IBM Application Performance Analyzer for z/OS

Program number 5697-P10

Tutorial

This is the tutorial for IBM's Application Performance Analyzer for z/OS®, one of the IBM zSeries® problem determination tools.

Application Performance Analyzer training sections

IBM

- Introduction
- The application tuning process
- Entering observation requests
  - Navigation and options
  - Entering requests
  - Examples
- Viewing analysis reports
- An analysis walkthrough
- **Printing analysis reports**
- Working with program source

In this section: "Printing analysis reports", you will learn how you can generate printable reports from APA.

Printing analysis reports

- Performance analysis reports

  - Use the online interface to generate JCL to print reports

  - Report files can be produced in these formats:
    - SYSOUT
    - Adobe® PDF
    - XML

Most people who use APA access reports through the online interface. However, APA can print the same reports that are available online. Of course, you can write your own JCL to extract reports from APA. But that is the hard way. It is much easier to use the online interface to automatically generate JCL to print your reports. APA can produce reports, either directly to SYSOUT or in PDF format. It can also generate analysis data in XML format.

Example: Print reports

Here is how it works. First, view the reports for an observation request that has completed. From the report menu, select the administration reports.

To do this type an "S" next to 'Admin/Miscellaneous'. Press Enter.

Select "Request Printed Reports"

IBM

File   View   Navigate   Help

R01: IBM APA for z/OS Performance Reports (3310/CHIDGEYX)   Row 00001 of 00005
Command ===> _____ Scroll ===> CSR

   Select a category from   _ A Admin/Miscellaneous _ I IMS Measurement
   the list to the right   _ S Statistics/Storage   _ E CICS Measurement
   to view the available   _ C CPU Usage Analysis   _ F DB2 Measurement
   reports in the selection _ D DASD I/O Analysis   _ Q MQ Measurement
   list below.   _ W CPU WAIT Analysis   _ G Coupling Facility
                             _ H HFS Analysis   _ J Java Measurement
                             _ V Variance Reports   _ X Multi Address Space

                                                      More: +
Enter S to make a selection or enter the report code on the command line

   _ A01 Source Program Mapping
   S A02 Request XML or Printed Reports
   _ A03 Java Source Mapping
   _ A04 Source Mapping Dataset List

ENTER

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Then, select the 'A02 Request XML or printed reports' panel. Enter.

Request Printed Reports panel

```
  File  View  Navigate  Help
  ─────────────────────────────────────────────────────────────────
A02: Request Printed Reports (3310/CHIDGEYX)            Row 00001 of 00042
Command ===> █                                      Scroll ===> CSR

Enter / to include a section in the report or file, blank to exclude
the section, S to include the section and set formatting options.  Use
UP/DOWN (PF7/PF8) to scroll the list of report sections. After
entering your selections, press ENTER to generate the JCL.

   Select    Report Section

     /       S01 Measurement Profile
     /       S02 Load Module Attributes
     /       S03 Load Module Summary
     /       S04 TCB Summary
     /       S05 Memory Usage Timeline
     /       S06 Data Space Usage Timeline
     /       S07 TCB Execution Summary
     /       S08 Processor Utilization Summary
     /       S09 Measurement Analysis

     /       C01 CPU Usage by Category
     /       C02 CPU Usage by Module
```

Select the needed reports.

Use the **SETUP** command to control whether your selections are saved

ENTER

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Here is the A02 panel, where you can generate JCL to produce a report. Notice that a list of available reports is shown. Just select all of the reports you want to print by typing a slash next to them. Enter.

Report JCL submission panel

```
A02: Report JCL Submission (3310/CHIDGEYX)
Command ===> _____ Scroll ===> CSR

Specify the following and press ENTER to either SUBMIT the JCL or to
launch EDIT for the generated JCL.    Print to SYSOUT, PDF, or XML file

Enter "/" to select options              You cannot select the
  /  produce PDF (Portable Document Format) fil    XML option if writing to
  /  generate JES-managed report file (SYSOUT=*    JES or a PDF file
  _  produce XML (Extensible Markup Language) f

  /  EDIT the generated JCL member, otherwise SU    Provide a valid Job Card

Job Statement - edit if necessary
  ==> //CHIDGEYX JOB (CHIDGEY,H244,090,CTKA),NOTIFY=CHIDGEY,
  ==> //  MSGCLASS=H,TIME=59,REGION=0M
  ==> //*█                                    If writing a PDF or XML
                                              file, you do not have to
PDF File DSN (if applicable)                  pre-allocate the file
  ==> 'CHIDGEY.APA.PDF'

XML File DSN (if applicable)                              PF8
```

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Next, select the options that you want on this panel. The options you enter here are permanent, and saved in your APA user profile. So once you set this up, it is easy to do it again. To generate a report in PDF format, select the "produce PDF" option with a slash. To produce a SYSOUT report, select the "generate JES-managed report" option. You have to select at least one of those, and you can select both if you want. There is also an option to create an XML file containing the report information. You cannot select the XML option if you have elected to generate a report to sysout or if you are creating the report in PDF format.

You should select the 'edit the generated JCL' option. If you do not, the JCL is submitted immediately when you hit enter. Most people prefer to review the JCL first, which is what this option will enable.

You also need to provide a valid job card. Just type it into the 'job statement' lines. Or of course, you can copy and paste a job card from some other JCL that you already have. If you selected either the 'produce PDF' or the 'produce XML' option, then you also need to provide the name of a file that will receive the PDF or XML output. These files do not have to already exist. They are created before the job runs. Finally, if you selected the option to edit the generated JCL, you need to provide the name of a file or PDS member where the JCL is to be saved. Press PF8 to see these additional options.

Report JCL submission panel

```
A02: Report JCL Submission (3310/CHIDGEYX)
Command ===> █                                        Scroll ===> CSR
XML File DSN (if applicable)
  ==> 'CHIDGEY.XML'

Location where generated JCL is to be saved
  JCL Library ==> 'CHIDGEY.ADLAB.JCL'
  JCL Member  ==> APAREPRT
```

ENTER

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If you selected the option to edit the generated JCL, you need to provide the name of a file or PDS member where the JCL is to be saved.

If you did not select the option to edit the generated JCL, then the job is submitted immediately.

Enter to continue.

Submit the generated JCL

```
   File  Edit  Edit_Settings  Menu  Utilities  Compilers  Test  Help

 EDIT       CHIDGEY.ADLAB.JCL(APAREPRT) - 01.00          Columns 00001 00072
 Command ===> SUB                                          Scroll ===> CSR
 ****** **************************** Top of Data ****************************
 000001 //CHIDGEYX JOB (CHIDGEY,H244,090,CTKA),NOTIFY=CHIDGEY,
 000002 //  MSGCLASS=H,TIME=59,REGION=0M
 000003 //*
 000004 //STEP1    EXEC PGM=CAZPRINT
 000005 //STEPLIB  DD  DISP=SHR,DSN=ADTOOLS.APAA10.SCAZAUTH
 000006 //SYSABEND DD  SYSOUT=*
 000007 //CAZLOG   DD  SYSOUT=*
 000008 //SFILE01  DD  DISP=SHR,DSN=ADTOOLS.APAA10.CHIDGEY.R3310.CHIDGEYX.SF
 000009 //REPORT1  DD  SYSOUT=*
 000010 //PDF1     DD  DISP=SHR,DSN=CHIDGEY.APA.PDF
 000011 //CAZCTL   DD  *
 000012  PROFILE 01 INPUT=SFILE01
 000013  MAP TYPE=D FILE=CHIDGEY.ADLAB.SYSDEBUG MEMBER=SAM1V
 000014  MAP TYPE=D FILE=CHIDGEY.ADLAB.SYSDEBUG MEM
 000015  SECTION S01
 000016  SECTION S02 Sequence=NAME
 000017          OmitESD=Y
 000018          OmitNUC=N
 000019          OmitPLPA=N
```

APA generated and saved the JCL

ENTER

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But if you did select that option, you will get this screen, which is an edit session with the JCL. Once the JCL is generated, you are free to make changes to it or even save it to other files. You can run the job with a SUB or SUBMIT command. Enter.

APA reports viewed from SYSOUT

IBM

```
  Display  Filter  View  Print  Options  Help
 -------------------------------------------------------------------------------
 SDSF OUTPUT DISPLAY CHIDGEYX JOB02973  DSID   104 LINE 2      COLUMNS 02- 81
 COMMAND INPUT ===>                                           SCROLL ===> CSR
Application Performance Analyzer Release 10.10C
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                      C05: CPU Usage by Task/Category . . . . . . .
```

After the Print Job runs, you can view reports

PF8

PF8

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After the print job runs, you can view reports in SYSOUT, assuming of course that you generated SYSOUT reports. At the top of the report is a table of contents. Press PF8 to scroll down into the report…

More of the APA reports viewed from SYSOUT

```
  Display  Filter  View  Print  Options  Help
-------------------------------------------------------------------------------
SDSF OUTPUT DISPLAY CHIDGEYX JOB02973  DSID   104 LINE 48     COLUMNS 02- 81
COMMAND INPUT ===>                                     SCROLL ===> CSR


Overall CPU Activity ----------------------------
 Samples      10,000  100.0% ' ' ' ' ' ' ' ' ' ' ' '    C01  C02  C03  C05
 CPU Active    9,046   90.4% ******************        C07  W01  W02
 WAIT            816    8.1% *
 Queued          138    1.3% *



CPU Usage Distribution --------------------------
 CPU Active    9,046  100.0% ' ' ' ' ' ' ' ' ' ' '     C01  C05  C08  W01
 Application   4,295   47.4% *********
 System        3,981   44.0% ********
 DB2 SQL           0    0.0%
 Data Mgmt        34    0.3% *
 Unresolved      736    8.1% *
 IMS DLI Call      0    0.0%



Most CPU Active Modules ------------------------  Reports:
 CPU Active    9,046  100.0% ' ' ' ' ' ' ' ' ' ' '     C02
```

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… and you can display the body of the report.

Printing reports generated in PDF or XML format

- If you generated a PDF report:

  - Download it to your workstation
    - Do *NOT* perform text conversion
    - Use any download utility, such as FTP

  - Open the file on your workstation

- If you generated an XML file:

  - The file can be:
    - viewed using an appropriate XML reader
    - Used to capture relevant information from the output

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If you generated a PDF report to a file, here is what you do next. Download the file to your workstation, using any utility you prefer. For example, you might be able to use a utility built into your 3270 emulator, or you might prefer to use FTP. The important thing is to remember NOT to perform text conversion during the download. Download the file in binary format. And that is all there is to it. Once the file is downloaded, you can open it on your workstation with your PDF viewer.

If you generated an XML file, use an appropriate XML reader to work with the contents. The generated file can be used to capture pertinent information from the output of the measurement data.

That is the end of this section, printing analysis reports.

You can help improve the quality of IBM Education Assistant content by providing feedback.

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