</td>
<td>R - Response</td>
<td>R.G</td>
</tr>
<tr>
<td>Daily Overview, ETE Response</td>
<td>R - Response</td>
<td>R.H</td>
</tr>
<tr>
<td>Daily Overview, Group Response</td>
<td>R - Response</td>
<td>R.I</td>
</tr>
<tr>
<td>DASD</td>
<td>I - I/O</td>
<td>I.A</td>
</tr>
<tr>
<td>DASD Degradation</td>
<td>I - I/O</td>
<td>I.B</td>
</tr>
<tr>
<td>DASD Exceeding Thresholds</td>
<td>I - I/O</td>
<td>I.B</td>
</tr>
<tr>
<td>DASD Detail</td>
<td>I - I/O</td>
<td>I.D</td>
</tr>
<tr>
<td>DASD Plot</td>
<td>I - I/O</td>
<td>I.E</td>
</tr>
<tr>
<td>DASD Statistics</td>
<td>I - I/O</td>
<td>I.A</td>
</tr>
<tr>
<td>DASD Users</td>
<td>I - I/O</td>
<td>I.C</td>
</tr>
<tr>
<td>Database Collectors</td>
<td>O - Control Options</td>
<td>O.P</td>
</tr>
<tr>
<td>Database Directory</td>
<td>C - CICS</td>
<td>C.F</td>
</tr>
<tr>
<td>Database Exception Settings</td>
<td>P - Profile</td>
<td>P.A.A</td>
</tr>
<tr>
<td>Databases, DLI</td>
<td>D - Databases</td>
<td>D.D</td>
</tr>
<tr>
<td>Datasets, All Allocated to CICS</td>
<td>F - Files</td>
<td>F.H</td>
</tr>
<tr>
<td>Datasets, Application</td>
<td>F - Files</td>
<td>F.A</td>
</tr>
<tr>
<td>Datasets, CICS</td>
<td>F - Files</td>
<td>F.B</td>
</tr>
<tr>
<td>Subject</td>
<td>Main Menu Option</td>
<td>Fastpath</td>
</tr>
<tr>
<td>----------------------------------------</td>
<td>------------------</td>
<td>----------</td>
</tr>
<tr>
<td>Datasets, DFHRPL</td>
<td>F - Files</td>
<td>F.G</td>
</tr>
<tr>
<td>Datasets, IMS</td>
<td>F - Files</td>
<td>F.K</td>
</tr>
<tr>
<td>Datasets, JES</td>
<td>F - Files</td>
<td>F.D</td>
</tr>
<tr>
<td>Datasets, Journal</td>
<td>F - Files</td>
<td>F.J</td>
</tr>
<tr>
<td>Datasets, Select</td>
<td>F - Files</td>
<td>F.L</td>
</tr>
<tr>
<td>Datasets, STEPLIB</td>
<td>F - Files</td>
<td>F.C</td>
</tr>
<tr>
<td>Datasets, VSAM</td>
<td>F - Files</td>
<td>F.E</td>
</tr>
<tr>
<td>Dataspaces, CICS</td>
<td>U - Utilities</td>
<td>U.K</td>
</tr>
<tr>
<td>Dataspaces, Common Interface</td>
<td>U - Utilities</td>
<td>U.K</td>
</tr>
<tr>
<td>Data Space Storage, List</td>
<td>U - Utilities</td>
<td>U.H</td>
</tr>
<tr>
<td>Data Space Storage, Scan</td>
<td>U - Utilities</td>
<td>U.I</td>
</tr>
<tr>
<td>Data Space Storage, Zap</td>
<td>U - Utilities</td>
<td>U.J</td>
</tr>
<tr>
<td>Data Tables</td>
<td>C - CICS</td>
<td>C.K</td>
</tr>
<tr>
<td>Date Format</td>
<td>P - Profile</td>
<td>P.B</td>
</tr>
<tr>
<td>DBCTL</td>
<td>D - Databases</td>
<td>D.H</td>
</tr>
<tr>
<td>DBCTL Tasks</td>
<td>T - Tasks</td>
<td>T.F.D</td>
</tr>
<tr>
<td>DBDs</td>
<td>C - CICS</td>
<td>C.F</td>
</tr>
<tr>
<td>DB2</td>
<td>D - Databases</td>
<td>D.A</td>
</tr>
<tr>
<td>DDIR</td>
<td>C - CICS</td>
<td>C.F</td>
</tr>
<tr>
<td>Debug OMEGAMON II</td>
<td>U - Utilities</td>
<td>U.O</td>
</tr>
<tr>
<td>Delete Group</td>
<td>G - Groups</td>
<td>G.G</td>
</tr>
<tr>
<td>Delete Group Element</td>
<td>G - Groups</td>
<td>G.F</td>
</tr>
<tr>
<td>Delete Profile, Install</td>
<td>P - Profile</td>
<td>P.C.F</td>
</tr>
<tr>
<td>Delete Profile, User</td>
<td>P - Profile</td>
<td>P.C.D</td>
</tr>
<tr>
<td>Destinations, Transient Data</td>
<td>C - CICS</td>
<td>C.D</td>
</tr>
<tr>
<td>DFHRPL Datasets</td>
<td>F - Files</td>
<td>F.G</td>
</tr>
<tr>
<td>Display CICS Storage</td>
<td>U - Utilities</td>
<td>U.E</td>
</tr>
<tr>
<td>Display Common Interface Storage</td>
<td>U - Utilities</td>
<td>U.B</td>
</tr>
<tr>
<td>Display Data Space Storage</td>
<td>U - Utilities</td>
<td>U.H</td>
</tr>
<tr>
<td>Display Options</td>
<td>P - Profile</td>
<td>P.B.A</td>
</tr>
<tr>
<td>DLI</td>
<td>D - Databases</td>
<td>D.B</td>
</tr>
<tr>
<td>DLI Databases</td>
<td>D - Databases</td>
<td>D.D</td>
</tr>
<tr>
<td>DLI Definition</td>
<td>D - Databases</td>
<td>D.C</td>
</tr>
</tbody>
</table>
Using the Fastpath Index

<table>
<thead>
<tr>
<th>Subject</th>
<th>Main Menu Option</th>
<th>Fastpath</th>
</tr>
</thead>
<tbody>
<tr>
<td>DLI History</td>
<td>H - History</td>
<td>H.A</td>
</tr>
<tr>
<td>DLI Tasks</td>
<td>T - Tasks</td>
<td>T.FD</td>
</tr>
<tr>
<td>DLI Tuning Information</td>
<td>D - Databases</td>
<td>D.B</td>
</tr>
<tr>
<td>DSA</td>
<td>S - Storage</td>
<td>S.D</td>
</tr>
<tr>
<td>DTA Address, Task with</td>
<td>T - Tasks</td>
<td>T.FE</td>
</tr>
<tr>
<td>Dump Component</td>
<td>C - CICS</td>
<td>C.H</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Subject</th>
<th>Main Menu Option</th>
<th>Fastpath</th>
</tr>
</thead>
<tbody>
<tr>
<td>ECBs, DLI</td>
<td>D - Databases</td>
<td>D.F</td>
</tr>
<tr>
<td>EDSA Page Allocation Map</td>
<td>S - Storage</td>
<td>S.G</td>
</tr>
<tr>
<td>EDSA Statistics</td>
<td>S - Storage</td>
<td>S.E</td>
</tr>
<tr>
<td>ETE Response, All LUs</td>
<td>R - Response</td>
<td>R.K</td>
</tr>
<tr>
<td>ETE Response, Current</td>
<td>R - Response</td>
<td>R.L</td>
</tr>
<tr>
<td>ETE Response, Exceeded</td>
<td>R - Response</td>
<td>R.M</td>
</tr>
<tr>
<td>Enqueue Resources</td>
<td>Bottlenecks</td>
<td>B.H</td>
</tr>
<tr>
<td>Enqueues</td>
<td>Bottlenecks</td>
<td>B.H</td>
</tr>
<tr>
<td>Enqueues in Overview</td>
<td>V - Overview</td>
<td>V.</td>
</tr>
<tr>
<td>Environment, CICS</td>
<td>M - MVS</td>
<td>M.B</td>
</tr>
<tr>
<td>Environment Graph, CICS</td>
<td>M - MVS</td>
<td>M.A</td>
</tr>
<tr>
<td>European Date Format</td>
<td>P - Profile</td>
<td>P.B.A</td>
</tr>
<tr>
<td>Exception Logging Facility (XLF) On</td>
<td>P - Profile</td>
<td>P.E.D</td>
</tr>
<tr>
<td>Exception Logging Facility (XLF) Off</td>
<td>P - Profile</td>
<td>P.E.E</td>
</tr>
<tr>
<td>Exceptions, Current</td>
<td>E - Exceptions</td>
<td>E.A</td>
</tr>
<tr>
<td>Exceptions in Overview</td>
<td>V - Overview</td>
<td>V.</td>
</tr>
<tr>
<td>Exceptions, Summary this Session</td>
<td>E - Exceptions</td>
<td>E.B</td>
</tr>
<tr>
<td>Exception, Setting</td>
<td>P - Profile</td>
<td>P.A</td>
</tr>
<tr>
<td>Exit Program Blocks (EPBs)</td>
<td>C - CICS</td>
<td>C.I</td>
</tr>
<tr>
<td>Exit (Global Exit Programs)</td>
<td>C - CICS</td>
<td>C.I</td>
</tr>
<tr>
<td>Exit Verify, OMEGAMON II in CICS</td>
<td>U - Utilities</td>
<td>U.P</td>
</tr>
<tr>
<td>Extended Color</td>
<td>P - Profile</td>
<td>P.D.B</td>
</tr>
<tr>
<td>Extended Recovery Facility Status</td>
<td>C - CICS</td>
<td>C.J</td>
</tr>
</tbody>
</table>
### Menu System Fastpath Index

#### F

<table>
<thead>
<tr>
<th>Subject</th>
<th>Main Menu Option</th>
<th>Fastpath</th>
</tr>
</thead>
<tbody>
<tr>
<td>Facility ID, Tasks by</td>
<td>T - Tasks</td>
<td>T.F.G</td>
</tr>
<tr>
<td>Facility Type, Tasks by</td>
<td>T - Tasks</td>
<td>T.F.H</td>
</tr>
<tr>
<td>FCT</td>
<td>C - CICS</td>
<td>C.K</td>
</tr>
<tr>
<td>Files, All Allocated to CICS</td>
<td>F - Files</td>
<td>F.H</td>
</tr>
<tr>
<td>Files, Application</td>
<td>F - Files</td>
<td>F.A</td>
</tr>
<tr>
<td>Files, CICS</td>
<td>F - Files</td>
<td>F.B</td>
</tr>
<tr>
<td>Files, DFHRPL</td>
<td>F - Files</td>
<td>F.G</td>
</tr>
<tr>
<td>Files, IMS</td>
<td>F - Files</td>
<td>F.K</td>
</tr>
<tr>
<td>Files, JES</td>
<td>F - Files</td>
<td>F.D</td>
</tr>
<tr>
<td>Files, Journal</td>
<td>F - Files</td>
<td>F.J</td>
</tr>
<tr>
<td>Files, Select</td>
<td>F - Files</td>
<td>F.L</td>
</tr>
<tr>
<td>Files, STEPLIB</td>
<td>F - Files</td>
<td>F.C</td>
</tr>
<tr>
<td>Files, VSAM</td>
<td>F - Files</td>
<td>F.E</td>
</tr>
<tr>
<td>Fold (Uppercase OMEGAMON II Display)</td>
<td>P - Profile</td>
<td>P.B.A</td>
</tr>
<tr>
<td>Fold (Uppercase Screen Log Print)</td>
<td>P - Profile</td>
<td>P.H.A</td>
</tr>
</tbody>
</table>

#### G

<table>
<thead>
<tr>
<th>Subject</th>
<th>Main Menu Option</th>
<th>Fastpath</th>
</tr>
</thead>
<tbody>
<tr>
<td>Green and Other Color Settings</td>
<td>P - Profile</td>
<td>P.D</td>
</tr>
<tr>
<td>Global User Exits</td>
<td>C - CICS</td>
<td>C.I</td>
</tr>
<tr>
<td>Graph, Bottleneck</td>
<td>B - Bottlenecks</td>
<td>B.A</td>
</tr>
<tr>
<td>Graph, Group Bottleneck</td>
<td>B - Bottlenecks</td>
<td>B.C</td>
</tr>
<tr>
<td>Graph, Impact Analysis</td>
<td>B - Bottlenecks</td>
<td>B.F</td>
</tr>
<tr>
<td>Graph, Response Time Problems</td>
<td>R - Response</td>
<td>R.F</td>
</tr>
<tr>
<td>Graph, System</td>
<td>M - MVS</td>
<td>M.A</td>
</tr>
<tr>
<td>Group Response Time</td>
<td>R - Response</td>
<td>R.A</td>
</tr>
<tr>
<td>Groups, Impact Analysis</td>
<td>O - Control Options</td>
<td>O.O</td>
</tr>
<tr>
<td>Groups, Response Time</td>
<td>G - Groups</td>
<td>G.</td>
</tr>
<tr>
<td>Groups, Subpool</td>
<td>S - Storage</td>
<td>S.H</td>
</tr>
</tbody>
</table>
### Using the Fastpath Index

#### H

<table>
<thead>
<tr>
<th>Subject</th>
<th>Main Menu Option</th>
<th>Fastpath</th>
</tr>
</thead>
<tbody>
<tr>
<td>Handpostable Queue, Tasks in</td>
<td>T - Tasks</td>
<td>T.F.I</td>
</tr>
<tr>
<td>Hiperspace, LSR Pools</td>
<td>F - Files</td>
<td>F.F</td>
</tr>
<tr>
<td>Historical, Data Viewing, Verify</td>
<td>U - Utilities</td>
<td>U.P</td>
</tr>
<tr>
<td>History of Exceptions</td>
<td>E - Exceptions</td>
<td>E.B</td>
</tr>
<tr>
<td>History, ADABAS</td>
<td>H - History</td>
<td>H.A</td>
</tr>
<tr>
<td>History, DLI</td>
<td>H - History</td>
<td>H.A</td>
</tr>
<tr>
<td>History, IDMS</td>
<td>H - History</td>
<td>H.A</td>
</tr>
<tr>
<td>History Off</td>
<td>O - Control Options</td>
<td>O.G</td>
</tr>
<tr>
<td>History On</td>
<td>O - Control Options</td>
<td>O.F</td>
</tr>
<tr>
<td>History Select</td>
<td>H - History</td>
<td>H.B</td>
</tr>
<tr>
<td>History Status</td>
<td>O - Control Options</td>
<td>O.H</td>
</tr>
<tr>
<td>History, Transaction</td>
<td>H - History</td>
<td>H.A</td>
</tr>
<tr>
<td>History, VSAM</td>
<td>H - History</td>
<td>H.A</td>
</tr>
</tbody>
</table>

#### I

<table>
<thead>
<tr>
<th>Subject</th>
<th>Main Menu Option</th>
<th>Fastpath</th>
</tr>
</thead>
<tbody>
<tr>
<td>ICEs</td>
<td>C - CICS</td>
<td>C.L</td>
</tr>
<tr>
<td>ICEs Kill</td>
<td>C - CICS</td>
<td>C.M</td>
</tr>
<tr>
<td>IDMS</td>
<td>H - History</td>
<td>H.A</td>
</tr>
<tr>
<td>IDMS Statistics for a Task</td>
<td>T - Tasks</td>
<td>T.</td>
</tr>
<tr>
<td>Impact Analysis Activation</td>
<td>O - Control Options</td>
<td>O.L</td>
</tr>
<tr>
<td>Impact Analysis Deactivation</td>
<td>O - Control Options</td>
<td>O.M</td>
</tr>
<tr>
<td>Impact Analysis Groups</td>
<td>B - Control Options</td>
<td>O.O</td>
</tr>
<tr>
<td>Impact Analysis Long-Term Interval</td>
<td>O - Control Options</td>
<td>O.N</td>
</tr>
<tr>
<td>Impact Analysis Sampling Interval</td>
<td>O - Control Options</td>
<td>O.N</td>
</tr>
<tr>
<td>Impact Analysis Severity Threshold</td>
<td>O - Control Options</td>
<td>O.N</td>
</tr>
<tr>
<td>Impact Analysis Short-Term Interval</td>
<td>O - Control Options</td>
<td>O.N</td>
</tr>
<tr>
<td>Impact Analysis Timeout Interval</td>
<td>O - Control Options</td>
<td>O.N</td>
</tr>
<tr>
<td>Impact Analysis Workload</td>
<td>B - Bottlenecks</td>
<td>B.E</td>
</tr>
<tr>
<td>Impact Analysis Workload Detail</td>
<td>B - Bottlenecks</td>
<td>B.G</td>
</tr>
<tr>
<td>Impact Analysis Workload Profile</td>
<td>B - Bottlenecks</td>
<td>B.F</td>
</tr>
</tbody>
</table>
### Subject

<table>
<thead>
<tr>
<th>Subject</th>
<th>Main Menu Option</th>
<th>Fastpath</th>
</tr>
</thead>
<tbody>
<tr>
<td>IMS Datasets</td>
<td>F - Files</td>
<td>FK</td>
</tr>
<tr>
<td>Install Profile, Delete</td>
<td>P - Profile</td>
<td>PC.F</td>
</tr>
<tr>
<td>Install Profile, Save</td>
<td>P - Profile</td>
<td>PC.E</td>
</tr>
<tr>
<td>Interval Recording Control</td>
<td>O - Control Options</td>
<td>O.K</td>
</tr>
<tr>
<td>Intervals, Set End-to-End Display</td>
<td>O - Control Options</td>
<td>O.D</td>
</tr>
<tr>
<td>Intervals, Set Response Time</td>
<td>O - Control Options</td>
<td>O.D</td>
</tr>
<tr>
<td>I/O, DASD Allocation and Users</td>
<td>I - I/O</td>
<td>I.C</td>
</tr>
<tr>
<td>I/O, DASD Degradation</td>
<td>I - I/O</td>
<td>I.B</td>
</tr>
<tr>
<td>I/O, DASD Detail</td>
<td>I - I/O</td>
<td>I.D</td>
</tr>
<tr>
<td>I/O, DASD Plot</td>
<td>I - I/O</td>
<td>I.E</td>
</tr>
<tr>
<td>I/O, DASD Statistics</td>
<td>I - I/O</td>
<td>I.A</td>
</tr>
<tr>
<td>I/O Exception Settings</td>
<td>P - Profile</td>
<td>PA.B</td>
</tr>
<tr>
<td>ISC/MRO, AIDs</td>
<td>C - CICS</td>
<td>C.A</td>
</tr>
<tr>
<td>ISC/MRO, AIDs</td>
<td>C - CICS</td>
<td>C.V</td>
</tr>
</tbody>
</table>

### J

<table>
<thead>
<tr>
<th>Subject</th>
<th>Main Menu Option</th>
<th>Fastpath</th>
</tr>
</thead>
<tbody>
<tr>
<td>JCT</td>
<td>C - CICS</td>
<td>C.N</td>
</tr>
<tr>
<td>JES Datasets</td>
<td>F - Files</td>
<td>F.D</td>
</tr>
<tr>
<td>Journal Datasets</td>
<td>F - Files</td>
<td>F.J.D</td>
</tr>
<tr>
<td>Journal Tasks</td>
<td>T - Tasks</td>
<td>T.F.J</td>
</tr>
<tr>
<td>Journals</td>
<td>C - CICS</td>
<td>C.N</td>
</tr>
</tbody>
</table>

### K

<table>
<thead>
<tr>
<th>Subject</th>
<th>Main Menu Option</th>
<th>Fastpath</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kill AIDs</td>
<td>C - CICS</td>
<td>C.B</td>
</tr>
<tr>
<td>Kill ICEs</td>
<td>C - CICS</td>
<td>C.M</td>
</tr>
<tr>
<td>Kill Task</td>
<td>T - Tasks</td>
<td>T.G</td>
</tr>
</tbody>
</table>
### L

<table>
<thead>
<tr>
<th>Subject</th>
<th>Main Menu Option</th>
<th>Fastpath</th>
</tr>
</thead>
<tbody>
<tr>
<td>Last Dispatched Task</td>
<td>T - Tasks</td>
<td>T.FK</td>
</tr>
<tr>
<td>Libraries, DFHRPL</td>
<td>F - Files</td>
<td>F.G</td>
</tr>
<tr>
<td>Libraries, STEPLIB</td>
<td>F - Files</td>
<td>F.C</td>
</tr>
<tr>
<td>List CICS Data Spaces</td>
<td>U - Utilities</td>
<td>U.K</td>
</tr>
<tr>
<td>List CICS Storage</td>
<td>U - Utilities</td>
<td>U.E</td>
</tr>
<tr>
<td>List Common Interface Data Spaces</td>
<td>U - Utilities</td>
<td>U.K</td>
</tr>
<tr>
<td>List Data Space Storage</td>
<td>U - Utilities</td>
<td>U.H</td>
</tr>
<tr>
<td>List Group</td>
<td>G - Groups</td>
<td>G.H</td>
</tr>
<tr>
<td>List OMEGAMON II Storage</td>
<td>U - Utilities</td>
<td>U.B</td>
</tr>
<tr>
<td>List Profiles</td>
<td>P - Profile</td>
<td>P.C</td>
</tr>
<tr>
<td>Log Off</td>
<td>P - Profile</td>
<td>P.H.C</td>
</tr>
<tr>
<td>Log Off and Log On to other CICS</td>
<td>W - REGIONS</td>
<td>W.</td>
</tr>
<tr>
<td>Log On</td>
<td>P - Profile</td>
<td>P.H.B</td>
</tr>
<tr>
<td>Log Out</td>
<td>P - Profile</td>
<td>P.H.D</td>
</tr>
<tr>
<td>Log Printer/Routing Options</td>
<td>P - Profile</td>
<td>P.H.A</td>
</tr>
<tr>
<td>Logical Unit Response Times</td>
<td>R - Response</td>
<td>R.E</td>
</tr>
<tr>
<td>LSR Buffer Waits</td>
<td>F - Files</td>
<td>F.I</td>
</tr>
<tr>
<td>LSR Pools</td>
<td>F - Files</td>
<td>F.F</td>
</tr>
</tbody>
</table>

### M

<table>
<thead>
<tr>
<th>Subject</th>
<th>Main Menu Option</th>
<th>Fastpath</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maintenance Applied</td>
<td>U - Utilities</td>
<td>U.Q</td>
</tr>
<tr>
<td>Master Queue, Tasks in</td>
<td>T - Tasks</td>
<td>T.B</td>
</tr>
<tr>
<td>MAXR Exception Setting</td>
<td>P - Profile</td>
<td>P.A.K</td>
</tr>
<tr>
<td>MAXR Limit Setting</td>
<td>P - Profile</td>
<td>P.A.K</td>
</tr>
<tr>
<td>MAXR, Tasks Exceeding Limit</td>
<td>T - Tasks</td>
<td>T.D</td>
</tr>
<tr>
<td>MAXTASK Queue, Tasks in</td>
<td>T - Tasks</td>
<td>T.F.L</td>
</tr>
<tr>
<td>Modules</td>
<td>M - MVS</td>
<td>M.E</td>
</tr>
<tr>
<td>Monitor another CICS region</td>
<td>W - REGIONS</td>
<td>W.</td>
</tr>
<tr>
<td>MRO Bottlenecks</td>
<td>B - Bottlenecks</td>
<td>B.B</td>
</tr>
<tr>
<td>MRO Exception Display</td>
<td>E - Exceptions</td>
<td>E.A</td>
</tr>
</tbody>
</table>
### Subject

<table>
<thead>
<tr>
<th>Subject</th>
<th>Main Menu Option</th>
<th>Fastpath</th>
</tr>
</thead>
<tbody>
<tr>
<td>MRO Tasks</td>
<td>T - Tasks</td>
<td>T.</td>
</tr>
<tr>
<td>MRO/ISC AIDS</td>
<td>C - CICS</td>
<td>C.A</td>
</tr>
<tr>
<td>MRO/ISC TCT Entries</td>
<td>C - CICS</td>
<td>C.V</td>
</tr>
<tr>
<td>MVS Console Command</td>
<td>U - Utilities</td>
<td>U.A</td>
</tr>
<tr>
<td>MVS Control Blocks</td>
<td>M - MVS</td>
<td>M.</td>
</tr>
<tr>
<td>MVS Subpools</td>
<td>M - MVS</td>
<td>M.F</td>
</tr>
</tbody>
</table>

### N

<table>
<thead>
<tr>
<th>Subject</th>
<th>Main Menu Option</th>
<th>Fastpath</th>
</tr>
</thead>
<tbody>
<tr>
<td>New Queue, Tasks in</td>
<td>T - Tasks</td>
<td>T.F.M</td>
</tr>
<tr>
<td>Non-executable Queue, Tasks in</td>
<td>T - Tasks</td>
<td>T.F.O</td>
</tr>
<tr>
<td>Non-Journal Tasks</td>
<td>T - Tasks</td>
<td>T.F.N</td>
</tr>
<tr>
<td>Number, Task by</td>
<td>T - Tasks</td>
<td>T.F.P</td>
</tr>
</tbody>
</table>

### O

<table>
<thead>
<tr>
<th>Subject</th>
<th>Main Menu Option</th>
<th>Fastpath</th>
</tr>
</thead>
<tbody>
<tr>
<td>Occupancy, Historical Task</td>
<td>H - History</td>
<td>H.</td>
</tr>
<tr>
<td>Occupancy, Task</td>
<td>T - Task</td>
<td>T.</td>
</tr>
<tr>
<td>OMEGAMON II Exception Settings</td>
<td>P - Profile</td>
<td>P.A.E</td>
</tr>
<tr>
<td>OMEGAMON II Performance Options</td>
<td>P - Profile</td>
<td>P.B.C</td>
</tr>
<tr>
<td>OMEGAMON II Storage, List</td>
<td>U - Utilities</td>
<td>U.B</td>
</tr>
<tr>
<td>OMEGAMON II Storage, Scan</td>
<td>U - Utilities</td>
<td>U.C</td>
</tr>
<tr>
<td>OMEGAMON II Storage, Zap</td>
<td>U - Utilities</td>
<td>U.D</td>
</tr>
<tr>
<td>Online Data Viewing</td>
<td>H - History</td>
<td>H.A</td>
</tr>
<tr>
<td>Online Data Viewing, Verify</td>
<td>U - Utilities</td>
<td>U.P</td>
</tr>
<tr>
<td>Overview, CICS Trace</td>
<td>C - CICS</td>
<td>C.W</td>
</tr>
<tr>
<td>Overview, Response Time</td>
<td>R - Response</td>
<td>R.A</td>
</tr>
<tr>
<td>Overview Performance, Bottlenecks</td>
<td>V - Overview</td>
<td>V.</td>
</tr>
<tr>
<td>Overview Performance, Enqueues</td>
<td>V - Overview</td>
<td>V.</td>
</tr>
<tr>
<td>Overview Performance, Exceptions</td>
<td>V - Overview</td>
<td>V.</td>
</tr>
<tr>
<td>Overview Performance, Tasks</td>
<td>V - Overview</td>
<td>V.</td>
</tr>
</tbody>
</table>
## Using the Fastpath Index

### P

<table>
<thead>
<tr>
<th>Subject</th>
<th>Main Menu Option</th>
<th>Fastpath</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pink and Other Color Settings</td>
<td>P - Profile</td>
<td>P.D</td>
</tr>
<tr>
<td>Page Allocation Map, DSA</td>
<td>S - Storage</td>
<td>S.F</td>
</tr>
<tr>
<td>Page Allocation Map, EDSA</td>
<td>S - Storage</td>
<td>S.G</td>
</tr>
<tr>
<td>PCT</td>
<td>C - CICS</td>
<td>C.X</td>
</tr>
<tr>
<td>PDIR</td>
<td>C - CICS</td>
<td>C.G</td>
</tr>
<tr>
<td>Performance Options, OMEGAMON II</td>
<td>P - Profile</td>
<td>P.B.C</td>
</tr>
<tr>
<td>Performance Overview, Bottlenecks</td>
<td>V - Overview</td>
<td>V.</td>
</tr>
<tr>
<td>Performance Overview, Engqueues</td>
<td>V - Overview</td>
<td>V.</td>
</tr>
<tr>
<td>Performance Overview, Exceptions</td>
<td>V - Overview</td>
<td>V.</td>
</tr>
<tr>
<td>Performance Overview, Response</td>
<td>V - Overview</td>
<td>V.</td>
</tr>
<tr>
<td>Performance Overview, Tasks</td>
<td>V - Overview</td>
<td>V.</td>
</tr>
<tr>
<td>Pools, LSR</td>
<td>F - Files</td>
<td>F.F</td>
</tr>
<tr>
<td>PPT</td>
<td>C - CICS</td>
<td>C.Q</td>
</tr>
<tr>
<td>Problems, Response Time</td>
<td>R - Response</td>
<td>R.F</td>
</tr>
<tr>
<td>Profile Maintenance, Install</td>
<td>P - Profile</td>
<td>P.C.E</td>
</tr>
<tr>
<td>Profile Maintenance, User</td>
<td>P - Profile</td>
<td>P.C.C</td>
</tr>
<tr>
<td>Program Check/Abend Trace Table</td>
<td>C - CICS</td>
<td>C.W</td>
</tr>
<tr>
<td>Program Response Times</td>
<td>R - Response</td>
<td>R.D</td>
</tr>
<tr>
<td>Programs</td>
<td>C - CICS</td>
<td>C.Q</td>
</tr>
<tr>
<td>PSBs</td>
<td>C - CICS</td>
<td>C.G</td>
</tr>
<tr>
<td>PSW and Registers</td>
<td>M - MVS</td>
<td>M.C</td>
</tr>
</tbody>
</table>

### Q

<table>
<thead>
<tr>
<th>Subject</th>
<th>Main Menu Option</th>
<th>Fastpath</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quasi-Re-entrant Queue, Tasks in</td>
<td>T - Tasks</td>
<td>T.F.Q</td>
</tr>
<tr>
<td>Queues, Tasks in various</td>
<td>T - Tasks</td>
<td>T.F</td>
</tr>
<tr>
<td>Queues, Temporary Storage</td>
<td>C - CICS</td>
<td>C.U</td>
</tr>
<tr>
<td>Queues, Transient Data</td>
<td>C - CICS</td>
<td>C.D</td>
</tr>
</tbody>
</table>
### Using the Fastpath Index

#### Subject Main Menu Option Fastpath

<table>
<thead>
<tr>
<th>Subject</th>
<th>Main Menu Option</th>
<th>Fastpath</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rate, Transaction</td>
<td>T - Tasks</td>
<td>T.H</td>
</tr>
<tr>
<td>Recent Response Times, Averages</td>
<td>R - Response</td>
<td>R.J</td>
</tr>
<tr>
<td>Recording Interval</td>
<td>O - Control Options</td>
<td>O.K</td>
</tr>
<tr>
<td>Red and Other Color Settings</td>
<td>P - Profile</td>
<td>P.D</td>
</tr>
<tr>
<td>Region Snapshot</td>
<td>U - Utilities</td>
<td>U.N</td>
</tr>
<tr>
<td>Region Storage</td>
<td>S - Storage</td>
<td>S.I</td>
</tr>
<tr>
<td>Registers and PSW</td>
<td>M - MVS</td>
<td>M.C</td>
</tr>
<tr>
<td>Resource-owning Queue, Tasks in</td>
<td>T - Tasks</td>
<td>T.F.S</td>
</tr>
<tr>
<td>Resources, Enqueue</td>
<td>B - Bottlenecks</td>
<td>B.H</td>
</tr>
<tr>
<td>Response Time Collector</td>
<td>O - Control Options</td>
<td>O.K</td>
</tr>
<tr>
<td>Response Times, Averages</td>
<td>R - Response</td>
<td>R.K</td>
</tr>
<tr>
<td>Response Times, End-to-End</td>
<td>R - Response</td>
<td>R.K</td>
</tr>
<tr>
<td>Response Times, Group</td>
<td>R - Response</td>
<td>R.A</td>
</tr>
<tr>
<td>Response Times, Transaction</td>
<td>R - Response</td>
<td>R.B</td>
</tr>
<tr>
<td>Response Times, Terminal</td>
<td>R - Response</td>
<td>R.C</td>
</tr>
<tr>
<td>Response Times, Program</td>
<td>R - Response</td>
<td>R.D</td>
</tr>
<tr>
<td>Response Times, Logical Unit</td>
<td>R - Response</td>
<td>R.E</td>
</tr>
<tr>
<td>Response Time in Overview</td>
<td>V - Overview</td>
<td>V.</td>
</tr>
<tr>
<td>Response Time Problems Graph</td>
<td>R - Response</td>
<td>R.F</td>
</tr>
<tr>
<td>Resume Queue, Tasks in</td>
<td>T - Tasks</td>
<td>T.F.R</td>
</tr>
<tr>
<td>RMF Version, Interval, Cycle</td>
<td>U - Utilities</td>
<td>U.Q</td>
</tr>
<tr>
<td>Response Time Monitor Start</td>
<td>O - Control Options</td>
<td>O.A</td>
</tr>
<tr>
<td>Response Time Monitor Stop</td>
<td>O - Control Options</td>
<td>O.B</td>
</tr>
<tr>
<td>Response Time Monitor Status</td>
<td>O - Control Options</td>
<td>O.C</td>
</tr>
<tr>
<td>Response Time Monitor Verify</td>
<td>U - Utilities</td>
<td>U.P</td>
</tr>
</tbody>
</table>

#### Subject Main Menu Option Fastpath

<table>
<thead>
<tr>
<th>Subject</th>
<th>Main Menu Option</th>
<th>Fastpath</th>
</tr>
</thead>
<tbody>
<tr>
<td>Save Profile, Install</td>
<td>P - Profile</td>
<td>P.C.E</td>
</tr>
<tr>
<td>Save Profile, User</td>
<td>P - Profile</td>
<td>P.C.C</td>
</tr>
<tr>
<td>Scale, Set Response Time Display</td>
<td>O - Control Options</td>
<td>O.E</td>
</tr>
<tr>
<td>Subject</td>
<td>Main Menu Option</td>
<td>Fastpath</td>
</tr>
<tr>
<td>----------------------------------------</td>
<td>------------------</td>
<td>----------</td>
</tr>
<tr>
<td>Scan CICS Storage</td>
<td>U - Utilities</td>
<td>U.F</td>
</tr>
<tr>
<td>Scan Data Space Storage</td>
<td>U - Utilities</td>
<td>U.I</td>
</tr>
<tr>
<td>Scan OMEGAMON II Storage</td>
<td>U - Utilities</td>
<td>U.C</td>
</tr>
<tr>
<td>Select Datasets</td>
<td>F - Files</td>
<td>F.L</td>
</tr>
<tr>
<td>Shutdown Options, CICS</td>
<td>O - Control Options</td>
<td>O.Q</td>
</tr>
<tr>
<td>SIT</td>
<td>C - CICS</td>
<td>C.R</td>
</tr>
<tr>
<td>SMDSA Wait Reason</td>
<td>T - Tasks</td>
<td>T.A</td>
</tr>
<tr>
<td>SMEDSA Wait Reason</td>
<td>T - Tasks</td>
<td>T.A</td>
</tr>
<tr>
<td>Snapshot of CICS Region</td>
<td>U - Utilities</td>
<td>U.N</td>
</tr>
<tr>
<td>SOS, Tasks Held</td>
<td>T - Tasks</td>
<td>T.F.T</td>
</tr>
<tr>
<td>Storage, CICS</td>
<td>S - Storage</td>
<td>S.</td>
</tr>
<tr>
<td>Storage, CICS Region</td>
<td>S - Storage</td>
<td>S.I</td>
</tr>
<tr>
<td>Storage Compressions</td>
<td>S - Storage</td>
<td>S.J</td>
</tr>
<tr>
<td>Storage, MVS Subpools</td>
<td>M - MVS</td>
<td>M.F</td>
</tr>
<tr>
<td>Storage, Task</td>
<td>S - Storage</td>
<td>S.C</td>
</tr>
<tr>
<td>Storage Exception Settings</td>
<td>P - Profile</td>
<td>P.A.G</td>
</tr>
<tr>
<td>Storage Violations</td>
<td>S - Storage</td>
<td>S.B</td>
</tr>
<tr>
<td>String Waits</td>
<td>F - Files</td>
<td>F.I</td>
</tr>
<tr>
<td>Subpool Groups</td>
<td>S - Storage</td>
<td>S.H</td>
</tr>
<tr>
<td>Subpools, DLI</td>
<td>D - Databases</td>
<td>D.E</td>
</tr>
<tr>
<td>Subpools, MVS</td>
<td>M - MVS</td>
<td>M.F</td>
</tr>
<tr>
<td>Summary, DLI</td>
<td>D - Databases</td>
<td>D.B</td>
</tr>
<tr>
<td>Summary, Exceptions</td>
<td>E - Exceptions</td>
<td>E.B</td>
</tr>
<tr>
<td>Summary, Group</td>
<td>G - Groups</td>
<td>G.A</td>
</tr>
<tr>
<td>Summary, LSR</td>
<td>F - Files</td>
<td>F.F</td>
</tr>
<tr>
<td>Summary, Storage</td>
<td>S - Storage</td>
<td>S.A</td>
</tr>
<tr>
<td>Switch Monitoring to another CICS</td>
<td>W - REGIONS</td>
<td>W.</td>
</tr>
<tr>
<td>System Exception Settings</td>
<td>P - Profile</td>
<td>P.A.F</td>
</tr>
<tr>
<td>System Graph</td>
<td>M - MVS</td>
<td>M.A</td>
</tr>
<tr>
<td>System Summary</td>
<td>M - MVS</td>
<td>M.B</td>
</tr>
<tr>
<td>Subject</td>
<td>Main Menu Option</td>
<td>Fastpath</td>
</tr>
<tr>
<td>-------------------------------------------</td>
<td>------------------</td>
<td>----------</td>
</tr>
<tr>
<td>Turquoise and Other Color Settings</td>
<td>P - Profile</td>
<td>P.D</td>
</tr>
<tr>
<td>Tables, Data</td>
<td>C - CICS</td>
<td>C.K</td>
</tr>
<tr>
<td>Task Analysis</td>
<td>T - Tasks</td>
<td>T.</td>
</tr>
<tr>
<td>Task Analysis in Overview</td>
<td>V - Overview</td>
<td>V.</td>
</tr>
<tr>
<td>Task Exception Settings</td>
<td>P - Profile</td>
<td>P.A.C</td>
</tr>
<tr>
<td>Task Statistics, DLI</td>
<td>T - Tasks</td>
<td>T.</td>
</tr>
<tr>
<td>Task Statistics, VSAM</td>
<td>T - Tasks</td>
<td>T.</td>
</tr>
<tr>
<td>Task Storage</td>
<td>S - Storage</td>
<td>S.C</td>
</tr>
<tr>
<td>Tasks Waiting for Enqueues</td>
<td>B - Bottlenecks</td>
<td>B.H</td>
</tr>
<tr>
<td>TCB Structure</td>
<td>M - MVS</td>
<td>M.D</td>
</tr>
<tr>
<td>TCT</td>
<td>C - CICS</td>
<td>C.V</td>
</tr>
<tr>
<td>TCT Prefix</td>
<td>C - CICS</td>
<td>C.S</td>
</tr>
<tr>
<td>TD/TS Exception Settings</td>
<td>P - Profile</td>
<td>P.A.H</td>
</tr>
<tr>
<td>Temporary Storage Queues</td>
<td>C - CICS</td>
<td>C.U</td>
</tr>
<tr>
<td>Temporary Storage Usage</td>
<td>C - CICS</td>
<td>C.T</td>
</tr>
<tr>
<td>Terminal Exception Settings</td>
<td>P - Profile</td>
<td>P.A.D</td>
</tr>
<tr>
<td>Terminal Response Times</td>
<td>R - Response</td>
<td>R.C</td>
</tr>
<tr>
<td>Terminals</td>
<td>C - CICS</td>
<td>C.V</td>
</tr>
<tr>
<td>Terminal, Tasks by</td>
<td>T - Tasks</td>
<td>T.F.V</td>
</tr>
<tr>
<td>Textware Last Updated</td>
<td>U - Utilities</td>
<td>U.Q</td>
</tr>
<tr>
<td>Timed Screen Facility (TSF) Entry</td>
<td>P - Profile</td>
<td>P.E.A</td>
</tr>
<tr>
<td>Timed Screen Facility (TSF) Off</td>
<td>P - Profile</td>
<td>P.E.C</td>
</tr>
<tr>
<td>Timed Screen Facility (TSF) On</td>
<td>P - Profile</td>
<td>P.E.B</td>
</tr>
<tr>
<td>Time Slots, Response, CICS</td>
<td>R - Response</td>
<td>R.G</td>
</tr>
<tr>
<td>Time Slots, Response, End-to-End</td>
<td>R - Response</td>
<td>R.H</td>
</tr>
<tr>
<td>Time Slots, Response, Single Group</td>
<td>R - Response</td>
<td>R.I</td>
</tr>
<tr>
<td>Today’s CICS Response Times</td>
<td>R - Response</td>
<td>R.G</td>
</tr>
<tr>
<td>Today’s End-to-End Response Times</td>
<td>R - Response</td>
<td>R.H</td>
</tr>
<tr>
<td>Today’s Group Response Times</td>
<td>R - Response</td>
<td>R.I</td>
</tr>
<tr>
<td>Token, Tasks with</td>
<td>T - Tasks</td>
<td>T.F.W</td>
</tr>
<tr>
<td>TQE, Task with</td>
<td>T - Tasks</td>
<td>T.F.X</td>
</tr>
</tbody>
</table>
### Subject Index

<table>
<thead>
<tr>
<th>Subject</th>
<th>Main Menu Option</th>
<th>Fastpath</th>
</tr>
</thead>
<tbody>
<tr>
<td>Trace Overview, CICS</td>
<td>C - CICS</td>
<td>C.W</td>
</tr>
<tr>
<td>Transactions</td>
<td>C - CICS</td>
<td>C.X</td>
</tr>
<tr>
<td>Transaction Class Statistics</td>
<td>C - CICS</td>
<td>C.C</td>
</tr>
<tr>
<td>Transaction Rate</td>
<td>T - Tasks</td>
<td>T.H</td>
</tr>
<tr>
<td>Transaction Response Times</td>
<td>R - Response</td>
<td>R.B</td>
</tr>
<tr>
<td>Transaction, Tasks by</td>
<td>T - Tasks</td>
<td>T.F.Y</td>
</tr>
<tr>
<td>Transient Data Queues</td>
<td>C - CICS</td>
<td>C.D</td>
</tr>
<tr>
<td>Transient Data Usage</td>
<td>C - CICS</td>
<td>C.Y</td>
</tr>
</tbody>
</table>

**U**

<table>
<thead>
<tr>
<th>Subject</th>
<th>Main Menu Option</th>
<th>Fastpath</th>
</tr>
</thead>
<tbody>
<tr>
<td>Umbrella Transaction, Tasks by</td>
<td>T - Tasks</td>
<td>T.F.ZZ</td>
</tr>
<tr>
<td>Update Group</td>
<td>G - Groups</td>
<td>G.D</td>
</tr>
<tr>
<td>Update Group Element</td>
<td>G - Groups</td>
<td>G.E</td>
</tr>
<tr>
<td>User Exits</td>
<td>C - CICS</td>
<td>C.I</td>
</tr>
<tr>
<td>User Exits</td>
<td>C - CICS</td>
<td>C.J</td>
</tr>
<tr>
<td>User Profile, Delete</td>
<td>P - Profile</td>
<td>P.C.D</td>
</tr>
<tr>
<td>User Profile, Save</td>
<td>P - Profile</td>
<td>P.C.C</td>
</tr>
<tr>
<td>User Profile Facility</td>
<td>P - Profile</td>
<td>P.</td>
</tr>
<tr>
<td>Userid, Tasks by</td>
<td>T - Tasks</td>
<td>T.F.Z</td>
</tr>
</tbody>
</table>

**V**

<table>
<thead>
<tr>
<th>Subject</th>
<th>Main Menu Option</th>
<th>Fastpath</th>
</tr>
</thead>
<tbody>
<tr>
<td>Verify Bottleneck Analysis</td>
<td>U - Utilities</td>
<td>U.P</td>
</tr>
<tr>
<td>Verify CICS Exit for OMEGAMON II</td>
<td>U - Utilities</td>
<td>U.P</td>
</tr>
<tr>
<td>Verify Historical Reporting</td>
<td>U - Utilities</td>
<td>U.P</td>
</tr>
<tr>
<td>Verify Interval Recording</td>
<td>U - Utilities</td>
<td>U.P</td>
</tr>
<tr>
<td>Verify Response Time Monitor</td>
<td>U - Utilities</td>
<td>U.P</td>
</tr>
<tr>
<td>Violations, Storage</td>
<td>S - Storage</td>
<td>S.B</td>
</tr>
<tr>
<td>VSAM Datasets</td>
<td>F - Files</td>
<td>F.E</td>
</tr>
<tr>
<td>VSAM Exception Settings</td>
<td>P - Profile</td>
<td>P.C.A.I</td>
</tr>
<tr>
<td>VSAM History</td>
<td>H - History</td>
<td>H.A</td>
</tr>
<tr>
<td>Subject</td>
<td>Main Menu Option</td>
<td>Fastpath</td>
</tr>
<tr>
<td>----------------------------------------------</td>
<td>------------------</td>
<td>----------</td>
</tr>
<tr>
<td>VSAM String Waits</td>
<td>F - Files</td>
<td>F.I</td>
</tr>
<tr>
<td>VSAM Task Statistics</td>
<td>T - Tasks</td>
<td>T.</td>
</tr>
</tbody>
</table>

**W**

<table>
<thead>
<tr>
<th>Subject</th>
<th>Main Menu Option</th>
<th>Fastpath</th>
</tr>
</thead>
<tbody>
<tr>
<td>Waiting Enqueuees</td>
<td>B - Bottlenecks</td>
<td>B.H</td>
</tr>
<tr>
<td>Waiting Tasks</td>
<td>T - Tasks</td>
<td>T.C</td>
</tr>
<tr>
<td>Wait Reason Control</td>
<td>O - Control Options</td>
<td>O.J</td>
</tr>
<tr>
<td>Wait Reasons, Bottlenecks</td>
<td>B - Bottlenecks</td>
<td>B.B</td>
</tr>
<tr>
<td>Wait Reasons, Tasks</td>
<td>T - Tasks</td>
<td>T.</td>
</tr>
<tr>
<td>Waits, VSAM String</td>
<td>F - Files</td>
<td>F.I</td>
</tr>
<tr>
<td>White and Other Color Setting</td>
<td>P - Profile</td>
<td>PD</td>
</tr>
<tr>
<td>Window, Set Response Time Display</td>
<td>O - Control Options</td>
<td>O.E</td>
</tr>
<tr>
<td>Workload Impact, CICS</td>
<td>B - Bottlenecks</td>
<td>B.E</td>
</tr>
<tr>
<td>Workload Impact, CICS, Detail</td>
<td>B - Bottlenecks</td>
<td>B.G</td>
</tr>
<tr>
<td>Workload Impact, CICS, Profile</td>
<td>B - Bottlenecks</td>
<td>B.F</td>
</tr>
</tbody>
</table>

**X**

<table>
<thead>
<tr>
<th>Subject</th>
<th>Main Menu Option</th>
<th>Fastpath</th>
</tr>
</thead>
<tbody>
<tr>
<td>XLF Off</td>
<td>P - Profile</td>
<td>P.E.E</td>
</tr>
<tr>
<td>XLF On</td>
<td>P - Profile</td>
<td>P.E.D</td>
</tr>
<tr>
<td>XLF Printer/Routing Options</td>
<td>P - Profile</td>
<td>P.H.E</td>
</tr>
<tr>
<td>XLF Printer, Activate</td>
<td>P - Profile</td>
<td>P.H.E</td>
</tr>
<tr>
<td>XRF Status</td>
<td>C - CICS</td>
<td>C.J</td>
</tr>
</tbody>
</table>

**Y**

<table>
<thead>
<tr>
<th>Subject</th>
<th>Main Menu Option</th>
<th>Fastpath</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yellow and Other Color Settings</td>
<td>P - Profile</td>
<td>PD</td>
</tr>
<tr>
<td>Yellow Warning Condition</td>
<td>Various Displays</td>
<td></td>
</tr>
</tbody>
</table>
### Using the Fastpath Index

**Z**

<table>
<thead>
<tr>
<th>Subject</th>
<th>Main Menu Option</th>
<th>Fastpath</th>
</tr>
</thead>
<tbody>
<tr>
<td>Zap CICS Storage</td>
<td>U - Utilities</td>
<td>U.G</td>
</tr>
<tr>
<td>Zap Data Space Storage</td>
<td>U - Utilities</td>
<td>U.J</td>
</tr>
<tr>
<td>Zap OMEGAMON II Storage</td>
<td>U - Utilities</td>
<td>U.D</td>
</tr>
<tr>
<td>Zaps Applied</td>
<td>U - Utilities</td>
<td>U.Q</td>
</tr>
</tbody>
</table>
Introduction

Candle Corporation is committed to producing top-quality software products and services. To assist you with making effective use of our products in your business environment, Candle is also committed to providing easy-to-use, responsive customer support.

Precision, speed, availability, predictability—these terms describe our products and Customer Support services.

Included in this Guide to Candle Customer Support is information about the following:

Base Maintenance Plan .......................................................... 360
- Telephone Support
- eSupport
- Description of Severity Levels
- Service-level objectives
- Recording and monitoring calls for quality purposes
- Customer Support Escalations
- Above and Beyond

Enhanced Support Services .................................................... 364
- Assigned Support Center Representative (ASCR)
- Maintenance Assessment Services (MAS)
- Multi-Services Manager (MSM)

Customer Support Contact Information ................................. 365
- Link to Worldwide Support Telephone and E-mail information
Base Maintenance Plan

Overview

Candle offers a comprehensive Base Maintenance Plan to ensure that you realize the greatest value possible from your Candle software investments. We have more than 200 technicians providing support worldwide, committed to being responsive and to providing expeditious resolutions to support requests. Technicians are available worldwide at all times during the local business day. In the event of an after-hours or weekend emergency, our computerized call management and forwarding system will ensure that a technician responds to Severity One situations within one hour. For customers outside of North America, after-hours and weekend support is provided in English language only by Candle Customer Support technicians located in the United States.

Telephone support

Candle provides consistently reliable levels of service—thanks to our worldwide support network of dedicated experts trained for specific products and operating systems. You will always work with a professional who truly understands your problem.

We use an online interactive problem management system to log and track all customer-reported support requests. We give your support request immediate attention by routing the issue to the appropriate technical resource, regardless of geographic location.

Level 0 Support is where your call to Candle Customer Support is first handled. Your support request is recorded in our problem management system, then transferred to the appropriate Level 1 support team. We provide Level 0 manual interaction with our customers because we support more than 170 products. We feel our customers would prefer personal interaction to a complex VRU or IVR selection menu.

Level 1 Support is the service provided for initial support requests. Our Level 1 team offers problem determination assistance, problem analysis, problem resolutions, installation assistance, and preventative and corrective service information. They also provide product usage assistance.

Level 2 Support is engaged if Level 1 cannot provide a resolution to your problem. Our Level 2 technicians are equipped to analyze and reproduce errors or to determine that an error is not reproducible. Problems that cannot be resolved by Level 2 are escalated to Candle’s Level 3 R&D support team.

Level 3 Support is engaged if a problem is identified in Candle product code. At Level 3, efforts are made to provide error correction, circumvention or notification that a correction or circumvention is not available. Level 3 support provides available maintenance modifications and maintenance delivery to correct appropriate documentation or product code errors.

eSupport

In order to facilitate the support process, Candle also provides eSupport, an electronic full-service information and customer support facility, via the World Wide Web at www.candle.com/support/. eSupport allows you to open a new service request and update
existing service requests, as well as update information in your customer profile. New and updated service requests are queued to a support technician for immediate action. And we can respond to your request electronically or by telephone—it is your choice.

**eSupport** also contains a continually expanding knowledge base that customers can tap into at any time for self-service access to product and maintenance information.

The Candle Web Site and **eSupport** can be accessed 24 hours a day, 7 days a week by using your authorized Candle user ID and password.

**Description of Candle severity levels**

Responses to customer-reported product issues and usage questions are prioritized within Candle according to Severity Code assignment. Customers set their own Severity Levels when contacting a support center. This ensures that we respond according to your individual business requirements.

- **Severity 1**
  - **Crisis**: A crisis affects your ability to conduct business, and no procedural workaround exists. The system or application may be down.

- **Severity 2**
  - **High**: A high-impact problem indicates significant business effect to you. The program is usable but severely limited.

- **Severity 3**
  - **Moderate**: A moderate-impact problem involves partial, non-critical functionality loss or a reasonable workaround to the problem. A “fix” may be provided in a future release.

- **Severity 4**
  - **Low**: A low-impact problem is a “how-to” or an advisory question.

- **Severity 5**
  - **Enhancement Request**: This is a request for software or documentation enhancement. Our business units review all requests for possible incorporation into a future release of the product.

**Candle has established the following service-level objectives:**

<table>
<thead>
<tr>
<th>Call Status</th>
<th>Severity 1 Goal</th>
<th>Severity 2 Goal</th>
<th>Severity 3 Goal</th>
<th>Severity 4 Goal</th>
<th>Severity 5 Goal</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>First Call Time to Answer</strong></td>
<td>90% within one minute</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Level 1 Response</strong></td>
<td>90% within 5 minutes</td>
<td>90% within one hour</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Level 2 Response</td>
<td>Warm Transfer</td>
<td>90% within two hours</td>
<td></td>
<td></td>
<td>90% within eight hours</td>
</tr>
<tr>
<td>(Normal Business Hours)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The above information is for guideline purposes only. Candle does not guarantee or warrant the above service levels. This information is valid as of October 1999 and is subject to change without prior notice.
The above information is for guideline purposes only. Candle does not guarantee or warrant the above service levels. This information is valid as of October 1999 and is subject to change without prior notice.
Recording and Monitoring Calls for Quality Purposes

Candle is committed to customer satisfaction. To ensure that our customers receive high levels of service, quality and professionalism, we’ll monitor and possibly record incoming and outgoing Customer Support calls. The information gleaned from these calls will help us serve you better. If you prefer that your telephone call with Candle Customer Support in North America not be monitored or recorded, please advise the representative when you call us at (800) 328-1811 or (310) 535-3636.

Customer Support Escalations

Candle Customer Support is committed to achieving high satisfaction ratings from our customers. However, we realize that you may occasionally have support issues that need to be escalated to Candle management. In those instances, we offer the following simple escalation procedure:

If you experience dissatisfaction with Candle Customer Support at any time, please escalate your concern by calling the Candle support location closest to you. Ask to speak to a Customer Support manager. During standard business hours, a Customer Support manager will be available to talk with you or will return your call. If you elect to hold for a manager, you will be connected with someone as soon as possible. If you wish a return call, please tell the Candle representative coordinating your call when you will be available. After contacting you, the Customer Support manager will develop an action plan to resolve your issue. All escalations or complaints received about support issues are logged and tracked to ensure responsiveness and closure.

Above and Beyond

What differentiates Candle’s support services from our competitors? We go the extra mile by offering the following as part of our Base Maintenance Plan:

- Unlimited multi-language defect, installation and operations support
- eSupport using the World Wide Web
- Regularly scheduled product updates and maintenance provided at no additional charge
- Over 200 specialized technicians providing expert support for your Candle products
Enhanced Support Services

Overview

Our Base Maintenance Plan provides a high level of software support in a packaged offering. However, in addition to this plan, we have additional fee-based support services to meet unique customer needs.

The following are some examples of our added-value support services:

- **Assigned Support Center Representative Services (ASCR)**
  - An assigned focal point for managing support escalation needs
  - Proactive notification of available software fixes
  - Proactive notification of product version updates
  - Weekly conference calls with your ASCR to review active problem records
  - Monthly performance reviews of Candle Customer Support service levels
  - Optional on-site visits (extra charges may apply)

- **Maintenance Assessment Service (MAS)**
  - On-site assessment services
  - Advice about product maintenance and implementation
  - Training your staff to develop efficient and focused procedures to reduce overall cost of ownership of your Candle software products
  - Analysis of your Candle product environment: versions, updates, code correction history, incident history and product configurations
  - Reviews to ensure that purchased Candle products and solutions are used effectively

- **Multi-Services Manager (MSM)**
  Multi-Services Manager provides highly valued services to customers requiring on-site full time expertise to complement their technical resources.
  - Dedicated on-site Candle resource (6 months or one year) at your site to help ensure maximum use and effectiveness of your Candle products
  - Liaison for all Candle product support activities, coordination and assistance with implementation of all product updates and maintenance releases
  - Works with your staff to understand business needs and systems requirements
  - Possesses technical and systems management skills to enhance your staff’s knowledge and expertise
  - Other projects as defined in Statement of Work for MSM services
Customer Support Contact Information

Link to Worldwide Support Telephone and E-mail information

To contact Customer Support, the current list of telephone numbers and e-mail addresses can be found on the Candle Web site, www.candle.com/support/.

Select Support Contacts from the list on the left of the page.
### Symbols

- `$VSMXCYC` macro 81
- `.IATH` 165
- `.SCC` 85
- `.task analysis (Menu)` 70

### A

- **A** 273
- abends
  - 40D 188
  - 80A 188
- after task termination 106
- bottleneck analysis task 75
- code 120
- transaction 75
- ADABAS 99, 125
- address space
  - storage
  - map 193
- ADI operand 249
- Adobe portable document format 19
- AIDs 32
- alerts 53
  - response time 63
- `AMAXT` 70
- `AMAXTASKS` 70
- `AMXP` exception 70
- `AMXT` exception 70
- `ASCR` assigned support center representative 364
- `ASF` 40
- assigned support center representative 364
- `ATI` 240
- attribute parameter 85
- autoinstall 266, 271
- automatic
  - diagnostic facility 309
- automatic initiate descriptors (Menu) 32
  - exception 70
- automatic screen facility (ASF) 40
- automatic transaction initiation (ATI) 240, 273, 281

### B

- basic mapping support 233
- BDAM 250, 252
- bell 40
- BMS 233
- bottleneck analysis (Menu) 32, 51, 75, 135, 135–152
  - collection 136, 146
  - customization 136
  - group definition 326
  - operational considerations 145
  - restarting 75
  - sampling 136
  - wait reasons 136
- box parameters 86

### C

- CA split
  - area split 81
- CAVM 249
- CDEV 298
- CEMT 105, 107
- CICM statement 307
- CICS 167
- CICS analysis (Menu) 32, 229
  - automatic initiate descriptors (Menu) 233
  - availability manager 249
  - BDAM 252
  - Common System Area (CSA) 236
  - control tables 232
  - datatable 253
  - destination control table 238
  - dumps 246
  - exits 247
  - FORCE option 107
  - global user exit facility 54
  - kill 107
  - monitoring facility 54
  - owning system 233
  - program management 261
  - remote file 253
shutdown option 284
snapshot 308
storage 318
token 100
trace 276
transient data 281
VSAM 252
CICS analysis (Menu) monitor control table (MCT) 54
class max tasks
active 70
CML locks 160
CMXP exception 70
CMXT exception 70
collector abend 75
color 41, 85
workload impact profile 161
commands (Menu) 40
CICS master terminal 306
common interface 307
console 305
EXEC level 111
common interface (CI) 316
commands 307
storage 316
subtasks 307
Common System Area (CSA) 236
concurrent TCB (CO) 291
CONS statement 307
contention
CPU 160
eenqueue 160
graphic display 161
holding CML lock 160
I/O 160
mount pending 160
resource 154
SRM delay 160
control
area split 88, 208, 267, 281
blocks 32, 229
CA split 81
interval byte map 268
interval split 88, 267, 281
storage subpool 169
tables 229, 232
Control Options
page locations for 29
Control Options (Menu) 28
CPHI exception 70
CPLO exception 70
CPU (Menu)
dispatching waits 154
global threshold 69
utilization 70, 77
CSA 236
CSLT 57
current free OSCOR 174
cushion size 174, 178
customer service
telephone support 360
customer support
base maintenance plan 360
contact information 365
enhanced support services 364
eSupport 360
severity levels 361
cycle parameters 87
D
D CONSOLES command 305
DASD (Menu)
devices not responding 72
dropped ready 72
plot 302
response time 295
statistics 295
data management block 242
attributes 242
pool utilization 72
stopped or failed 72
database analysis 33, 215–227
DB2 215
directory 222
DLI 215, 219, 242
locally defined 222
statistics 216
DATACOM
statistics 126
datasets
selecting 200
dataspace 188
i2.storage 320
datatables 250
date 40
DB
monitor 71
DB2 (Menu) 215–218
attach 71
DB21 exception 71
DB22 exception 71
DB2A exception 71
DB2M exception 71
DB2T exception 71
DB2W exception 71
DBCTL (Menu) 227
database 128
DBD 128, 222
DBM monitor 221
DBMN exception 71
DBON exception 71
DBUP exception 71
DCB
  open 299, 301
DCT 238, 281
DDIR 222, 226, 242
    suffix 221
    summary display 242
debug 75, 79, 308, 309
dedicated
    mode 31
terminal 50
default
    settings
    changing response time 53
defining groups
    dynamic method 326
    permanent method 326
degradation 149
destination
    intrapartition 80
destination control table 238–240, 281
device
    activity 302
    address 300
    busy 300
detail 300
    file list 300
    I/O 301
    not ready (Nrdy) 300
    reserve count 301
    reserved (Resv) 300
    statistics 296
    type 302
    unit address 299
    user 300
    utilization 297, 298
DFHRPL datasets 205
DFSVSAMP 224
diagnostics 308
dispatchable tasks 300
dispatching
    algorithm 289
    priority 72, 289
display parameters 84
DL/I (Menu) 71, 215, 219–226, 227, 231
    addresses 226
    data management block directory 242
    databases 222
    DBCTL 227
    event control blocks 225
    statistics 99, 125, 128
    subpools 224
    threads 72
DLCL exception 72
DLDB exception 72
DLTH exception 72
DLXCPVR 221
DMB 72
DMBP exception 72
DNRS exception 72
DPLT statement 302
DPRO exception 72
DRDY exception 72
dropped ready 72
tape device 80
DSA 73
DSAV exception 73
DSHI exception 74
DSIZ exception 74
DSLO exception 74
DSTO exception 74
DTB 258
dump (Menu)
    codes 246
    datasets 229, 246
    exception 74
    storage violation 79
    system 74
    transaction 77
DUMP parameter 238, 242, 244, 250, 258, 261, 265, 271, 278
DXAB exception 75
dynamic storage area 73, 167, 231
    end address 179
    extended 177
    extents allocated 174
    extents in use 174
    largest free area 174
    percent allocated 178, 179
    size 174, 178
    start address 179
dynamic transaction backout 222, 258
ECB 225  
EDSA 177 
elapsed time 288  
elements  
adding 334  
deleting 337  
displaying 331  
listing 339  
updating 336 
ed-to-end response time 56, 60 
ENQC exception 75  
ENQP exception 75  
enqueue (Menu) 149–152  
analysis 51  
holding 160  
pool utilization 75  
resource 51  
ENQW exception 75  
EPB 248  
ESAV exception 75  
ESHI exception 75  
ESIZ exception 75  
ESLO exception 75  
ESOS exception 76  
ESTO exception 76  
eSupport  
customer support 360 
exit  
implications to CICS 247  
Exit Program Blocks (EPBs) 248  
extended recovery facility (XRF) 82  
alternate CICS 249  
extent 81, 88  
displaying current total 81  
journal 259  

F  
fast pathing (Menu) 43, 341–358  
FCT 250  
file analysis (Menu) 33, 197–214  
allocation 202  
application datasets 202  
attributes 199  
CA splits 208  
CICS 199  
CICS datasets 203  
control 124  
statistics 124  
dataset detail 200  
dataset selection 200  
dataset types 199  
datasets 199  
detail 202  
detail panel 202  
DFHPRL datasets 205  
DL/I 124  
file control table (FCT) 202  
hiperspace statistics 210  
IMS datasets 205  
JES datasets 204  
journal datasets 205  
journals 199  
LSR pools 210, 212  
navigation 198  
statistics 124  
steplib datasets 204  
string waits 210, 214  
summary 199  
SYSIN datasets 206  
third-party 124  
type of file 204  
usage 202  
VSAM dataset 204, 207  
File Control Table (FCT) 250  
fixed time period 57  
fragmentation 186  
function index 341, 341–358  
function keys (Menu) 40
Index 371

G
  general help 44
  general purpose registers 291
  generic name 201
  GET
    records 268
    requests 282
  global
    data area 63, 69, 111, 112, 113, 145, 326
    exit program 247
    resource limit 69
    startup parameters 264
    user exit 247
  GLUEs 247
  graphic contention display 161
  group
    bottlenecks 138
  group definition 325–339
    clearing 338
    creating 332
    defaults 330
    elements 329
    limits 328
    listing 339
    LUs 332
    updating 335
  GROUPS option 61
  GRPS
    CLR statement 338
    DEL statement 337
    statement 333
    TYPE statement 339
    UPD statement 335, 336
  GRSP exception 76
  GTF trace destination 277

H
  heartbeat interval 249
  help 44
  hiperspace
    statistics 210
  horizontal menu 37

I
  I/O
    contention 159
    on paging string 78
    DASD 72, 297
    number 300
    queue 301
      depth 300
      rate 76
    tape device request 80
    trace 276
    waits 154
  IACL 164
  IACS 164
  IANC 164
  IANL 159, 161, 163, 165
  IAST 163
  IBPOOL 224
  ICEs 32
  ICV (CICS exit interval) 82
  ID
    = parameter 238, 242, 250, 258, 261, 271, 278
    group
      response time 53
    POOL 71
  IDMS
    statistics 126
  impact analysis 33, 153–165
    buckets 164
    collection parameters 154, 156, 163
    contention 157, 158, 160
    display parameters 156, 163
    enqueue types 159
    execution states 154
    groups 164
    I/O devices 159
    interval description area 157
    plot threshold 156
    productivity analysis 157
    profile display 161
    response time 161
    sampling interval 156, 163
    severity threshold 165
    sources 158
    starting and stopping 155
    synchronization 163
    time-out facility 164
    workload impact profile 161
  IMS datasets 205
  IMS lock trace 221
  INAB exception 76
  index
    component split 81
    object 81
    option 45
    indirect
      queue 240
    INFO-line 39, 40
    input area, INFO-line 40
    interest profile 248
    internal trace destination 277

interval
  activity 32
  control 233
  record collector 76, 327
interval control element (Menu) 32, 255–257
exception 76
intrapartition
  destination 80
IOHI exception 76
IRLM address space 75
ISAM pools 224
ISB pool 226
ISC/IRC attach header 100
ISPF mode 30
ISUBPL 224

J
JCJS exception 76
JCT 258
JES
  commands 305
  datasets 204
JESDI operand 249
jobname 40
journal (Menu) 258
  control table 258
  datasets 205
  valid WTOR response 76
  waiting for response 76

K
key fields 41
KEY= parameter 170, 176
kill
  AID 235
  ICE 257
  task 105
KOCMD statement 305

L
load modules 293
Local Shared Resources (Menu) 251
  pools 78, 210, 212
log abend information 75
logging status 40
logical units 326
  defining groups 61
  response time 59, 60
LSQA 169
  exception 76
  storage 191
LSR 251
LU 326

M
main menu 35
  options 341–358
maintenance assessment service
  MAS 364
maintenance verify 315
MAS
  maintenance assessment service 364
master terminal settings 306
maximum tasks active 70
MAXP exception 77
MAXR exception 77
MAXT exception 77
MAXTASKS 236
  option 77
menu system
  colors 41
  interface 35
  selecting options from 43
MLST statement 316
modes of operation 40
module trace 221
monitor control table 54
moving time
  period 58
  slot 60
MRO/ISC (Menu) 100
  links 78
MSCN statement 317
MSM
  multi-services manager 364
multi-services manager
  MSM 364
MVS
  commands 305
  console message 307
  effect on CICS 153
  wait for resource 154
MVS analysis 33, 285–293
  common area 188
  CPU utilization 286
  modules 293
  MVS analysis 188
  paging utilization 286, 288
  program status word 291
  storage management 167, 188
  subpools 189
  system initialization time 288
  TCB 291
time in transaction 289
total CPU time 288
total SRB time 288
total TCB time 288
MXT analysis 77
MZAP statement 318

N
navigation
  menu system 36, 43
NDMP exception 77
network response time 56
  changing threshold 336
news option 45
nondispatchable tasks 300
nonresident program 78
NOPURGE option 284
NOSPACE 282

O
OMEGAVIEW 30
ONDV 117, 131
OPER option 284
operator
  command 305
OSAM 224, 251
OSCH exception 77
OSCL exception 77
OSCOR 75, 169
  amount free 174
  area 77
  fragmentation 77
  largest free 174
  requested 173
  SIT parameter 169
  size 187
OSCOR requested field 173
overview panels 47, 51

P
page
  -ins 78
  size 178
page allocation map 179, 181, 231
PAGE exception 78
paging (Menu) 78, 188
  delays 160
PAM 179
PCRT exception 78
PCT 278
PDIR 226, 244
  suffix 221
  summary 244
performance
  current system status 50
  overview panel 50
performance monitoring
  dedicated terminal 50
  options 341–358
  switching regions 48
PF keys 43
PI enqueue pool utilization 75
PPT 261
printing problems 19
processing program table (PPT) 261
product ID 40
program
  compression 78, 186
  management 261
  nonresident 78
  response time 53
  specification block 72, 244
  status word (PSW) 291
  storage subpool 169
program control table 278
storage violation 79
PSB 72
PSBP exception 78
PST
  active 243
  pool 226
PURGE option 284
purge tasks at shutdown 284
PUT
  records 268
  requests 282
PUTQ records 268

Q
quasi-reentrant (QR) 291
queue 269

R
RATE statement 109
RCT 71
RDO 231
READ ONLY-key storage 170
real storage 191
recommendation screens 68
recovery
  forward 258
region
  attached to DB2 71
  currently available 48
  summary panel 48
  switching 48
regions display 48
remote delete request 233
RENTRSM keyword 170
resource 150
resource definition online (RDO) 231, 232, 278
resources (Menu)
  contention 154, 157
  limiting 111
  -owning (RO) 291
response time 53
response time (Menu)
  analysis 32, 53
  changing settings 63
  collector 327, 333
  color highlighting 58
  conversation 54
DASD 295
data collection settings 63
definition 54
degradation 76, 82
End-to-End feature (ETE) 56
fixed time period 57
group definition 326
groups 76
I/O time 54
ID groups 53, 58
impact analysis 161
intervals 53, 63
LU 59, 61
moving time period 58
network 56
period 57, 63
programs 53
terminals 53
threshold, changing 336
thresholds 53, 61, 63
time scale 63
transactions 53
VTAM LU 53
RMF 315
RMTH exception 78
RMTT exception 78
RPC storage subpool 169

S
  space 40
  stacking 40
  scrolling 40
SDMP exception 78
SEL = parameter 238, 242, 244, 250, 258, 262, 265, 271, 278
severity levels
  customer support 361
shared storage subpool 169
Short-on-Storage 82
short-on-storage 73, 75, 76, 174, 178, 186, 236
shutdown CICS 284
Sign On panel
  menu system interface 30
SIT 70
SLST statement 321
snapshot of CICS 308
SOS 73
splits
  control area 267, 281
  control interval 267, 281
SRHm exceptions 78
SRLM exception 78
SRTm exceptions 78
SSCN statement 322
startup parameters 264
statistics
  device 296
  DL/I 124
  file control 124
  third-party 124
status
  indicators 236
  information 39
steplib datasets 204
STIMER 154
STIO exception 78
STOR command 170
storage (Menu)
  abends 188
  analysis 167–195
  CICS 318
  CICS version 3.3 167, 170, 176, 181, 183, 185
  common interface 316
  current tasks suspended 178
  cushion 73, 74, 174, 178, 186
datapace 320
DMBPL 220
DSA or EDSA start/end address 179
DSA size 174, 178
extents allocated 174
extents in use 174
free 178
freemain 184
freemain requests 178
getmain 180, 184
getmain requests 178
global 180
HWM tasks suspended 178
insufficient 174
key types 170
KEY= parameter 176
largest free area 174
LWM free space 178
main 169
management 167, 169
modify 316
MVS 188
MVS subpools 189
OSCOR 169, 173, 174
over-allocation 74
page size 178
paging 188
paging (Menu) 188
PAM 179, 231
percent DSA allocated 178, 179
private area 169
program compression 186
program specification block location 245
protection 170, 191
PSBPL 220
real 191
recovery option 173
region 192
resident programs 183
shared 180
short-on 73, 82, 174, 178, 186, 236
statistics 179
storm 195
subpools 169, 178, 180, 181
tasks 178, 180
TCB 190, 191
temporary 32, 81, 229, 267
trace 276
unused 174
usage by task 176
violation 79, 80, 173, 174
virtual 167, 188, 191, 268
virtual storage map 193
VTAM 183
working set size 188
storage analysis 33
STR-derived token 100
string
temporary storage 81
transient data 80, 283
utilization 78
waits 78, 79, 208, 210, 214
STRU exception 78
STRW exception 79
STRX exception 79
STSPROT keyword 170
subpools
CICS 169
groups 183
MVS 188
storage 180, 181, 183
usage 188
SUPRA statistics 127
suspended channel program 300
suspended tasks 174, 178
SVSY exception 79
SVTK exception 79
SVTR exception 79, 80
switching
journal 259
regions 48
SYSID indicator 278
SYSIN datasets 206
system
dump 246
ID, on INFO-line 40
start date 288
system initialization table (CUA) 70
system initialization table (Menu) 70, 75
AMXT parameter 70
parameters 75, 77, 264
XRF related operands 249
System Management Facility (SMF) records 133
SZAP statement 322

T
table entries 32
TAKEOVER operand 249
tape device
dropped ready 80
target working set size 290
task analysis (Menu) 33, 51, 89
abend 75
bottleneck analysis 75
categories 102
database statistics 99
detail display 91
dispatchable 300
file control statistics 99
killing 105
<table>
<thead>
<tr>
<th>Term</th>
<th>Page(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>purge status</td>
<td>93</td>
</tr>
<tr>
<td>purgeable</td>
<td>93</td>
</tr>
<tr>
<td>purging tasks</td>
<td>284</td>
</tr>
<tr>
<td>specifying maximum number</td>
<td>77</td>
</tr>
<tr>
<td>statistics</td>
<td>98</td>
</tr>
<tr>
<td>status</td>
<td>90</td>
</tr>
<tr>
<td>storage</td>
<td>95</td>
</tr>
<tr>
<td>storage subpool</td>
<td>169</td>
</tr>
<tr>
<td>summary</td>
<td>89</td>
</tr>
<tr>
<td>task termination abends</td>
<td>106</td>
</tr>
<tr>
<td>termination option</td>
<td>89</td>
</tr>
<tr>
<td>time statistics</td>
<td>98</td>
</tr>
<tr>
<td>unit of work</td>
<td>100</td>
</tr>
<tr>
<td>task analysis (menu)</td>
<td></td>
</tr>
<tr>
<td>control area</td>
<td>176</td>
</tr>
<tr>
<td>task control block (Menu)</td>
<td></td>
</tr>
<tr>
<td>multiple</td>
<td>292</td>
</tr>
<tr>
<td>storage</td>
<td>191</td>
</tr>
<tr>
<td>structure</td>
<td>292</td>
</tr>
<tr>
<td>task history</td>
<td>117</td>
</tr>
<tr>
<td>record selection</td>
<td>129</td>
</tr>
<tr>
<td>task-related user exits (TRUEs)</td>
<td>248</td>
</tr>
<tr>
<td>TCA</td>
<td>176</td>
</tr>
<tr>
<td>TCLASS</td>
<td>279</td>
</tr>
<tr>
<td>TCT</td>
<td>271</td>
</tr>
<tr>
<td>TCTFX</td>
<td></td>
</tr>
<tr>
<td>terminal control</td>
<td>266</td>
</tr>
<tr>
<td>TDBU exception</td>
<td>80</td>
</tr>
<tr>
<td>TDBW exception</td>
<td>80</td>
</tr>
<tr>
<td>TDCI exception</td>
<td>80</td>
</tr>
<tr>
<td>TDHI exception</td>
<td>80</td>
</tr>
<tr>
<td>TDQU exception</td>
<td>80</td>
</tr>
<tr>
<td>TDSH exception</td>
<td>80</td>
</tr>
<tr>
<td>TDST exception</td>
<td>80</td>
</tr>
<tr>
<td>telephone support</td>
<td></td>
</tr>
<tr>
<td>customer service</td>
<td>360</td>
</tr>
<tr>
<td>temporary storage (Menu)</td>
<td>229, 267, 269</td>
</tr>
<tr>
<td>degradation</td>
<td>81</td>
</tr>
<tr>
<td>percent utilization</td>
<td>81</td>
</tr>
<tr>
<td>usage</td>
<td>32</td>
</tr>
<tr>
<td>terminal (Menu)</td>
<td></td>
</tr>
<tr>
<td>dedicated</td>
<td>31</td>
</tr>
<tr>
<td>response time</td>
<td>53</td>
</tr>
<tr>
<td>storage violation</td>
<td>80</td>
</tr>
<tr>
<td>transaction initiation</td>
<td>273</td>
</tr>
<tr>
<td>terminal control table</td>
<td>271–275</td>
</tr>
<tr>
<td>terminal control table (Menu)</td>
<td></td>
</tr>
<tr>
<td>prefix</td>
<td>266</td>
</tr>
<tr>
<td>storage violation</td>
<td>79</td>
</tr>
<tr>
<td>thread waits</td>
<td>71</td>
</tr>
<tr>
<td>threshold (Menu)</td>
<td></td>
</tr>
<tr>
<td>CALL DL/I</td>
<td>111</td>
</tr>
<tr>
<td>change</td>
<td>63</td>
</tr>
<tr>
<td>values</td>
<td>298</td>
</tr>
<tr>
<td>database request</td>
<td>111</td>
</tr>
<tr>
<td>DB2</td>
<td>111</td>
</tr>
<tr>
<td>default response time settings</td>
<td>53</td>
</tr>
<tr>
<td>exceeding</td>
<td>298</td>
</tr>
<tr>
<td>EXEC level file control</td>
<td>111</td>
</tr>
<tr>
<td>parameters</td>
<td>85</td>
</tr>
<tr>
<td>resource limiting</td>
<td>111</td>
</tr>
<tr>
<td>storage</td>
<td>111</td>
</tr>
<tr>
<td>third-party database</td>
<td>111</td>
</tr>
<tr>
<td>time</td>
<td></td>
</tr>
<tr>
<td>interval</td>
<td>63</td>
</tr>
<tr>
<td>scale</td>
<td>63</td>
</tr>
<tr>
<td>slots</td>
<td>57</td>
</tr>
<tr>
<td>window</td>
<td>63, 64</td>
</tr>
<tr>
<td>time-of-day clock</td>
<td>82</td>
</tr>
<tr>
<td>TNRS exception</td>
<td>80</td>
</tr>
<tr>
<td>TOD clock</td>
<td>82</td>
</tr>
<tr>
<td>TP storage subpool</td>
<td>169</td>
</tr>
<tr>
<td>TPDR exception</td>
<td>80</td>
</tr>
<tr>
<td>TQE flag</td>
<td>93</td>
</tr>
<tr>
<td>trace</td>
<td></td>
</tr>
<tr>
<td>datasets</td>
<td>229</td>
</tr>
<tr>
<td>destination</td>
<td>276</td>
</tr>
<tr>
<td>transaction (Menu)</td>
<td></td>
</tr>
<tr>
<td>abend</td>
<td>75</td>
</tr>
<tr>
<td>dump</td>
<td>77, 246</td>
</tr>
<tr>
<td>MACRO level</td>
<td>111</td>
</tr>
<tr>
<td>mirror</td>
<td>128</td>
</tr>
<tr>
<td>OMEG INIT/SHUT</td>
<td>114</td>
</tr>
<tr>
<td>rate</td>
<td>90, 109</td>
</tr>
<tr>
<td>response time</td>
<td>53</td>
</tr>
<tr>
<td>work area (TWA)</td>
<td>279</td>
</tr>
<tr>
<td>transient data</td>
<td></td>
</tr>
<tr>
<td>string wait</td>
<td>80</td>
</tr>
<tr>
<td>usage</td>
<td>32</td>
</tr>
<tr>
<td>transient data (Menu)</td>
<td>229, 233, 238, 281</td>
</tr>
<tr>
<td>ATI</td>
<td>281</td>
</tr>
<tr>
<td>destination control table</td>
<td>281</td>
</tr>
<tr>
<td>TRLO exception</td>
<td>81</td>
</tr>
<tr>
<td>TRUEs</td>
<td>248</td>
</tr>
<tr>
<td>TSBU exception</td>
<td>81</td>
</tr>
<tr>
<td>TSBW exception</td>
<td>81</td>
</tr>
<tr>
<td>TSO mode</td>
<td>31</td>
</tr>
<tr>
<td>TSPU exception</td>
<td>81</td>
</tr>
<tr>
<td>TSSH exception</td>
<td>81</td>
</tr>
<tr>
<td>TSST exception</td>
<td>81</td>
</tr>
<tr>
<td>TST</td>
<td>267</td>
</tr>
<tr>
<td>TTI</td>
<td>273</td>
</tr>
</tbody>
</table>
Index

U
UCB 302
umbrella data section 100
unit
 information 301
UOWID 100
user
 averages 62
 exits 248
 journal records 258
 profile suffix 40
 TCB storage 191
user exit
 facility 54
user-defined time intervals 62
USER-key storage 170
utilities 303–323
 common interface commands 307
 console commands 305
 dataspace storage 320
 diagnostics 308
 maintenance 315
 master terminal commands 306
 snapshot 308
 storage 316
 verify components 311
 zaps 315

VTAM (Menu)
 ACB
 not open 81
 error data 249
 LU 53
 mode 30
 netname 273
 storage 183
 VTMA exception 81

W
 wait
 enqueue 32
 I/O events 32
 reasons 51, 137, 139, 140
 remote processing 144, 147
 resource 90
 short-on-storage (Menu) 32
 string 32
 VSAM buffer 32
 working set size 82, 188
 workload impact profile 161
 WSHI exception 82
 WSLO exception 82
 WTOR response 76

X
XACB 79
XLF
 XLF parameters 85
 XLF Parameters field 85
 XMLS statement 318
 XMSC statement 320
 XMZP statement 320
 XRFA exception 82
 XSOS exception 82
 XTOD exception 82
 XXRSTAT exit 249

Z
 zaps 315
 zoom
 within the menu system 42