

CA Mainframe Application Tuner

Performance Management Assistant Administration Guide

Version 9.0.00



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CA Technologies Product References

This document references the following CA Technologies products:

- CA Mainframe Application Tuner (CA MAT)
- Performance Management Assistant (PMA)

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Chapter 1: Customization

This chapter describes the steps that are required to customize the operation of Performance Management Assistant at your site. Performance Management Assistant (PMA) is a component of CA Mainframe Application Tuner (CA MAT).

This section contains the following topics:

[Customizing Performance Management Assistant](#) (see page 9)

[Customization Steps](#) (see page 15)

Customizing Performance Management Assistant

Performance Management Assistant is customized by executing a TSO REXX and performing the required processes.

The ISPF interface presents the Customization Main Menu with the customization steps in sequence, guides you through the required steps and changes, and provides a status for each step during the customization process.

See Customization Steps for a description of these steps.

Systems-Level Enqueue for Considerations

When Performance Management Assistant is installed in a sysplex, the clusters are shared across all servers and batch jobs that are running in the sysplex. To prevent the clusters from being corrupted because multiple users are updating it concurrently, systems-level enqueues with a QNAM \$APC0900 are used.

Depending on the different possibilities of the enqueue tool that is used, you have to make sure that the QNAM \$APC0900 is defined for the usage of global enqueueing. This means that if you follow an RNL INCLUDE policy, QNAM \$APC0900 must be included in the RNL definition list. If you follow an RNL EXCLUDE policy, QNAM \$APC0900 need not be on the exclude list.

To ensure that SYSTEMS level enqueues are honored, Performance Management Assistant provides sample members for GRS and CA MIM with QNAME entries that are used by PMA.

The PMA.SAMP data set contains two sample members that can be used to define the QNAME definitions for GRS or CA MIM:

- APCGRS for GRS
- APCMIM for MIM

You can add the definitions that are described in these members to the appropriate GRS member in SYS1.PARMLIB or to the appropriate QNAME member in a CA MIM CNTL library. See the following examples.

GRS Example

```
/******  
/*  
/*   SAMPLE IBM GLOBAL RESOURCE SERIALIZATION(GRS) DEFINITIONS   */  
/*  
/******  
/*  
/******  
/*  
/* SYSTEM INCLUSION RESOURCE NAME LIST- RNLDEF STATEMENTS      */  
/*  
/******  
/*  
RNLDEF RNL(INCL) TYPE(GENERIC) QNAME($APC0900)  
/*  
/******
```

MIM Example

```
*          SAMPLE QNAME DEFINITIONS FOR USE WITH  
* CA-MULTI-IMAGE MANAGER (MIM) FOR RESOURCE SHARING  
*  
* PMA INTEGRITY QNAMES. GDIF IS TO INTERCEPT SYSTEMS ENQUEUE  
* REQUESTS (INCLUDES RESERVES) AND CONVERT THEM TO GLOBAL  
* ENQUEUES. ECMF SHOULD REPORT CONFLICTS AS THEY OCCUR.  
* THE EXEMPT LIST SHOULD BE APPLIED TO THIS QNAME.  
*  
$APC0900 GDIF=YES,          /* GDIF SHOULD PROCESS THIS QNAME  
          SCOPE=SYSTEMS,    /* GDIF TO PROCESS ALL ENQS  
          EXEMPT=YES,       /* APPLY EXEMPT LIST  
          ECMF=NO,          /* ECMF REPORTS CONFLICTS  
          RPTAFTER=30,      /* REPORT CONFLICT IMMEDIATELY  
          RPTCYCLE=120,     /* AND AT EVERY 120 SECONDS THEREAFTER  
          TRACE=NONE        /* NO TRACING
```

Assigning APF Authorization to the Authorization Library

After the guided customization process has completed, you still need to assign APF authorization to the CAMAT.PMA.CEETAUTH load library, which contains all the modules that must run with APF authorization.

Register this library either dynamically or permanently as APF-authorized on all the systems where the Server should run, using one of the following methods:

- To register your CEETAUTH library as an APF-authorized library dynamically on your system, issue the following command from an MVS console:

```
SETPROG APF,ADD,DSN=CAMAT.PMA.CEETAUTH,VOL=xxxxxx
```

- To register the CEETAUTH library as an APF-authorized library permanently when you use a dynamic APF list, add the following control statement to your PROGxx member in SYS1.PARMLIB:

```
APF ADD DSN(CAMAT.PMA.CEETAUTH) VOL (xxxxxx)
```

- To register the CEETAUTH library as an APF-authorized library permanently when you use a static APF list, add the following control statement to your IEAAPFxx member in SYS1.PARMLIB:

```
CAMAT.PMA.CEETAUTH xxxxxx
```

Begin Product Customization

Execute the CUSTAPCT REXX exec from the installed CAMAT.PMA.CEETSAMP data set to begin Product Customization. Before executing, change the *prefix* CAMAT.PMA to match the high-level DSN prefix that was used during the installation of PMA's product files.

```
EX 'CAMAT.PMA.CEETSAMP(CUSTAPCT)
```

Using the Online Customization Dialog

After calling the Online Customization Dialog the Customization Control entry panel displays to define the name and storage attributes for the Customization Control Library, required to receive and provide customization definitions and to track the customization progress, to enable a user to leave and reenter the customization process.

```
CUSTPTSU ----- PMA V90 Customization Control -----  
COMMAND ==>  
  
To start the customization process for the CA Mainframe Application Tuner  
Performance Management Assistant please enter the name of the control library  
to be used for customization definitions and progress tracking. If the library  
does not exist it will be created dynamically.  
  
Customization Control Library:  
Name: YOUR-HLQ.CUST  
  
If the Customization Control Library does not exist, create it on:  
Volume: *      Enter Volume ID or * if SMS managed  
  
Press ENTER to continue or press F3/END to leave the customization.  
  
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* Performance Management Assistant *  
* Version 09.0.00 *  
*****  
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```

After the customization control file was created, the Customization Main Menu displays.

```

CUSTPT00 ----- PMA for CA MAT Customization Dialog -----
COMMAND ==> 1
  Step                                     Status
  1 Specify HLQ and Job Card for Customization Jobs NOT COMPLETE
  2 Create PMA Parameter Data Set           NOT COMPLETE
  3 Specify operational defaults            NOT COMPLETE
  4 Verify PMA Target Data Set Names        NOT COMPLETE
  5 Verify PMA User Data Set Names          NOT COMPLETE
  6 Verify PMA Data Cluster Names          NOT COMPLETE
  7 Create PMA User Data Sets              NOT COMPLETE
  8 Create PMA Data Cluster                NOT COMPLETE
  9 Create PMA Start Exec                  NOT COMPLETE
 10 Create PMA JCL Member and JCL Procs    NOT COMPLETE
 11 Customize Measurement Product Interface NOT COMPLETE
 12 Upgrade                                NOT COMPLETE
  L Show Customization Log      X END

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```

On the Customization Main Menu, all customization steps are presented in sequence.

Before continuing with the next step, the status of the previous step must have a status of COMPLETED.

See Customizing Steps for a complete description of each of the steps on the Customization Main Menu.

Verifying Execution of Customization Jobs

The Customization Main Menu lists each of the customization steps and indicates whether the step has been completed. The step completion includes customization jobs that have to be submitted and observed in your spooling facility.

If, for some reason, the last job has not been completed normally, you are prompted with the Customization Inquiry panel.

```
CUSTPINQ ----- PMA V90 Customization - Inquiry -----  
COMMAND ==>  
  
A normal termination has not been confirmed for customization job CUSTJxxx  
One of the following conditions/actions is applicable:  
  
1. You did not submit the last job that was reviewed in edit mode.  
   Enter command CAN and repeat the customization step.  
  
2. You submitted the job, but the job has not finished yet.  
   Observe the job in your spooling system. If the job terminates normally,  
   press ENTER to continue with the next customization step.  
  
3. The job has terminated abnormally.  
   Enter CAN to repeat the customization step and resolve the JCL problem.  
  
4. The last job submitted has terminated abnormally however you accept this.  
   Be aware that the success of the customization might be adversely affected.  
   Enter command ACCEPT to continue with the next customization step.  
   Your acceptance will be logged in the customization Log.
```

Viewing the Customization Job Log

You may view the status of executed customization batch jobs.

Follow these steps:

1. Select option **L** on the Customization Main Menu to display the job log.

=====				
**				
PMA CUSTOMIZATION JOB LOG			PMA V9.0	**
**				
=====				
DATE	TIME	JOB	DESCRIPTION	DONE
2010/01/27	04:39	#2 CUSTJT02	CREATE PMA PARAM DATA SET - SUCCESSFUL	
2010/01/27	04:43	#7 CUSTJT07	CREATE PMA USER DATA SETS - SUCCESSFUL	
2010/01/27	04:44	#8 CUSTJT08	CREATE PMA DATA CLUSTER - SUCCESSFUL	

2. Use this panel to view the date, time, description and status of the customization jobs.

Customization Steps

The Online Customization Dialog takes you through the following customization steps:

- [Step 1 – Specify HLQ and job card for customization jobs](#) (see page 16)
- [Step 2 – Create parameter data set](#) (see page 17)
- [Step 3 – Specify operational defaults](#) (see page 19)
- [Step 4 – Verify product library names](#) (see page 21)
- [Step 5 – Verify work data set names](#) (see page 22)
- [Step 6 – Verify data cluster names](#) (see page 23)
- [Step 7 – Create work data sets](#) (see page 24)
- [Step 8 – Create the data cluster](#) (see page 30)
- [Step 9 – Create the Start Exec](#) (see page 36)
- [Step 10 – Create JCL members and JCL procs](#) (see page 38)
- [Step 11 – Customize measurement product interface](#) (see page 41)
- [Step 12 – Upgrade](#) (see page 43)

Step 1 – Specify HLQ and Job Card for Customization Jobs

After selecting Step 1, the following panel is displayed.

```

CUSTPT01 ----- PMA V90 Customization - HLQ and Job Card Definition ----
COMMAND ==>

PMA Product Data Set Prefix: your.matpma.prefix

Job Card for Customization Jobs:
//JOBNAME JOB .....
//*
//*
//*

CANCEL: CAN   SAVE: ENTER

```

1. Enter values for each of the following fields:

PMA Product Data Set Prefix

Enter the high-level DSN prefix that was used during the installation of PMA's product files. The maximum length of the prefix is 17 characters.

Job Card

Enter a job card to be used by the generated installation jobs and product batch jobs.

2. Choose one of the following actions:

- Press Enter to save the entered values. Step 1 is marked as **COMPLETED**, as shown following, and you can continue with Step 2.

```

CUSTPT00 ----- PMA V90 Customization Dialog -----
COMMAND ==> 2

Step                                     Status
=====
1 Specify HLQ and Job Card for Customization Jobs  COMPLETED

```

- Specify **CANCEL** to go back to the Customization Main Menu without saving any entered value. The status of Step 1 stays **NOT COMPLETED**.

Step 2 – Create Parameter Data Set

After selecting Step 2, the following panel is displayed.

```
CUSTPT02 ----- PMA V90 Customization - Create PMA Parameter Data Set -----  
COMMAND ==>  
  
If PMA is already installed, e.g. a former release, all previous definitions  
for the customization and the usage of the products can be copied to the new  
version.  
  
Parameter DS Name: CAMAT.PMA.PARMS  
  
1 Create parameter data set using default definitions  
  
2 Create parameter data set using definitions from previous version  
  DSN: your.previous.PMA.parmsfile  
  
  
CANCEL: CAN   SAVE: ENTER
```

1. Select one of the following parameter definition options:
 - a. Create a V90 PMA parameter file using default parameters as a model.
Default parameters are supplied by the customization procedure.
Select option **1** and press Enter.
 - b. Copy the parameters from your previously installed version.
In the **DSN:** field, type the data set name of your previous parameter file. Then
select option **2** and press Enter.

You can specify **CANCEL** to go back to the Customization Main Menu without
saving any entered value. The status of Step 2 stays **NOT COMPLETED**.

After selecting one of these parameter definition options, the CUSTJT02 job to create the parameter file is displayed.

```
//JOBNAME JOB(ACCOUNT),'PMA',CLASS=A,
//          MSGLEVEL=(1,1),MSGCLASS=H,NOTIFY=&SYSUID,REGION=0M
//*
//*
//*
//*-----*
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//*-----*
//*****
//* CUSTJT02:  CREATE PMA PARAMETER DATA SET              *
//*                                                    *
//*****
//*
//CREATE   EXEC PGM=IEFBR14
//*
//*  CREATE THE PMA PARAMETER FILE.  IF NECESSARY ADD ADDITIONAL
//*  PARAMETERS LIKE BLKSIZE AND VOLSER
//*
//PARM     DD DISP=(NEW,CATLG),
//          DSN=CAMAT.PMA.PARMS,
//          SPACE=(CYL,(1,1)),
//          DCB=(RECFM=FB,LRECL=80,DSORG=PS),
//          UNIT=SYSDA,
//*****BLKSIZE=A-VALID-LRECL-80-BLOCKSIZE
//          VOL=SER=VOL001
//*
//*****
//*  WRITE PMA CUSTOMIZATION NOTIFICATION MESSAGE
//*****
//*
//NOTIFY   EXEC PGM=IEBGENER,COND=(0,NE)
//SYSUT1   DD DISP=SHR,
//          DSN=CAMAT.PMA.CUST(CUST$JOB)
//          DD *
2011/02/22 04:39 #2 CUSTJT02  CREATE PMA PARM DATA SET - SUCCESSFUL
//SYSUT2   DD DISP=SHR,
//          DSN=CAMAT.PMA.CUST(CUST$JOB)
//SYSIN    DD DUMMY
//SYSPRINT DD SYSOUT=*
```

2. Submit the job to start the creation of the new parameter file.

After the new parameter file is created, depending on the chosen option, either the default parameter or the parameter from a previous version is written to the new file.

3. Press Enter to exit the job display.

After the successful execution of job CUSTJT02, Step 2 is marked as **COMPLETED**, as shown following, and you can continue with Step 3.

CUSTPT00 ----- PMA V90 Customization Dialog -----	
COMMAND ==> 3	
Step	Status
2 Create PMA Parameter Data Set	COMPLETED

Step 3 – Specify Operational Defaults

After selecting Step 3, the following panel is displayed.

CUSTPT03 ----- PMA V90 Customization - Specify operational defaults -----			
COMMAND ==>			
Data set attributes-	PS: UNIT: SYSDA	VOLUME:	SUFFIX:
- PO:	UNIT: SYSDA	VOLUME:	SUFFIX:
- VSAM:	UNIT: SYSDA	VOLUME:	SUFFIX:
- TEMP:	UNIT: SYSDA	VOLUME:	
Blocksize at LRECL=80 : 6160 - 32400, blank if system managed			
SMF Spool GDG Limit No.: 3 03 - 99			
CANCEL: CAN SAVE: ENTER			

1. Enter values for each of the fields listed following.

Data set attributes - PS

Enter the UNIT, VOLUME and SUFFIX specifications used to create the PS (physical sequential) product data sets.

Data set attributes - PO

Enter the UNIT, VOLUME and SUFFIX specifications used to create the PO (partition organized) product data sets.

Data set attributes - VSAM

Enter the UNIT, VOLUME and SUFFIX specifications used to create the VSAM KSDS and RRDS product data sets.

Data set attributes - TEMP

Enter the UNIT and VOLUME information to be used for intermediate files.

Blocksize at LRECL=80

If you are not using a storage management system, you can enter any blocksize between 6160 and 32400, provided it is a multiple of 80.

SMF Spool GDG Limit No.

Enter the number of generations to keep for the SMF spool file. A minimum of 3 is required; 99 is the maximum value. The default is 3.

2. Choose one of the following actions:

- Press Enter to save the entered values.

Step 3 is marked as **COMPLETED**, as shown following, and you can continue with Step 4.

CUSTPT00 ----- PMA V90 Customization Dialog -----	
COMMAND ==> 4	
Step	Status
3 Specify operational defaults	COMPLETED

- Specify **CANCEL** to go back to the Customization Main Menu without saving any entered value.

The status of Step 3 stays **NOT COMPLETED**.

Step 4 – Verify Target Data Set Names

After selecting Step 4, the following panel displays.

```

CUSTPT04 ---- PMA V90 Customization - Verify PMA Target DS Names -----
COMMAND ==>

Please verify the names of the PMA Target Data Set Names:

REXX Library      (P0) : CAMAT.PMA.CEETEXEC
Panel Library     (P0) : CAMAT.PMA.CEETPENU
Message Library   (P0) : CAMAT.PMA.CEETMENU
LOAD Library      (P0) : CAMAT.PMA.CEETLOAD
AUTH Load Library (P0) : CAMAT.PMA.CEETAUTH
HELP Library      (P0) : CAMAT.PMA.CEETHELP

CANCEL: CAN  SAVE: ENTER

```

The panel lists the product libraries that are established through the SMP/E installation process.

1. Verify that the correct data set names are listed.

If the listed names are incorrect, type the correct names that the product libraries were created with in this panel.

2. Choose one of the following actions:

- Press Enter to save the entered values. Step 4 is marked as **COMPLETED**, as shown following, and you can continue with Step 5.

```

CUSTPT00 ----- PMA V90 Customization Dialog -----
COMMAND ==> 5
Step                                     Status
-----
4 Verify PMA Target Data Set Names      COMPLETED

```

- Specify **CANCEL** to go back to the Customization Main Menu without saving any entered value. The status of Step 4 stays **NOT COMPLETED**.

Step 5 – Verify User Data Set Names

After selecting Step 5, the following panel is displayed.

```

CUSTPT05 ----- PMA V90 Customization - Verify PMA User DS Names-----
COMMAND ==>

Please verify the names of the PMA User Data Sets:

User EXEC DSN      (PS) : CAMAT.PMA.EXEC
User CNTL DSN      (PS) : CAMAT.PMA.CNTL
ADD Request DSN    (PS) : CAMAT.PMA.ADDRQ
DEL Request DSN    (PS) : CAMAT.PMA.DELRQ
DELTOM Request DSN (PS) : CAMAT.PMA.DELRQTOM
Batch Log DSN      (PS) : CAMAT.PMA.LOG
DEL Req. DSN CICS  (PS) : CAMAT.PMA.CICRQ
DEL Req. DSN IMS   (PS) : CAMAT.PMA.IMSRQ
SMF Spool GDG DSN  (PS) : CAMAT.PMA.SPLGDG
SMF Spool Work DSN (PS) : CAMAT.PMA.SPLWRK
SMF Spool DSCB DSN (PS) : CAMAT.PMA.SPLDSCB
Server DM Work DSN (PDS): CAMAT.PMA.DMDS

      CANCEL: CAN   SAVE: ENTER

```

This panel provides suggested names for the work data sets.

1. Review the list of suggested names and make any desired changes.
2. Choose one of the following actions:
 - Press Enter to save the entered values. Step 5 is marked as **COMPLETED**, as shown following, and you can continue with Step 6.

```

CUSTPT00 ----- PMA V90 Customization Dialog -----
COMMAND ==> 6
      Step                                     Status
      -----
      5 Verify PMA User Data Set Names         COMPLETED

```

- Specify **CANCEL** to go back to the Customization Main Menu without saving any entered value. The status of Step 5 stays **NOT COMPLETED**.

Step 6 – Verify Data Cluster Names

After selecting Step 6, the following panel is displayed. Verify Data Cluster Names panel

```

CUSTPT06 ----- PMA V90 Customization - Verify PMA Data Cluster Names -----
COMMAND ==>

Please verify the names of the PMA VSAM Data Cluster:

JOB Job Informations      (KSDS): CAMAT.PMA.KSDSJOB
ALT Alert Informations    (KSDS): CAMAT.PMA.KSDSALT
LMO Batch Module Data     (KSDS): CAMAT.PMA.KSDSLMO
EXC In/Exclude Def.      (KSDS): CAMAT.PMA.KSDSEXC
PRO Batch Meas. Data     (KSDS): CAMAT.PMA.KSDSPRO
BPM Batch Listing Mgmt.   (KSDS): CAMAT.PMA.KSDSBPM
CSC Server Communication  (KSDS): CAMAT.PMA.KSDSCSC
SQL SQL Statement Text    (KSDS): CAMAT.PMA.KSDSSQL
CIC CICS Meas. Data      (KSDS): CAMAT.PMA.KSDSCIC
CPP CICS Meas. Listing    (RRDS): CAMAT.PMA.RRDSCPP
CMO CICS Module Data      (KSDS): CAMAT.PMA.KSDSCMO
IMS IMS Meas. Data       (KSDS): CAMAT.PMA.KSDSIMS
IPP IMS Meas. Listing     (RRDS): CAMAT.PMA.RRDSIPP
DIC CICS/IMS Dictionary   (KSDS): CAMAT.PMA.KSDSDIC
CST CICS/IMS Tran. Data   (KSDS): CAMAT.PMA.KSDSCST

CANCEL: CAN   SAVE: ENTER

```

This panel provides suggested names for the KSDS and RRDS data cluster.

1. Review the list of suggested names and make any desired changes.
2. Choose one of the following actions:
 - Press Enter to save the entered values. Step 6 is marked as **COMPLETED**, as shown following, and you can continue with Step 7.

```

CUSTPT00 ----- PMA V90 Customization Dialog -----
COMMAND ==> 7

Step                                     Status
-----
6 Verify PMA Data Cluster Names         COMPLETED

```

- Specify **CANCEL** to go back to the Customization Main Menu without saving any entered value. The status of Step 6 stays **NOT COMPLETED**.

Step 7 – Create User Data Sets

After selecting Step 7, the CUSTJT07 job to create work data sets is displayed.

```
//JOBNAME JOB(ACCOUNT), 'PMA', CLASS=A,
//          MSGLEVEL=(1,1),MSGCLASS=H, NOTIFY=&SYSUID, REGION=0M
//*
//*
//*****
//* CUSTJT07:  CREATE PMA USER DATA SETS                                *
//*                                                    *
//*
//* COPYRIGHT (C) 2012 CA. ALL RIGHTS RESERVED.
//* COPYRIGHT (C) TRILOG AG.
//*****
//*
//*****
//*      CREATE PMA USER EXEC LIBRARY
//*****
//APCEXEC EXEC PGM=IEFBR14
//EXEC    DD DISP=(NEW,CATLG),
//          DSN=CAMAT.PMA.EXEC,
//          SPACE=(TRK,(1,2,5)),
//          DCB=(RECFM=FB,LRECL=80),
//          UNIT=SYSDA,VOL=SER=VOL001
//*|
//*****
//*      CREATE PMA USER CNTL LIBRARY
//*****
//APCNTL EXEC PGM=IEFBR14
//CNTL    DD DISP=(NEW,CATLG),
//          DSN=CAMAT.PMA.CNTL,
//          SPACE=(CYL,(1,1,30)),
//          DCB=(RECFM=FB,LRECL=80),
//          UNIT=SYSDA,VOL=SER=VOL001
//*
//*****
//*      CREATE PMA BATCH MEASUREMENT INVOKE REQUEST FILE
//*****
//APCADDRQ EXEC PGM=IEFBR14
//NEW     DD DISP=(NEW,CATLG),
//          DSN=CAMAT.PMA.ADDRQ,
//          UNIT=SYSDA,SPACE=(CYL,(1,2)),
//          VOL=SER=VOL001,
//          DCB=(DSORG=PS,LRECL=80,RECFM=FB)
//*
```



```

//*****
//*      CREATE PMA BATCH MEASUREMENT INVOKE DELETE LAST REQUEST FILE
//*****
//APCDELQ EXEC PGM=IEFBR14
//NEW      DD DISP=(NEW,CATLG),
//          DSN=CAMAT.PMA.DELRQ,
//          UNIT=SYSDA,SPACE=(CYL,(1,2)),
//          VOL=SER=VOL001,
//          DCB=(DSORG=PS,LRECL=80,RECFM=FB)
//*
//*****
//*      CREATE PMA BATCH MEASUREMENT INVOKE DELETE NEW REQUEST FILE
//*****
//APCDQTM EXEC PGM=IEBGENER
//SYSIN    DD DUMMY
//SYSPRINT DD SYSOUT=*
//SYSUT1   DD DISP=SHR,
//          DSN=CAMAT.PMA.CEETSAMP(CUSTBLAN)
//SYSUT2   DD DISP=(NEW,CATLG),
//          DSN=CAMAT.PMA.DELRQTM,
//          UNIT=SYSDA,SPACE=(CYL,(1,2)),
//          VOL=SER=VOL001,
//          DCB=(DSORG=PS,LRECL=80,RECFM=FB)
//*
//*****
//*      CREATE PMA CICS MEASUREMENT INVOKE DELETE LAST REQUEST FILE
//*****
//APCCICDQ EXEC PGM=IEFBR14
//NEW      DD DISP=(NEW,CATLG),
//          DSN=CAMAT.PMA.CICRQ,
//          UNIT=SYSDA,SPACE=(CYL,(1,2)),
//          VOL=SER=VOL001,
//          DCB=(DSORG=PS,LRECL=80,RECFM=FB)
//*
//*****
//*      CREATE PMA IMS MEASUREMENT INVOKE DELETE LAST REQUEST FILE
//*****
//APCIMSDQ EXEC PGM=IEFBR14
//NEW      DD DISP=(NEW,CATLG),
//          DSN=CAMAT.PMA.IMSRQ,
//          UNIT=SYSDA,SPACE=(CYL,(1,2)),
//          VOL=SER=VOL001,
//          DCB=(DSORG=PS,LRECL=80,RECFM=FB)
//

```

```

//*****
//*      CREATE PMA BATCH JOB LOG FILE
//*****
//APCLOG  EXEC PGM=IEBGENER
//SYSIN   DD DUMMY
//SYSPRINT DD SYSOUT=*
//SYSUT1  DD DISP=SHR,
//          DSN=CAMAT.PMA.CEETSAMP(CUSTBLAN)
//SYSUT2  DD DISP=(NEW,CATLG),
//          DSN=CAMAT.PMA.LOG,
//          UNIT=SYSDA,SPACE=(CYL,(1,2)),
//          VOL=SER=VOL001,
//          DCB=(DSORG=PS,LRECL=80,RECFM=FB)
//*
//*****
//*      CREATE PMA SMF SPOOL GDG BASE ENTRY
//*****
//APCGDG  EXEC PGM=IDCAMS
//SYSPRINT DD SYSOUT=*
//SYSIN   DD *
        DEFINE GENERATIONDATAGROUP -
            (NAME(CAMAT.PMA.SPLGDG) -
             NOEMPTY -
             SCRATCH -
             LIMIT(3))
//*
//*-----*
//*      CREATE FIRST PMA SMF SPOOL FILE
//*-----*
//STEP0   EXEC PGM=IEBGENER
//SYSUT1  DD DUMMY,
//          DCB=(RECFM=FB,LRECL=360,BLKSIZE=30600)
//SYSUT2  DD DSN=CAMAT.PMA.SPLGDG(+1),
//          DISP=(NEW,CATLG,DELETE),
//          SPACE=(TRK,(1)),UNIT=SYSDA,
//          VOL=SER=VOL001,
//          DCB=(DSORG=PS,RECFM=FB,LRECL=360,BLKSIZE=30600)
//SYSPRINT DD SYSOUT=*
//SYSIN   DD DUMMY
//*
//*****
//*      CREATE PMA SMF SPOOL WORK DATASET
//*****
//APCWRK  EXEC PGM=IEFBR14
//DSCBMOD DD DISP=(NEW,CATLG),
//          DSN=CAMAT.PMA.SPLWRK,
//          UNIT=SYSDA,SPACE=(TRK,(5,1)),
//          VOL=SER=VOL001,
//          DCB=(DSORG=PS,LRECL=80,RECFM=FB)
//*

```

```

//*
//*****
//*      CREATE PMA SMF SPOOL MODEL DSCB ENTRY
//*****
//APCDSCB EXEC PGM=IEFBR14
//DSCBMOD DD DISP=(NEW,CATLG),
//          DSN=CAMAT.PMA.SPLDSCB,
//          UNIT=SYSDA,SPACE=(TRK,0),
//          VOL=SER=VOL001,
//          DCB=(DSORG=PS,RECFM=FB,LRECL=400,BLKSIZE=30800)
//*
//*-----
//*      ALLOC AND INIT THE PMA SERVER DMDS FILE
//*-----
//DMDSALOC EXEC PGM=IEFBR14
//PDSDEF DD DSN=CAMAT.PMA.DMDS,
//         DISP=(,CATLG),UNIT=SYSDA,
//         DCB=(RECFM=F,LRECL=25600,BLKSIZE=25600),
//         VOL=SER=VOL001,
//         SPACE=(25600,(180,40,20))
//*
//DMDSINIT EXEC PGM=IEBDG
//SYSPRINT DD SYSOUT=*
//SEQOUT DD DISP=SHR,DSN=CAMAT.PMA.DMDS(S001)
//SYSIN DD *
//          DSD OUTPUT=(SEQOUT)
//          CREATE QUANTITY=5,FILL=X'00'
//*
//*-----
//*      CREATE PMA SERVER DMDS COMMUNICATION MEMBER
//*-----
//DMDSCOPY EXEC PGM=IEBCOPY
//SYSPRINT DD SYSOUT=*
//I DD DISP=SHR,DSN=CAMAT.PMA.DMDS
//O DD DISP=SHR,DSN=CAMAT.PMA.DMDS
//SYSIN DD *
//          COPY I=I,0=0
//          SELECT MEMBER=((S001,S002,R))
//          COPY I=I,0=0
//          SELECT MEMBER=((S002,S003,R))
//          COPY I=I,0=0
//          SELECT MEMBER=((S003,S004,R))
//          COPY I=I,0=0
//          SELECT MEMBER=((S004,S005,R))
//          COPY I=I,0=0
//          SELECT MEMBER=((S005,S006,R))
//          COPY I=I,0=0
//          SELECT MEMBER=((S006,S007,R))
//          COPY I=I,0=0
//          SELECT MEMBER=((S007,S008,R))
//          COPY I=I,0=0
//          SELECT MEMBER=((S008,S009,R))
//          COPY I=I,0=0
//          SELECT MEMBER=((S009,S010,R))
//          COPY I=I,0=0
//          SELECT MEMBER=((S010,S011,R))
//          COPY I=I,0=0

```

```

        SELECT MEMBER=( (S011,S012,R) )
COPY I=I,0=0
        SELECT MEMBER=( (S012,S013,R) )
COPY I=I,0=0
        SELECT MEMBER=( (S013,S014,R) )
COPY I=I,0=0
        SELECT MEMBER=( (S014,S015,R) )
COPY I=I,0=0
        SELECT MEMBER=( (S015,S016,R) )
COPY I=I,0=0
        SELECT MEMBER=( (S016,S017,R) )
COPY I=I,0=0
        SELECT MEMBER=( (S017,S018,R) )
COPY I=I,0=0
        SELECT MEMBER=( (S018,S019,R) )
COPY I=I,0=0
        SELECT MEMBER=( (S019,S020,R) )
COPY I=I,0=0
        SELECT MEMBER=( (S020,S021,R) )
COPY I=I,0=0
        SELECT MEMBER=( (S021,S022,R) )
COPY I=I,0=0
        SELECT MEMBER=( (S022,S023,R) )
COPY I=I,0=0
        SELECT MEMBER=( (S023,S024,R) )
COPY I=I,0=0
        SELECT MEMBER=( (S024,S025,R) )
COPY I=I,0=0
        SELECT MEMBER=( (S025,S026,R) )
COPY I=I,0=0
        SELECT MEMBER=( (S026,S027,R) )
COPY I=I,0=0
        SELECT MEMBER=( (S027,S028,R) )
COPY I=I,0=0
        SELECT MEMBER=( (S028,S029,R) )
COPY I=I,0=0
        SELECT MEMBER=( (S029,S030,R) )
COPY I=I,0=0
        SELECT MEMBER=( (S030,S031,R) )
COPY I=I,0=0
        SELECT MEMBER=( (S031,S032,R) )
/*
/*

//*****
//*      WRITE PMA CUSTOMIZATION NOTIFICATION MESSAGE
//*****
//*
//NOTIFY   EXEC PGM=IEBGENER,COND=(0,NE)
//SYSUT1   DD DISP=SHR,
//          DSN=CAMAT.PMA.CUST(CUST$JOB)
//          DD *
2011/02/22 07:35 #7 QJSTJT07   CREATE PMA USER DATA SETS - SUCCESSFUL
//SYSUT2   DD DISP=SHR,
//          DSN=CAMAT.PMA.CUST(CUST$JOB)
//SYSIN     DD DUMMY
//SYSPRINT DD SYSOUT=*

```

1. Review the JCL in the CUSTJT07 job.
2. Choose one of the following actions:
 - Submit the job to start the creation of the work data sets. After the job has finished, press Enter to leave the job display.

After the successful execution of job CUSTJT07, Step 7 is marked as **COMPLETED**, as shown following, and you can continue with Step 8.

CUSTPT00 ----- PMA V90 Customization Dialog -----	
COMMAND ==> 8	
Step	Status
7 Create PMA User Data Sets	COMPLETED

- Specify **CANCEL** to go back to the Customization Main Menu without saving any entered value. The status of Step 7 stays **NOT COMPLETED**.

Step 8 – Create the Data Cluster

After selecting Step 8, the VSAM definition members for the data cluster creation process are generated and saved in the CNTL library, as shown following.

```
CAMAT.PMA.CNTL(DEDEFAULT) GENERATED
CAMAT.PMA.CNTL(DEDEFBPM) GENERATED
CAMAT.PMA.CNTL(DEDEFCIC) GENERATED
CAMAT.PMA.CNTL(DEDEFQMO) GENERATED
CAMAT.PMA.CNTL(DEDEFQPP) GENERATED
CAMAT.PMA.CNTL(DEDEFCSC) GENERATED
CAMAT.PMA.CNTL(DEDEFCST) GENERATED
CAMAT.PMA.CNTL(DEDEFDIC) GENERATED
CAMAT.PMA.CNTL(DEDEFEXC) GENERATED
CAMAT.PMA.CNTL(DEDEFIMO) GENERATED
CAMAT.PMA.CNTL(DEDEFIMS) GENERATED
CAMAT.PMA.CNTL(DEDEFIPP) GENERATED
CAMAT.PMA.CNTL(DEDEFJOB) GENERATED
CAMAT.PMA.CNTL(DEDEFQMO) GENERATED
CAMAT.PMA.CNTL(DEDEFQPP) GENERATED
CAMAT.PMA.CNTL(DEDEFSQL) GENERATED
CAMAT.PMA.CNTL(DEFINALT) GENERATED
CAMAT.PMA.CNTL(DEFINBPM) GENERATED
CAMAT.PMA.CNTL(DEFINCIC) GENERATED
CAMAT.PMA.CNTL(DEFINQMO) GENERATED
CAMAT.PMA.CNTL(DEFINQPP) GENERATED
CAMAT.PMA.CNTL(DEFINCSC) GENERATED
CAMAT.PMA.CNTL(DEFINCST) GENERATED
CAMAT.PMA.CNTL(DEFINDIC) GENERATED
CAMAT.PMA.CNTL(DEFINEXC) GENERATED
CAMAT.PMA.CNTL(DEFINIMO) GENERATED
CAMAT.PMA.CNTL(DEFINIMS) GENERATED
CAMAT.PMA.CNTL(DEFINIPP) GENERATED
CAMAT.PMA.CNTL(DEFINJOB) GENERATED
CAMAT.PMA.CNTL(DEFINLMO) GENERATED
CAMAT.PMA.CNTL(DEFINPRO) GENERATED
CAMAT.PMA.CNTL(DEFINSQL) GENERATED
CAMAT.PMA.CNTL(REPROALT) GENERATED
CAMAT.PMA.CNTL(REPROBPM) GENERATED
CAMAT.PMA.CNTL(REPROCIC) GENERATED
CAMAT.PMA.CNTL(REPROQMO) GENERATED
CAMAT.PMA.CNTL(REPROCPP) GENERATED
CAMAT.PMA.CNTL(REPROCST) GENERATED
CAMAT.PMA.CNTL(REPRODIC) GENERATED
CAMAT.PMA.CNTL(REPROEXC) GENERATED
CAMAT.PMA.CNTL(REPROIMO) GENERATED
CAMAT.PMA.CNTL(REPROIMS) GENERATED
CAMAT.PMA.CNTL(REPROIPP) GENERATED
CAMAT.PMA.CNTL(REPROJOB) GENERATED
CAMAT.PMA.CNTL(REPROLMO) GENERATED
CAMAT.PMA.CNTL(REPROPRO) GENERATED
CAMAT.PMA.CNTL(REPROSQL) GENERATED
***
```

1. When all CNTL members are generated, press Enter to display the CUSTJT08 job to create the data cluster.

```
//JOBNAME JOB(ACCOUNT), 'PMA', CLASS=A,
//          MSGLEVEL=(1,1), MSGCLASS=H, NOTIFY=&SYSUID, REGION=0M
//*
//*
//*****
//* CUSTJT08:  CREATE PMA DATA CLUSTER                      *
//* =====                                           *
//*                                           *
//* COPYRIGHT (C) 2012 CA. ALL RIGHTS RESERVED.          *
//* COPYRIGHT (C) TRILOG AG.                             *
//*                                           *
//*****
//*****
//*      CREATE TEMP FILES
//*****
//CREATE   EXEC   PGM=APCBAB24
//STEPLIB DD DISP=SHR,
//          DSN=CAMAT.PMA.CEETLOAD
//BLANK24 DD DSN=&&BLANK24, DISP=(NEW, PASS),
//          UNIT=SYSDA,
//          VOL=SER=VOL001,
//          SPACE=(TRK, (1,1))
//*****
//*      CREATE PMA ALERT CLUSTER
//*****
//APCALT  EXEC   PGM=IDCAMS
//SYSPRINT DD SYSOUT=*
//TEMP    DD DISP=SHR, DSN=CAMAT.PMA.CEETSAMP(CUSTNULL)
//SYSIN    DD DISP=SHR, DSN=CAMAT.PMA.CNTL(DEFINALT)
//          DD DISP=SHR, DSN=CAMAT.PMA.CNTL(REPROALT)
//*****
//*      CREATE PMA BATCH PROFILE MANAGEMENT CLUSTER
//*****
//APCBPM  EXEC   PGM=IDCAMS
//SYSPRINT DD SYSOUT=*
//TEMP    DD DISP=SHR, DSN=CAMAT.PMA.CEETSAMP(CUSTNULL)
//SYSIN    DD DISP=SHR, DSN=CAMAT.PMA.CNTL(DEFINBPM)
//          DD DISP=SHR, DSN=CAMAT.PMA.CNTL(REPROBPM)
//*
```

```

//*****
//*   CREATE PMA SQL STATEMENT CLUSTER
//*****
//APCSQL EXEC PGM=IDCAMS
//SYSPRINT DD SYSOUT=*
//TEMP     DD DISP=SHR,DSN=CAMAT.PMA.CEETSAMP(CUSTNULL)
//SYSIN     DD DISP=SHR,DSN=CAMAT.PMA.CNTL(DEFINSQL)
//         DD DISP=SHR,DSN=CAMAT.PMA.CNTL(REPROSQL)
//*
//*****
//*   CREATE PMA CICS MEASUREMENT DATA CLUSTER
//*****
//APCCIC EXEC PGM=IDCAMS
//SYSPRINT DD SYSOUT=*
//TEMP     DD DISP=SHR,DSN=CAMAT.PMA.CEETSAMP(CUSTNULL)
//SYSIN     DD DISP=SHR,DSN=CAMAT.PMA.CNTL(DEFINCIC)
//         DD DISP=SHR,DSN=CAMAT.PMA.CNTL(REPROCIC)
//*
//*****
//*   CREATE PMA CICS MEASUREMENT LISTING CLUSTER
//*****
//APCCPP EXEC PGM=IDCAMS
//SYSPRINT DD SYSOUT=*
//SYSIN     DD DISP=SHR,DSN=CAMAT.PMA.CNTL(DEFINCPP)
//*
//*****
//*   CREATE PMA SCOPE DEFINITION CLUSTER (IN/EXCLUSIONS)
//*****
//APCEXC EXEC PGM=IDCAMS
//SYSPRINT DD SYSOUT=*
//TEMP     DD DISP=SHR,DSN=CAMAT.PMA.CEETSAMP(CUSTINEX)
//SYSIN     DD DISP=SHR,DSN=CAMAT.PMA.CNTL(DEFINEXC)
//         DD DISP=SHR,DSN=CAMAT.PMA.CNTL(REPROEXC)
//*
//*****
//*   CREATE PMA IMS MEASUREMENT LISTING CLUSTER
//*****
//APCIMS EXEC PGM=IDCAMS
//SYSPRINT DD SYSOUT=*
//TEMP     DD DISP=SHR,DSN=CAMAT.PMA.CEETSAMP(CUSTNULL)
//SYSIN     DD DISP=SHR,DSN=CAMAT.PMA.CNTL(DEFINIMS)
//         DD DISP=SHR,DSN=CAMAT.PMA.CNTL(REPROIMS)
//*

```



```

//*****
//*      CREATE PMA IMS MEASUREMENT LISTING CLUSTER
//*****
//APCIPP EXEC PGM=IDCAMS
//SYSPRINT DD SYSOUT=*
//SYSIN    DD DISP=SHR,DSN=CAMAT.PMA.CNTL(DEFINIPP)
//*
//*****
//*      CREATE PMA JOB INFORMATION CLUSTER
//*****
//APCJOB EXEC PGM=IDCAMS
//SYSPRINT DD SYSOUT=*
//TEMP     DD DISP=SHR,DSN=CAMAT.PMA.CEETSAMP(CUSTBLAN)
//SYSIN     DD DISP=SHR,DSN=CAMAT.PMA.CNTL(DEFINJOB)
//         DD DISP=SHR,DSN=CAMAT.PMA.CNTL(REPROJOB)
//*
//*****
//*      CREATE PMA LOAD MODULE INFORMATION CLUSTER
//*****
//APCLM0 EXEC PGM=IDCAMS
//SYSPRINT DD SYSOUT=*
//TEMP     DD DISP=(OLD,PASS),DSN=&&BLANK24
//SYSIN     DD DISP=SHR,DSN=CAMAT.PMA.CNTL(DEFINLM0)
//         DD DISP=SHR,DSN=CAMAT.PMA.CNTL(REPROLM0)
//*
//*****
//*      CREATE PMA CICS LOAD MODULE INFORMATION CLUSTER
//*****
//APCCM0 EXEC PGM=IDCAMS
//SYSPRINT DD SYSOUT=*
//TEMP     DD DISP=(OLD,PASS),DSN=&&BLANK24
//SYSIN     DD DISP=SHR,DSN=CAMAT.PMA.CNTL(DEFINCM0)
//         DD DISP=SHR,DSN=CAMAT.PMA.CNTL(REPROCM0)
//*
//*****
//*      CREATE PMA IMS LOAD MODULE INFORMATION CLUSTER
//*****
//APCIM0 EXEC PGM=IDCAMS
//SYSPRINT DD SYSOUT=*
//TEMP     DD DISP=(OLD,PASS),DSN=&&BLANK24
//SYSIN     DD DISP=SHR,DSN=CAMAT.PMA.CNTL(DEFINIM0)
//         DD DISP=SHR,DSN=CAMAT.PMA.CNTL(REPROIM0)
//

```

```
//*****
//*      CREATE PMA BATCH MEASUREMENT EXTRACT CLUSTER
//*****
//APCPR0 EXEC PGM=IDCAMS
//SYSPRINT DD SYSOUT=*
//TEMP      DD DISP=SHR,DSN=CAMAT.PMA.CEETSAMP(CUSTNULL)
//SYSIN      DD DISP=SHR,DSN=CAMAT.PMA.CNTL(DEFINPRO)
//          DD DISP=SHR,DSN=CAMAT.PMA.CNTL(REPROPRO)
//*
//*****
//*      CREATE PMA CICS SMF/IMS INFO DICTIONARY CLUSTER
//*****
//APCDIC EXEC PGM=IDCAMS
//SYSPRINT DD SYSOUT=*
//TEMP      DD DISP=SHR,DSN=CAMAT.PMA.CEETSAMP(CUSTNULL)
//SYSIN      DD DISP=SHR,DSN=CAMAT.PMA.CNTL(DEFINDIC)
//          DD DISP=SHR,DSN=CAMAT.PMA.CNTL(REPRODIC)
//*
//*****
//*      CREATE PMA CICS SMF/IMS INFO DATA CLUSTER
//*****
//APCCST EXEC PGM=IDCAMS
//SYSPRINT DD SYSOUT=*
//TEMP      DD DISP=SHR,DSN=CAMAT.PMA.CEETSAMP(CUSTNULL)
//SYSIN      DD DISP=SHR,DSN=CAMAT.PMA.CNTL(DEFINCST)
//          DD DISP=SHR,DSN=CAMAT.PMA.CNTL(REPROCST)
//*
//*****
//*      CREATE PMA SERVER CROSS COMMUNICATION CLUSTER
//*****
//APCCSC EXEC PGM=IDCAMS
//SYSPRINT DD SYSOUT=*
//SYSIN      DD DISP=SHR,DSN=CAMAT.PMA.CNTL(DEFINCSC)
//*
//*------*
//*  LOAD FIRST REC IN PMA      C I C S   P R O F I L E   P O O L *
//*------*
//INIT1 EXEC PGM=APCXAVI0
//STEPLIB DD DISP=SHR,
//        DSN=CAMAT.PMA.CEETLOAD
//APCBIPP1 DD DISP=SHR,
//        DSN=CAMAT.PMA.RRDSCPP
//APCEREP DD SYSOUT=*
//*
```

```

/*-----*
/*  LOAD FIRST REC IN PMA      I M S   P R O F I L E   P O O L  *
/*-----*
//INIT2   EXEC  PGM=APCXAVI0
//STEPLIB DD DISP=SHR,
//          DSN=CAMAT.PMA.CEETLOAD
//APCBIPP1 DD DISP=SHR,
//          DSN=CAMAT.PMA.RRDSIPP
//APCEREP DD SYSOUT=*
/*
/*-----*
/*  LOAD FIRST REC IN PMA      C S C   PMA-SERVER COMPONENT FILE *
/*-----*
//INIT3A   EXEC  PGM=IEBDG
//SYSPRINT DD  SYSOUT=*
//SEQOUT   DD  DSN=&REPIN,UNIT=SYSDA,DISP=(,PASS),
//          DCB=(RECFM=FB,LRECL=108,BLKSIZE=1080),
//          SPACE=(TRK,(1))
//SYSIN    DD  DATA
//          DSD OUTPUT=(SEQOUT)
//          CREATE QUANTITY=1,FILL=X'FF'
//          END
/*
//INIT3B   EXEC  PGM=IDCAMS
//SYSPRINT DD  SYSOUT=*
//IN       DD  DSN=&REPIN,DISP=(OLD,DELETE)
//OUT      DD  DSN=CAMAT.PMA.KSDSCSC,
//          DISP=OLD
//SYSIN    DD  *
//          REPRO INFILE(IN) OUTFILE(OUT)
/*
/*
/******
/*  WRITE PMA CUSTOMIZATION NOTIFICATION MESSAGE
/******
/*
//NOTIFY   EXEC  PGM=IEBGENER,COND=(0,NE)
//SYSUT1   DD DISP=SHR,
//          DSN=CAMAT.PMA.CUST(CUST$JOB)
//          DD *
2011/02/22 07:35 #8 CUSTJT08  CREATE PMA DATA CLUSTER - SUCCESSFUL
//SYSUT2   DD DISP=SHR,
//          DSN=CAMAT.PMA.CUST(CUST$JOB)
//SYSIN    DD DUMMY
//SYSPRINT DD SYSOUT=*

```

1. Review the JCL in the CUSTJT08 job.
2. Choose one of the following actions:
 - Submit the job to start the creation of the data cluster. After the job has finished, press Enter to leave the job display.

After the successful execution of job CUSTJT08, Step 8 is marked as **COMPLETED**, as shown following, and you can continue with Step 9.

CUSTPT00 ----- PMA V90 Customization Dialog -----	
COMMAND ==> 9	
Step	Status
8 Create PMA Data Cluster	COMPLETED

- Specify **CANCEL** to go back to the Customization Main Menu without saving any entered value.

The status of Step 8 stays **NOT COMPLETED**.

Step 9 – Create the Start Exec

After selecting Step 9, the following panel is displayed.

CUSTPT09 ----- PMA V90 Customization - Create PMA Start Exec -----
COMMAND ==>
 The PMA start exec will be generated on the following library:
PMA EXEC Library: CAMAT.PMA.EXEC
 CANCEL: CAN SAVE: ENTER

This panel provides name of the target library for the Start Exec.

1. Review the target library name and make any desired changes.
2. Press Enter to generate the Start Exec member, PMA.

```

----- TRIBM01.SMPE.V850.EXEC(PMA) - 01.00 ----- Columns 001 072
COMMAND ==>                                SCROLL ==> HALF
PMA START EXEC MEMBER [assign the value for pma in your book] GENERATED.
-----
***** ***** Top of Data *****
000001 /* REXX */
000005 X = MSG('OFF')
000006 /* ***** */
000007 /* USER CUSTOMIZATION */
000008 /* ***** */
000009 APCSPACC = 'UPD' /* UPD OR READ */
000010 APCSIMG = 'PMA V90 ' /* MVS IMAGE NAME */
000011 TEMPDSN = ZUSER".APCX.TEMP"ZSCREEN /* PMA TEMP USER DSN */
.

```

3. Change the following start up variables to meet the needs of your site:

APCSPACC

Defines the access rights.

Variable APCSPACC defines whether parameter panels have update or read-only access.

This variable allows the product to be installed for different user groups (update and read only). The installation default is UPD. For read-only access, this value can be changed to READ. The values must be entered as capital letters.

APCSIMG

Defines the system image name.

Variable APCSIMG defines the system image name to be displayed on all panels.

This parameter is required and must be eight characters. It should uniquely identify each environment on which PMA is installed (test or production). For example, if REXX procedure PMA is installed on the production system, the value might be APCPROD meaning this product is on a production system. If you do not want to define a system image name, the value of APCSIMG should be filled with eight dashes (-----).

TEMPDSN

Specifies the temporary data set name.

Variable TEMPDSN is a unique temporary data set name that is used by the dialog. This name should only be changed if there is an explicit need to do so; for example, if you encounter access authority problems.

4. Save the Start Exec member after making your changes.

If you have changed any of these variables, make sure that you **save your changes** before leaving the display.

5. Choose one of the following actions:

- Press Enter to exit the Start Exec member. Step 9 is marked as **COMPLETED**, as shown following, and you can continue with Step 10.

CUSTPT00 ----- PMA V90 Customization Dialog -----	
COMMAND ==> 10	
Step	Status
9 Create PMA Start Exec	COMPLETED

- Specify **CANCEL** to go back to the Customization Main Menu without saving any entered value. The status of Step 9 stays **NOT COMPLETED**.

Step 10 – Create JCL Members and JCL Procs

After selecting Step 10, the panel shown following is displayed.

CUSTPT10 --- PMA V90 Customization - Create PMA JCL Member and JCL Procs -----
COMMAND ==>
 Please provide the following definitions of related products:
 Name of the load library of the measurement product:
DSN: your-measurement-product-load-library
 CANCEL: CAN SAVE: ENTER

This panel requests additional input information for building the JCL members for the batch jobs and Server procedures.

1. Enter the value for the field listed following.

DSN

Specifies the data set name of your measurement product load library.

You can specify **CANCEL** to go back to the Customization Main Menu without saving any entered value. The status of Step 10 stays **NOT COMPLETED**.

2. Press Enter to generate the JCL members for the PMA batch jobs and Server procedures, as shown following.

These members are saved in the PMA CNTL library.

```
CAMAT.PMA.CNTL (APCBCCRI) GENERATED
CAMAT.PMA.CNTL (APCBODAX) GENERATED
CAMAT.PMA.CNTL (APCBCEJEX) GENERATED
CAMAT.PMA.CNTL (APCBONUL) GENERATED
CAMAT.PMA.CNTL (APCCCEXP) GENERATED
CAMAT.PMA.CNTL (APCCCIINV) GENERATED
CAMAT.PMA.CNTL (APCICEXP) GENERATED
CAMAT.PMA.CNTL (APCIJINV) GENERATED
CAMAT.PMA.CNTL (APCKCCPT) GENERATED
CAMAT.PMA.CNTL (APOXCAEX) GENERATED
CAMAT.PMA.CNTL (APOXCREP) GENERATED
CAMAT.PMA.CNTL (APCBJCRI) GENERATED
CAMAT.PMA.CNTL (APCBJDAX) GENERATED
CAMAT.PMA.CNTL (APCBJEXP) GENERATED
CAMAT.PMA.CNTL (APCBJINV) GENERATED
CAMAT.PMA.CNTL (APCBJPRE) GENERATED
CAMAT.PMA.CNTL (APCBJRDR) GENERATED
CAMAT.PMA.CNTL (APCBJREO) GENERATED
CAMAT.PMA.CNTL (APCBJTRM) GENERATED
CAMAT.PMA.CNTL (APCBJTRS) GENERATED
CAMAT.PMA.CNTL (APCCJAPD) GENERATED
CAMAT.PMA.CNTL (APCCJC46) GENERATED
CAMAT.PMA.CNTL (APCCJEXP) GENERATED
CAMAT.PMA.CNTL (APCCJINV) GENERATED
CAMAT.PMA.CNTL (APCCJLIB) GENERATED
CAMAT.PMA.CNTL (APCCJRDR) GENERATED
CAMAT.PMA.CNTL (APCCJSMF) GENERATED
CAMAT.PMA.CNTL (APCCJTRM) GENERATED
CAMAT.PMA.CNTL (APCCJTRS) GENERATED
CAMAT.PMA.CNTL (APCJREO) GENERATED
CAMAT.PMA.CNTL (APCIJAPD) GENERATED
CAMAT.PMA.CNTL (APCIJEXP) GENERATED
CAMAT.PMA.CNTL (APCIJIFU) GENERATED
CAMAT.PMA.CNTL (APCIJINV) GENERATED
CAMAT.PMA.CNTL (APCIJLIB) GENERATED
CAMAT.PMA.CNTL (APCIJM44) GENERATED
```

```

CAMAT.PMA.CNTL (APCIJRDR) GENERATED
CAMAT.PMA.CNTL (APCIJS34) GENERATED
CAMAT.PMA.CNTL (APCIJTRM) GENERATED
CAMAT.PMA.CNTL (APCIJTRS) GENERATED
CAMAT.PMA.CNTL (APCXJCPT) GENERATED
CAMAT.PMA.CNTL (APCSJSIP) GENERATED
CAMAT.PMA.CNTL (APCSJSTC) GENERATED
CAMAT.PMA.CNTL (APOXJAPD) GENERATED
CAMAT.PMA.CNTL (APOXJEBM) GENERATED
CAMAT.PMA.CNTL (APOXJEP3) GENERATED
CAMAT.PMA.CNTL (APOXJEP4) GENERATED
CAMAT.PMA.CNTL (APOXJEXP) GENERATED
CAMAT.PMA.CNTL (APOXJINV) GENERATED
CAMAT.PMA.CNTL (APOXJLIB) GENERATED
CAMAT.PMA.CNTL (APOXJRDR) GENERATED
CAMAT.PMA.CNTL (APOXJREO) GENERATED
CAMAT.PMA.CNTL (APOXJSMF) GENERATED
CAMAT.PMA.CNTL (APOXJTRM) GENERATED
CAMAT.PMA.CNTL (APOXJTRS) GENERATED
CAMAT.PMA.CNTL (APCYJLNA) GENERATED
CAMAT.PMA.CNTL (APCYJLST) GENERATED
CAMAT.PMA.CNTL (APCYJNAR) GENERATED
CAMAT.PMA.CNTL (APCYJNAS) GENERATED
CAMAT.PMA.CNTL (APCYJSUB) GENERATED
***

```

3. Press Enter to save the generated JCL members in the CNTL library.

Step 10 is marked as **COMPLETED**, as shown following, and you can continue with Step 11.

```

CUSTPT00 ----- PMA V90 Customization Dialog -----
COMMAND ==> 11

Step                                     Status
-----
10 Create PMA JCL Member and JCL Procs    COMPLETED

```


Step 11 – Customize Measurement Product Interface

After selecting Step 11, the REXX EXEC, APCXRTUN, displays:

```

/* REXX */
/*-----*/
/* Copyright (C) 2012 CA. All Rights Reserved.      */
/* Copyright (C) Trilog AG.                          */
/*-----*/
X = MSG('OFF')
PARSE ARG MATPARM

/***** START OF CUSTOMIZABLE AREA *****/

/*-----*/
/* DEFINE CA MAT TSO CLIENT START REXX :              */
/*-----*/
/* CHANGE -CAMAT- TO THE NAME OF YOUR CA MAT TSO CLIENT */
/* START REXX EXEC (CREATED THRU CA MAT CUSTOMIZATION STEP 8) */
/*-----*/
MATTSO = "CAMAT"

/*-----*/
/* DEFINE THE LIBRARY THE MAT TSO CLIENT START REXX RESIDES: */
/*-----*/

/* THEN DEFINE *SYS* AS VALUE FOR VARIABLE MATLIB          */
/*-----*/
/* IF THE LIBRARY IS NOT IN YOUR SYSPROC OR SYSEXEC        */
/* CONCATENATION THEN ASSIGN THE DATASET NAME OF THE LIBRARY */
/* CONTAINING THE CA MAT TSO CLIENT START REXX TO VARIABLE  */
/* MATLIB.                                                    */
/*-----*/
MATLIB = "*SYS*"
/* MATLIB = "DSN.WITH.MAT.TSO.CLIENT.START.EXEC" */

/***** END OF CUSTOMIZABLE AREA *****/

```

The APCXRTUN REXX EXEC is used for interface calls to CA Mainframe Application Tuner, to start the ISPF dialog from the Main Menu, or to start the Analyze function from the Alert or Measurement list.

For more information about the creation of the TSO Client REXX exec, see the *Installation Guide*, Customization chapter, Step 8 Create the EXECs for Starting the TSO Client.

Use the following procedure to enable APCXRTUN for interface calls to CA Mainframe Application Tuner.

Follow these steps:

1. Change the assignment of the MATTSO variable to the name of the TSO Client REXX exec.

2. Change the assignment of the MATLIB variable to the name of the library the TSO Client REXX exec was saved on. If the TSO Client REXX exec was saved on a library that is part of the SYSPROC or SYSEXEC concatenation, you only need to assign the special value SYS to the variable MATLIB.
3. Choose one of the following actions:

- Press the END key to save your changes and exit the member.

Step 11 is marked as COMPLETED, as shown following, and you can continue with Step 12. The mandatory part of the customization has been finished with the completion of step 11.

CUSTPT00 ----- PMA V90 Customization Dialog -----	
COMMAND ==> 12	
Step	Status
11 Customize Measurement Product Interface	COMPLETED

- Specify **CANCEL** to go back to the Customization Main Menu without saving your changes.

The status of Step 11 stays **NOT COMPLETED**.

Step 11 is a mandatory customization step. If you have canceled this step you need to finish this step at a later time, but it is required to complete this step before you start using the Performance Management Assistant.

If you want to use data from a previous environment, continue with the next step, Step 12.

After finishing the guided customization process, you still need to assign authorization to the CAMAT.PMA.CEETAUTH library.

See Assigning APF authorization to the Authorization Library.

Step 12 – Upgrade

After selecting Step 12, the following panel is displayed.

```

CUSTPT12 ----- PMA V90 Customization - Upgrade-----
COMMAND ==>

In case of an upgrade, enter the release number, e.g. 85 for release 8.5
or 46 for release 4.6.

The upgrade to version 9.0 is possible with:

Release          ID
PMA 8.5          85
APC 4.6          46
APC 4.5.0        450
APC 4.4.3        443
APC 4.4.2        442

PMA upgrading from release: ???

CANCEL: CAN  SAVE: ENTER

```

With version 4.5, the record layout of the JOB KSDS, CICS KSDS, and IMS KSDS has completely changed to provide more information. With version 4.6, the record layout of the DIC KSDS and CST KSDS has changed. Depending on the version that you have formerly used, it is necessary to execute the corresponding upgrade job to convert the data into the new data structures if you want to use your previous data. The data upgrade to 9.0 can be done from versions 4.4.2, 4.4.3, 4.5.0, and 4.6.

Follow these steps:

1. Type your previous version number in the **COMMAND** line and press Enter.

The JCL of the corresponding upgrade job for the version number that you entered is displayed.

The following sections in this chapter show JCL samples for the upgrade jobs from each of the previous versions:

- Upgrade from release 8.5
- Upgrade from version 4.6
- Upgrade from version 4.5
- Upgrade from version 4.4.2 or 4.4.3
- Upgrade from a version previous to 4.4.2

You can specify **CANCEL** to go back to the Customization Main Menu without saving any entered value. The status of Step 11 stays **NOT COMPLETED**.

2. Adjust the data set names of the VSAM clusters of the previous version.

3. Submit the job.

After the successful execution of the upgrade job, Step 12 is marked as **COMPLETED**.

CUSTPT00 ----- PMA V90 Customization Dialog -----	
COMMAND ==>	
Step	Status
12 Upgrade	COMPLETED

Upgrade from Version 8.5

If you enter release85, the JCL of job CUSTJ85 is displayed.

```

//*****
//* CUSTJ85:   COPY/CONVERT PMA VSAM CLUSTER          *
//* =====   FROM RELEASE 8.5   TO VERSION 9.0      *
//*                                                    *
//* ACTION: REPLACE ALL YOUR.PMA85.ENV              *
//* =====   WITH THE PREFIX OF YOUR PMA 8.5 ENVIRONMENT *
//*                                                    *
//*-----*
//* COPYRIGHT (C) 2012 CA. ALL RIGHTS RESERVED.      *
//* COPYRIGHT (C) TRILOG AG.                          *
//*****
//*
//*****
//*   CREATE REPRO FILES
//*****
//CRE1      EXEC PGM=IEFBR14
//TEMPKSDS DD DSN=CAMAT.PMA.REPKSDS,
//           DISP=(NEW,CATLG),
//           DCB=(LRECL=8189,RECFM=VB,BLKSIZE=8193),
//           SPACE=(CYL,(150,300)),
//           UNIT=SYSDA,
//           VOL=SER=OSI025
//TEMPRDS DD DSN=CAMAT.PMA.REPRDS,
//           DISP=(NEW,CATLG),
//           DCB=(LRECL=8160,RECFM=FB,BLKSIZE=8160),
//           SPACE=(CYL,(150,300)),
//           UNIT=SYSDA,
//           VOL=SER=OSI025
//*
//*****
//*   COPY EXCLUSION CLUSTER -KSDSEXC-
//*****
//EXC1      EXEC PGM=IDCAMS,COND=(0,NE)
//SYSPRINT DD SYSOUT=*
//IN        DD DSN=YOUR.PMA85.ENV.KSDSEXC,DISP=OLD
//TEMP      DD DSN=CAMAT.PMA.REPKSDS,DISP=OLD
//SYSIN     DD DSN=CAMAT.PMA.CNTL(APCXCREP),DISP=SHR
//*
//EXC2      EXEC PGM=IDCAMS,COND=(0,NE)
//SYSPRINT DD SYSOUT=*
//SYSIN     DD DSN=CAMAT.PMA.CNTL(DEDEFEXC),DISP=SHR
//*
//EXC4      EXEC PGM=IDCAMS,COND=(0,NE)
//SYSPRINT DD SYSOUT=*
//TEMP      DD DSN=CAMAT.PMA.REPKSDS,DISP=OLD
//SYSIN     DD DSN=CAMAT.PMA.CNTL(REPROEXC),DISP=SHR
//*
//*****
//*   COPY LOAD MODULE INFORMATION CLUSTER -KSDSLMO-
//*****
//LM01      EXEC PGM=IDCAMS,COND=(0,NE)
//SYSPRINT DD SYSOUT=*
//IN        DD DSN=YOUR.PMA85.ENV.KSDSLMO,DISP=OLD
//TEMP      DD DSN=CAMAT.PMA.REPKSDS,DISP=OLD
//SYSIN     DD DSN=CAMAT.PMA.CNTL(APCXCREP),DISP=SHR
//*
//LM02      EXEC PGM=IDCAMS,COND=(0,NE)
//SYSPRINT DD SYSOUT=*
//SYSIN     DD DSN=CAMAT.PMA.CNTL(DEDEFLMO),DISP=SHR
//*
//LM04      EXEC PGM=IDCAMS,COND=(0,NE)
//SYSPRINT DD SYSOUT=*

```

```
//TEMP      DD  DSN=CAMAT.PMA.REPKSDS,DISP=OLD  
//SYSIN      DD  DSN=CAMAT.PMA.CNTL(REPROLMO),DISP=SHR  
//*
```

```

//*****
//* COPY CICS LOAD MODULE INFORMATION CLUSTER -KSDSCMO-
//*****
//CM01 EXEC PGM=IDCAMS,COND=(0,NE)
//SYSPRINT DD SYSOUT=*
//IN DD DSN=YOUR.PMA85.ENV.KSDSCMO,DISP=OLD
//TEMP DD DSN=CAMAT.PMA.REPKSDS,DISP=OLD
//SYSIN DD DSN=CAMAT.PMA.CNTL(APCXCREP),DISP=SHR
//*
//CM02 EXEC PGM=IDCAMS,COND=(0,NE)
//SYSPRINT DD SYSOUT=*
//SYSIN DD DSN=CAMAT.PMA.CNTL(DEDEFMO),DISP=SHR
//*
//CM04 EXEC PGM=IDCAMS,COND=(0,NE)
//SYSPRINT DD SYSOUT=*
//TEMP DD DSN=CAMAT.PMA.REPKSDS,DISP=OLD
//SYSIN DD DSN=CAMAT.PMA.CNTL(REPROCMO),DISP=SHR
//*
//*****
//* COPY IMS LOAD MODULE INFORMATION CLUSTER -KSDSIMO-
//*****
//IM01 EXEC PGM=IDCAMS,COND=(0,NE)
//SYSPRINT DD SYSOUT=*
//IN DD DSN=YOUR.PMA85.ENV.KSDSIMO,DISP=OLD
//TEMP DD DSN=CAMAT.PMA.REPKSDS,DISP=OLD
//SYSIN DD DSN=CAMAT.PMA.CNTL(APCXCREP),DISP=SHR
//*
//IM02 EXEC PGM=IDCAMS,COND=(0,NE)
//SYSPRINT DD SYSOUT=*
//SYSIN DD DSN=CAMAT.PMA.CNTL(DEDEFIMO),DISP=SHR
//*
//IM04 EXEC PGM=IDCAMS,COND=(0,NE)
//SYSPRINT DD SYSOUT=*
//TEMP DD DSN=CAMAT.PMA.REPKSDS,DISP=OLD
//SYSIN DD DSN=CAMAT.PMA.CNTL(REPROIMO),DISP=SHR
//*
//*****
//* COPY ALERT CLUSTER -KSDSALT-
//*****
//ALT1 EXEC PGM=IDCAMS,COND=(0,NE)
//SYSPRINT DD SYSOUT=*
//IN DD DSN=YOUR.PMA85.ENV.KSDSALT,DISP=OLD
//TEMP DD DSN=CAMAT.PMA.REPKSDS,DISP=OLD
//SYSIN DD DSN=CAMAT.PMA.CNTL(APCXCREP),DISP=SHR
//*
//ALT2 EXEC PGM=IDCAMS,COND=(0,NE)
//SYSPRINT DD SYSOUT=*
//SYSIN DD DSN=CAMAT.PMA.CNTL(DEDEFALT),DISP=SHR
//*
//ALT4 EXEC PGM=IDCAMS,COND=(0,NE)
//SYSPRINT DD SYSOUT=*
//TEMP DD DSN=CAMAT.PMA.REPKSDS,DISP=OLD
//SYSIN DD DSN=CAMAT.PMA.CNTL(REPROALT),DISP=SHR
//*
//*****
//* COPY BATCH MEASUREMENT DATA CLUSTER -KSDSPRO-
//*****
//PRO1 EXEC PGM=IDCAMS,COND=(0,NE)
//SYSPRINT DD SYSOUT=*
//IN DD DSN=YOUR.PMA85.ENV.KSDSPRO,DISP=OLD
//TEMP DD DSN=CAMAT.PMA.REPKSDS,DISP=OLD
//SYSIN DD DSN=CAMAT.PMA.CNTL(APCXCREP),DISP=SHR

```



```
/*  
//PR02      EXEC PGM=IDCAMS,COND=(0,NE)  
//SYSPRINT DD SYSOUT=*  
//SYSIN     DD DSN=CAMAT.PMA.CNTL(DEDEFPRO),DISP=SHR  
/*  
//PR04      EXEC PGM=IDCAMS,COND=(0,NE)  
//SYSPRINT DD SYSOUT=*  
//TEMP      DD DSN=CAMAT.PMA.REPKSDS,DISP=OLD  
//SYSIN     DD DSN=CAMAT.PMA.CNTL(REPROPRO),DISP=SHR  
/*
```

```

//*****
//* COPY BATCH MEASUREMENT INFO CLUSTER -KSDSBPM-
//*****
//BPM1 EXEC PGM=IDCAMS,COND=(0,NE)
//SYSPRINT DD SYSOUT=*
//IN DD DSN=YOUR.PMA85.ENV.KSDSBPM,DISP=OLD
//TEMP DD DSN=CAMAT.PMA.REPKSDS,DISP=OLD
//SYSIN DD DSN=CAMAT.PMA.CNTL(APCXCREP),DISP=SHR
//*
//BPM2 EXEC PGM=IDCAMS,COND=(0,NE)
//SYSPRINT DD SYSOUT=*
//SYSIN DD DSN=CAMAT.PMA.CNTL(DEDEFBPM),DISP=SHR
//*
//BPM4 EXEC PGM=IDCAMS,COND=(0,NE)
//SYSPRINT DD SYSOUT=*
//TEMP DD DSN=CAMAT.PMA.REPKSDS,DISP=OLD
//SYSIN DD DSN=CAMAT.PMA.CNTL(REPROBPM),DISP=SHR
//*
//*****
//* COPY JOB CLUSTER -KSDSJOB-
//*****
//JOB1 EXEC PGM=IDCAMS,COND=(0,NE)
//SYSPRINT DD SYSOUT=*
//IN DD DSN=YOUR.PMA85.ENV.KSDSJOB,DISP=OLD
//TEMP DD DISP=OLD,DSN=CAMAT.PMA.REPKSDS
//SYSIN DD DSN=CAMAT.PMA.CNTL(APCXCREP),DISP=SHR
//*
//JOB2 EXEC PGM=IDCAMS,COND=(0,NE)
//SYSPRINT DD SYSOUT=*
//SYSIN DD DISP=SHR,DSN=CAMAT.PMA.CNTL(DEDEFJOB)
//*
//JOB4 EXEC PGM=IDCAMS,COND=(0,NE)
//SYSPRINT DD SYSOUT=*
//TEMP DD DISP=OLD,DSN=CAMAT.PMA.REPKSDS
//SYSIN DD DISP=SHR,DSN=CAMAT.PMA.CNTL(REPROJOB)
//*
//*****
//* COPY CICS MEASUREMENT LIST CLUSTER -RRDSCPP-
//*****
//CICPR01 EXEC PGM=IDCAMS,COND=(0,NE)
//SYSPRINT DD SYSOUT=*
//IN DD DSN=YOUR.PMA85.ENV.RRDSCPP,DISP=OLD
//TEMP DD DSN=CAMAT.PMA.REPRRDS,DISP=OLD
//SYSIN DD DSN=CAMAT.PMA.CNTL(APCXCREP),DISP=SHR
//*
//CICPR02 EXEC PGM=IDCAMS,COND=(0,NE)
//SYSPRINT DD SYSOUT=*
//SYSIN DD DSN=CAMAT.PMA.CNTL(DEDEF CPP),DISP=SHR
//*
//CICPR04 EXEC PGM=IDCAMS,COND=(0,NE)
//SYSPRINT DD SYSOUT=*
//IN DD DSN=CAMAT.PMA.REPRRDS,DISP=OLD
//TEMP DD DSN=CAMAT.PMA.RRDSCPP,DISP=OLD
//SYSIN DD DSN=CAMAT.PMA.CNTL(APCXCREP),DISP=SHR
//

```

```

//*****
//* COPY CICS MEASUREMENT DATA CLUSTER -KSDSCIC-
//*****
//CICS1 EXEC PGM=IDCAMS,COND=(0,NE)
//SYSPRINT DD SYSOUT=*
//IN DD DISP=OLD,DSN=YOUR.PMA85.ENV.KSDSCIC
//TEMP DD DISP=OLD,DSN=CAMAT.PMA.REPKSDS
//SYSIN DD DSN=CAMAT.PMA.CNTL(APCXCREP),DISP=SHR
//*
//CICS2 EXEC PGM=IDCAMS,COND=(0,NE)
//SYSPRINT DD SYSOUT=*
//SYSIN DD DISP=SHR,DSN=CAMAT.PMA.CNTL(DEDFCIC)
//*
//CICS4 EXEC PGM=IDCAMS,COND=(0,NE)
//SYSPRINT DD SYSOUT=*
//TEMP DD DISP=OLD,DSN=CAMAT.PMA.REPKSDS
//SYSIN DD DISP=SHR,DSN=CAMAT.PMA.CNTL(REPROCIC)
//*
//*****
//* COPY IMS MEASUREMENT LIST CLUSTER -RRDSIPP-
//*****
//IMSPR01 EXEC PGM=IDCAMS,COND=(0,NE)
//SYSPRINT DD SYSOUT=*
//IN DD DSN=YOUR.PMA85.ENV.RRDSIPP,DISP=OLD
//TEMP DD DSN=CAMAT.PMA.REPRRDS,DISP=OLD
//SYSIN DD DSN=CAMAT.PMA.CNTL(APCXCREP),DISP=SHR
//*
//IMSPR02 EXEC PGM=IDCAMS,COND=(0,NE)
//SYSPRINT DD SYSOUT=*
//SYSIN DD DSN=CAMAT.PMA.CNTL(DEDEFIPP),DISP=SHR
//*
//IMSPR04 EXEC PGM=IDCAMS,COND=(0,NE)
//SYSPRINT DD SYSOUT=*
//IN DD DSN=CAMAT.PMA.REPRRDS,DISP=OLD
//TEMP DD DSN=CAMAT.PMA.RRDSIPP,DISP=OLD
//SYSIN DD DSN=CAMAT.PMA.CNTL(APCXCREP),DISP=SHR
//*
```

```

//*****
//* COPY IMS MEASUREMENT DATA CLUSTER -KSDSIMS-
//*****
//IMS1 EXEC PGM=IDCAMS,COND=(0,NE)
//SYSPRINT DD SYSOUT=*
//IN DD DISP=OLD,DSN=YOUR.PMA85.ENV.KSDSIMS
//TEMP DD DISP=OLD,DSN=CAMAT.PMA.REPKSDS
//SYSIN DD DSN=CAMAT.PMA.CNTL(APCXCREP),DISP=SHR
//*
//IMS2 EXEC PGM=IDCAMS,COND=(0,NE)
//SYSPRINT DD SYSOUT=*
//SYSIN DD DISP=SHR,DSN=CAMAT.PMA.CNTL(DEDEFIMS)
//*
//IMS4 EXEC PGM=IDCAMS,COND=(0,NE)
//SYSPRINT DD SYSOUT=*
//TEMP DD DISP=OLD,DSN=CAMAT.PMA.REPKSDS
//SYSIN DD DISP=SHR,DSN=CAMAT.PMA.CNTL(REPROIMS)
//*
//*****
//* COPY SQL STATEMENT CLUSTER -KSDSQL-
//*****
//SQL1 EXEC PGM=IDCAMS,COND=(0,NE)
//SYSPRINT DD SYSOUT=*
//IN DD DISP=OLD,DSN=YOUR.PMA85.ENV.KSDSQL
//TEMP DD DISP=OLD,DSN=CAMAT.PMA.REPKSDS
//SYSIN DD DSN=CAMAT.PMA.CNTL(APCXCREP),DISP=SHR
//*
//SQL2 EXEC PGM=IDCAMS,COND=(0,NE)
//SYSPRINT DD SYSOUT=*
//SYSIN DD DISP=SHR,DSN=CAMAT.PMA.CNTL(DEDEFSQL)
//*
//SQL4 EXEC PGM=IDCAMS,COND=(0,NE)
//SYSPRINT DD SYSOUT=*
//TEMP DD DISP=OLD,DSN=CAMAT.PMA.REPKSDS
//SYSIN DD DISP=SHR,DSN=CAMAT.PMA.CNTL(REPROSQL)
//

```

```

//*****
//* CONVERT CICS SMF DICTIONARY CLUSTER -KSDSDIC-
//*****
//DIC1 EXEC PGM=IDCAMS,COND=(0,NE)
//SYSPRINT DD SYSOUT=*
//IN DD DISP=OLD,DSN=YOUR.PMA85.ENV.KSDSDIC
//TEMP DD DISP=OLD,DSN=CAMAT.PMA.REPKSDS
//SYSIN DD DSN=CAMAT.PMA.CNTL(APCXCREP),DISP=SHR
//*
//DIC2 EXEC PGM=IDCAMS
//SYSPRINT DD SYSOUT=*
//SYSIN DD DISP=SHR,DSN=CAMAT.PMA.CNTL(DEDEFDIC)
//*
//DIC4 EXEC PGM=IDCAMS,COND=(0,NE)
//SYSPRINT DD SYSOUT=*
//TEMP DD DISP=OLD,DSN=CAMAT.PMA.REPKSDS
//SYSIN DD DISP=SHR,DSN=CAMAT.PMA.CNTL(REPRODIC)
//

```

```

//*****
//* CONVERT CICS SMF DATA CLUSTER -KSDSCST- *
//*****
//CST1 EXEC PGM=IDCAMS,COND=(0,NE)
//SYSPRINT DD SYSOUT=*
//IN DD DISP=OLD,DSN=YOUR.PMA85.ENV.KSDSCST
//TEMP DD DISP=OLD,DSN=CAMAT.PMA.REPKSDS
//SYSIN DD DSN=CAMAT.PMA.CNTL(APCXCREP),DISP=SHR
//*
//CST2 EXEC PGM=IDCAMS
//SYSPRINT DD SYSOUT=*
//SYSIN DD DISP=SHR,DSN=CAMAT.PMA.CNTL(DEDEFCST)
//*
//CST4 EXEC PGM=IDCAMS,COND=(0,NE)
//SYSPRINT DD SYSOUT=*
//TEMP DD DISP=OLD,DSN=CAMAT.PMA.REPKSDS
//SYSIN DD DISP=SHR,DSN=CAMAT.PMA.CNTL(REPROCST)
//*
//*****
//* DELETE REPRO FILES
//*****
//DEL1 EXEC PGM=IEFBR14
//DELKSDS DD DSN=CAMAT.PMA.REPKSDS,
// DISP=(MOD,DELETE),
// DCB=(LRECL=8189,RECFM=VB,BLKSIZE=8193),
// SPACE=(CYL,(150,150)),
// UNIT=SYSDA,
// VOL=SER=OSI025
//DELRDS DD DSN=CAMAT.PMA.REPRDS,
// DISP=(MOD,DELETE),
// DCB=(LRECL=8160,RECFM=FB,BLKSIZE=8160),
// SPACE=(CYL,(150,150)),
// UNIT=SYSDA,
// VOL=SER=OSI025
//*
//*****
//* WRITE CONVERT NOTIFY MESSAGES TO INSTALLATION LOG
//*****
//*
//NOTIFY EXEC PGM=IEBGENER,COND=(0,NE)
//SYSUT1 DD DISP=SHR,DSN=CAMAT.PMA.CUST(CUST$JOB)
// DD *
2012/07/25 09:22 #8 CUSTJ85 CONVERT UPGRADED DATA - EXECUTED
//SYSUT2 DD DISP=SHR,DSN=CAMAT.PMA.CUST(CUST$JOB)
//SYSIN DD DUMMY
//SYSPRINT DD SYSOUT=*

```

1. Adjust the data set names of the VSAM clusters of the previous 8.5 release.
2. Submit the job.

After the successful execution of the upgrade job, Step 12 is marked as **COMPLETED**, as shown following.

CUSTPT00 ----- PMA V90 Customization Dialog -----	
COMMAND ==>	
Step	Status
12 Upgrade	COMPLETED

Upgrade from Version 4.6

If you enter version 46, the JCL of job CUSTJ46 is displayed.

```
JOBCARD
//*
//*
//*
//*****
//* CUSTJ46:   COPY/CONVERT APC VSAM CLUSTER          *
//* ===== FROM VERSION 4.6   TO VERSION 9.0        *
//*                                     *
//* ACTION: REPLACE ALL  YOUR.APC46.ENV              *
//* ===== WITH THE PREFIX OF YOUR APC 4.6  ENVIRONMENT *
//*                                     *
//*------*
//* COPYRIGHT (C) 2012 CA. ALL RIGHTS RESERVED.      *
//* COPYRIGHT (C) TRILOG AG.                          *
//*****
//*
//*****
//*      CREATE REPRO FILES
//*****
//CRE1      EXEC PGM=IEFBR14
//TEMPKSDS DD DSN=CAMAT.PMA.REPKSDS,
//          DISP=(NEW,CATLG),
//          DCB=(LRECL=8189,RECFM=VB,BLKSIZE=8193),
//          SPACE=(CYL,(150,300)),
//          UNIT=SYSDA,
//          VOL=SER=VOL001
//TEMPRRDS DD DSN=CAMAT.PMA.REPRRDS,
//          DISP=(NEW,CATLG),
//          DCB=(LRECL=8160,RECFM=FB,BLKSIZE=8160),
//          SPACE=(CYL,(150,300)),
//          UNIT=SYSDA,
//          VOL=SER=VOL001
//*
```

```

//*****
//* COPY EXCLUSION CLUSTER -KSDSEXC-
//*****
//EXC1 EXEC PGM=IDCAMS,COND=(0,NE)
//SYSPRINT DD SYSOUT=*
//IN DD DSN=YOUR.APC46.ENV.KSDSEXC,DISP=OLD
//TEMP DD DSN=CAMAT.PMA.REPKSDS,DISP=OLD
//SYSIN DD DSN=CAMAT.PMA.CNTL(APCXCREP),DISP=SHR
//*
//EXC2 EXEC PGM=IDCAMS,COND=(0,NE)
//SYSPRINT DD SYSOUT=*
//SYSIN DD DSN=CAMAT.PMA.CNTL(DEDEFEXC),DISP=SHR
//*
//EXC4 EXEC PGM=IDCAMS,COND=(0,NE)
//SYSPRINT DD SYSOUT=*
//TEMP DD DSN=CAMAT.PMA.REPKSDS,DISP=OLD
//SYSIN DD DSN=CAMAT.PMA.CNTL(REPROEXC),DISP=SHR
//*
//*****
//* COPY LOAD MODULE INFORMATION CLUSTER -KSDSLMO-
//*****
//LM01 EXEC PGM=IDCAMS,COND=(0,NE)
//SYSPRINT DD SYSOUT=*
//IN DD DSN=YOUR.APC46.ENV.KSDSLMO,DISP=OLD
//TEMP DD DSN=CAMAT.PMA.REPKSDS,DISP=OLD
//SYSIN DD DSN=CAMAT.PMA.CNTL(APCXCREP),DISP=SHR
//*
//LM02 EXEC PGM=IDCAMS,COND=(0,NE)
//SYSPRINT DD SYSOUT=*
//SYSIN DD DSN=CAMAT.PMA.CNTL(DEDEF LMO),DISP=SHR
//*
//LM04 EXEC PGM=IDCAMS,COND=(0,NE)
//SYSPRINT DD SYSOUT=*
//TEMP DD DSN=CAMAT.PMA.REPKSDS,DISP=OLD
//SYSIN DD DSN=CAMAT.PMA.CNTL(REPRO LMO),DISP=SHR
//*
//*****
//* COPY CICS LOAD MODULE INFORMATION CLUSTER -KSDSCMO-
//*****
//CM01 EXEC PGM=IDCAMS,COND=(0,NE)
//SYSPRINT DD SYSOUT=*
//IN DD DSN=YOUR.APC46.ENV.KSDSCMO,DISP=OLD
//TEMP DD DSN=CAMAT.PMA.REPKSDS,DISP=OLD
//SYSIN DD DSN=CAMAT.PMA.CNTL(APCXCREP),DISP=SHR
//*
//CM02 EXEC PGM=IDCAMS,COND=(0,NE)
//SYSPRINT DD SYSOUT=*
//SYSIN DD DSN=CAMAT.PMA.CNTL(DEDEF CMO),DISP=SHR
//*
//CM04 EXEC PGM=IDCAMS,COND=(0,NE)
//SYSPRINT DD SYSOUT=*
//TEMP DD DSN=CAMAT.PMA.REPKSDS,DISP=OLD
//SYSIN DD DSN=CAMAT.PMA.CNTL(REPRO CMO),DISP=SHR
//

```

```

//*****
//* COPY IMS LOAD MODULE INFORMATION CLUSTER -KSDSIMO-
//*****
//IM01 EXEC PGM=IDCAMS,COND=(0,NE)
//SYSPRINT DD SYSOUT=*
//IN DD DSN=YOUR.APC46.ENV.KSDSIMO,DISP=OLD
//TEMP DD DSN=CAMAT.PMA.REPKSDS,DISP=OLD
//SYSIN DD DSN=CAMAT.PMA.CNTL(APCXCREP),DISP=SHR
//*
//IM02 EXEC PGM=IDCAMS,COND=(0,NE)
//SYSPRINT DD SYSOUT=*
//SYSIN DD DSN=CAMAT.PMA.CNTL(DEDEFIMO),DISP=SHR
//*
//IM04 EXEC PGM=IDCAMS,COND=(0,NE)
//SYSPRINT DD SYSOUT=*
//TEMP DD DSN=CAMAT.PMA.REPKSDS,DISP=OLD
//SYSIN DD DSN=CAMAT.PMA.CNTL(REPROIMO),DISP=SHR
//*
//*****
//* COPY ALERT CLUSTER -KSDSALT-
//*****
//ALT1 EXEC PGM=IDCAMS,COND=(0,NE)
//SYSPRINT DD SYSOUT=*
//IN DD DSN=YOUR.APC46.ENV.KSDSALT,DISP=OLD
//TEMP DD DSN=CAMAT.PMA.REPKSDS,DISP=OLD
//SYSIN DD DSN=CAMAT.PMA.CNTL(APCXCREP),DISP=SHR
//*
//ALT2 EXEC PGM=IDCAMS,COND=(0,NE)
//SYSPRINT DD SYSOUT=*
//SYSIN DD DSN=CAMAT.PMA.CNTL(DEDEFALT),DISP=SHR
//*
//ALT4 EXEC PGM=IDCAMS,COND=(0,NE)
//SYSPRINT DD SYSOUT=*
//TEMP DD DSN=CAMAT.PMA.REPKSDS,DISP=OLD
//SYSIN DD DSN=CAMAT.PMA.CNTL(REPROALT),DISP=SHR
//*
//*****
//* COPY BATCH MEASUREMENT DATA CLUSTER -KSDSPRO-
//*****
//PRO1 EXEC PGM=IDCAMS,COND=(0,NE)
//SYSPRINT DD SYSOUT=*
//IN DD DSN=YOUR.APC46.ENV.KSDSPRO,DISP=OLD
//TEMP DD DSN=CAMAT.PMA.REPKSDS,DISP=OLD
//SYSIN DD DSN=CAMAT.PMA.CNTL(APCXCREP),DISP=SHR
//*
//PRO2 EXEC PGM=IDCAMS,COND=(0,NE)
//SYSPRINT DD SYSOUT=*
//SYSIN DD DSN=CAMAT.PMA.CNTL(DEDEFPRO),DISP=SHR
//*
//PRO4 EXEC PGM=IDCAMS,COND=(0,NE)
//SYSPRINT DD SYSOUT=*
//TEMP DD DSN=CAMAT.PMA.REPKSDS,DISP=OLD
//SYSIN DD DSN=CAMAT.PMA.CNTL(REPROPRO),DISP=SHR
//

```



```

//*****
//* COPY BATCH MEASUREMENT INFO CLUSTER -KSDSBPM-
//*****
//BPM1 EXEC PGM=IDCAMS,COND=(0,NE)
//SYSPRINT DD SYSOUT=*
//IN DD DSN=YOUR.APC46.ENV.KSDSBPM,DISP=OLD
//TEMP DD DSN=CAMAT.PMA.REPKSDS,DISP=OLD
//SYSIN DD DSN=CAMAT.PMA.CNTL(APCXCREP),DISP=SHR
//*
//BPM2 EXEC PGM=IDCAMS,COND=(0,NE)
//SYSPRINT DD SYSOUT=*
//SYSIN DD DSN=CAMAT.PMA.CNTL(DEDEFBPM),DISP=SHR
//*
//BPM4 EXEC PGM=IDCAMS,COND=(0,NE)
//SYSPRINT DD SYSOUT=*
//TEMP DD DSN=CAMAT.PMA.REPKSDS,DISP=OLD
//SYSIN DD DSN=CAMAT.PMA.CNTL(REPROBPM),DISP=SHR
//*
//*****
//* COPY JOB CLUSTER -KSDSJOB-
//*****
//JOB1 EXEC PGM=IDCAMS,COND=(0,NE)
//SYSPRINT DD SYSOUT=*
//IN DD DSN=YOUR.APC46.ENV.KSDSJOB,DISP=OLD
//TEMP DD DISP=OLD,DSN=CAMAT.PMA.REPKSDS
//SYSIN DD DSN=CAMAT.PMA.CNTL(APCXCREP),DISP=SHR
//*
//JOB2 EXEC PGM=IDCAMS,COND=(0,NE)
//SYSPRINT DD SYSOUT=*
//SYSIN DD DISP=SHR,DSN=CAMAT.PMA.CNTL(DEDEFJOB)
//*
//JOB4 EXEC PGM=IDCAMS,COND=(0,NE)
//SYSPRINT DD SYSOUT=*
//TEMP DD DISP=OLD,DSN=CAMAT.PMA.REPKSDS
//SYSIN DD DISP=SHR,DSN=CAMAT.PMA.CNTL(REPROJOB)
//*
//*****
//* COPY CICS MEASUREMENT LIST CLUSTER -RRDSCPP-
//*****
//CICPRO1 EXEC PGM=IDCAMS,COND=(0,NE)
//SYSPRINT DD SYSOUT=*
//IN DD DSN=YOUR.APC46.ENV.RRDSCPP,DISP=OLD
//TEMP DD DSN=CAMAT.PMA.REPRRDS,DISP=OLD
//SYSIN DD DSN=CAMAT.PMA.CNTL(APCXCREP),DISP=SHR
//*
//CICPRO2 EXEC PGM=IDCAMS,COND=(0,NE)
//SYSPRINT DD SYSOUT=*
//SYSIN DD DSN=CAMAT.PMA.CNTL(DEDEF CPP),DISP=SHR
//*
//CICPRO4 EXEC PGM=IDCAMS,COND=(0,NE)
//SYSPRINT DD SYSOUT=*
//IN DD DSN=CAMAT.PMA.REPRRDS,DISP=OLD
//TEMP DD DSN=CAMAT.PMA.RRDSCPP,DISP=OLD
//SYSIN DD DSN=CAMAT.PMA.CNTL(APCXCREP),DISP=SHR
//

```

```

//*****
//* COPY CICS MEASUREMENT DATA CLUSTER -KSDSCIC-
//*****
//CICS1 EXEC PGM=IDCAMS,COND=(0,NE)
//SYSPRINT DD SYSOUT=*
//IN DD DISP=OLD,DSN=YOUR.APC46.ENV.KSDSCIC
//TEMP DD DISP=OLD,DSN=CAMAT.PMA.REPKSDS
//SYSIN DD DSN=CAMAT.PMA.CNTL(APCXCREP),DISP=SHR
//*
//CICS2 EXEC PGM=IDCAMS,COND=(0,NE)
//SYSPRINT DD SYSOUT=*
//SYSIN DD DISP=SHR,DSN=CAMAT.PMA.CNTL(DEDEFCIC)
//*
//CICS4 EXEC PGM=IDCAMS,COND=(0,NE)
//SYSPRINT DD SYSOUT=*
//TEMP DD DISP=OLD,DSN=CAMAT.PMA.REPKSDS
//SYSIN DD DISP=SHR,DSN=CAMAT.PMA.CNTL(REPROCIC)
//*
//*****
//* COPY IMS MEASUREMENT LIST CLUSTER -RRDSIPP-
//*****
//IMSPR01 EXEC PGM=IDCAMS,COND=(0,NE)
//SYSPRINT DD SYSOUT=*
//IN DD DSN=YOUR.APC46.ENV.RRDSIPP,DISP=OLD
//TEMP DD DSN=CAMAT.PMA.REPRRDS,DISP=OLD
//SYSIN DD DSN=CAMAT.PMA.CNTL(APCXCREP),DISP=SHR
//*
//IMSPR02 EXEC PGM=IDCAMS,COND=(0,NE)
//SYSPRINT DD SYSOUT=*
//SYSIN DD DSN=CAMAT.PMA.CNTL(DEDEFIPP),DISP=SHR
//*
//IMSPR04 EXEC PGM=IDCAMS,COND=(0,NE)
//SYSPRINT DD SYSOUT=*
//IN DD DSN=CAMAT.PMA.REPRRDS,DISP=OLD
//TEMP DD DSN=CAMAT.PMA.RRDSIPP,DISP=OLD
//SYSIN DD DSN=CAMAT.PMA.CNTL(APCXCREP),DISP=SHR
//*
//*****
//* COPY IMS MEASUREMENT DATA CLUSTER -KSDSIMS-
//*****
//IMS1 EXEC PGM=IDCAMS,COND=(0,NE)
//IN DD DISP=OLD,DSN=YOUR.APC46.ENV.KSDSIMS
//TEMP DD DISP=OLD,DSN=CAMAT.PMA.REPKSDS
//SYSIN DD DSN=CAMAT.PMA.CNTL(APCXCREP),DISP=SHR
//*
//IMS2 EXEC PGM=IDCAMS,COND=(0,NE)
//SYSPRINT DD SYSOUT=*
//
//IMS4 EXEC PGM=IDCAMS,COND=(0,NE)
//SYSPRINT DD SYSOUT=*
//TEMP DD DISP=OLD,DSN=CAMAT.PMA.REPKSDS
//SYSIN DD DISP=SHR,DSN=CAMAT.PMA.CNTL(REPROIMS)
//

```

```

//*****
//* COPY SQL STATEMENT CLUSTER -KSDSSQL-
//*****
//SQL1 EXEC PGM=IDCAMS,COND=(0,NE)
//SYSPRINT DD SYSOUT=*
//IN DD DISP=OLD,DSN=YOUR.APC46.ENV.KSDSSQL
//TEMP DD DISP=OLD,DSN=CAMAT.PMA.REPKSDS
//SYSIN DD DSN=CAMAT.PMA.CNTL(APCXCREP),DISP=SHR
//*
//SQL2 EXEC PGM=IDCAMS,COND=(0,NE)
//SYSPRINT DD SYSOUT=*
//SYSIN DD DISP=SHR,DSN=CAMAT.PMA.CNTL(DEDEFSQL)
//*
//SQL4 EXEC PGM=IDCAMS,COND=(0,NE)
//SYSPRINT DD SYSOUT=*
//TEMP DD DISP=OLD,DSN=CAMAT.PMA.REPKSDS
//SYSIN DD DISP=SHR,DSN=CAMAT.PMA.CNTL(REPROSQL)
//*
//*****
//* CONVERT CICS SMF DICTIONARY CLUSTER -KSDSDIC-
//*****
//DIC1 EXEC PGM=IDCAMS,COND=(0,NE)
//SYSPRINT DD SYSOUT=*
//IN DD DISP=OLD,DSN=YOUR.APC46.ENV.KSDSDIC
//TEMP DD DISP=OLD,DSN=CAMAT.PMA.REPKSDS
//SYSIN DD DSN=CAMAT.PMA.CNTL(APCXCREP),DISP=SHR
//*
//DIC2 EXEC PGM=IDCAMS
//SYSPRINT DD SYSOUT=*
//SYSIN DD DISP=SHR,DSN=CAMAT.PMA.CNTL(DEDEFDIC)
//*
//DIC4 EXEC PGM=IDCAMS,COND=(0,NE)
//SYSPRINT DD SYSOUT=*
//TEMP DD DISP=OLD,DSN=CAMAT.PMA.REPKSDS
//SYSIN DD DISP=SHR,DSN=CAMAT.PMA.CNTL(REPRODIC)
//*
//*****
//* CONVERT CICS SMF DATA CLUSTER -KSDSCST-
//*****
//CST1 EXEC PGM=IDCAMS,COND=(0,NE)
//SYSPRINT DD SYSOUT=*
//IN DD DISP=OLD,DSN=YOUR.APC46.ENV.KSDSCST
//TEMP DD DISP=OLD,DSN=CAMAT.PMA.REPKSDS
//SYSIN DD DSN=CAMAT.PMA.CNTL(APCXCREP),DISP=SHR
//*
//CST2 EXEC PGM=IDCAMS
//SYSPRINT DD SYSOUT=*
//SYSIN DD DISP=SHR,DSN=CAMAT.PMA.CNTL(DEDEFCST)
//*
//CST4 EXEC PGM=IDCAMS,COND=(0,NE)
//SYSPRINT DD SYSOUT=*
//TEMP DD DISP=OLD,DSN=CAMAT.PMA.REPKSDS
//SYSIN DD DISP=SHR,DSN=CAMAT.PMA.CNTL(REPROCST)
//

```

```

//*****
//*      DELETE REPRO FILES
//*****
//DEL1    EXEC PGM=IEFBR14
//DELKSDS DD DSN=CAMAT.PMA.REPKSDS,
//          DISP=(MOD,DELETE),
//          DCB=(LRECL=8189,RECFM=VB,BLKSIZE=8193),
//          SPACE=(CYL,(150,150)),
//          UNIT=SYSDA,
//          VOL=SER=VOL001
//DELRDSDS DD DSN=CAMAT.PMA.REPRDSDS,
//          DISP=(MOD,DELETE),
//          DCB=(LRECL=8160,RECFM=FB,BLKSIZE=8160),
//          SPACE=(CYL,(150,150)),
//          UNIT=SYSDA,
//          VOL=SER=VOL001
//*
//*****
//*      WRITE CONVERT NOTIFY MESSAGES TO INSTALLATION LOG
//*****
//*
//NOTIFY   EXEC PGM=IEBGENER,COND=(0,NE)
//SYSUT1   DD DISP=SHR,DSN=CAMAT.PMA.CUST(CUST$JOB)
//          DD *
2010/10/29 07:11 #8 CUSTJ46    CONVERT UPGRADED DATA    - EXECUTED
//SYSUT2   DD DISP=SHR,DSN=CAMAT.PMA.CUST(CUST$JOB)
//SYSIN    DD DUMMY
//SYSPRINT DD SYSOUT=*

```

1. Adjust the data set names of the VSAM clusters of the previous 4.6 version.
2. Submit the job.

After the successful execution of the upgrade job, Step 12 is marked as **COMPLETED**, as shown following.

```

CUSTPT00 ----- PMA V90 Customization Dialog -----
COMMAND ==>

Step                                     Status
=====
12 Upgrade                             COMPLETED

```

Upgrade from Version 4.5.0

If you enter version 450, the JCL of job CUSTJ450 is displayed.

```

JOB CARD
//*
//*
//*
/*****
/* CUSTJ450:  COPY/CONVERT APC VSAM CLUSTER          *
/* =====  FROM VERSION 4.5.0 TO VERSION 9.0      *
/*                                                    *
/* ACTION: REPLACE ALL  YOUR.APC450.ENV             *
/* =====  WITH THE PREFIX OF YOUR APC 4.5.0 ENVIRONMENT *
/*                                                    *
/*-----*
/* COPYRIGHT (C) 2012 CA. ALL RIGHTS RESERVED.      *
/* COPYRIGHT (C) TRILOG AG.                          *
/*****
/*
/*****
/* CREATE REPRO FILES
/*****
//CRE1    EXEC PGM=IEFBR14
//TEMPKSDS DD DSN=CAMAT.PMA.REPKSDS,
//          DISP=(NEW,CATLG),
//          DCB=(LRECL=8189,RECFM=VB,BLKSIZE=8193),
//          SPACE=(CYL,(150,300)),
//          UNIT=SYSDA,
//          VOL=SER=VOL001
//TEMPRRDS DD DSN=CAMAT.PMA.REPRRDS,
//          DISP=(NEW,CATLG),
//          DCB=(LRECL=8160,RECFM=FB,BLKSIZE=8160),
//          SPACE=(CYL,(150,300)),
//          UNIT=SYSDA,
//          VOL=SER=VOL001
//*
/*****
/* COPY EXCLUSION CLUSTER -KSDSEXC-
/*****
//EXC1    EXEC PGM=IDCAMS,COND=(0,NE)
//SYSPRINT DD  SYSOUT=*
//IN      DD  DSN=YOUR.APC450.ENV.KSDSEXC,DISP=OLD
//TEMP    DD  DSN=CAMAT.PMA.REPKSDS,DISP=OLD
//SYSIN    DD  DSN=CAMAT.PMA.CNTL(APCXCREP),DISP=SHR
//*
//EXC2    EXEC PGM=IDCAMS,COND=(0,NE)
//SYSPRINT DD  SYSOUT=*
//SYSIN    DD  DSN=CAMAT.PMA.CNTL(DEDEFEXC),DISP=SHR
//*
//EXC4    EXEC PGM=IDCAMS,COND=(0,NE)
//SYSPRINT DD  SYSOUT=*
//TEMP    DD  DSN=CAMAT.PMA.REPKSDS,DISP=OLD
//SYSIN    DD  DSN=CAMAT.PMA.CNTL(REPROEXC),DISP=SHR
//*

```

```

//*****
//* COPY LOAD MODULE INFORMATION CLUSTER -KSDSLMO-
//*****
//LM01 EXEC PGM=IDCAMS,COND=(0,NE)
//SYSPRINT DD SYSOUT=*
//IN DD DSN=YOUR.APC450.ENV.KSDSLMO,DISP=OLD
//TEMP DD DSN=CAMAT.PMA.REPKSDS,DISP=OLD
//SYSIN DD DSN=CAMAT.PMA.CNTL(APCXCREP),DISP=SHR
//*
//LM02 EXEC PGM=IDCAMS,COND=(0,NE)
//SYSPRINT DD SYSOUT=*
//SYSIN DD DSN=CAMAT.PMA.CNTL(DEDEFLMO),DISP=SHR
//*
//LM04 EXEC PGM=IDCAMS,COND=(0,NE)
//SYSPRINT DD SYSOUT=*
//TEMP DD DSN=CAMAT.PMA.REPKSDS,DISP=OLD
//SYSIN DD DSN=CAMAT.PMA.CNTL(REPROLMO),DISP=SHR
//*
//*****
//* COPY CICS LOAD MODULE INFORMATION CLUSTER -KSDSCMO-
//*****
//CM01 EXEC PGM=IDCAMS,COND=(0,NE)
//SYSPRINT DD SYSOUT=*
//IN DD DSN=YOUR.APC450.ENV.KSDSCMO,DISP=OLD
//TEMP DD DSN=CAMAT.PMA.REPKSDS,DISP=OLD
//SYSIN DD DSN=CAMAT.PMA.CNTL(APCXCREP),DISP=SHR
//*
//CM02 EXEC PGM=IDCAMS,COND=(0,NE)
//SYSPRINT DD SYSOUT=*
//SYSIN DD DSN=CAMAT.PMA.CNTL(DEDEFMO),DISP=SHR
//*
//CM04 EXEC PGM=IDCAMS,COND=(0,NE)
//SYSPRINT DD SYSOUT=*
//TEMP DD DSN=CAMAT.PMA.REPKSDS,DISP=OLD
//SYSIN DD DSN=CAMAT.PMA.CNTL(REPROCMO),DISP=SHR
//*
//*****
//* COPY IMS LOAD MODULE INFORMATION CLUSTER -KSDSIMO-
//*****
//IM01 EXEC PGM=IDCAMS,COND=(0,NE)
//SYSPRINT DD SYSOUT=*
//IN DD DSN=YOUR.APC450.ENV.KSDSIMO,DISP=OLD
//TEMP DD DSN=CAMAT.PMA.REPKSDS,DISP=OLD
//SYSIN DD DSN=CAMAT.PMA.CNTL(APCXCREP),DISP=SHR
//*
//IM02 EXEC PGM=IDCAMS,COND=(0,NE)
//SYSPRINT DD SYSOUT=*
//SYSIN DD DSN=CAMAT.PMA.CNTL(DEDEFIMO),DISP=SHR
//*
//IM04 EXEC PGM=IDCAMS,COND=(0,NE)
//SYSPRINT DD SYSOUT=*
//TEMP DD DSN=CAMAT.PMA.REPKSDS,DISP=OLD
//SYSIN DD DSN=CAMAT.PMA.CNTL(REPROIMO),DISP=SHR
//

```

```

//*****
//* COPY ALERT CLUSTER -KSDSALT-
//*****
//ALT1 EXEC PGM=IDCAMS,COND=(0,NE)
//SYSPRINT DD SYSOUT=*
//IN DD DSN=YOUR.APC450.ENV.KSDSALT,DISP=OLD
//TEMP DD DSN=CAMAT.PMA.REPKSDS,DISP=OLD//SYSIN DD
DSN=CAMAT.PMA.CNTL(APCXCREP),DISP=SHR
//*
//ALT2 EXEC PGM=IDCAMS,COND=(0,NE)
//SYSPRINT DD SYSOUT=*
//SYSIN DD DSN=CAMAT.PMA.CNTL(DEDEFALT),DISP=SHR
//*
//ALT4 EXEC PGM=IDCAMS,COND=(0,NE)
//SYSPRINT DD SYSOUT=*
//TEMP DD DSN=CAMAT.PMA.REPKSDS,DISP=OLD
//SYSIN DD DSN=CAMAT.PMA.CNTL(REPROALT),DISP=SHR
//*
//*****
//* COPY BATCH MEASUREMENT DATA CLUSTER -KSDSPRO-
//*****
//PRO1 EXEC PGM=IDCAMS,COND=(0,NE)
//SYSPRINT DD SYSOUT=*
//IN DD DSN=YOUR.APC450.ENV.KSDSPRO,DISP=OLD
//TEMP DD DSN=CAMAT.PMA.REPKSDS,DISP=OLD
//SYSIN DD DSN=CAMAT.PMA.CNTL(APCXCREP),DISP=SHR
//*
//PRO2 EXEC PGM=IDCAMS,COND=(0,NE)
//SYSIN DD DSN=CAMAT.PMA.CNTL(DEDEFPRO),DISP=SHR
//*
//PRO3 EXEC PGM=IDCAMS,COND=(0,NE)
//SYSPRINT DD SYSOUT=*
//TEMP DD DSN=CAMAT.PMA.REPKSDS,DISP=OLD
//SYSIN DD DSN=CAMAT.PMA.CNTL(REPROPRO),DISP=SHR
//*
//*****
//* COPY BATCH MEASUREMENT INFO CLUSTER -KSDSBPM-
//*****
//BPM1 EXEC PGM=IDCAMS,COND=(0,NE)
//SYSPRINT DD SYSOUT=*
//IN DD DSN=YOUR.APC450.ENV.KSDSBPM,DISP=OLD
//TEMP DD DSN=CAMAT.PMA.REPKSDS,DISP=OLD
//SYSIN DD DSN=CAMAT.PMA.CNTL(APCXCREP),DISP=SHR
//*
//BPM2 EXEC PGM=IDCAMS,COND=(0,NE)
//SYSPRINT DD SYSOUT=*
//SYSIN DD DSN=CAMAT.PMA.CNTL(DEDEFBPM),DISP=SHR
//*
//BPM4 EXEC PGM=IDCAMS,COND=(0,NE)
//SYSPRINT DD SYSOUT=*
//TEMP DD DSN=CAMAT.PMA.REPKSDS,DISP=OLD
//SYSIN DD DSN=CAMAT.PMA.CNTL(REPROBPM),DISP=SHR
//

```

```

//*****
//* COPY JOB CLUSTER -KSDSJ0B-
//*****
//JOB1 EXEC PGM=IDCAMS,COND=(0,NE)
//SYSPRINT DD SYSOUT=*
//IN DD DSN=YOUR.APC450.ENV.KSDSJ0B,DISP=OLD
//TEMP DD DISP=OLD,DSN=CAMAT.PMA.REPKSDS
//SYSIN DD DSN=CAMAT.PMA.CNTL(APCXCREP),DISP=SHR
//*
//JOB2 EXEC PGM=IDCAMS,COND=(0,NE)
//SYSPRINT DD SYSOUT=*
//SYSIN DD DISP=SHR,DSN=CAMAT.PMA.CNTL(DEDEFJOB)
//*
//JOB4 EXEC PGM=IDCAMS,COND=(0,NE)
//SYSPRINT DD SYSOUT=*
//TEMP DD DISP=OLD,DSN=CAMAT.PMA.REPKSDS
//SYSIN DD DISP=SHR,DSN=CAMAT.PMA.CNTL(REPROJOB)
//*
//*****
//* COPY CICS MEASUREMENT LIST CLUSTER -RRDSCPP-
//*****
//CICPRO1 EXEC PGM=IDCAMS,COND=(0,NE)
//SYSPRINT DD SYSOUT=*
//IN DD DSN=YOUR.APC450.ENV.RRDSCPP,DISP=OLD
//TEMP DD DSN=CAMAT.PMA.REPRRDS,DISP=OLD
//SYSIN DD DSN=CAMAT.PMA.CNTL(APCXCREP),DISP=SHR
//*
//CICPRO2 EXEC PGM=IDCAMS,COND=(0,NE)
//SYSPRINT DD SYSOUT=*
//SYSIN DD DSN=CAMAT.PMA.CNTL(DEDEFCPP),DISP=SHR
//*
//CICPRO3 EXEC PGM=IDCAMS,COND=(0,NE)
//SYSPRINT DD SYSOUT=*
//IN DD DSN=CAMAT.PMA.REPRRDS,DISP=OLD
//TEMP DD DSN=CAMAT.PMA.RRDSCPP,DISP=OLD
//SYSIN DD DSN=CAMAT.PMA.CNTL(APCXCREP),DISP=SHR
//*
//*****
//* COPY CICS MEASUREMENT DATA CLUSTER -KSDSCIC-
//*****
//CICS1 EXEC PGM=IDCAMS,COND=(0,NE)
//SYSPRINT DD SYSOUT=*
//IN DD DISP=OLD,DSN=YOUR.APC450.ENV.KSDSCIC
//TEMP DD DISP=OLD,DSN=CAMAT.PMA.REPKSDS
//SYSIN DD DSN=CAMAT.PMA.CNTL(APCXCREP),DISP=SHR
//*
//CICS2 EXEC PGM=IDCAMS,COND=(0,NE)
//SYSPRINT DD SYSOUT=*
//SYSIN DD DISP=SHR,DSN=CAMAT.PMA.CNTL(DEDEFCIC)
//*
//CICS4 EXEC PGM=IDCAMS,COND=(0,NE)
//SYSPRINT DD SYSOUT=*
//TEMP DD DISP=OLD,DSN=CAMAT.PMA.REPKSDS
//SYSIN DD DISP=SHR,DSN=CAMAT.PMA.CNTL(REPROCIC)
//

```



```

//*****
//* COPY IMS MEASUREMENT LIST CLUSTER -RRDSIPP-
//*****
//IMSPR01 EXEC PGM=IDCAMS,COND=(0,NE)
//SYSPRINT DD SYSOUT=*
//IN DD DSN=YOUR.APC450.ENV.RRDSIPP,DISP=OLD
//TEMP DD DSN=CAMAT.PMA.REPRRDS,DISP=OLD
//SYSIN DD DSN=CAMAT.PMA.CNTL(APCXCREP),DISP=SHR
//*
//IMSPR02 EXEC PGM=IDCAMS,COND=(0,NE)
//SYSPRINT DD SYSOUT=*
//SYSIN DD DSN=CAMAT.PMA.CNTL(DEDEFIPP),DISP=SHR
//*
//IMSPR03 EXEC PGM=IDCAMS,COND=(0,NE)
//SYSPRINT DD SYSOUT=*
//IN DD DSN=CAMAT.PMA.REPRRDS,DISP=OLD
//TEMP DD DSN=CAMAT.PMA.RRDSIPP,DISP=OLD
//SYSIN DD DSN=CAMAT.PMA.CNTL(APCXCREP),DISP=SHR
//*
//*****
//* COPY IMS MEASUREMENT DATA CLUSTER -KSDSIMS-
//*****
//IMS1 EXEC PGM=IDCAMS,COND=(0,NE)
//SYSPRINT DD SYSOUT=*
//IN DD DISP=OLD,DSN=YOUR.APC450.ENV.KSDSIMS
//TEMP DD DISP=OLD,DSN=CAMAT.PMA.REPKSDS
//SYSIN DD DSN=CAMAT.PMA.CNTL(APCXCREP),DISP=SHR
//*
//IMS2 EXEC PGM=IDCAMS,COND=(0,NE)
//SYSPRINT DD SYSOUT=*
//SYSIN DD DISP=SHR,DSN=CAMAT.PMA.CNTL(DEDEFIMS)
//*
//IMS4 EXEC PGM=IDCAMS,COND=(0,NE)
//SYSPRINT DD SYSOUT=*
//TEMP DD DISP=OLD,DSN=CAMAT.PMA.REPKSDS
//SYSIN DD DISP=SHR,DSN=CAMAT.PMA.CNTL(REPROIMS)
//*
//*****
//* COPY SQL STATEMENT CLUSTER -KSDSSQL-
//*****
//SQL1 EXEC PGM=IDCAMS,COND=(0,NE)
//SYSPRINT DD SYSOUT=*
//IN DD DISP=OLD,DSN=YOUR.APC450.ENV.KSDSSQL
//TEMP DD DISP=OLD,DSN=CAMAT.PMA.REPKSDS
//SYSIN DD DSN=CAMAT.PMA.CNTL(APCXCREP),DISP=SHR
//*
//SQL2 EXEC PGM=IDCAMS,COND=(0,NE)
//SYSPRINT DD SYSOUT=*
//SYSIN DD DISP=SHR,DSN=CAMAT.PMA.CNTL(DEDEFSQL)
//*
//SQL4 EXEC PGM=IDCAMS,COND=(0,NE)
//SYSPRINT DD SYSOUT=*
//TEMP DD DISP=OLD,DSN=CAMAT.PMA.REPKSDS
//SYSIN DD DISP=SHR,DSN=CAMAT.PMA.CNTL(REPROSQL)
//

```

```

//*****
//* CONVERT CICS SMF DICTIONARY CLUSTER -KSDSDIC-
//*****
//DIC      EXEC PGM=IDCAMS
//SYSPRINT DD SYSOUT=*
//SYSIN    DD DISP=SHR,DSN=CAMAT.PMA.CNTL(DEDEFDIC)
//*
//APCCACND EXEC PGM=APCCACND,REGION=4M
//STEPLIB DD DISP=SHR,DSN=CAMAT.PMA.CEETLOAD
//APCD450 DD DISP=SHR,DSN=YOUR.APC450.ENV.KSDSDIC
//APCD460 DD DISP=SHR,DSN=CAMAT.PMA.KSDSDIC
//SYSUDUMP DD SYSOUT=*
//APCREP DD SYSOUT=*,BLKSIZE=25600
//APCEREP DD SYSOUT=*,BLKSIZE=25600
//*
//*****
//* CONVERT CICS SMF DATA CLUSTER -KSDSCST-
//*****
//CST      EXEC PGM=IDCAMS
//SYSPRINT DD SYSOUT=*
//SYSIN    DD DISP=SHR,DSN=CAMAT.PMA.CNTL(DEDFCST)
//*
//APCCACNC EXEC PGM=APCCACNC,REGION=4M
//STEPLIB DD DISP=SHR,DSN=CAMAT.PMA.CEETLOAD
//APCD450 DD DISP=SHR,DSN=YOUR.APC450.ENV.KSDSCST
//APCD460 DD DISP=SHR,DSN=CAMAT.PMA.KSDSCST
//SYSUDUMP DD SYSOUT=*
//APCREP DD SYSOUT=*,BLKSIZE=25600
//APCEREP DD SYSOUT=*,BLKSIZE=25600
//*
//*****
//* DELETE REPRO FILES
//*****
//DEL1     EXEC PGM=IEFBR14
//DELKSDS DD DSN=CAMAT.PMA.REPKSDS,
//          DISP=(MOD,DELETE),
//          DCB=(LRECL=8189,RECFM=VB,BLKSIZE=8193),
//          SPACE=(CYL,(150,150)),
//          UNIT=SYSDA,
//          VOL=SER=VOL001
//DELRDSDS DD DSN=CAMAT.PMA.REPRRDS,
//          DISP=(MOD,DELETE),
//          DCB=(LRECL=8160,RECFM=FB,BLKSIZE=8160),
//          SPACE=(CYL,(150,150)),
//          UNIT=SYSDA,
//          VOL=SER=VOL001
//*

```

```

//*****
//*      WRITE CONVERT NOTIFY MESSAGES TO INSTALLATION LOG
//*****
//*
//NOTIFY   EXEC PGM=IEBGENER, COND=(0,NE)
//SYSUT1   DD DISP=SHR,DSN=CAMAT.PMA.CUST(CUST$JOB)
//         DD *
2010/10/29 06:59 #8 CUSTJ450  CONVERT UPGRADED DATA    - EXECUTED
//SYSUT2   DD DISP=SHR,DSN=CAMAT.PMA.CUST(CUST$JOB)
//SYSIN    DD DUMMY
//SYSPRINT DD SYSOUT=*

```

1. Adjust the data set names of the VSAM clusters of the previous 4.5.0 version.
2. Submit the job.

After the succesful execution of the upgrade job, Step 12 is marked as **COMPLETED**, as shown following.

```

CUSTPT00 ----- PMA r85 Customization Dialog -----
COMMAND ==>

Step                                     Status
-----
12 Upgrade                             COMPLETED

```

Upgrade from Version 4.4.2 or 4.4.3

If you enter version 442 or 443, the JCL of job CUSTJ443 is displayed.

```

JOB CARD
//*
//*
//*
/* ACTION: REPLACE ALL YOUR.APC44X.ENV
/* ===== WITH THE PREFIX OF YOUR APC 4.4.2/4.4.3 ENVIRONMENT
/*
/*-----*
/* COPYRIGHT (C) 2012 CA. ALL RIGHTS RESERVED.
/* COPYRIGHT (C) TRILOG AG.
/******
/*
/******
/* CREATE REPRO FILES
/******
//CRE1 EXEC PGM=IEFBR14
//TEMPKSDS DD DSN=CAMAT.PMA.REPKSDS,
// DISP=(NEW,CATLG),
// DCB=(LRECL=8189,RECFM=VB,BLKSIZE=8193),
// SPACE=(CYL,(150,150)),
// UNIT=SYSDA,
// VOL=SER=VOL001
//TEMPCONV DD DSN=CAMAT.PMA.CONKSDS,
// DISP=(NEW,CATLG),
// DCB=(LRECL=8189,RECFM=VB,BLKSIZE=8193),
// SPACE=(CYL,(150,150)),
// UNIT=SYSDA,
// VOL=SER=VOL001
//TEMPRRDS DD DSN=CAMAT.PMA.REPRRDS,
// DISP=(NEW,CATLG),
// DCB=(LRECL=8160,RECFM=FB,BLKSIZE=8160),
// SPACE=(CYL,(150,110)),
// UNIT=SYSDA,
// VOL=SER=VOL001
/*
/******
/* COPY EXCLUSION CLUSTER -KSDSEXC-
/******
//EXC1 EXEC PGM=IDCAMS,COND=(0,NE)
//SYSPRINT DD SYSOUT=*
//IN DD DSN=YOUR.APC44X.ENV.KSDSEXC,DISP=OLD
//TEMP DD DSN=CAMAT.PMA.REPKSDS,DISP=OLD
//SYSIN DD DSN=CAMAT.PMA.CNTL(APCXCREP),DISP=SHR
/*
//EXC2 EXEC PGM=IDCAMS,COND=(0,NE)
//SYSPRINT DD SYSOUT=*
//SYSIN DD DSN=CAMAT.PMA.CNTL(DEDEFEXC),DISP=SHR
/*

//EXC4 EXEC PGM=IDCAMS,COND=(0,NE)
//SYSPRINT DD SYSOUT=*
//TEMP DD DSN=CAMAT.PMA.REPKSDS,DISP=OLD
//SYSIN DD DSN=CAMAT.PMA.CNTL(REPROEXC),DISP=SHR
/*

```

```

//*****
//* COPY LOAD MODULE INFORMATION CLUSTER -KSDSLMO-
//*****
//LM01 EXEC PGM=IDCAMS,COND=(0,NE)
//SYSPRINT DD SYSOUT=*
//IN DD DSN=YOUR.APC44X.ENV.KSDSLMO,DISP=OLD
//TEMP DD DSN=CAMAT.PMA.REPKSDS,DISP=OLD
//SYSIN DD DSN=CAMAT.PMA.CNTL(APCXCREP),DISP=SHR
//*
//LM02 EXEC PGM=IDCAMS,COND=(0,NE)
//SYSPRINT DD SYSOUT=*
//SYSIN DD DSN=CAMAT.PMA.CNTL(DEDEFLMO),DISP=SHR
//*
//LM04 EXEC PGM=IDCAMS,COND=(0,NE)
//SYSPRINT DD SYSOUT=*
//TEMP DD DSN=CAMAT.PMA.REPKSDS,DISP=OLD
//SYSIN DD DSN=CAMAT.PMA.CNTL(REPROLMO),DISP=SHR
//*
//*****
//* COPY CICS LOAD MODULE INFORMATION CLUSTER -KSDSCMO-
//*****
//CM01 EXEC PGM=IDCAMS,COND=(0,NE)
//SYSPRINT DD SYSOUT=*
//IN DD DSN=YOUR.APC44X.ENV.KSDSCMO,DISP=OLD
//TEMP DD DSN=CAMAT.PMA.REPKSDS,DISP=OLD
//SYSIN DD DSN=CAMAT.PMA.CNTL(APCXCREP),DISP=SHR
//*
//CM02 EXEC PGM=IDCAMS,COND=(0,NE)
//SYSPRINT DD SYSOUT=*
//SYSIN DD DSN=CAMAT.PMA.CNTL(DEDEFMO),DISP=SHR
//*
//CM04 EXEC PGM=IDCAMS,COND=(0,NE)
//SYSPRINT DD SYSOUT=*
//TEMP DD DSN=CAMAT.PMA.REPKSDS,DISP=OLD
//SYSIN DD DSN=CAMAT.PMA.CNTL(REPROCMO),DISP=SHR
//*
//*****
//* COPY IMS LOAD MODULE INFORMATION CLUSTER -KSDSIMO-
//*****
//IM01 EXEC PGM=IDCAMS,COND=(0,NE)
//SYSPRINT DD SYSOUT=*
//IN DD DSN=YOUR.APC44X.ENV.KSDSIMO,DISP=OLD
//TEMP DD DSN=CAMAT.PMA.REPKSDS,DISP=OLD
//SYSIN DD DSN=CAMAT.PMA.CNTL(APCXCREP),DISP=SHR
//*
//IM02 EXEC PGM=IDCAMS,COND=(0,NE)
//SYSPRINT DD SYSOUT=*
//SYSIN DD DSN=CAMAT.PMA.CNTL(DEDEFIMO),DISP=SHR
//*
//IM04 EXEC PGM=IDCAMS,COND=(0,NE)
//SYSPRINT DD SYSOUT=*
//TEMP DD DSN=CAMAT.PMA.REPKSDS,DISP=OLD
//SYSIN DD DSN=CAMAT.PMA.CNTL(REPROIMO),DISP=SHR
//

```

```

//*****
//* COPY ALERT CLUSTER -KSDSALT-
//*****
//ALT1 EXEC PGM=IDCAMS,COND=(0,NE)
//SYSPRINT DD SYSOUT=*
//IN DD DSN=YOUR.APC44X.ENV.KSDSALT,DISP=OLD
//TEMP DD DSN=CAMAT.PMA.REPKSDS,DISP=OLD
//SYSIN DD DSN=CAMAT.PMA.CNTL(APCXCREP),DISP=SHR
//*
//ALT2 EXEC PGM=IDCAMS,COND=(0,NE)
//SYSPRINT DD SYSOUT=*
//SYSIN DD DSN=CAMAT.PMA.CNTL(DEDEFALT),DISP=SHR
//*
//ALT4 EXEC PGM=IDCAMS,COND=(0,NE)
//SYSPRINT DD SYSOUT=*
//TEMP DD DSN=CAMAT.PMA.REPKSDS,DISP=OLD
//SYSIN DD DSN=CAMAT.PMA.CNTL(REPROALT),DISP=SHR
//*
//*****
//* COPY BATCH MEASUREMENT DATA CLUSTER -KSDSPRO-
//*****
//PRO1 EXEC PGM=IDCAMS,COND=(0,NE)
//SYSPRINT DD SYSOUT=*
//IN DD DSN=YOUR.APC44X.ENV.KSDSPRO,DISP=OLD
//TEMP DD DSN=CAMAT.PMA.REPKSDS,DISP=OLD
//SYSIN DD DSN=CAMAT.PMA.CNTL(APCXCREP),DISP=SHR
//*
//PRO2 EXEC PGM=IDCAMS,COND=(0,NE)
//SYSPRINT DD SYSOUT=*
//SYSIN DD DSN=CAMAT.PMA.CNTL(DEDEFPRO),DISP=SHR
//*
//PRO3 EXEC PGM=IDCAMS,COND=(0,NE)
//SYSPRINT DD SYSOUT=*
//TEMP DD DSN=CAMAT.PMA.REPKSDS,DISP=OLD
//SYSIN DD DSN=CAMAT.PMA.CNTL(REPROPRO),DISP=SHR
//*
//*****
//* COPY BATCH MEASUREMENT INFO CLUSTER -KSDSBPM-
//*****
//BPM1 EXEC PGM=IDCAMS,COND=(0,NE)

//TEMP DD DSN=CAMAT.PMA.REPKSDS,DISP=OLD
//SYSIN DD DSN=CAMAT.PMA.CNTL(APCXCREP),DISP=SHR
//*
//BPM2 EXEC PGM=IDCAMS,COND=(0,NE)
//SYSPRINT DD SYSOUT=*
//SYSIN DD DSN=CAMAT.PMA.CNTL(DEDEFBPM),DISP=SHR

//BPM4 EXEC PGM=IDCAMS,COND=(0,NE)
//SYSPRINT DD SYSOUT=*
//TEMP DD DSN=CAMAT.PMA.REPKSDS,DISP=OLD
//SYSIN DD DSN=CAMAT.PMA.CNTL(REPROBPM),DISP=SHR
//

```

```

//*****
//* COPY CICS MEASUREMENT LIST CLUSTER -RRDSCPP-
//*****
//CICPR01 EXEC PGM=IDCAMS,COND=(0,NE)
//SYSPRINT DD SYSOUT=*
//IN DD DSN=YOUR.APC44X.ENV.RRDSCPP,DISP=OLD
//TEMP DD DSN=CAMAT.PMA.REPRRDS,DISP=OLD
//SYSIN DD DSN=CAMAT.PMA.CNTL(APCXCREP),DISP=SHR
//*
//CICPR02 EXEC PGM=IDCAMS,COND=(0,NE)
//SYSPRINT DD SYSOUT=*
//SYSIN DD DSN=CAMAT.PMA.CNTL(DEDEF CPP),DISP=SHR
//*
//CICPR03 EXEC PGM=IDCAMS,COND=(0,NE)
//SYSPRINT DD SYSOUT=*
//IN DD DSN=CAMAT.PMA.REPRRDS,DISP=OLD
//TEMP DD DSN=CAMAT.PMA.RRDSCPP,DISP=OLD
//SYSIN DD DSN=CAMAT.PMA.CNTL(APCXCREP),DISP=SHR
//*
//*****
//* COPY IMS MEASUREMENT LIST CLUSTER -RRDSIPP-
//*****
//IMSPR01 EXEC PGM=IDCAMS,COND=(0,NE)
//SYSPRINT DD SYSOUT=*
//IN DD DSN=YOUR.APC44X.ENV.RRDSIPP,DISP=OLD
//TEMP DD DSN=CAMAT.PMA.REPRRDS,DISP=OLD
//SYSIN DD DSN=CAMAT.PMA.CNTL(APCXCREP),DISP=SHR
//*
//IMSPR02 EXEC PGM=IDCAMS,COND=(0,NE)
//SYSPRINT DD SYSOUT=*
//SYSIN DD DSN=CAMAT.PMA.CNTL(DEDEFIPP),DISP=SHR
//*
//IMSPR03 EXEC PGM=IDCAMS,COND=(0,NE)
//SYSPRINT DD SYSOUT=*
//IN DD DSN=CAMAT.PMA.REPRRDS,DISP=OLD
//TEMP DD DSN=CAMAT.PMA.RRDSIPP,DISP=OLD
//SYSIN DD DSN=CAMAT.PMA.CNTL(APCXCREP),DISP=SHR
//*
//*****
//* JOB
//*****
//* ACTION: CONVERT KSDSJOB FILE TO V46 FORMAT *
//* FUNCTION: TO BE EXECUTED ONCE AFTER INSTALLATION *
//*****
//*****
//* REPRO JOB CLUSTER FROM VERSION 4.4.2/4.4.3
//*****
//JOB1 EXEC PGM=IDCAMS
//SYSPRINT DD SYSOUT=*
//INDD DD DSN=YOUR.APC44X.ENV.KSDSJOB,DISP=OLD
//OUTDD DD DISP=OLD,DSN=CAMAT.PMA.REPKSDS
//SYSIN DD *
REPRO INFILE(INDD) OUTFILE(OUTDD)
/*
//*

```

```

//*****
//* CONVERT 4.4.2/4.4.3 FORMAT TO 4.5.0/4.6 FORMAT
//*****
//APCBAC45 EXEC PGM=APCBAC45,COND=(0,NE)

//APCJF442 DD DISP=OLD,DSN=CAMAT.PMA.REPKSDS
//APCJF450 DD DISP=OLD,DSN=CAMAT.PMA.CONKSDS|

//SYSPRINT DD SYSOUT=*
//SYSUDUMP DD SYSOUT=*
//*
//*****
//* REBUILD JOB CLUSTER OF VERSION 4.6
//*****
//DELDEFJC EXEC PGM=IDCAMS,COND=(0,NE)
//SYSPRINT DD SYSOUT=*
//SYSIN DD DISP=SHR,DSN=CAMAT.PMA.CNTL(DEDEFJOB)
//*
//*****
//* LOAD CONVERTED JOB DATA ONTO 4.6 JOB CLUSTER
//*****
//PUTJOB EXEC PGM=IDCAMS,COND=(0,NE)
//SYSPRINT DD SYSOUT=*
//TEMP DD DISP=OLD,DSN=CAMAT.PMA.CONKSDS
//SYSIN DD DISP=SHR,DSN=CAMAT.PMA.CNTL(REPROJOB)
//*
//*****
//* CIC
//*****
//* CONVERT CICS DATA CLUSTER FROM 4.4.X TO 4.6 FORMAT *
//* WITH EXTERNALIZING SQL STATEMENTS *
//*****
//*
//*****
//* REPRO CICS CLUSTER KSDSCIC FROM 4.4.X VERSION
//*****
//GETC44X EXEC PGM=IDCAMS
//SYSPRINT DD SYSOUT=*
//INDD DD DISP=OLD,DSN=YOUR.APC44X.ENV.KSDSCIC
//OUTDD DD DISP=OLD,DSN=CAMAT.PMA.REPKSDS
//SYSIN DD *
      REPRO INFILE(INDD) OUTFILE(OUTDD)
/*
//*
//*****
//* CONVERT CICS DATA
//*****
//CONVCICS EXEC PGM=APCDACNV,COND=(0,NE)
//STEPLIB DD DISP=SHR,DSN=CAMAT.PMA.LOAD
//APCINF DD DISP=OLD,DSN=CAMAT.PMA.REPKSDS
//APCOUTF DD DISP=OLD,DSN=CAMAT.PMA.CONKSDS
//APCBSQL1 DD DISP=SHR,DSN=CAMAT.PMA.KSDSQL
//SYSUDUMP DD SYSOUT=*
//*
//*

```



```

//*****
//* REBUILD VERSION 4.6 CICS DATA CLUSTER
//*****
//DLDFC46 EXEC PGM=IDCAMS,COND=(0,NE)
//SYSPRINT DD SYSOUT=*
//SYSIN DD DISP=SHR,DSN=CAMAT.PMA.CNTL(DEDFCIC)
//*
//*****
//* LOAD CONVERTED DATA TO VERSION 4.6 CICS DATA CLUSTER
//*****
//LOADC46 EXEC PGM=IDCAMS,COND=(0,NE)
//SYSPRINT DD SYSOUT=*
//TEMP DD DISP=OLD,DSN=CAMAT.PMA.CONKSDS
//SYSIN DD DISP=SHR,DSN=CAMAT.PMA.CNTL(REPROCIC)
//*
//*****
//* IMS
//*****
//*****
//* CONVERT IMS DATA CLUSTER FROM 4.4.X TO 4.6 FORMAT *
//* WITH EXTERNALIZING SQL STATEMENTS *
//*****
//*
//*****
//* REPRO IMS CLUSTER KSDSIMS FROM 4.4.X VERSION
//*****
//GETI44X EXEC PGM=IDCAMS|
//SYSPRINT DD SYSOUT=*
//INDD DD DISP=OLD,DSN=YOUR.APC44X.ENV.KSDSIMS
//OUTDD DD DISP=OLD,DSN=CAMAT.PMA.REPKSDS
//SYSIN DD *
//REPRO INFILE(INDD) OUTFILE(OUTDD)
/*
//*
//*****
//* CONVERT IMS DATA
//*****
//CONVIMS EXEC PGM=APCDACNV,COND=(0,NE)
//STEPLIB DD DISP=SHR,DSN=CAMAT.PMA.LOAD
//APCINF DD DISP=OLD,DSN=CAMAT.PMA.REPKSDS
//APCOUTF DD DISP=OLD,DSN=CAMAT.PMA.CONKSDS
//APCBSQL1 DD DISP=SHR,DSN=CAMAT.PMA.KSDSSQL
//SYSUDUMP DD SYSOUT=*
//*
//*****
//* REBUILD VERSION 4.6 IMS DATA CLUSTER
//*****
//DLDFI46 EXEC PGM=IDCAMS,COND=(0,NE)
//SYSPRINT DD SYSOUT=*
//SYSIN DD DISP=SHR,DSN=CAMAT.PMA.CNTL(DEDFIMS)
//*
//*****
//* LOAD CONVERTED DATA TO VERSION 4.6 IMS DATA CLUSTER
//*****
//LOADI46 EXEC PGM=IDCAMS,COND=(0,NE)
//SYSPRINT DD SYSOUT=*
//TEMP DD DISP=OLD,DSN=CAMAT.PMA.CONKSDS
//SYSIN DD DISP=SHR,DSN=CAMAT.PMA.CNTL(REPROIMS)
//*
//

```

```

//*****
//*      DELETE REPRO FILES
//*****
//DEL1    EXEC PGM=IEFBR14
//DELKSDS DD DSN=CAMAT.PMA.REPKSDS,
//          DISP=(MOD,DELETE),
//          DCB=(LRECL=8189,RECFM=VB,BLKSIZE=8193),
//          SPACE=(CYL,(150,150)),
//          UNIT=SYSDA,
//          VOL=SER=VOL001
//DELCON  DD DSN=CAMAT.PMA.CONKSDS,
//          DISP=(MOD,DELETE),
//          DCB=(LRECL=8189,RECFM=VB,BLKSIZE=8193),
//          SPACE=(CYL,(150,150)),
//          UNIT=SYSDA,
//          VOL=SER=VOL001
//DELRDS  DD DSN=CAMAT.PMA.REPRDS,
//          DISP=(MOD,DELETE),
//          DCB=(LRECL=8160,RECFM=FB,BLKSIZE=8160),
//          SPACE=(CYL,(150,150)),
//          UNIT=SYSDA,
//          VOL=SER=VOL001
//*
//*****
//*      WRITE CONVERT NOTIFY MESSAGES TO INSTALLATION LOG
//*****
//*
//NOTIFY   EXEC PGM=IEBGENER,COND=(0,NE)
//SYSUT1   DD DISP=SHR,DSN=CAMAT.PMA.CUST(CUST$JOB)
//          DD *
2010/10/29 06:40 #8 CUSTJ443  CONVERT UPGRADED DATA    - EXECUTED
//SYSUT2   DD DISP=SHR,DSN=CAMAT.PMA.CUST(CUST$JOB)
//SYSIN    DD DUMMY
//SYSPRINT DD SYSOUT=*

```

1. Adjust the data set names of the VSAM clusters of the previous version.
2. Submit the job.

After the successful execution of the upgrade job, Step 12 is marked as **COMPLETED**, as shown following.

```

CUSTPT00 ----- PMA V90 Customization Dialog -----
COMMAND ==>

Step                                     Status
=====
12 Upgrade                             COMPLETED

```

Upgrade from a Version Previous to 4.4.2

A data upgrade from version 4.4.1 or older requires assistance of a representative. Contact your product distributor.

Chapter 2: Administration of the Central Component

This chapter provides an overview of the Central Component and describes how to

- Set/change site-specific variables in the start exec
- Modify batch jobs
- Set parameters

to adapt Performance Management Assistant to your needs.

This section contains the following topics:

[Overview](#) (see page 76)

[Getting Started](#) (see page 83)

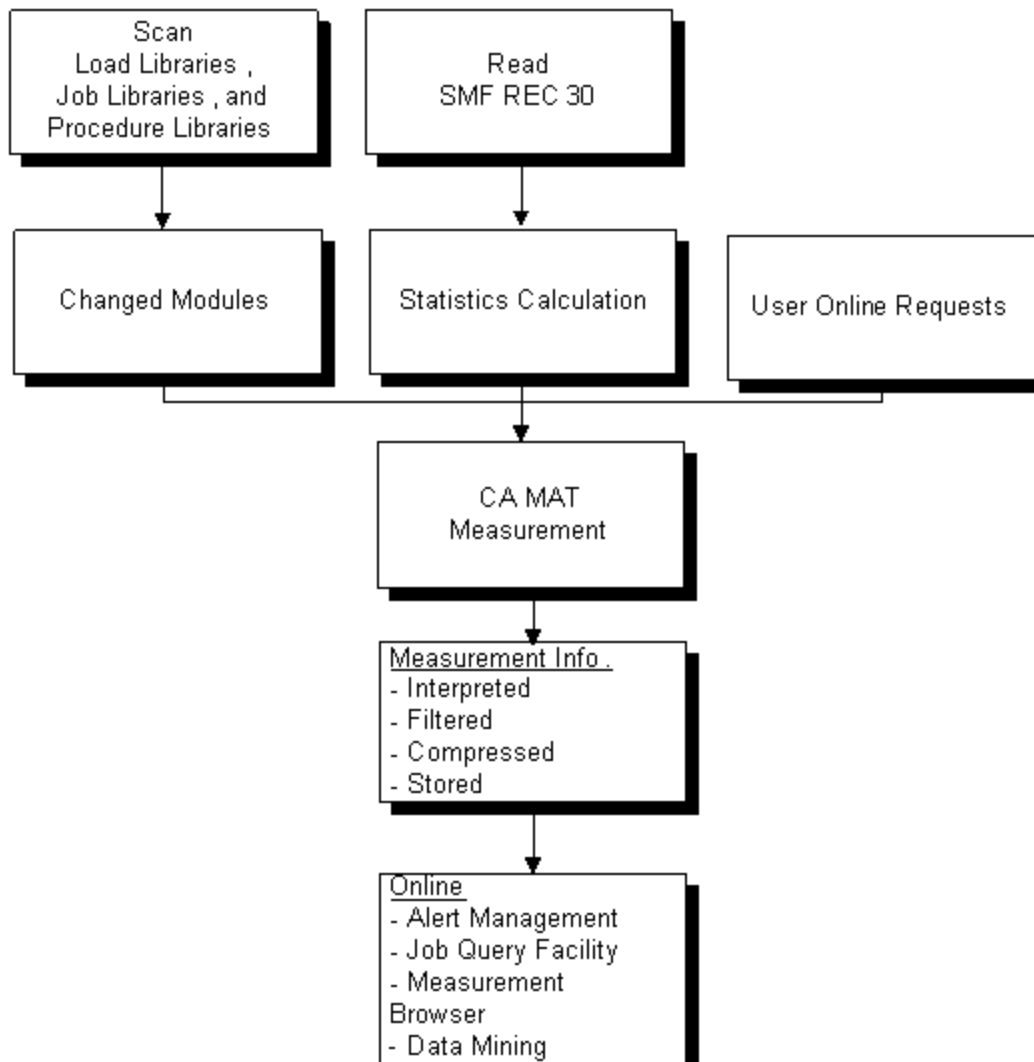
[REXX Procedures](#) (see page 86)

[Batch Jobs](#) (see page 88)

[Parameter Administration](#) (see page 130)

Overview

Performance Management Assistant scans the load, job, and procedures libraries that you define and locates all changed modules. Additionally, SMF job step termination (SMF 30, subtype 4) records are read, statistics calculated, current consumption values checked for anomalies, and defined alert thresholds are checked against the consumption values. The changed modules, job steps exhibiting a significant increase in resource consumption, and specific job steps that you identify as user alerts become measurement requests to your measurement tool. The resulting measurement information is then interpreted and filtered by PMA. The measurements are stored for accessibility through the online dialog for up to 18 months.



Planning your Approach

Because of performance problems resulting from poorly written applications and programs, performance measurement and correction are important. The Central Component features can best be utilized by first planning your approach. The types of approach you should consider are as follows:

- Fire fighting or special task approach by using the online job query facility to select job steps belonging to

- Your top consumer for elapsed time or service units supported by the TOP Scope functionality

The Bulk Alert command guarantees easy managing of top consumers

- Your critical path
- A newly installed application

You can decide which of these job steps are alerted by using the online Give Alert or Bulk Alert options. The next time the selected job steps are executed, measurements are taken.

- Preventive approach

Every time a module is changed by a programmer, it is possible that the changes degrade the performance of the program. For this reason, Performance Management Assistant detects all changed modules and determines which job step next executes that program. If your programs are most often called dynamically, you must provide information in the form of a cross-reference file as described in job APCXJLIB-DD name APCCHLMO or APCSPMP. You should update the General Parameters for the Central Component only once. Then, on a daily basis, Performance Management Assistant automatically provides measurement requests for changed modules.

- Statistical consumption value approach

Performance Management Assistant uses SMF 30 records (subtype 4) to gather consumption values of job steps. Therefore, Performance Management Assistant knows if a job step execution is a runaway.

Performance Management Assistant gives an alert automatically and the next time the job step is executed, a measurement request is provided.

- To provide Performance Management Assistant with a good statistical basis, it is recommended that APCXJSMF run for 10 days without the Give Alert function (see the **No. days...** field on the General Parameters panel).
- To concentrate your focus on important job steps, define the scope of work by:
 - Including or excluding jobs and programs, and
 - Varying the TOP Scope amount

A lower TOP Scope is good for fire fighting and a higher TOP Scope leads into the preventive approach.

Gathering this information for input to Performance Management Assistant ensures that only relevant measurements are performed and are reported.

Reducing the Scope of Work

The basis for the processing is the scope of work that is defined by the user. By limiting the scope of work, Performance Management Assistant can focus on those job steps that are interesting. The scope of work can be limited by

- Defining exclusions for CA MAT
- Defining inclusions and exclusions for PMA
- Defining the TOP Scope-limiting measurements to the set of job steps that consume the most resources

Defining Inclusions and Exclusions

Not all job steps in your batch production environment are interesting enough to be observed by PMA. Furthermore, some job steps should not be measured at all. For this reason, Performance Management Assistant uses a hierarchical concept to define the workload for Performance Management Assistant and for CA Mainframe Application Tuner. This hierarchy has 4 levels (each level reduces the workload and is the basis for the next level). See the following table.

Level	Description
1	Scope job name definitions: ■ Generic job name definitions use both * and _ as wildcards. ■ All job name definitions must be either inclusions or exclusions. Inclusions are recommended when defining job names. For example: PR* INCLUDED means that all job names other than those that begin with PR are implicitly excluded.

2 Scope program name definitions:

- Generic program name definitions use both * and _ as wildcards.
- All program name definitions must be either inclusions or exclusions. Exclusions are recommended when defining program names.

For example: IEF* EXCLUDE
 IEB* EXCLUDE
 SORT EXCLUDE
 IDC* EXCLUDE

This definition means that job steps within jobs defined in level 1 is not observed if those steps call a program defined in level 2.

CA MAT Scope: Job name definitions

- Generic definitions use both * and _ as wildcards.
- All definitions are exclusions only.

For example: __KV* means that when KV is in the third and fourth positions of a job name, that job name is excluded from measurements.

CA MAT Scope: Program name definitions

- Generic definitions use both * and _ as wildcards.
- All definitions are exclusions only.

For example: __X01__ might mean that programs with a value of X01 in the fourth, fifth, and sixth positions of the program name indicate **used one time only programs** that should not be measured.

The levels of the hierarchy are treated as logical AND operations. The Scope defines the job steps for which statistical information should be gathered and calculated. These statistics are available under the JOBS option of the online dialog. For information about using the Job Query Facility, refer to the *User Guide* that corresponds with your measurement tool.

The CA MAT Scope decides which jobs and programs should be excluded from measurement. However, job statistics are still available.

In general, exclusions should be defined only when you are very sure that future measurements are not desired; for example, the job or program is to be replaced soon. As a rule, do not insert an exclusion after closing optimization efforts for a job or program because this action would prevent automatic measurement of program changes.

In summary, your scope of work definitions combined with your TOP Scope definitions work together to reduce measurements and alerts to only those that are really important.

Defining the TOP Scope

Within the scope of work that is defined through inclusions and exclusions of job names and programs, the scope can be further drastically reduced by using the TOP Scope facility. This facility identifies the job steps consuming the greatest resources and limits the measurements to this group.

To define the use of the TOP Scope, there is only one parameter. This parameter is called TOP Scope of important steps and may contain a value from 0 to 99999. A value of 0 indicates that statistical alerts are disabled. In all other cases, the TOP Scope defines how many important job steps should be statistically observed.

The TOP Scope results are generated at least once a day under job step APCBAALM of job APCXJLIB or optionally after changing the TOP Scope through the online dialog. To figure out the TOP Scope, Performance Management Assistant computes the importance of a job step by using the following algorithm:

$$\text{importance} = \log_2(\text{srvu}) + \log_2(\text{\# of executions per month}) + \log_2(\text{elpsd})$$

Based on the results of this computation, the importance is computed for each job step of the job file and a limited number of the top most important steps are flagged. To review the results, simply select the TOP method of the Job Query Facility panel.

The importance formula is equivalent to the product of service units, the number of executions, and elapsed time.

The TOP Scope method uses the *imp* formula to select the top resource-consuming job steps up to the limit set in the TOP Scope=*nnn* parameter. Statistical alerts and measurements are limited to the members of this group of large consumers.

The TOP Scope can be used to control

- Initiation and number of statistical alerts generated by PMA
- Generated alerts for all modified and new modules
- Managing of user alerts that were initiated through the online dialog

Alert Management

The alert processing automatically identifies critical situations within a job step that require a measurement. Generally, alerts are created in two ways:

- The alert is opened automatically when Performance Management Assistant recognizes that current execution consumption values exceed the statistical limits for a particular job step or that a scheduled job step is calling a changed module or a new module or that a job exceeds one of the defined alert threshold values.
- The user explicitly creates a manual alert for a job step by using the online Alert Management feature.

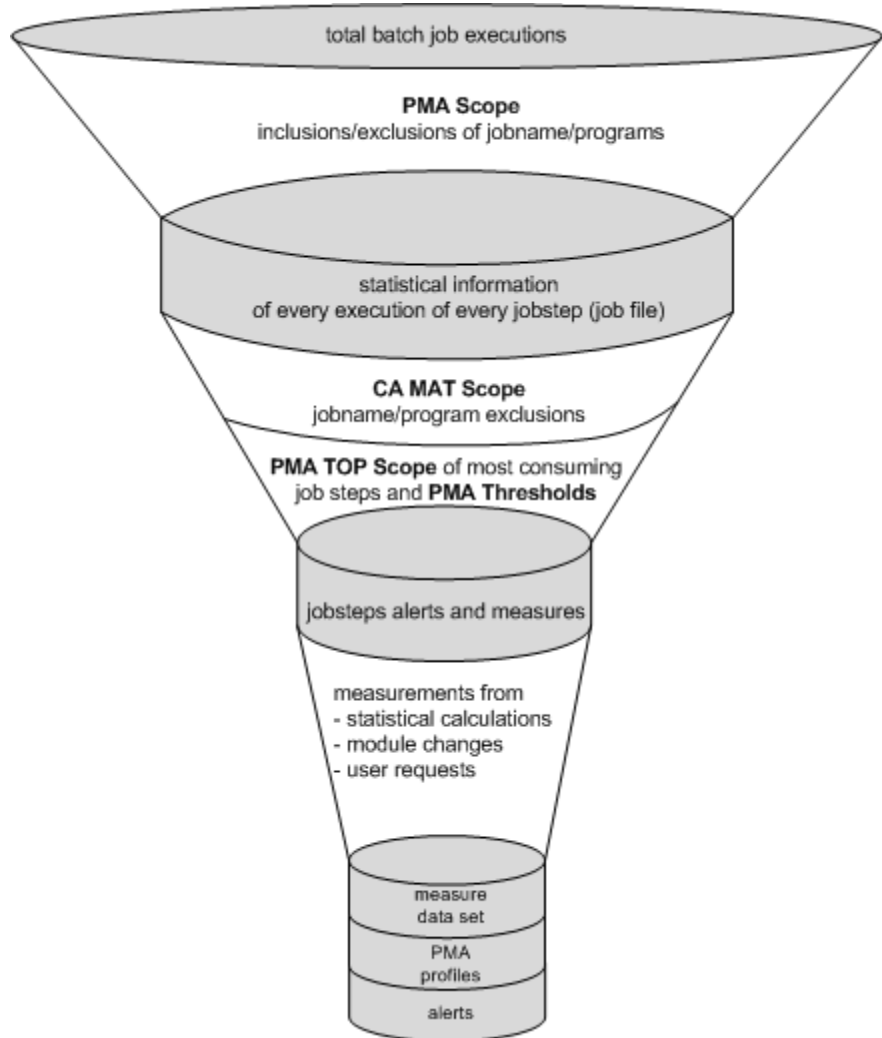
The alert management feature provides all the necessary information to handle the alert. A lot of information is provided in the form of state and reason codes that identify the situation. The following table provides a description of these codes.

State Code	Reason Code	Long Description
PEND		PMA provides a CA MAT measurement. A measurement is available if the alert state is changed to OPEN.
	ELPS SRVU SUIO ELIO CPIO	■ This alert is created by job APCXJSMF as a result of statistical calculations based on absolute values. ■ This alert is created by job APCXJSMF as a result of statistical calculations based on performance indexes.
	ALTH	This alert is created by job APCXJSMF by comparing SMF consumption values of a job to the defined alert thresholds.
	MODC	This alert is created by job APCXJLIB as a result of a changed module.
	SRVR	This alert is created by server.
	USER	This alert is created by an online user.
OPEN		PMA has information about an alert, either a CA MAT measurement or user Text.
	ELPS SRVU MODC USER	The state was changed from PEND to OPEN by job APCYJLNA for one of the following reasons: ■ A CA MAT measurement existed for a job step that was in the TOP Scope and had exceeded its statistical limits. ■ A measurement was stored in any case by user definition. No further alerts are created except those of changed modules.
	TEXT	This alert is created by an online user to indicate that no measurement was requested; however, user text information was provided.

	CHCK	A user has initiated an alert for checkpoint writing.
REV		An online user selected an alert for review/inspection.
	all	The state was changed by an online user by using command R(eview) in the Alert List Panel. No further alerts are provided by PMA.
CUSE		An online user closed the alert.
	all	The state was changed by an online user by using command C(lose) in the Alert List Panel.
CTHR		PMA closed the alert automatically. No measurement is provided.
	ELPS	The state was changed by job APCYJLNA because the measured job step abended or a CA MAT Scope change has affected a PEND alert.
	SRVU	
	MODC USER	
CIMP		PMA closed the alert automatically. No measurement is provided.
	ELPS	The state was changed by job APCYJLNA because the consumption values of the measurement did not exceed the statistical based alert values or a TOP Scope change affected a PEND alert.
	SRVU	
	MODC	
CMUL		PMA closed the alert and temporarily stopped further alerts automatically.
	ELPS	The state was changed by job APCYJLNA because more than three contiguous alerts with CTHR or CIMP were detected. No further measurements are provided until a module change is detected or an online user uses the D(elete) command in the Alert List Panel.
	SRVU	
	MODC	
COVT		An online user closed the alert and took over the statistical data.
	ELPS SRVU	The state was changed by an online user by using the overtake command O in the Alert List panel. In this case, the runaway values are the new statistical base for future tests.

How Batch Scope works

The following diagram illustrates how the batch scope reduction works:



Getting Started

After completing the previous functional overview section, you should have some understanding regarding

- concepts
- How the Central Component works
- How to plan your measurement strategy

This section provides you with the general information you need to use this documentation, the batch jobs, and the ISPF panels of the Central Component. Additionally, this section provides you with a step by step overview on using the batch jobs and the online interface; see Getting Started in 10 Steps. For detailed descriptions of the Central Component batch jobs, see Batch Jobs.

Using the REXX Procedures and Batch Jobs

The first thing you must do is customize REXX procedures and batch jobs as detailed in the next sections. This process consists of

- Defining site specific variables within REXX procedures
- Replacing character strings in jobs with your site specific qualifiers (if this was not done during installation)
- Reviewing the scheduling requirements of each job so that each job can be integrated into your scheduling system

It is recommended that all batch jobs be scheduled to run on a daily basis.

Before executing the batch jobs, you should invoke the online dialog and define all general parameters. Failing to do so causes the batch jobs to end without performing their functions correctly. For details about defining user parameters, see PMA Parameter Administration.

Using the Menus and Panels

To start the online dialog, simply execute REXX procedure (the name of this procedure may have been changed during installation). The Main Menu is displayed. If this time is the first time you have logged on, the General Parameters panel is displayed and you must enter your distributor-supplied password into the password field. After entering the password, the Main Menu is displayed. The online services can be called multiple times from one TSO user (by using split screen). However, they cannot be called more than once in one logical screen.

In rare instances, the value displayed for a field on a panel may contain all 9s separated by a decimal point; for example, 999.999. This value means the actual value is too large for the display.

With the online dialog, there are two kinds of commands that can be used on the menus and panels: *primary commands* and *line commands*. Primary commands are those that you enter on the **COMMAND** line. Use primary commands to perform functions that affect the whole menu or panel with which you are working. Line commands are commands that you enter on a particular item in a row within the body of the panel. Line commands allow you to work with a specific item that is displayed on a list.

Using Generic Notation

Some panels allow you to use generic notation. Generic notation, also called pattern matching, allows you to easily specify more than one name (for example, job name) by the use of wildcards. Use the underscore '_' as a generic character (or wildcard) to represent one character or use the asterisk '*' as generic character to represent one or more characters at the end of the name.

For example, defining a job name exclusion for ABC* would exclude all jobs beginning with the letters ABC. Entering a query selection for job name A_C_E___ would select all jobs with an A in the first position, a C in the third position, an E in the fifth position and any character in the second, fourth, sixth, seventh, and eighth position.

Integrating Existing Measurement Data Sets

For the purpose of testing your product installation and as a quick start to using the product, you can integrate existing measurement data sets into PMA. Otherwise, for the more extensive steps necessary to use the product effectively, see Getting Started in 10 Steps.

Integration of any existing measurement data sets allows you to view or print the reports of these data sets by using the online dialog. The data from these reports may be reduced by defining scopes of work.

Display the Central Component online panels and enter all necessary general parameters; see Parameter Administration. After the parameters are defined and saved, submit job APCYJLST (found in your product CNTL library).

Important Parameters	Delete measurement data set
	Print measurements automatically
	Aut. storage of measurements in PMA
	Prefix for measurement data sets
	Scope of work
	TOP Scope

The prefix for measurement data sets, as defined in the parameter panel, must be the same as the prefix of the existing measurement data sets. If not, job APCYJLST does not recognize the measurement data sets as being controlled by PMA. If necessary, call the Global Sample DS Processing panel and change the data set name prefix to the value of the existing data set prefixes.

Getting Started in 10 steps

After reviewing the *User Guide* that corresponds with your measurement tool, you are ready to begin using PMA. The following table describes the steps that you should follow for effective use of the Central Component.

Step	Description
1	Define general Central Component parameters.
2	Determine the scope of work for PMA and CA MAT by explicitly defining job and program inclusions/exclusions and TOP Scope.
3	Look for your site-specific SMF data sets that contain SMF 30 records in dumped format. These data sets should be input to job APCXJSMF and executed for at least one or two weeks.
4	Review the scheduling requirements for job APCXJSMF and integrate this job into your scheduling system.
5	Define all other central component parameters: ■ Libraries (LOADLIB, JOBLIB, PROCLIB) ■ Standard programs ■ Standard procedures ■ Global sample DS processing (for example, sample DS name prefix)
6	Look for your site-specific scheduler day plan and use the JP parameter in the parameter file.
7	Review the scheduling requirements for the batch jobs and plan how to integrate these jobs into your scheduling system.
8	Review measurement results by using the MEASUREMENT option. Note that measurement reports can be retained for up to 18 months.
9	Check for alert situations by using the online ALERT option. Review the alert state codes and reason codes and identify situations that require corrective action.
10	Use the job selection query facility to query the database for certain job steps or conditions.

REXX Procedures

This section explains how site-specific variables in the start REXX can be customized.

Startup Procedure

In REXX procedure, site-specific start up variables can be defined. The example following illustrates and describes site-specific start up variables.

```
APCSPACC = UPD                      /* UPD OR READ */
APCSPREP = N                        /* PREPROD N/Y */
APCSIMG  = '-----'              /* MVS IMAGE NAME */
TEMPDSN  = ZUSER".APCX.TEMP"ZSCREEN /* UNIQUE DSN */
ADDRESS ISPEXEC "VGET APCSORTA MEASUREMENT" /* */
      IF RC ^= 0 THEN DO           /* panel attribute */
          APCSORTA = 'INTENS(HIGH)' /* for sorted field*/
      END
```

Defining Access Rights

Variable APCSPACC defines whether parameter panels have update or read-only access. This variable allows the product to be installed for different user groups, update and read only. The installation default is UPD. For read-only access, this value can be changed to READ. The values must be entered as capital letters.

Within your authorization system, for example, RACF, ACF2, or TSS, all users should be defined with UPDATE access for all data sets belonging to the product data bases, even those users who are defined with read-only access.

Defining System Image Name

Variable APCSIMG defines the system image name to be displayed on all panels. This parameter is required and must be eight characters. It should uniquely identify each environment on which Performance Management Assistant is installed, that is, test, production, preproduction. For example, if REXX procedure PMA is installed on the production system, the value might be PROD123U meaning this product is on a production system. If you do not want to define a system image name, the value of APCSIMG should be filled with eight dashes, that is,

Changing Temporary Data Set Name

Variable TEMPDSN is a unique temporary data set name that is used by the dialog. This name should only be changed if there is an explicit need to do so, for example, you encounter access authority problems.

Highlighting the Sort Order Column of Panels

By default, the column used for the sort order of panels is defined as 'INTENS(HIGH)'. To change the marking of this column, change variable APCSORTA to any other valid ISPF attribute.

Batch Jobs

To reduce the workload of the Application Performance Management Team, Performance Management Assistant can automatically perform the following functions in batch:

- Measure runaway job steps and issue alerts
- Measure new or modified programs
- Interpret the measurements based on user parameters
- Save only important data from the reports created by your measurement tool
- Manage historical data
- Exclude certain job steps or programs from measurement by using the scope of work definitions for Performance Management Assistant and CA Mainframe Application Tuner

The required batch part of the Central Component consists of the following jobs:

- Job APCXJSMF gathers information about job step executions from SMF type 30 (subtype 4) records. Using this information, Performance Management Assistant calculates statistical values for consumed elapsed time and service units and checks if the last job step execution exceeded them. If it finds a runaway, a pending alert is created. Additionally, APCXJSMF checks the defined alert thresholds against the SMF values. If one of the defined thresholds is exceeded by the consumption values, then a pending alert is also created.
- Job APCXJLIB determines which programs have been modified since the last APCXJLIB job execution and in which job steps these programs are called. Performance Management Assistant then creates corresponding pending Alerts.
- Job APCXJINV deletes measurement requests generated during previous cycles from the CA MAT queue and places new CA MAT measurement requests in the CA MAT queue based on the information in your daily run schedule and in the pending Alert list.
- Job APCYJLST evaluates measurement data sets that resulted from generated measurements. Performance Management Assistant saves the resulting measurements if they are of interest or otherwise deletes them.

Additionally, a job is available for reorganization of the VSAM clusters.

The JCL illustrated in this chapter should be customized by replacing lowercase italicized items with values that suit the needs of your environment. All JCL can be found in your product library, CAMAT.PMA.CNTL.

All steps are fully restartable.

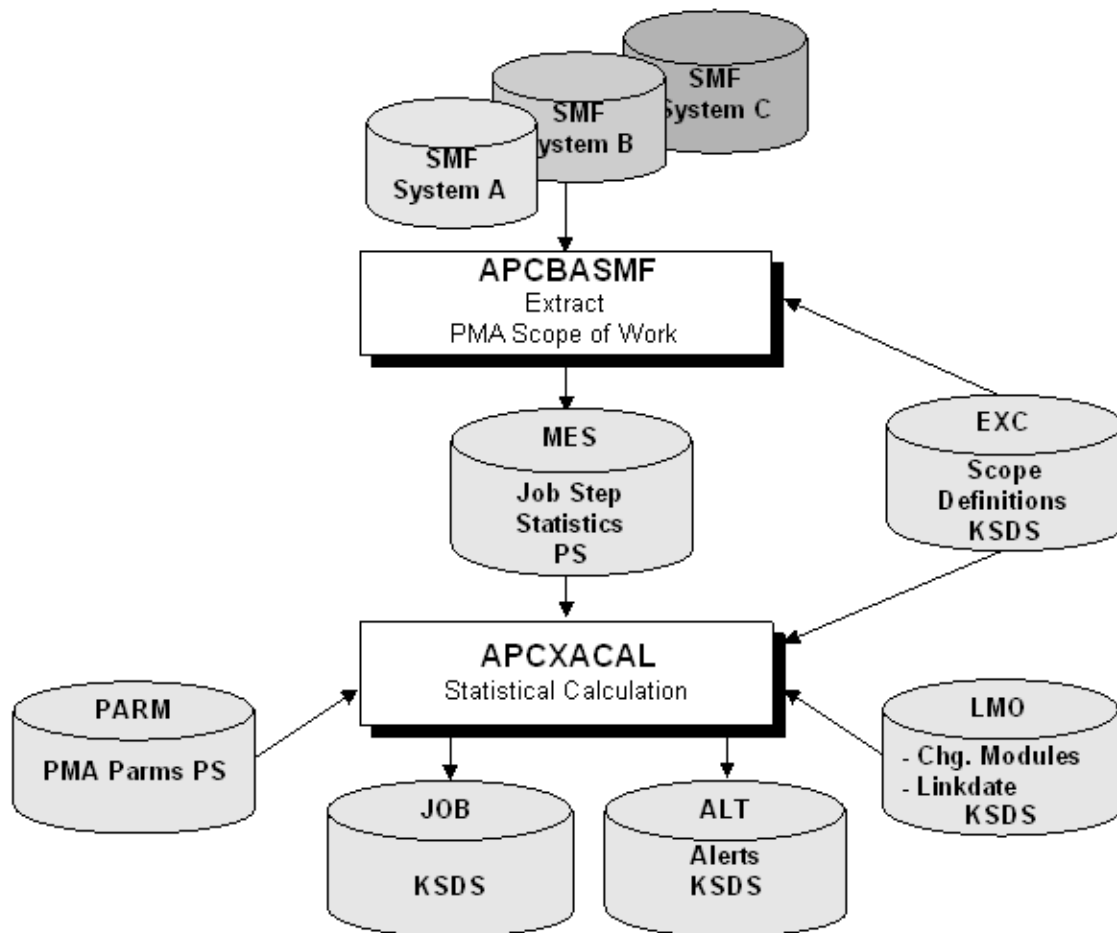
Job APCXJSMF

Job APCXJSMF gathers information about executed job steps from SMF Type 30 records (subtype 4). Your Scope of work definitions are used to determine which jobs to view. Using this information, Performance Management Assistant calculates statistical values for consumed elapsed time and service units and checks if the last job step execution exceeded them. If it finds a runaway, a pending alert is created. This job also checks the SMF consumption values against the defined alert thresholds; see [Thresholds for Reducing Measurement Activities](#).

Job APCXJSMF has the following scheduling considerations:

- This job should execute after the nightly batch runs have been completed.
- Step/program APCBASMF of this job interprets the SMF Type 30 records (subtype 4). Therefore, your SMF dump job must be completed prior to running this job step.
- If this job is executed separately for each Z/OS image in a sysplex, all copies of this job need strict serialization.

Job APCXJSMF consists of two steps, APCBASMf and APCXACAL, illustrated following.



Selecting SMF Record Type 30 - Step APCBASMf

Program APCBASMf of job APCXJSMF selects type 30 records (subtype 4) from the SMF pool. It consists of the following main parts:

- The first part reads all inclusions and exclusions from the scope of work control file (CAMAT.PMA.KSDSEXC) and builds the Scope of work.
- The second part reads all records from the SMF pool and selects all type 30 records (subtype 4). When the SMF extraction has been completed, the selected records are tested against the Scope by using a binary search. All records outside of the Scope are discarded. The records falling within the Scope become the source of the output measurement records (ddname APCMES).

By using ddname APCSMF, you provide Performance Management Assistant with your SMF files. Use a DD concatenation in case of a multi-MVS system environment with multiple SMF files. The system name is part of the saved information.

```
//APCBASMF EXEC PGM=APCBASMF
//STEPLIB DD DSN=AMAT.PMA.CEETLOAD,
//          DISP=SHR
/** SMF POOL
//APCSMF DD DSN=SMFP00LMVS1,
//          DCB=(BUFNO=50,BFTEK=A),
//          DISP=SHR
//APCMES DD DSN=&&LOG001,
//          DISP=(,PASS),
//          UNIT=SYSTS,
//          SPACE=(CYL,(1,5))
//APCPARM DD DSN=AMAT.PMA.PARMS,
//          DISP=SHR
//
//APCBEXC1 DD DSN=AMAT.PMA.KSDSEXC,DISP=SHR
//APCREP DD SYSOUT=*
//APCEREP DD SYSOUT=*
//APCJLOG1 DD DSN=AMAT.PMA.LOG,DISP=MOD
/**
```

Interpreting SMF Statistical Records - Step APCXACAL

Step APCXACAL of job APCXJSMF interprets statistical records from SMF. It contains three important parts: the *statistical* part, the *alert* part, and the *maintenance* part.

Statistical Part

The *statistical* part reads all statistical measurement records from SMF. Now an attempt to find the job step in the job file is tried. If the record is available, the statistical update follows. If the JCL program name is changed, step APCXACAL detects the change, override the JCL program name, and delete all existing statistical information.

The condition code of the job step is checked. By default, condition codes of 0 or 4 are interpreted as valid for further statistical calculations. If you require additional condition codes to be defined as valid, please contact your first level support.

If the job step record is not already created, the SMF record is analyzed. The condition code of the job is checked and if it is not valid, the newly created job step record only has an increased **ccode** (condition code) count. All other information from the SMF record is discarded. However, if the condition code for the job step is valid, the job step SMF information is stored on the job step record and the measurement count is set to one.

If the job step record was previously created and the current condition code is not valid, the **ccode** count is increased and all other SMF information is discarded. If the job step condition code is valid, the runaway test is performed.

The runaway test is a statistical test used to detect runaway situations in the current SMF consumption values for the job step. The implemented test was first described by Nalimov and, simplified, is a check of the SMF measured value against the sum of the average of these values (as maintained by PMA) plus twice the value of the standard deviation. If the measured value is above this sum, a runaway situation with over 95% probability has been detected.

In the runaway test, the SMF value for service units is tested first. If no runaway situation is found, the SMF value for elapsed time of the job step is tested. After the runaway check, the alert thresholds are checked against the SMF consumption values. Then, if no runaway situation is found for the elapsed time value and no threshold alert situation is found, the statistical values maintained by Performance Management Assistant is updated for

- Service units
- Elapsed time
- CPU time
- EXCPs

Next, the current SMF measurement data is stored in the history table and the measurement counter incremented by one.

If a runaway situation is detected for either service units or elapsed time or an alert threshold situation is detected, the statistical values and current SMF measurement data is updated as described above and the *alert* part of APCXACAL is performed.

Alert Part

The *alert* part of APCXACAL manages all statistical exceptions and the threshold alerts. The statistical exceptions have two main parts:

- First, if this job step is marked as a runaway situation, the statistical values are saved in the alert area of the recorded job step and the job step frequency is checked. If there is a high frequency for the job step, that is, the job step is executed more than three times each week, Performance Management Assistant records this information internally as a *possible alert* and marks the job step as *critical* only. Otherwise, if this job step is not a high frequency job step, the alert is generated immediately with a corresponding *pending* state code.
- Second, the job step alert state is checked. If there is an alert, the measured values are checked with the runaway test and if a runaway is detected again, the alert is changed to a real one if the frequency of the job step is high. Otherwise, a new alert is created only when the runaway test against the alerted values is positive, that is, an alerted situation is imminent. If the runaway test is negative, the alert is closed.

To prevent bulk alerts if the system is overloaded, automatic alert generation is limited to five alerts in sequence for job steps with runaway elapsed times, that is, the workload of the system is in the red area. In this event, an online message appears to the first TSO user entering the online dialog.

In case of threshold alerts, a *pending* alert is generated immediately and the statistical values are saved in the alert area too.

Maintenance Part

The *maintenance* part of APCXACAL maintains the database synchronization of scope definitions and data, such as, job information and alerted job steps.

If the Scope, CA MAT Scope, or TOP Scope of work has been changed through the online dialog, a maintenance function for job step statistics (contained in data set CAMAT:PMA.KSDSJOB) and alert information (contained in data set CAMAT:PMA.KSDSALT) is invoked. The following table describes the processing rules that are used.

Kind of scope change	Job step statistics if out of scope	Alerts created by PMA with state PEND if out of scope	Alerts created by USER with state PEND if out of scope
PMA Scope	deleted	deleted	unchanged
CA MAT Scope	flagged Visible in the job list of the PMA dialog.	automatically closed by PMA with state CTHR	unchanged
TOP Scope	flagged Visible in the job list of the PMA dialog.	automatically closed by PMA with state CIMP	unchanged

In addition, the importance calculation is performed again for all job steps. If, for some reason, job steps are no longer in the TOP Scope but a pending (PEND) alert still exists for them, they are managed according to the Top Scope change processing previously described.

When program APCXACAL completes execution, a statistical table is output to DDNAME APCREP.

```
//APCXACAL EXEC PGM=APCXACAL
//STEPLIB DD DSN=CAMAT.PMA.CEETLOAD,
//          DISP=SHR
//*
//APCPARAM DD DSN=CAMAT.PMA.PARMS,
//          DISP=SHR
//APCREP DD SYSOUT=*
//APCEREP DD SYSOUT=*
//APCJLOG1 DD DSN=CAMAT.PMA.LOG,
//          DISP=MOD
//APCMES DD DSN=&&LOG001,
//          DISP=(OLD,DELETE)
//APCNEW DD DSN=NULLFILE,
//          DISP=SHR
//APCBJOB1 DD DSN=CAMAT.PMA.KSDSJOB,
//          DISP=SHR
//APCBALT1 DD DSN=CAMAT.PMA.KSDSALT,
//          DISP=SHR
//APCBLM01 DD DSN=CAMAT.PMA.KSDSLM0,
//          DISP=SHR
//APCBEXC1 DD DSN=CAMAT.PMA.KSDSEXC,
//          DISP=SHR
//*
```

Job APCXJLIB

Job APCXJLIB has the following functions:

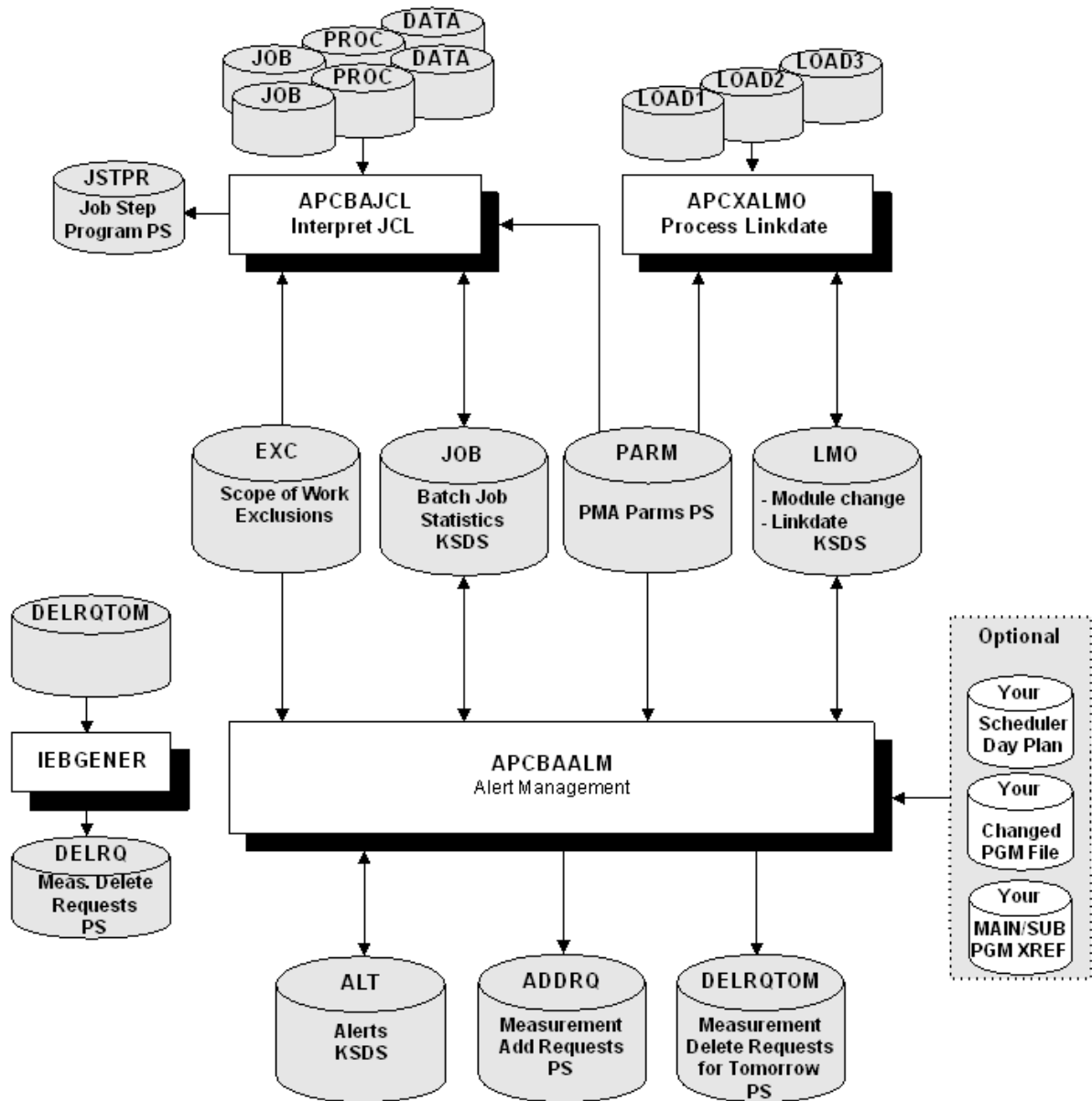
- Detect modified programs included within the scope of work defined for Performance Management Assistant and CA Mainframe Application Tuner
- Interpret JCL for job name, step name, procedure step name, and JCL/application program name within the Scope of work
- Maintain the Scope, CA MAT Scope, and TOP Scope of work on the product database
- Prepare CA MAT measurements for all scheduled jobs that have a pending measurement request (alert) in PMA

Job APCXJLIB has the following scheduling considerations:

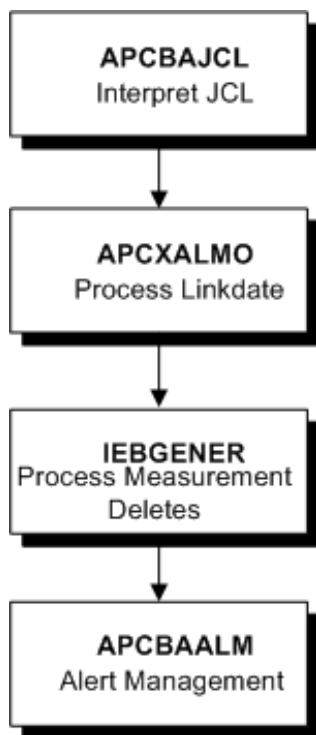
- Execution should be late in the afternoon, allowing enough time so the job ends before your batch window starts. It is important that this job does not start too early, otherwise Performance Management Assistant does not pick up your last minute program modifications.
- One execution is performed for all MVS images sharing the same LOADLIBs and JOBLIBs.
- One execution of this job per each Performance Management Assistant installation is performed.

This section provides a step by step overview of each APCXJLIB job step. This is the required sequence of steps and corresponds to the sequence in which the job steps are discussed in this manual.

The data flow of APCXJLIB is illustrated in the following flowchart followed by an illustration of the job step sequence.



The following example is an illustration of the job step sequence for job APCXJLIB. Each of these job steps is detailed in subsequent sections.



JCL Scan - Step APCBAJCL

Program APCBAJCL scans all job libraries and procedure libraries that are defined by your parameter definitions for these libraries. Additionally, the parameters for standard programs and standard procedures are processed. Only jobs and programs falling within the Scope are processed. The information regarding which application program is called in which step of which job is provided in the job cluster and in the interface file APCJSTPR.

New entries in the job cluster do not have statistical average values or history. If program APCBAJCL detects a new application program name, it overrides the existing application program name with the new name and deletes all existing statistical information. If the JCL change should result in a new job step name and the old name is no longer used, Performance Management Assistant does not delete the old name.

For more information on standard programs, see [Defining Standard Programs](#). For more information about standard procedures, see [Defining Standard Procedures](#).

Report APCREP contains all warnings, that is, JCL errors in the job statement or procedure not found. If there are many procedure not found in proclib errors, you should check if you have defined all PROCLIBs; see [Defining Procedure Libraries](#).

As a result of the joblib/proclib/datalib scan, Performance Management Assistant generates file APCJSTPR containing call information per job step. Normally this file is a temporary data set. If this information is of interest for further use within your company, you can change the JCL so that DD statement APCJSTPR refers to a permanent data set (see the following JCL).

Organization	QSAM	
Record length	80 bytes	
Record layout	1-8	Job name
	9-16	Step name
	17-24	Procstep name
	25-32	Program name
	33-80	Filler

```
//APCBAJCL EXEC PGM=APCBAJCL
//STEPLIB DD DSN=CAMAT.PMA.CEETLOAD,
//          DISP=SHR
//APCNEW DD DSN=NULLFILE,
//          DISP=SHR
//APCPARAM DD DSN=CAMAT.PMA.PARMS,
//          DISP=SHR
//APCBJOB1 DD DSN=CAMAT.PMA.KSDSJOB,
//          DISP=SHR
//APCBEXC1 DD DSN=CAMAT.PMA.KSDSEXC,
//          DISP=SHR
//APCJSTPR DD DSN=&&JSTPRT,
//          DISP=(,PASS),
//          DCB=(RECFM=FB,LRECL=80),
//          UNIT=SYSTS,
//          SPACE=(CYL,(1,5))
//APCREP DD SYSOUT=*
//APCEREP DD SYSOUT=*
//APCJLOG1 DD DSN=CAMAT.PMA.LOG,
//          DISP=OLD
//*
```

Search for New and Changed Programs - Step APCXALMO

Step APCXALMO of job APCXJLIB searches the load libraries for new and changed programs. All load libraries are allocated dynamically and have to be defined through the user parameters; see Defining Load Module Libraries.

```
//APCXALMO EXEC PGM=APCXALMO
//STEPLIB DD DSN=CAMAT.PMA.CEETLOAD,
//          DISP=SHR
//APCBLM01 DD DSN=CAMAT.PMA.KSDSLM0,
//          DISP=SHR
//APCBEXC1 DD DSN=CAMAT.PMA.KSDSEXC,
//          DISP=SHR
//APCREP DD SYSOUT=*
//APCEREP DD SYSOUT=*
//APCJLOG1 DD DSN=CAMAT.PMA.LOG,
//          DISP=MOD
//*
```

Delete Requests - IEBGENER

An IEBGENER step within job APCXJLIB is used to copy the previous day's delete file (DELRQTOM) to the current day's delete request file (DELRQ). This step provides CAMAT PMA with its daily delete or cancel requests.

```
/DELRQ EXEC PGM=IEBGENER
//SYSUT1 DD DSN=CAMAT.PMA.DELRQTOM,
//          DISP=OLD
//SYSUT2 DD DSN=CAMAT.PMA.DELRQ,
//          DISP=OLD
//SYSIN DD DUMMY
//SYSPRINT DD DUMMY
//*
```

Perform Alert Management - Step APCBAALM

Step APCBAALM of APCXLIB performs alert management for changed load modules.

- Sublevel modules with a changed state are reset.
 - All records from load module files with state *changed* are read into a module table.
 - If sub/main program external reference file APCSPMP is not used, all job steps are read from the job file and a binary search of the module table is performed for all relevant programs. When the search is successful, the module name is marked in the table.
 - All unmarked modules in the table are checked. If the linkdate is not older than one month, the modules are marked in the table.
 - All unmarked modules in the module table is reset from state changed to unchanged.
- OPTIONAL INTERFACES are performed.
 - If the DD name APCDAY allocates a PS file with a fixed blocked record length of 80, edit the Parm file and provide record JPxx, where xx indicates the offset (relative to zero) of the job name in your scheduler day plan file.
 - Module changed interface is performed. If a user already has an overview of all changed programs with the change date or if program changes are not reflected in load modules (that is, execution is done through a loader or a language interpreter is used), a file that is defined at DD statement APCCHLMO is used. If used, file APCCHLMO should be defined as follows:

Organization	PS	
Record length	16 bytes	
Record layout	1-8	program name
	9-16	Change date(YYYYMMDD)
Sort order	entire record, ascending	

- Cross referencing subprograms interface is performed. A file that is defined at DD statement APCSPMP establishes which main program has to be measured if a subprogram has been changed or inserted. This section is applicable only to programs that are called dynamically. This file can allow users to access cross reference information about subprograms that are being called in main programs (see DSN=NULLFILE). The file should be defined as follows:

Organization	PS	
Record layout	1-8	subprogram name

9-16	main program name
Sort order	
	entire record, ascending

- Each record within file APCSPMP contains names for both the subprogram and the main calling program. Because a subprogram may be called from many different main programs, the entire record is used as a sort field. If you have not defined a reference file, Performance Management Assistant detects program modifications in subprograms but are not able to measure them, because it cannot find any JCL to associate modified subprograms with their main calling programs.
- If a subprogram is changed, only one main program is measured even if the subprogram is used in several main programs. If APCSPMP is empty, all changed modules are checked to see if they exist in the job file. If not, the changed module is reset.

- All records from load module file CAMAT.PMA.KSDSLMO are read. All records with a *changed* state are saved in a table of up to 4096 entries. Next, all records from the day plan (DD statement APCDAY) are read. Each job name from the day plan is the entry key that is used to access the batch job step file, CAMAT.PMA.KSDSJOB. Now all corresponding programs for job steps that are associated with jobs in the day plan are checked against the load module table by using a *binary search*. If the search is successful, the *importance* of that job step is calculated as the sum of the base 2 logarithm of service units, elapsed time, and job step frequency. The importance is used to identify and rank job steps consuming the most resources. The following algorithm is used for calculating importance:

$$\text{importance} = \log_2 (\text{srvu}) + \log_2 (\# \text{ of executions per month}) + \log_2 (\text{elpsd})$$

This calculated importance factor is used to sort entries in the load module table and determine which multiple-use programs are of greatest importance. At end of file processing of the day plan file, this load module table becomes the source of job step alerts, sorted by importance. The alert type used is MODC for module changed. The alert state is pending.

If there is no day plan file in use, step APCBAALM runs slightly differently. After a load module table is built, the batch job step file is read sequentially. The program name from each entry in the job step file is checked against the load module table using a binary search and if the search is successful, processing is identical to that described when a day plan file is used.

At the end of this procedure, the load module file (CAMAT.PMA.KSDSLMO) is updated to reset the state from changed to unchanged for all modules processed from the load module table.

- CA MAT requests for all pending alert entries are created, limited to the maximum number of requests defined by the user in parameters. First, all records from the alert file with a *pending state*, including previously created pending alert records-are read into the same table as above. Next, the day plan is read again and job names from the day plan will be used to search the table by using a binary search. If the search is successful, a measurement request (add and delete) for the alerted job step is generated. Program APCBAALM is finished at EOF of the day plan or when the CA MAT limit, defined by the user in parameters, is reached. If no day plan exists, all user alerts (with reason code USER) have a higher processing priority than generated alerts.

In additional, database maintenance is performed on control files for all scope of work definitions (Scope, CA MAT Scope, and TOP Scope) contained in the parameters. For more information, see the description of the APCXACAL maintenance part.

The following example shows an illustration of the JCL for job step APCBAALM.

```
//APCBAALM EXEC PGM=APCBAALM

//STEPLIB DD DSN=CAMAT.PMA.CEETLOAD,
//          DISP=SHR

//APCPARAM DD DSN=CAMAT.PMA.PARMS,
//          DISP=SHR
//
//***      SCHEDULER DAYPLAN FILE (FB,RECL=80)
//APCDAY DD DSN=NULLFILE,
//          DISP=SHR
//APCCHLMO DD DSN=NULLFILE,
//          DISP=SHR
//APCSPMP DD DSN=NULLFILE,
//          DISP=SHR

//APCBJOB1 DD DSN=CAMAT.PMA.KSDSJOB,
//          DISP=SHR

//APCBLMO1 DD DSN=CAMAT.PMA.KSDSLMO,
//          DISP=SHR

//APCBALT1 DD DSN=CAMAT.PMA.KSDSALT,
//          DISP=SHR

//APCBEXC1 DD DSN=CAMAT.PMA.KSDSEXC,
//          DISP=SHR

//APCADDRQ DD DSN=CAMAT.PMA.ADDRQ,
//          DISP=OLD

//APCDELQ DD DSN=CAMAT.PMA.DELRQTOM,
//          DISP=OLD
//APCREP DD SYSOUT=*
//APCEREP DD SYSOUT=*

//APCJLOG1 DD DSN=CAMAT.PMA.LOG,
//          DISP=MOD
```

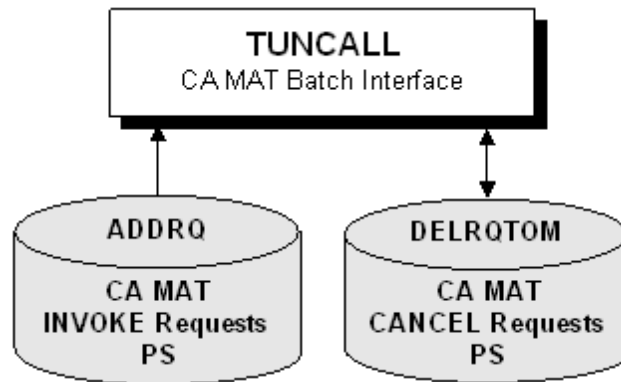
Job APCXJINV - Add New CA MAT Requests

Job APCXJINV performs all CAMAT CANCEL and INVOKE commands that are created by job APCXJLIB to delete all of yesterday's requests and add all new measurement requests.

Job APCXJINV has the following scheduling considerations:

- Execute daily before batch production and after job APCXJLIB has finished.
- Execute this job in every MVS image that your batch production runs in and that CA MAT is available in.

Job APCXJINV consists of step TUNCALL as illustrated following.



Program TUNCALL of job APCXJINV inserts the INVOKE and CANCEL requests into CA MAT.

```
//JOB CARD...
//*
//*
//*
//*****
//*
//* PMA: APCXJINV
//* ACTION: CALL CA MAT FOR INVOKE MONITOR REQUESTS
//* FUNCTION: DAILY MEASUREMENT OF BATCH JOBS
//*
//*------*
//* Copyright (C) 2012 CA. All Rights Reserved.
//* Copyright (C) Trilog AG.
//*****
//*
//*****
//* CANCEL OF WAITING MONITORS BEFORE DOING NEW ALERTS FOR
//*****
//*
//APCTOK1 EXEC PGM=IKJEFT01,DYNAMNBR=30,PARM='APCXRIE'
//STEPLIB DD DISP=SHR,DSN=CAMAT.CEESLOAD
//SYSPRINT DD SYSOUT=*
//TUNPRINT DD SYSOUT=*
//APCPARM DD DISP=SHR,DSN=CAMAT.PMA.PARMS
//DELREQ DD DISP=OLD,DSN=CAMAT.PMA.DELRQ
//SYSEXEC DD DISP=SHR,DSN=CAMAT.PMA.EXEC
//SYSTSPRT DD SYSOUT=*
//SYSTSIN DD DUMMY
//*
//
//*****
//* INVOKE CA MAT MONITOR REQUESTS, SAVE CA MAT OUTPUT FOR FURTHER
//* SCAN OF GIVEN TOKEN-NUMBERS
//*****
//CA MAT EXEC PGM=TUNCALL
//SYSPRINT DD SYSOUT=*
//TUNPRINT DD DSN=&&TUNLOG,
//          DISP=(,PASS),
//          UNIT=SYSDA,
//          DCB=(DSORG=PS,LRECL=133,RECFM=FB),
//          SPACE=(CYL,(1,2))
//STEPLIB DD DISP=SHR,
//          DSN=LOAD
//TUNIN DD DISP=SHR,
//          DSN=CAMAT.PMA.ADDRQ
//
//
```

```

//*****
//* SAVE TUNPRINT OUTPUT
//*****
//SAVETUNP EXEC PGM=IEBGENER
//SYSPRINT DD SYSOUT=*
//SYSUT1 DD DSN=*. CA MAT.TUNPRINT,DISP=(OLD,PASS,KEEP)
//SYSUT2 DD SYSOUT=*
//SYSIN DD DUMMY
//*****
//* SCAN INVOKE OUTPUT TO GET TOKEN FOR CANCEL OF WAITING MONITORS
//* BEFORE DOING NEW INVOKES FOR
//*****
//*
//APCTOK2 EXEC PGM=IKJEFT01,DYNAMNBR=30,PARM='APCXRTOK'
//SYSTSIN DD DUMMY
//SYSPRINT DD SYSOUT=*
//TUNPRINT DD DSN=&&TUNLOG,DISP=(OLD,DELETE)
//DELREQ DD DISP=OLD,DSN=CAMAT.PMA.DELRQ
//SYSEXEC DD DISP=SHR,DSN=CAMAT.PMA.EXEC
//SYSTSPRT DD SYSOUT=*

```

Jobs APCYJLST and APCYJLNA - Process CA MAT Measurement

After CA MAT has performed a measurement, CA MAT creates the List Dataset. Job APCYJLST evaluates the CA MAT measurement that resulted from generated measurements. To get the measurement, a program must be called. Job APCYJLNA contains a procedure to do so. Additionally, a program is called to interpret the measurement. Performance Management Assistant saves or discards a measurement depending on the consumption during the step's execution, user defined parameters, and alert reasons. The measurements are kept or deleted as determined by the delete processed sample ds parameter. Job APCYJLST automatically creates and submits APCYJLNA jobs as many times as needed to process all measurements.

Job APCYJLST has the following scheduling considerations:

- Execute early in the morning after the nightly batch runs have been completed. It is also important that the job is not started too soon, which allows Performance Management Assistant to collect more measurement information.
- If you are also using the CICS Feature or IMS Feature, make sure that CICS or IMS measurements have been completed. These are provided by jobs APCCJINV and APCIJINV respectively.
- There should be at least one execution per installation per day.

In order to get the measurement results available in Performance Management Assistant as soon as possible, the Server submits job APCYJLNA any time a measured job step has terminated. If you use this functional benefit, job APCYJLST is needed only for measurements that are not controlled by Performance Management Assistant and for the CICS and IMS/DC measurements.

Since all measurements of CICS or IMS/DC regions must be processed in one APCYJLNA job, job APCYJLST must be provided with the names of the regions. CICS and IMS/DC add monitor invokes for CA MAT. CA MAT creates List data sets from the Monitor data sets and these List data sets are interpreted by job APCYJLST for the regions identified in the following members:

- To identify all CICS regions:

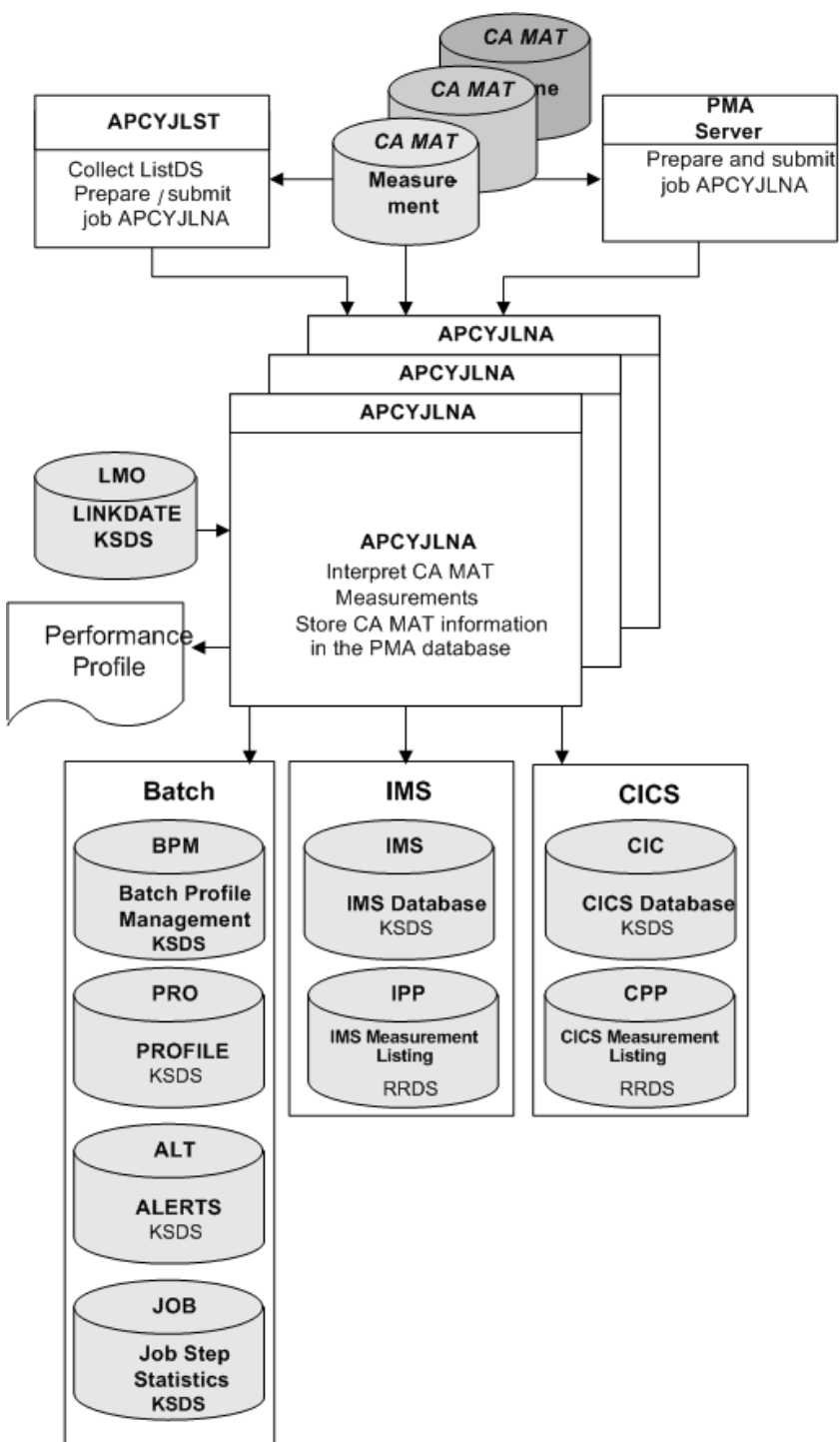
```
APCJCIC DD DSN=CA MAT.PMA.CNTL (APCCCINV), DISP=SHR
```

- To identify all IMS regions:

```
APCJIMS DD DSN=CAMAT.PMA.CNTL (APCICINV),DISP=SHR
```

The JCL for job APCYJLNA is found at DDNAME INTUPROF of job APCYJLST. It is input to the internal reader. Make sure that the job card of APCYJLNA is customized to fit your environment.

You can choose any kind of rename for the sample data set, for example, for a test installation.



Job APCYJLST - Evaluate Sample Data Sets

Job APCYJLST performs the following functions:

- Collects all CAMAT measurements belonging to the user defined prefix
See [Processing Global Measurement Data Sets](#) for details about how to define this prefix. The maximum number of sample data sets that can be processed with one execution of job APCYJLST is 1000.
- Decides if the measurement has already been processed by PMA
- Groups all CICS and IMS/DC processing in an execution of job APCYJLNA
Regions are identified by processing the APCCCINV and APCICINV members, respectively. The maximum number of sample data sets that can be processed on a single day for either IMS or CICS is 100.
- Submits job APCYJLNA

```

...JOB CARD
//*
//*
//*
//*
//*
//*****
//*
//*      PMA: APCYJLST
//*
//* MAINTENANCE: PMA TEAM
//*
//* ACTION:      PREPARE AND START UP JOB APCYJLNA
//*
//*------*
//* Copyright (C) 2012 CA. All Rights Reserved.
//* Copyright (C) Trilog AG.
//*****
//*
//*****
//* DEL    TEMPFIL
//*****
//IDCAMS   EXEC PGM=IDCAMS
//SYSPRINT DD SYSOUT=T
//SYSOUT   DD SYSOUT=T
//SYSTSPT  DD SYSOUT=T
//SYSIN    DD *
           DELETE CAMAT.PMA.TEMPFILE.CATS
           DELETE CAMAT.PMA.TEMPFILE.CMDS
           SET MAXCC=0000
//*****
//* CREATE TEMPFIL
//*****
//IEFBR14A EXEC PGM=IEFBR14
//TEMPCAT  DD DSN=CAMAT.PMA.TEMPFILE.CATS,
//          DISP=(NEW,CATLG),
//          DCB=(RECFM=FBA,LRECL=121,BLKSIZE=23474),
//          SPACE=(TRK,(1,1)),
//          UNIT=SYSDA
//TEMPCMD  DD DSN=CAMAT.PMA.TEMPFILE.CMDS,
//          DISP=(NEW,CATLG),
//          DCB=(RECFM=FB,LRECL=80),
//          SPACE=(TRK,(1)),
//          UNIT=SYSDA
//*
//*****
//* GENERATE AND INTERPRETE CA MAT MONITOR DATASET
//*****
//APCYALST EXEC PGM=APCYALST

```

```
//*
//STEPLIB DD DSN=CAMAT.PMA.CEETLOAD,
//      DISP=SHR
//SYSUDUMP DD SYSOUT=*
//LISTCMD DD DSN=CAMAT.PMA.TEMPFILE.CMDS,
//      DISP=SHR
//LISTCAT DD DSN=CAMAT.PMA.TEMPFILE.CATS,
//      DISP=SHR
//JCLPROF DD SYSOUT=(,INTRDR),
//      DCB=(RECFM=FB,LRECL=80)
//INTUPROF DD DSN=CAMAT.PMA.CNTL(APCYJLNA),
//      DISP=SHR
//APCJCIC DD DSN=CAMAT.PMA.CNTL(APCCCINV),
//      DISP=SHR
//APCJIMS DD DSN=CAMAT.PMA.CNTL(APCICINV),
//      DISP=SHR
//APCPARAM DD DSN=CAMAT.PMA.PARMS,
//      DISP=SHR
//APCJLOG1 DD DSN=CAMAT.PMA.LOG,
//      DISP=MOD
//APCBPR01 DD DSN=CAMAT.PMA.KSDSPRO,
//      DISP=SHR
//APCBBPM1 DD DSN=CAMAT.PMA.KDSBPM,
//      DISP=SHR
//APCIPR01 DD DSN=CAMAT.PMA.KSDSIMS,
//      DISP=SHR
//APCCPR01 DD DSN=CAMAT.PMA.KSDSCIC,
//      DISP=SHR
//APCREP DD SYSOUT=*
//APCEREP DD SYSOUT=*
//*****
//* DELETE TEMPFILE
//*****
//IEFBR14B EXEC PGM=IEFBR14,COND=EVEN
//TEMPCATR DD DSN=CAMAT.PMA.TEMPFILE.CATS,
//      DISP=(MOD,DELETE)
//TEMPCMDR DD DSN=CAMAT.PMA.TEMPFILE.CMDS,
//      DISP=(MOD,DELETE)
```

Job APCYJLNA- Interpret CA MAT Measurements List

Job APCYJLNA performs the following functions:

- Generate and interpret CA MAT Performance Measurements lists
- Save the history information
- If the job step execution belongs to the TOP Scope, store the Performance Measurements as determined by the user

- Delete the sample data sets as defined by the user in the parameters
- Store the Performance Profiles when one of the values for CPU Time, Session Time or EXCPs exceeds the defined threshold
- Provides the alert management that changes the alert states from PEND to OPEN, CIMP, or CTHR

There are exceptions regarding how the PEND state is managed:

- Alert reason SRVU and ELPS: If the measured job step execution belongs to the TOP Scope, the alert state PEND is unchanged, which means another measurement occurs; otherwise, the alert state is changed to CIMP and no further measurement occurs.
- Alert reason MODC: The alert state PEND is changed to CIMP, whether the job step belongs to the TOP Scope or not, which means there are no further measurement.
- Alert reason USER: The alert state PEND is unchanged, whether the job step belongs to the TOP Scope or not. This means another measurement occurs.

At DD name APCSALT, each new alert that is opened is provided along with the relevant alert information. This makes it very easy to use this file and the information for further processing in any organization. Using a simple REXX procedure, the key data is easy to gather and use in a problem management product or a mailing facility. Alerts for job steps and CICS or IMS transactions are provided.

The following example is an example of a job step alert.

```

$$ALERT
$RQ=Q                                CA MAT REQUEST A(CTIVE) / Q(UEUED)
$JN=PRLZ1770LZPROC1 LZSTP02          JOBSTEP NAME
$SD=2010-01-04                      SESSION DATE AS YYYY-MM-DD
$ET=0043                             ELAPSED (SESSION) TIME IN MINUTES
$CT=0012                             CPU TIME IN MINUTES
$WT=0017                             WAIT TIME IN MINUTES
$EX=00000000                         EXCPS IN THOUSANDS
$AT=006                             ALERT TEXT WITH NNN LINES
2010-01-04 PMA ALERT ID 16049        BY SRVU
-----
JOB: PRLZ1770 LZPROC1 LZSTP02  PGM: P5LZ770
EXEC: 2010-01-03 22:00 SYS: DSYS      CC: 0000
CPU: 00012 ELPSD: 00037 EXCPS: 000000 SRVU: 036559 I: 23
-----
$$ALEND

```

The following example is an example of a transaction alert.

```
$$ALERT
$SS=CICS                      SUBSYSTEM ( CICS / IMS )
$SN=PNP1                      SYSTEM NAME
$TX=OKSS                      TRANSACTION NAME
$CM=00627                    MEASURED CPU TIME %
$CA=00022                    AVERAGE CPU TIME %
$AT=005                      ALERT TEXT WITH NNN LINES
2010-01-09 PMA ALERT ID 16187 BY STAT
-----
TRANSACTION : OKSS          SYSTEM : PNP1          PGM : CIC1PNP1
CPU% MEAS : 6.27          AVERAGE : .22          STD.DEV : .24
-----
$$ALEND
```

The program report (DD statement APCREP) provides a detailed overview of the activities per list data set. Every measurement is interpreted only once. So if the scopes of work are changed, the new scopes are only considered on an ongoing basis.

The following example is a JCL illustration of Job APCYJLNA.

```

...JOB CARD
//*
//*
/*****
//*
//*      PMA: APCYJLNA
//*
//*      MAINTENANCE: PMA TEAM
//*
//*      FUNCTION:      DAILY INTERPRETATION OF NEW PMA INITIATED
//*                    CA MAT MEASUREMENTS. THE LISTS ARE NOW PROVIDED
//*                    BY CA MAT.
//*
/*****
/* Copyright (C) 2012 CA. All Rights Reserved.
/* Copyright (C) Trilog AG.
/*****
/*
/*****
/* DEL      TEMPFIL
/*****
//IDCAMS    EXEC PGM=IDCAMS
//SYSPRINT  DD SYSOUT=T
//SYSOUT    DD SYSOUT=T
//SYSTSPRT  DD SYSOUT=T
//SYSIN     DD *
            DELETE CAMAT.PMA.TEMPFIL.NARROW
            DELETE CAMAT.PMA.TEMPFIL.CATN
            DELETE CAMAT.PMA.TEMPFIL.COMDN
SET MAXCC=0000
/*****
/* CREATE TEMPFIL
/*****
//IEFBR14A  EXEC PGM=IEFBR14
//TEMPNARR DD DSN=CAMAT.PMA.TEMPFIL.NARROW,
//          DISP=(MOD,CATLG),
//          DCB=(RECFM=FB,LRECL=80),
//          SPACE=(CYL,(2,2)),
//          UNIT=SYSDA
//TEMPCAT  DD DSN=CAMAT.PMA.TEMPFIL.CATN,
//          DISP=(MOD,CATLG),
//          DCB=(RECFM=FBA,LRECL=121,BLKSIZE=23474),
//          SPACE=(TRK,(1,1)),
//          UNIT=SYSDA
//TEMPCMD  DD DSN=CAMAT.PMA.TEMPFIL.COMDN,
//          DISP=(MOD,CATLG),
//          DCB=(RECFM=FB,LRECL=80),
//          SPACE=(TRK,(1)),

```

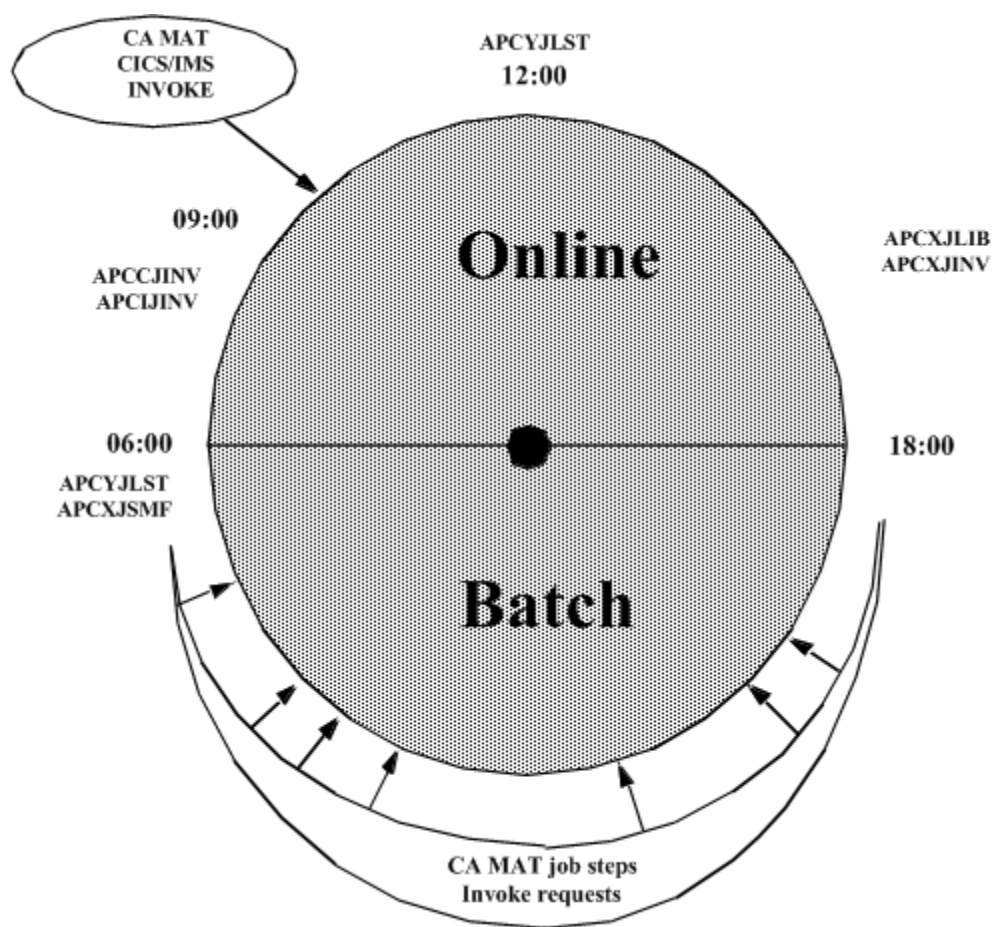
```
//          UNIT=SYSDA
//*****
//* INTERPRETE CA MAT PROFILE
//*****
//APCYANAR EXEC PGM=APCYANAR,PARM='L'
//*
//STEPLIB DD DSN=CAMAT.PMA.CEETLOAD,
//          DISP=SHR
//SYSUDUMP DD SYSOUT=*
//LISTCMD DD DSN=CAMAT.PMA.TEMPFILE.CMDN,
//          DISP=(SHR,,DELETE)
//LISTCAT DD DSN=CAMAT.PMA.TEMPFILE.CATN,
//          DISP=(SHR,,DELETE)
//APCNAR DD DSN=CAMAT.PMA.TEMPFILE.NARROW,
//          DISP=SHR
//APCPARAM DD DSN=CAMAT.PMA.PARMS,
//          DISP=SHR
//APCJLOG1 DD DSN=CAMAT.PMA.LOG,
//          DISP=MOD
//APCBIPP1 DD DSN=CAMAT.PMA.RRDSIPP,
//          DISP=SHR
//APCBCPP1 DD DSN=CAMAT.PMA.RRDSCPP,
//          DISP=SHR
//APCBPR01 DD DSN=CAMAT.PMA.KSDSPRO,
//          DISP=SHR
//APCBBPM1 DD DSN=CAMAT.PMA.KSDSBPM,
//          DISP=SHR
//APCBALT1 DD DSN=CAMAT.PMA.KSDSALT,
//          DISP=SHR
//APCBLM01 DD DSN=CAMAT.PMA.KSDSLM0,
//          DISP=SHR
//APCBJOB1 DD DSN=CAMAT.PMA.KSDSJOB,
//          DISP=SHR
//APCIPR01 DD DSN=CAMAT.PMA.KSDSIMS,
//          DISP=SHR
//APCCPR01 DD DSN=CAMAT.PMA.KSDSCIC,
//          DISP=SHR
//APCBSQL1 DD DSN=CAMAT.PMA.KSDSSQL,
//          DISP=SHR
//PRINTPRF DD SYSOUT=*
//APCSALT DD SYSOUT=*
//APCEREP DD SYSOUT=*
//APCREP DD SYSOUT=*
//SYSOUT DD SYSOUT=*
//* APCLIST MUST BE THE LAST STATEMENT IN THIS JCL MBR
//APCLIST DD *
```

Scheduling Batch Jobs

This section provides a recommended time line for scheduling the batch jobs. The specific scheduling considerations of each job are detailed with the corresponding job section within this chapter. It is recommended that all Central Component batch jobs be executed daily.

It is strongly recommended that jobs APCYJLST, APCXJSMF, and APCXJLIB be executed serially and in the specified order. Failure to do so may produce unpredictable results.

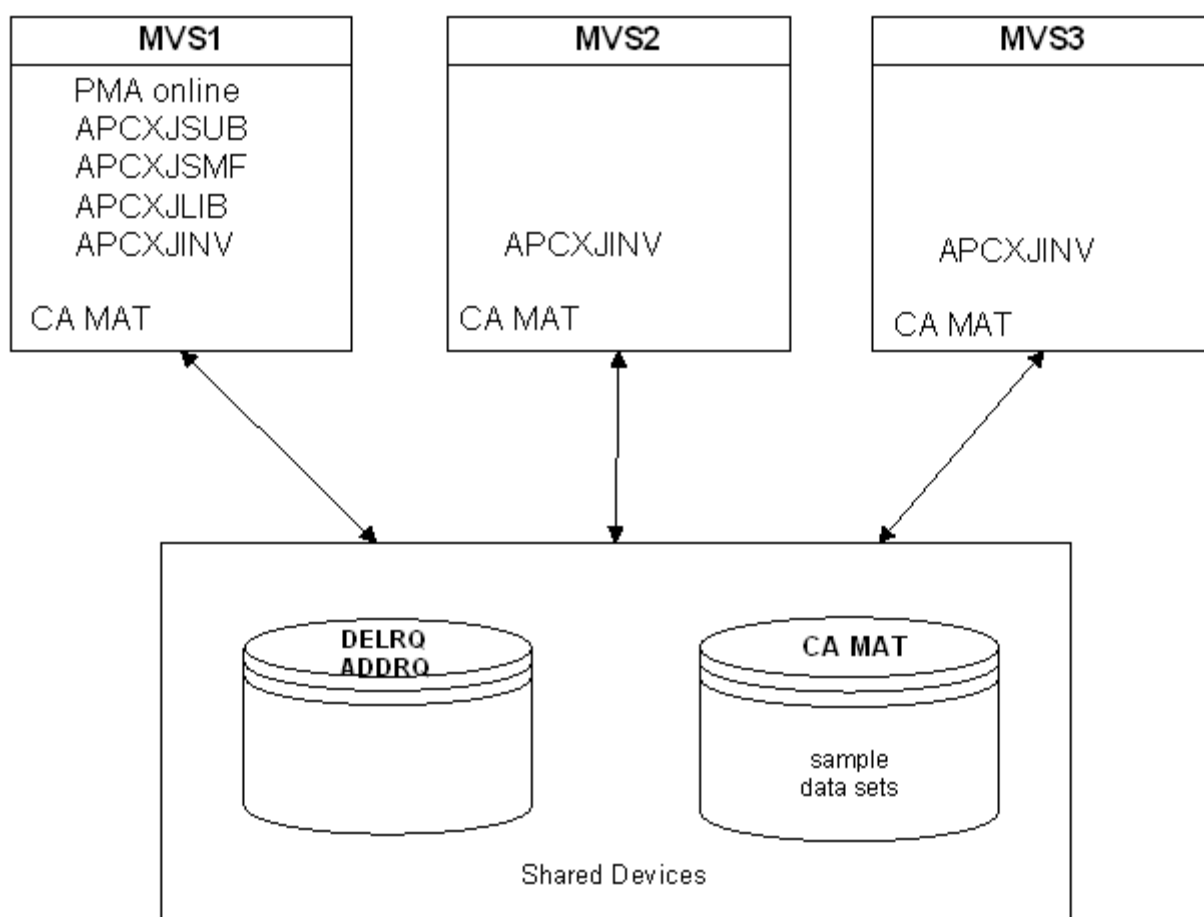
The illustration following provides a guideline regarding how the execution of these jobs should be planned.



Multiple System Environment

If your work spans multiple systems, it is often difficult to determine on which computer a job is being processed. CA MAT measurement requests need to be entered in every computer system in order to guarantee that your job is actually measured. Performance Management Assistant can cope with this situation and thereby reduce your workload considerably.

If used in a parallel sysplex environment, Performance Management Assistant should be run as in a single system environment because CA MAT takes care of spreading the measurement requests. In this case, enter TARGSYS1(*) as an additional parameter on the panel for General Parameters.



Job APCBJREO - Maintenance of Batch Data Cluster

Job APCBJREO performs the following database maintenance function:

- It deletes expired data according to its lifetime as defined by the general parameter called **Delete data if older than**. This parameter must be defined on the General Parameters panel in the Central Component.

Job APCBJREO has the following scheduling considerations:

- Exclusive control of all VSAM clusters is recommended but not required.
- It should be executed at least once a month. The middle of the month is recommended.

The JCL for job APCBJREO is shown following.

```
...JOB CARD
//*
//*****
//*
//* PMA: APCBJREO      *
//*                      *
//* MAINTENANCE: PMA TEAM                      *
//*
//* ACTION:      PERIODIC MAINTENANCE OF PMA BATCH DATA CLUSTER *
//*
//* FUNCTION:    DELETE ALL RECORDS ON THE PMA BATCH CLUSTER WHICH *
//*              HAVE EXCEEDED THE DEFINED LIFETIME.                *
//*
//* FILES :      JOB FILE                      *
//*              ALERT FILE                    *
//*              BATCH PROFILE MANAGEMENT FILE *
//*              BATCH PROFILE FILE            *
//*              EXCLUSION FILE                *
//*              LOAD MODULE FILE              *
//*
//*------*
//* Copyright (C) 2012 CA. All Rights Reserved.
//* Copyright (C) Trilog AG.
//*****
//*****
//* MAINTENANCE OF PMA BATCH CLUSTER *
//* DELETE ALL ENTRIES WITH EXPIRED LIFETIME *
//*****
//*
//APCBAREO EXEC PGM=APCBAREO
//STEPLIB DD DISP=SHR,
//          DSN=CAMAT.PMA.CEETLOAD
//APCPARAM DD DISP=SHR,
//          DSN=CAMAT.PMA.PARMS
//APCBEXC1 DD DISP=SHR,
//          DSN=CAMAT.PMA.KSDSEXC
//APCBJOB1 DD DISP=SHR,
//          DSN=CAMAT.PMA.KSDSJOB
//APCBALT1 DD DISP=SHR,
//          DSN=CAMAT.PMA.KSDSALT
//APCBBPM1 DD DISP=SHR,
//          DSN=CAMAT.PMA.KSDSBPM
//APCBPR01 DD DISP=SHR,
//          DSN=CAMAT.PMA.KSDSPRO
//APCREP DD SYSOUT=*
//APCEREP DD SYSOUT=*
//*
```


Program APCBAREO

Program APCBAREO deletes the information that has expired based on the user defined lifetime. All deleted entries are reported in the SYSOUT DD statement APCREP. The program consists of the following parts:

- The Central Component KSDS clusters are checked. Each entry is compared against the user-defined lifetime (see the **Delete job data if older than** parameter in section General Parameters). If the lifetime is expired, meaning the job step has not executed during the last *nn* number of months, the job entry is discarded and all corresponding entries in the alert files and measurements, too.
- All alert entries of the Central Component are compared with the corresponding lifetime values for certain alert states that may be user defined in Alert Delete Options. If the lifetime of the alert is expired, the alert entry is deleted. See Central Component Alert Delete Options for more information about deleting alerts.

Job APCDJREO - Maintenance of Online Data Cluster

Job APCDJREO performs the following database maintenance functions:

- It deletes expired data according to its lifetime as defined by the general parameter called **Delete data if older than**. This parameter must be defined on the General Parameters panel in the Central Component.

Job APCDJREO has the following scheduling considerations:

- Exclusive control of all VSAM clusters is recommended but not required.
- It should be executed at least once a month; the middle of the month is recommended.

Program APCDAREO

Program APCDAREO deletes the information that has expired based on the user-defined lifetime. All deleted entries are reported in the SYSOUT DD statement APCREP. The program consists of the following parts:

- All stored data of the CICS and IMS/DC Features are compared with their corresponding lifetime, usually user defined as a general parameter called **Delete data if older than**. If the lifetime is expired, the online data records and corresponding transaction alert entries are deleted.

The JCL for job APCDJREO is provided next.

```
...JOB CARD
//*
//*
//*
//*****
//*
//*      PMA: APCDJREO
//*
//* MAINTENANCE: PMA TEAM
//*
//* ACTION:      PERIODIC MAINTENANCE OF PMA CICS/IMS CLUSTER
//*
//* FUNCTION:    DELETE ALL RECORDS ON THE PMA ONLINE CLUSTER WHICH
//*              HAVE EXCEEDED THE DEFINED LIFETIME.
//*
//* FILES :      ALERT FILE
//*              IMS PROFILE FILE
//*              CICS PROFILE FILE
//*
//*------*
//* Copyright (C) 2012 CA. All Rights Reserved.
//* Copyright (C) Trilog AG.
//*****
//*****
//*      MAINTENANCE OF PMA ONLINE DATA CLUSTER
//*      DELETE ALL ENTRIES WITH EXPIRED LIFETIME
//*****
//*
//APCDAREO EXEC PGM=APCDAREO
//STEPLIB DD DISP=SHR,
//          DSN=CAMAT.PMA.CEETLOAD
//APCPARAM DD DISP=SHR,
//          DSN=CAMAT.PMA.PARMS
//APCBALT1 DD DISP=SHR,
//          DSN=CAMAT.PMA.KSDSALT
//APCIPR01 DD DISP=SHR,
//          DSN=CAMAT.PMA.KSDSIMS
//APCCPR01 DD DISP=SHR,
//          DSN=CAMAT.PMA.KSDSCIC
//APCCST1 DD DISP=SHR,
//          DSN=CAMAT.PMA.KSDSCST
//APCREP DD SYSOUT=*
//APCEREP DD SYSOUT=*
//*
```

Job APCBJRDR - Reload of Batch Online Data Cluster

Job APCBJRDR performs the following database maintenance functions:

- It saves data through IDCAMS REPRO, deletes and defines the VSAM clusters and reloads the saved data through IDCAMS REPRO.
- For each VSAM cluster, a JCL &-variable is used and is set to 1, which means that the reload for this cluster is to process. If the reload should not be processed for a cluster, the variable must be set to 0 (or any value other than 1).
- The saved sequential data sets are not deleted. But if the reload job runs again, the previously saved data sets are deleted, if they still exist.

The JCL for job APCBJRDR is provided next.

```
//JOB CARD...
//*
//*
//*****
/* SAVE WITH REPRO, DELETE/DEFINE CLUSTER, LOAD WITH REPRO      *
//*****
/* DEFINE WHICH CLUSTER YOU WANT TO GET PROCESSED                *
/* 0=NO FILE 1=GO GET IT                                          *
//*****
// SET GETJOB=1      JOB DATA CLUSTER      -KSDSJOB-
// SET GETEXCF=1     EXCLUSION CLUSTER      -KSDSEXC-
// SET GETALTF=1     ALERT DATA CLUSTER    -KSDSALT-
// SET GETBPMF=1     BATCH PROFILE INDEX CLUSTER -KSDSBPM-
// SET GETPROF=1     BATCH PROFILE DATA CLUSTER -KSDSPRO-
// SET GETLMOF=1     LOAD MODULE DATA CLUSTER -KSDSLMO-
//*****
/* FILES :      JOB FILE      *
/*              EXCLUSION FILE *
/*              ALERT FILE    *
/*              BATCH PROFILE MANAGEMENT FILE *
/*              BATCH PROFILE FILE *
/*              LOAD MODULE FILE *
/*-----*
/* Copyright (C) 2012 CA. All Rights Reserved.
/* Copyright (C) Trilog AG.
//*****
/*
/* IF (&GETJOB EQ 1) THEN
/*
//*****
/* DELETE POSSIBLY EXISTING KSDSJOB TEMPFILE
//*****
//DELJOB EXEC PGM=IDCAMS
//SYSPRINT DD SYSOUT=T
//SYSOUT DD SYSOUT=T
//SYSPRINT DD SYSOUT=T
//SYSIN DD *
      DELETE CAMAT.PMA.REPROJOB
      SET MAXCC=0000
/*
//*****
/* JOB CLUSTER -KSDSJOB-
//*****
//KSDSJOB1 EXEC PGM=IDCAMS
//SYSPRINT DD SYSOUT=*
//INDD DD DISP=SHR,
//      DSN=CAMAT.PMA.KSDSJOB
```

```

//OUTDD    DD DISP=(NEW,CATLG,DELETE),
//          SPACE=(CYL,(50,10)),
//          DCB=(LRECL=8189,RECFM=VB,BLKSIZE=8193),
//          UNIT=SYSDA,
//          DSN=CAMAT.PMA.REPROJOB
//SYSIN     DD *
      REPRO INFILE(INDD) OUTFILE(OUTDD)
/*
/*
//KSDSJOB2 EXEC PGM=IDCAMS,COND=(0,NE)
//SYSPRINT DD SYSOUT=*
//SYSIN DD DISP=SHR,
//          DSN=CAMAT.PMA.CNTL(DEDEFJOB)
/*
//KSDSJOB3 EXEC PGM=IDCAMS,COND=(0,NE)
//SYSPRINT DD SYSOUT=*
//TEMP     DD DISP=OLD,
//          DSN=CAMAT.PMA.REPROJOB
//SYSIN DD DISP=SHR,
//          DSN=CAMAT.PMA.CNTL(REPROJOB)
/*
// ENDIF
/*
/*-----
/* END OF KSDSJOB PROCESSING
/*-----
// IF (&GETEXCF EQ 1) THEN
/*
/******
/* DELETE POSSIBLY EXISTING KSDSEXC TEMPFIL
/******
//DELEXCT EXEC PGM=IDCAMS
//SYSPRINT DD SYSOUT=T
//SYSOUT   DD SYSOUT=T
//SYSTSPRT DD SYSOUT=T
//SYSIN    DD *
      DELETE CAMAT.PMA.REPROEXC
      SET MAXCC=0000
/*
/******
/* EXC CLUSTER -KSDSEXC-
/******
//KSDSEXC1 EXEC PGM=IDCAMS
//SYSPRINT DD SYSOUT=*
//INDD     DD DISP=SHR,
//          DSN=CAMAT.PMA.KSDSEXC
//OUTDD    DD DISP=(NEW,CATLG,DELETE),
//          SPACE=(CYL,(50,10)),
//          DCB=(LRECL=8189,RECFM=VB,BLKSIZE=8193),

```

```
//          UNIT=SYSDA,
//          DSN=CAMAT.PMA.REPROEXC
//SYSIN    DD *
    REPRO INFILE(INDD) OUTFILE(OUTDD)
/*
//*
//KSDSEXC2 EXEC PGM=IDCAMS,COND=(0,NE)
//SYSPRINT DD SYSOUT=*
//SYSIN DD DISP=SHR,
//          DSN=CAMAT.PMA.CNTL(DEDEFEXC)
//*
//KSDSEXC3 EXEC PGM=IDCAMS,COND=(0,NE)
//SYSPRINT DD SYSOUT=*
//TEMP    DD DISP=OLD,
//          DSN=CAMAT.PMA.REPROEXC
//SYSIN DD DISP=SHR,
//          DSN=CAMAT.PMA.CNTL(REPROEXC)
//*
// ENDIF
//*
//*-----
//* END OF KSDSEXC PROCESSING
//*-----
// IF (&GETALTF EQ 1) THEN
//*
//*****
//* DELETE POSSIBLY EXISTING KSDSALT TEMPFILE
//*****
//DELALTT EXEC PGM=IDCAMS
//SYSPRINT DD SYSOUT=T
//SYSOUT   DD SYSOUT=T
//SYSTSPRT DD SYSOUT=T
//SYSIN    DD *
    DELETE CAMAT.PMA.REPROALT
    SET MAXCC=0000
/*
//*****
//* ALT CLUSTER -KSDSALT-
//*****
//KSDSALT1 EXEC PGM=IDCAMS
//SYSPRINT DD SYSOUT=*
//INDD     DD DISP=SHR,
//          DSN=CAMAT.PMA.KSDSALT
//OUTDD    DD DISP=(NEW,CATLG,DELETE),
//          SPACE=(CYL,(50,10)),
//          DCB=(LRECL=8189,RECFM=VB,BLKSIZE=8193),
//          UNIT=SYSDA,
//          DSN=CAMAT.PMA.REPROALT
//SYSIN    DD *
```

```

      REPRO INFILE(INDD) OUTFILE(OUTDD)
/*
/**
//KSDSALT2 EXEC PGM=IDCAMS,COND=(0,NE)
//SYSPRINT DD SYSOUT=*
//SYSIN DD DISP=SHR,
//          DSN=CAMAT.PMA.CNTL(DEDEFAULT)
/**
//KSDSALT3 EXEC PGM=IDCAMS,COND=(0,NE)
//SYSPRINT DD SYSOUT=*
//TEMP DD DISP=OLD,
//          DSN=CAMAT.PMA.REPROALT
//SYSIN DD DISP=SHR,
//          DSN=CAMAT.PMA.CNTL(REPROALT)
/**
// ENDIF
/**
/**-----
/* END OF KSDSALT PROCESSING
/**-----
// IF (&GETBPMF EQ 1) THEN
/**
/******
/* DELETE POSSIBLY EXISTING KSDSBPM TEMPFILE
/******
//DELBPM EXEC PGM=IDCAMS
//SYSPRINT DD SYSOUT=T
//SYSOUT DD SYSOUT=T
//SYSTSPRT DD SYSOUT=T
//SYSIN DD *
      DELETE CAMAT.PMA.REPROBPM
      SET MAXCC=0000
/*
/******
/* BPM CLUSTER -KSDSBPM-
/******
//KSDSBPM1 EXEC PGM=IDCAMS
//SYSPRINT DD SYSOUT=*
//INDD DD DISP=SHR,
//          DSN=CAMAT.PMA.KSDSBPM
//OUTDD DD DISP=(NEW,CATLG,DELETE),
//          SPACE=(CYL,(50,10)),
//          DCB=(LRECL=8189,RECFM=VB,BLKSIZE=8193),
//          UNIT=SYSDA,
//          DSN=CAMAT.PMA.REPROBPM
//SYSIN DD *
      REPRO INFILE(INDD) OUTFILE(OUTDD)
/*
/**

```

```
//KSDSBPM2 EXEC PGM=IDCAMS,COND=(0,NE)
//SYSPRINT DD SYSOUT=*
//SYSIN DD DISP=SHR,
//          DSN=CAMAT.PMA.CNTL(DEDEFBPM)
//*
//KSDSBPM3 EXEC PGM=IDCAMS,COND=(0,NE)
//SYSPRINT DD SYSOUT=*
//TEMP DD DISP=OLD,
//          DSN=CAMAT.PMA.REPROBPM
//SYSIN DD DISP=SHR,
//          DSN=CAMAT.PMA.CNTL(REPROBPM)
//*
// ENDIF
//*
/*-----
/* END OF KSDSBPM PROCESSING
/*-----
// IF (&GETPROF EQ 1) THEN
/*
/******
/* DELETE POSSIBLY EXISTING KSDSPRO TEMPFILE
/******
//DELPROT EXEC PGM=IDCAMS
//SYSPRINT DD SYSOUT=T
//SYSOUT DD SYSOUT=T
//SYSTSPRT DD SYSOUT=T
//SYSIN DD *
        DELETE CAMAT.PMA.REPROPRO
        SET MAXCC=0000
/*
/******
/* PRO CLUSTER -KSDSPRO-
/******
//KSDSPRO1 EXEC PGM=IDCAMS
//SYSPRINT DD SYSOUT=*
//INDD DD DISP=SHR,
//          DSN=CAMAT.PMA.KSDSPRO
//OUTDD DD DISP=(NEW,CATLG,DELETE),
//          SPACE=(CYL,(50,10)),
//          DCB=(LRECL=8189,RECFM=VB,BLKSIZE=8193),
//          UNIT=SYSDA,
//          DSN=CAMAT.PMA.REPROPRO
//SYSIN DD *
        REPRO INFILE(INDD) OUTFILE(OUTDD)
/*
/*
//KSDSPRO2 EXEC PGM=IDCAMS,COND=(0,NE)
//SYSPRINT DD SYSOUT=*
//SYSIN DD DISP=SHR,
```



```

//          DSN=CAMAT.PMA.CNTL(DEDEFPRO)
//*
//KSDSPR03 EXEC PGM=IDCAMS,COND=(0,NE)
//SYSPRINT DD SYSOUT=*
//TEMP     DD DISP=OLD,
//          DSN=CAMAT.PMA.REPROPRO
//SYSIN DD DISP=SHR,
//          DSN=CAMAT.PMA.CNTL(REPROPRO)
//*
// ENDIF
//*
/*-----
/* END OF KSDSPRO PROCESSING
/*-----
// IF (&GETLMOF EQ 1) THEN
//*
/******
/* DELETE POSSIBLY EXISTING KSDSLMO TEMPFIL
/******
//DELLMOT EXEC PGM=IDCAMS
//SYSPRINT DD SYSOUT=T
//SYSOUT   DD SYSOUT=T
//SYSTSPRT DD SYSOUT=T
//SYSIN    DD *
        DELETE CAMAT.PMA.REPROLMO
        SET MAXCC=0000
/*
/******
/* LMO CLUSTER -KSDSLMO-
/******
//KSDSLM01 EXEC PGM=IDCAMS
//SYSPRINT DD SYSOUT=*
//INDD     DD DISP=SHR,
//          DSN=CAMAT.PMA.KSDSLMO
//OUTDD    DD DISP=(NEW,CATLG,DELETE),
//          SPACE=(CYL,(50,10)),
//          DCB=(LRECL=8189,RECFM=VB,BLKSIZE=8193),
//          UNIT=SYSDA,
//          DSN=CAMAT.PMA.REPROLMO
//SYSIN    DD *
        REPRO INFILE(INDD) OUTFILE(OUTDD)
/*
/*
//KSDSLM02 EXEC PGM=IDCAMS,COND=(0,NE)
//SYSPRINT DD SYSOUT=*
//SYSIN DD DISP=SHR,
//          DSN=CAMAT.PMA.CNTL(DEDEFLMO)
/*
//KSDSLM03 EXEC PGM=IDCAMS,COND=(0,NE)

```

```

//SYSPRINT DD SYSOUT=*
//TEMP DD DISP=OLD,
//          DSN=CAMAT.PMA.REPROLMO
//SYSIN DD DISP=SHR,
//          DSN=CAMAT.PMA.CNTL(REPROLMO)
//*
// ENDIF
//*
/*-----
/* END OF KSDSLMO PROCESSING
/*-----

```

Parameter Administration

To view or edit the Central Component parameters, select the Parameters option on the Main Menu. The Parameters Menu is displayed, as shown following.

```

APCXP00 --- PMA --- Parameters Menu -----
Enter an Option ==>

TSO User          U1 Print Job JCL

Global Parameters  G1 Measurement DS processing
Global OnLine Parns G2 CICS and IMS

Central Component  X1 General Central Component Parameters
                  X2 Scope of Work
                  X3 Standard Programs
                  X4 Standard Procedures
                  X5 Load Module Libraries
                  X6 Job Libraries
                  X7 Procedure Libraries

                  AS MDC Alert suppression

Thresholds        TA Absolute Alert Thresholds
                  TX Performance Index Alert Thresholds
                  TM Minimum Consumption Thresholds
                  TH Open Alert Thresholds

PMA SERVER        S1 General PMA SERVER Parameters

CICS Feature      C1 General CICS Feature Parameters
                  C2 System Control
                  C3 CICS Load Module Libraries
                  C4 CICS SMF Scope Definitions
                  C5 CICS SMF Aggregation Control

IMS Feature       I1 General IMS Feature Parameters
                  I2 System Control
                  I3 IMS Load Module Libraries
                  I4 IMS INFO Scope Definitions
                  I5 IMS INFO Aggregation Control

```

If the entire menu does not fit on your screen, press F8 to view the remaining options.

All users need update access authority to the parameter data set.

To use the Parameters Menu, type the selection number in the Enter an Option field. The following list shows the parameter options:

U1

User specific JCL statements to be used for printing reports of all components

G1

User specific JCL statements to be used for printing reports of all components

G2

Global measurement data set processing

G2

Define global online thresholds for CICS and IMS

X1

General Central Component parameters such as password and measurement specifications

X2

Central Component scope of work for Performance Management Assistant and CA Mainframe Application Tuner

X3

Standard program names that allow the Central Component to recognize calls of application programs

X4

Standard procedure names that allow the Central Component to recognize calls of application programs

X5

Load module library names to be examined by the Central Component

X6

Job library names to be examined by the Central Component

X7

Procedure libraries to be examined by the Central Component

AS

Module change alert suppression to be examined by the Alert Handling of the Central Component

TA

Absolute alert threshold values to be used by the alert handling of the Central Component

TX

Performance index alert threshold values

TM

Minimum consumption alert threshold values to be used by the Server and batch SMF processing

TH

Open alert threshold values to be used by the Central Component

S1

General parameters to be used by the server; see Operating the Server.

C1, C2, C3, C4, C5

General parameters to be used by the CICS feature; see Defining Parameters.

I1, I2, I3, I4, I5

General parameters to be used by the IMS feature; see Defining Parameters.

Printing with JCL Statements

The following panel is displayed when you choose option **U1** on the Parameters Menu:

```

APCXPP01 --- PMA - Global Print JCL -----
COMMAND ==>

Enter your user specific JCL statements used in all PMA
features for Print:

//XXXXXXX JOB12345,XXX,CLASS=X,MSGCLASS=X
//*
//PRINT      EXEC  PGM=IEBGENER
//SYSIN      DD    DUMMY
//SYSPRINT   DD    SYSOUT=*
//SYSUT2     DD    SYSOUT=*
//SYSUT1     DD    *

Cancel: CAN
Save   : END OR PF3
  
```

Some options within the online dialog of components allow you to print information. Use this Global Print JCL panel to define the job card and JCL statements to be used when routing information to the printer. This print JCL is saved separately for each TSO user.

Processing Global Measurement Data Sets

The following panel displays when you choose option **G1** on the Parameters Menu:

```

APCYPP02 --- PMA - Measurement DS Processing -----
COMMAND ==>

These parameters allow you to determine how the PMA jobs will process
CA MAT Measurement data sets. The definitions are valid for all PMA
Features. The PMA jobs will recognize the kind of measurement
(Batch,CICS,IMS/DC) will store the data in PMA accordingly.

CA MAT monitor server name      : MATUNER
Measurement data set name prefix : PMA.CAMAT.MDS          max 26  char
Measurement list ds name prefix  : PMA.CAMAT.LST           max 26  char

Print measurements automatically : N      A/O/N (All/Open alerts/No)
Delete PMA processed meas. ds   : A      A/C/N (All/Closed alerts/No)
Aut.storage of meas. in PMA     : Y      Y/N

Cancel: CAN
Save  : END OR PF3

```

The parameters defined on this panel determine how the jobs process the CA MAT measurement data sets.

These global parameters are used by the Central Component, CICS Feature, and IMS Feature.

CA MAT monitor server name

Specifies the name of the CA MAT server.

Measurement data set name prefix

Lets you enter up to 26 characters to define the prefix of your CA MAT measurement data sets.

Measurement list ds name prefix

Lets you enter up to 26 characters to define the prefix of the data set that contains the CA MAT measurement reports.

Print measurements automatically

Indicates whether measurement reports should be automatically printed. The following values are valid inputs:

O

Indicates that measurement reports of all CAMAT measurements controlled by PMA are automatically printed when the alert state is first changed to OPEN.

A

Indicates that all measurement reports are printed.

N

Indicates that no measurement reports are printed. This option is the default.

Delete processed meas. ds

Indicates whether processed measurement data sets should be automatically deleted. The following values are valid input:

A

Indicates that all CAMAT measurement data sets are deleted automatically after successful processing.

C

Indicates that measurement data sets are deleted only if the alert state has been changed to CLOSED.

N

Indicates that measurement data sets are not deleted. However, the measurement data sets are not processed twice because the last processing date is stored in PMA. When N is entered, it is the user's responsibility to delete the data sets. The value of Aut. storage of meas. in PMA must also be N.

Aut. storage of meas. in PMA

Specifies that PMA can check every measurement data set having the high level qualifier defined above against the alert file to verify if the measurement was generated by PMA. If not, the history data is not saved.

Y

Saves historical information of measurements not generated by PMA. Please note that all job/job step combinations of measurement data sets having the defined high level qualifier are stored. If a measurement was not initiated by PMA, no alert entry exists but the measurement is processed.

N

Indicates that history data is not saved. Default value is N. If Delete processed meas. ds field = N, Aut. storage of meas. in PMA must also be N.

Monitor Data Sets of Alerts

Some panels provide an interface call to CA MAT through command AN, Analyze Normal. To use this interface, the following parameters must be set to N.

```
DELETE PMA PROCESSED MEAS.DS
AUT. STORAGE OF MEAS. IN PMA
```

Using these settings, the CA MAT monitor data sets are not deleted and remain available for detailed analysis with the CA MAT Analyze functions. For more details about how to call the CA MAT Analyze function, see the *User Guide*.

With these settings, PMA does not delete the CA MAT monitor data sets. Therefore, you must define the time frame for which the monitor data sets should be kept (that is, using SMS or defining expiration dates).

```
APCYPP02 --- PMA - Measurement DS Processing -----
COMMAND ==>

CA MAT Measurement data sets. The definitions are valid for all PMA
Features. The PMA jobs will recognize the kind of measurement
(Batch,CICS,IMS/DC) will store the data in PMA accordingly.

CA MAT monitor server name      : MATUNER
Measurement data set name prefix : CAMAT.PMA.MDS          max 26   char
Measurement list ds name prefix  : CAMAT.PMA.LST          max 26   char

Print measurements automatically : N          A/O/N (All/Open alerts/No)
Delete PMA processed meas. ds   : A          A/C/N (All/Closed alerts/No)
Aut.storage of meas. in PMA     : Y          Y/N

Cancel: CAN
Save   : END OR PF3
```

General Parameters

The following panel is displayed when you choose option **X1** on the Parameters Menu.

```
APCBPP01 --- PMA Central Component - General Parameters -----  
COMMAND ==>  
  
TOP Scope of most important steps: 10000      0-99999 (0 = no statistical alerts)  
Delete Job data if older than      : 13        1-18 months  
No. days PMA shall collect job  
    step stats before doing alerts : 10        0-99 days  
Measurement of modified programs : Y          Y/B/N (Y=changed/new,B=brand-new)  
    use TOP Scope : Y          Y/N  
MSG level for PMA batch jobs      : 1          0-2  
Max number of measurements/day    : 0200      0001-1000  
Type of runaway test (Perf. IX)  : ASIS       ASIS/I0IX/ALL  
  
Measurement duration  
Phase 1 < 10 min = AV min  Phase 2 < 30 min= 10 min  Phase 3 >= 30 min = 30 min  
    for steps with no valid average elapsed time use : 10 min 01-99  
  
Additional parameters for measurement requests invoked by PMA-BATCH/PMA-SERVER:  
    SAMPLECNT(6000) MONDSTRKS(300) MONDSSEC(50)  
  
WARNING: There is no validity check of these parameters. Entering an invalid  
parameter will prevent generation of measurement requests. This parameter must  
contain the sampling rate values. For more information see the help panel (F1)  
    Save : END OR PF3      Cancel: CAN
```


The fields on this panel are described next.

Field name	Description
TOP Scope of most important job steps:	Enter the number that you want PMA to use when identifying the top resource consuming job steps. This value affects the number of statistical alerts that are generated. The job steps belonging to the TOP Scope can be viewed easily by using Job Step Query Facility. Within the scope of work that is defined through inclusions and exclusions of job names and programs, the scope can be further drastically reduced by using TOP Scope. The TOP Scope facility identifies the job steps consuming the greatest resources and limits the measurements to this group. To define the use of the TOP Scope, there is only one parameter. This parameter is called TOP Scope of important steps and may contain a value from 0 - 99999. A value of 0 indicates that no statistical alerts should be generated by PMA. In all other cases, the TOP Scope defines how many important job steps should be statistically observed. The TOP Scope results are generated at least twice a day under job step APCBAALM of job APCXJLIB and under job step APCXACAL of job APCXJSMF or optionally after changing the TOP Scope through the online dialog. To figure out the TOP Scope, PMA computes the importance of a job step by using the following algorithm: $\text{importance} = \log_2(\text{srvu}) + \log_2(\text{\# of executions per month}) + \log_2(\text{elpsd})$ Based on the results of this computation, the importance is computed for each job step of the job file and the top limited number of the most important steps are flagged. To review the results, simply select the TOP method of the Job Query Facility panel. Note: The importance formula is equivalent to the product of average service units, the number of step executions, and average elapsed time. The TOP Scope method uses the importance formula to select the top resource-consuming job steps up to the limit set in the TOP Scope = nnn parameter. Statistical alerts and measurements are limited to the members of this group of large consumers. USER alerts and MODC alerts can be subject to the TOP Scope by selecting the use TOP Scope option.
Delete job data if older than:	Enter the number of months that job step information should be kept. Job step information that is older than this number of months is deleted by maintenance job APCBJREO.
No. days PMA shall collect job step stats before doing alerts:	The parameter is used only during the product startup phase. It defines the number of days that statistics should be collected before PMA gives alerts. This limit means that the calculation should not give alerts before it has reached the time range from the first execution of job APCXJSMF to the day of first execution plus this number of days. A high value improves the statistical base for the job steps.

Measurement of modified programs:	Enter a value to determine whether PMA should request measurements for new modules or new and modified modules. ■ Y All modified and new programs should be measured. ■ N No alerts are created if a module has changed and load libraries are not scanned. ■ B Only brand new programs should be measured. This option drastically reduces the load library scan process.
use TOP Scope:	If a new or changed program is found, enter a value to indicate whether the TOP Scope processing logic should be used to determine whether a measurement should take place. ■ Y Measure only the changed or new programs that are executed in job steps belonging to the TOP Scope. ■ N Measure all changed or new programs regardless of the TOP Scope. Note: The combination of only brand new programs and use TOP Scope=N is invalid because no statistical average exists for the new programs or job steps.
MSG level for batch jobs:	When executing the batch jobs, messages can be generated at different levels on the statement APCREP: 0 - Only processing results are presented (that is, number of records processed, and so on.) 1 - Processing errors are presented. 2 - Processing errors and warnings are presented. It is recommended that MSGlevel = 0 or 1 be used. Many messages might be generated when using MSGlevel = 2. The default value is 1.
Max number of measurements/day:	During installation, you can enter the maximum number of measurement requests that should be placed in the measurement queue. If PMA attempts to generate more than the maximum number of measurements you entered, an appropriate message is provided in the batch report output file APCREP (step APCBAALM of job APCXJLIB).

Type of runaway test (Perf. IX):	Enter the type of runaway test to be performed by job APCXJSMF. You can decide whether the runaway test should be done as in previous releases for the absolute values of elapsed time and service units, or whether you want to use performance indexes for runaway alerts. Performance indexes are quotients measuring the absolute consumption values relative to either the IO consumption or to the elapsed time. Following values are possible: ■ ASIS - Runaway testing is done with the same values (elapsed time, service units) as in the previous releases. ■ IOIX - Runaway testing is done with the ratios elapsed time/IO consumption and service units/IO consumption. ■ ALL - Runaway testing is done for all possible measurements; that is for absolute consumption values and for performance index (ratio) values. Setting this parameter to ALL has the same function as the previous two parameter settings (ASIS, IOIX) together.
Measurement duration	Enter values to determine the measurement duration to be assigned job steps based on the average elapsed time of the step to be measured. The settings define the three period-based measurement phases that can be applied to job steps, depending on their average elapsed time, as follows: ■ Phase 1 < p1 min = t1 min - Short steps of less than p1 minutes. Average elapsed times are assigned a measurement duration value of t1 minutes. ■ Phase 2 < p2 min = t2 min - Medium steps of greater than or equal to p1 minutes and less than p2 minutes. Average elapsed times are assigned a measurement duration value of t2 minutes. ■ Phase 3 >= p2 min = t3 min - Long steps of greater than or equal to p2 minutes. Average elapsed times are assigned a measurement duration value of t3 minutes. For steps with no valid average elapsed time, use de min 01-99. Steps that do not have a valid historical elapsed time will use this value. It can also be used as the time setting for one or more measurement phases or set as the value to be used for all Dynamic Alerts. <i>p1</i> and <i>p2</i> must be in the range 01-99 and the <i>p1</i> values must be less than the <i>p2</i> value. <i>t1</i>, <i>t2</i> and <i>t3</i> can be set to 01-99 minutes, to AV to use the step average elapsed, or set to DE to use the default value as set for jobs with no valid average time.

Additional Parameters for CA MAT ADD requests:

If the Server is not used, CA MAT parameters SAMPLES and NOLIMIT are required and are provided automatically by PMA. You can change the value of the SAMPLES parameter.

If used in a parallel sysplex environment, PMA should be run as in a single system environment because CA MAT version 2 takes care of spreading the measurement requests. In this case, enter the TARGSYS1(*) as an additional parameter.

No validity checks are performed on additional ADD parameters. If an invalid parameter exists, the generation of CA MAT invoke request is prevented.

Accessing the Scope of Workload Window

When option **X2** on the Parameters Menu is chosen, the Scope of Workload window is opened, as shown following.

```

APCXPP00 --- PMA --- Parameters Menu -----
Enter an Option ==>

TSO User          U1 Print Job JCL

Global Parameters  G1 Measurement DS processing
Global Online Pams G2 CICS and IMS

Central Component  X1 General Central Component Parameters
                  X2 Scope of Work
                  +-----+
                  |APCBP004  Scope of Workload|
                  |1 - Job in/exclusion for PMA|
                  |2 - PGM in/exclusion for PMA|
                  |3 - Job exclusion for CA MAT|
                  |4 - PGM exclusion for CA MAT|
                  +-----+

Thresholds        TX Performance Index Alert Thresholds
                  TM Minimum Consumption Thresholds
                  TH Open Alert Thresholds

PMA SERVER        S1 General PMA SERVER Parameters

CICS Feature      C1 General CICS Feature Parameters
                  C2 System Control
                  C3 CICS Load Module Libraries
                  C4 CICS SMF Scope Definitions
                  C5 CICS SMF Aggregation Control

IMS Feature       I1 General IMS Feature Parameters
                  I2 System Control
                  I3 IMS Load Module Libraries
                  I4 IMS INFO Scope Definitions
                  I5 IMS INFO Aggregation Control
  
```

On the Scope of Workload window you can select an option to include or exclude jobs and programs. For a detailed description regarding the scope of work concept, see section Reducing the Scope of Work.

Using the Window

To use the Scope of Workload selection popup window, type the selection number in the space provided or place the cursor on the selection. Press **Enter**. The following selections are provided:

1. Jobs to be included in or excluded from the Scope of work.
2. Programs to be included in or excluded from the Scope of work.
3. Jobs to be excluded from the Scope of work.
4. Programs to be excluded from the Scope of work.

Including/Excluding Jobs (Scope)

When option **1** on the Scope of Workload window is selected, the panel the Job In/Exclusion List is displayed for the inclusion or exclusion of jobs when defining the Scope of work.

```
APCXP041 --- PMA - Job In/Exclusion List (PMA Scope) ----- ENTRY INSERTED
COMMAND ==>                                         SCROLL ==> HALF

Commands      : I -Insert
Line Commands: I -Insert  D -Delete  C -Change

      If EXCLUDED, the following jobs are NOT in the PMA workload scope.
      If INCLUDED, ONLY the following jobs are in the PMA workload scope.

LC Jobname  Stepname Procstep Scope/Description
-----
PR*                                I ALL APPLICATION JOBS
***** Bottom of data *****
```

Use the Job In/Exclusion List panel to define the Scope level 1 for jobs. All definitions must be either inclusions or exclusions.

Inclusions are recommended when defining the scope of work for job names.

Panel Elements

Line commands can be used to work with a specific inclusion/exclusion or to insert a new job. To use line commands, place the cursor in the LC column to the left of the job and enter one of the following values:

I

Insert a new program exclusion.

D

Delete an existing program exclusion.

C

Change the status or description of an excluded program

Primary command I (Insert) can also be used to enter a new job inclusion or exclusion.

Including/Excluding Programs (Scope)

When option 2 on the Scope of Workload window is selected, the PGM In/Exclusion List panel is displayed for the inclusion or exclusion of programs when defining the Scope of work.

```

APCXP042 PMA - PGM In/Exclusion List (PMA Scope)----- Row 1 to 14 of 14
COMMAND ==>                                     SCROLL ==> HALF

Commands      : I -Insert
Line Commands: I -Insert  D -Delete  C -Change

  If EXCLUDED the following programs are NOT in the PMA workload scope
  If INCLUDED ONLY the following programs are in the PMA workload scope

LC PGM name  IN/EXCLUDED  Description
-----
  ADRMAIN    EXCLUDED    BMC UNLOAD UTILITY
  ADUMAIN    EXCLUDED    BMC UNLOAD UTILITY
  ADUUMAIN    EXCLUDED    BMC UNLOAD UTILITY
  APC*       EXCLUDED    APC PRODUCT PROGRAMS
  BTCUTILB   EXCLUDED    SE PGM TO CALL DSNUTILB - EXCLUDED
  DFH*       EXCLUDED    STANDARD PROGRAM EXCLUDED
  DSNUTILB   EXCLUDED    STANDARD PROGRAM EXCLUDED
  ICEGENER   EXCLUDED    STANDARD PROGRAM EXCLUDED
  IDCAMS     EXCLUDED    STANDARD PROGRAM EXCLUDED
  IEB*       EXCLUDED    STANDARD PROGRAM EXCLUDED
  IEFBR14    EXCLUDED    STANDARD PROGRAM EXCLUDED
  IEWL       EXCLUDED    STANDARD PROGRAM EXCLUDED
  SORT       EXCLUDED    STANDARD PROGRAM EXCLUDED
  SYSSORT    EXCLUDED    STANDARD PROGRAM EXCLUDED
***** Bottom of data *****

```

Use the PGM In/Exclusion List panel to define the scope level 2 for programs. All definitions must be either inclusions or exclusions.

Exclusions are recommended when defining the scope of work for program names.

Panel Elements

Commands can be used to work with a specific program. To use line commands, place the cursor in the LC column to the left of the program and enter one of the following values:

I

Insert a new program exclusion.

D

Delete an existing program exclusion.

C

Change the status or description of an excluded program

Excluding Jobs (CA MAT Scope)

When option **3** on the Scope of Workload window is selected, the Job Exclusion panel is displayed for the exclusion of jobs from the measurement tool in use.

```
APCBP043 --- PMA - Job Exclusion (CA MAT Scope) ----- Row 1 to 1 of 1
COMMAND ==>                                           SCROLL ==> HALF

Commands      : I -Insert
Line Commands: I -Insert  D -Delete  C -Change

The following Jobs/Jobsteps will GENERALLY NOT be measured by CA MAT

LC  Jobname  Stepname Procstep  Description
-----
   ABC*                                APPLICATION WILL BE REPLACED SOON
***** Bottom of data *****
```

Use the Job Exclusion panel to define the following items:

- The job names to be excluded from the CA MAT Scope.
- The job names of any IMS regions started from a batch job. IMS regions brought up as Started Tasks (not from batch) need not be listed here. When a new IMS region that is started as a batch job is added to your system, or if the jobname of an existing IMS region started as a batch job is changed, you must update this panel to exclude that jobname. This process will ensure that the Central Component does not automatically generate measurements for the online region. The IMS Feature is used to manage CA MAT measurements in online IMS regions.

Panel Elements

Line commands can be used to work with a specific exclusion or to insert a new job exclusion. To use line commands, place the cursor in the LC column to the left of the job and enter one of the following values:

I

Insert a new program exclusion.

D

Delete an existing program exclusion.

C

Change the status or description of an excluded program

Primary command I (Insert) can also be used to enter a new job exclusion.

Excluding Programs

When option **4** on the Scope of Workload window is selected, the PGM Exclusion panel is displayed to exclude programs from the measurement tool in use.

```
APCBP044 --- PMA - PGM Exclusion (CA MAT Scope) ----- Row 1 to 1 of 1
COMMAND ==>                                         SCROLL ==> HALF

Commands      : I -Insert
Line Commands: I -Insert  D -Delete  C -Change

LC  PGM name      Description
-----
ABC*      APPLICATION PROGRAMS WILL BE REPLACED
***** Bottom of data *****
```

Use the PGM Exclusion panel to define the following items:

- Program names to be excluded from the CA MAT Scope.
- The three digit high level qualifier your site uses for CICS, that is, DFH*. This definition is to ensure no CICS online region that was started as a batch job is automatically included in measurements by the Central Component. The CICS Feature is used to manage measurements in online CICS regions.

Panel Elements

Line commands can be used to work with a specific exclusion or to insert a new program exclusion. To use line commands, place the cursor in the LC column to the left of the program and enter one of the following values:

I

Insert a new program exclusion.

D

Delete an existing program exclusion.

C

Change the status or description of an excluded program

Primary command I (Insert) can also be used to enter a new program exclusion.

Defining Standard Programs

When you choose option **X3** on the Parameters Menu, the List Standard Programs panel is displayed.

```

APCBPP04 --- PMA Central Component - List Standard Programs -- Row 1 to 3 of 3
COMMAND ==>                                SCROLL ==> HALF

Commands      : INS Insert   CAN Cancel   END Exit and Save
Line Commands: I - Insert   D - Delete   C - Change

LC Program      Parm No.   DD Name   Parm Name(s)
-----
DFSRR00         02
DSNMTV01        09         DDITV02
IKJEFT01                SYSTSIN  PGM      PROGRAM
*****
***** Bottom of data *****

```

In certain cases, in-house written programs are called from standard programs as a kind of subprogram. Often, the name of the module to be executed is passed through parameters or through a DD statement. By using the Standard Programs panel, you enable the Central Component to detect user programs that are executed through a standard program. If one of the user programs has changed or was inserted, an alert entry is generated. Without the standard program information, the user program call would not be recognized and no entry would be generated.

Panel Elements

Both primary commands and line commands are allowed on this panel.

- To insert a new standard program definition, use line command I or primary command INS and enter the program name and other fields as defined in the Columns section for this panel.
- To delete a standard program definition in the list, place the cursor in the LC column next to the specific program name and enter line command D.
- To change an existing detail line, place the cursor in the LC column next to the specific job name and enter line command C. You can change the program name only if it does not already exist in the list.

Definitions for each standard program are represented by a detail line on the bottom half of the panel. This area of the panel can be scrolled.

The following examples illustrate how to use this panel:

- If program DFSRRC00 is called, the name of the program to be executed is in the second position in the parameter list.

```
//STEP1 EXEC PGM=DFSRRC00,PARM=(P1,ABC001,ABCP5B, , , ,Y)
```

In this example, the program DFSRRC00 is called, but Performance Management Assistant recognizes that the application program ABC001 is also called. If this program has been modified (and the parameter **Measurement of modified programs** contains a Y), Performance Management Assistant generates a measurement.

- If program DSNMTV01 is called, the user program is defined as the ninth positional parameter under DD name DDITV02.
- If program IKJEFT01, IKJEFT1A, or IKJEFT1B is called, the name of the user program is found in the file under DD name SYSTSIN. Within that file, the user program is defined by either the keyword PGM or the keyword PROGRAM.

Column Descriptions

Column name	Description
Program	displays the program name as called in the JCL statement EXEC PGM=
Parm No.	displays the positional parameter number that contains the application program name as called in the JCL statement EXEC PGM=xxxxxx,PARM=(xx,P01ABC,yy) or in a sequential file or library member as defined in the DD name parameter xx,P01ABC,yy

DD name	displays the DD name in the job step where a sequential file or a member in a library contains the application program name
Parm Name(s)	defines two alternative usable keywords where PMA can search for the application program name in the sequential file or a library member you have defined in the DD name parameter PGM=P01ABC or PROGRAM=P01ABC

Defining Standard Procedures

When you choose option X4 on the Parameters Menu, the List Standard Procedures panel is displayed.

APCBPP06 --- PMA Central Component - List Standard Procedures					Row 1 to 4 of 4	
COMMAND ==>					SCROLL ==> HALF	
Commands		: INS	Insert	CAN	Cancel	END Exit and Save
Line Commands:		I -	Insert	D -	Delete	C - Change
LC	Procname	Procstepname	Parm No.	DD Name	Parm Name(s)	

	DB2IMS	IMS			PRG	
	DB2ONLY	DB2X	05	SYSTSIN		
	N2	XST		DD1	PRG	UPRG
	N4	NST			P2	P4
***** Bottom of data *****						

In many cases programs are called through standard procedures (for example, standard DB2® procedures). Often, the name of the module to be executed is passed through a parameter. Through the panel for managing standard procedures you enable Performance Management Assistant to detect and measure calls from standard procedures.

Panel Elements

Both primary commands and line commands are allowed on this panel.

- To insert a new standard procedure definition, use line command I or primary command INS and enter the **Procname** and other fields as defined in the Columns section for this panel.
- To delete a standard procedure definition in the list, place the cursor in the LC column next to the specific **Procname** and enter line command D.
- To change an existing detail line, place the cursor in the LC column next to the specific job name and enter line command C. You can change the procedure name only if it does not already exist in the list.

Definitions for each standard procedure are represented by a detail line on the bottom half of the panel. This area of the panel can be scrolled. The use of this panel is illustrated through the explanation of the following examples:

The DB2IMS entry means if procedure DB2IMS is called within a job step, the program name is in the variable *PRG* and the step name within the procedure is IMS.

```
//JABC1    JOB
//STEP0001 EXEC PROC=DB2IMS,PRG=PGM9911 or
//STEP0001 EXEC DB2IMS,PRG=PGM9911
```

If the above mentioned entry for a standard procedure was made and the program PGM9911 was modified, Performance Management Assistant creates a measurement request for job JABC1, step STEP0001.IMS.

If procedure DB2ONLY is called, the name of the program is defined as the fifth parameter within the DD statement SYSTSIN. There is no step name within the procedure.

```
//JABC2    JOB
//STEP1    EXEC DB2ONLY
//SYSTSIN  DD *
ACDD,SYS,4,TX,ACD1
/*
```

PC recognizes that program ACD1 is called and—if the program was changed or inserted—generate an alert entry for job JABC2, step STEP1.

Column Descriptions

Column Name	Description
Procname	Displays the name of the standard procedure used for calling the application programs in a specific environment, for example DB2 or IMS
Procstepname	Displays the name of the step within the standard procedure that calls the application program
Parm No.	Displays the positional parameter number that contains the application program name as called in the JCL statement EXEC PROC=xxxxxx,PARM=(xx,P01ABC,yy)
DD Name	Displays the DD name in the job step where a sequential file member in a library contains the application program name
Parm Name	Displays the name of a variable used in the standard procedure containing the application program name and provided with the EXEC statement of the call of the standard procedure

Defining Load Module Libraries

When you choose option **X5** on the Parameters Menu, the following panel is displayed. Use this panel to enter the load module libraries that Performance Management Assistant should examine.

```
APCBPP05 --- PMA Central Component - List Load Libraries ----- Row 1 to 3 of 3
COMMAND ==>                                                    SCROLL ==> HALF

Commands      : INS Insert   CAN Cancel   END Exit and Save
Line Commands: I - Insert   D - Delete   C - Change

LC Dataset name
-----
APP1.LOAD
APP2.LOAD
APP2.LOADEST
***** Bottom of data *****
```

If you have not previously entered any load libraries, the insert panel is displayed and you are requested to enter the name of the load module library to be examined.

The load libraries defined here are examined in batch to determine whether programs have been modified.

If a new load library is defined, Performance Management Assistant detects this situation automatically and prevents all pre-existing modules in the new load library from being treated as new modules regarding measurement.

Panel Elements

Both primary commands and line commands are allowed on this panel.

- To insert a new load library and define its size, use line command I or primary command INS and enter the data set name of the load library.
- To delete a load library definition in the list, place the cursor in the LC column next to the specific data set name and enter line command D. Once deleted, the load library is no longer searched for program modifications.
- To change an existing detail line, place the cursor in the LC column next to the specific job name and enter line command C. You can change the load library name only if it does not already exist in the list.

Defining Job Libraries

When you choose option X6 on the Parameters Menu, the ListJob Libraries panel is displayed. Use this panel to enter job libraries to be examined by PMA.

```

APCBPP03 --- PMA Central Component - List Job Libraries ----- Row 1 to 2 of 2
COMMAND ==>                                SCROLL ==> HALF

Commands      : INS Insert   CAN Cancel   END Exit
Line Commands: I - Insert   D - Delete   C - Change

LC Dataset name
-----
PROD.JCL.LIB1
PROD.JCL.LIB2
***** Bottom of data *****

```

If you have not entered any job libraries, the insert panel is displayed and you are requested to enter the name of the job library to be examined.

The job libraries defined here are examined in batch to determine which application program is called in which job step.

Panel Elements

Both primary commands and line commands are allowed on this panel.

- To insert a new job library, use line command I or primary command INS and enter the data set name of the job library.
- To delete a job library definition in the list, place the cursor in the LC column next to the specific data set name and enter line command D. Once deleted, the job library is no longer searched for program modifications.
- To change an existing detail line, place the cursor in the LC column next to the specific job name and enter line command C. You can change the job library name only if it does not already exist in the list.

Defining Procedure Libraries

When you choose option X7 on the Parameters Menu, the List Procedure Libraries panel is displayed. Use this panel to enter procedure libraries to be examined by PMA.

```

APCBPP07 --- PMA Central Component - List Procedure Libraries Row 1 to 2 of 2
COMMAND ==> SCROLL ==> HALF

Commands      : INS Insert   CAN Cancel   END Exit and Save
Line Commands: I - Insert   D - Delete   C - Change

  Concatenation Data Set Name of
LC   Number      Procedure Libraries
-----
    01          PROD.PROC.LIB1
    02          PROD.PROC.LIB2
***** Bottom of data *****

```

You can enter the name of your procedure library or libraries here. During the JCL scan, the libraries are concatenated. As a user, you can determine the concatenation order by entering the concatenation sequence number when inserting the name of a new procedure library.

If no entries have been made, Central Component does not recognize program calls within procedures (except program calls within standard procedures). In this case, the Central Component immediately displays the insert panel when signing on to General Parameters - Procedure Libraries.

Panel Elements

- To add new procedure libraries, use line command I or primary command INS and enter the procedure library name and concatenation number. You can add up to 100 libraries.
- The line command D can be used to delete entered line commands from the procedure library overview. Once deleted, the procedure library is no longer searched for program modifications.
- To change an existing detail line, place the cursor in the LC column next to the specific job name and enter line command C. You can change the procedure library name only if it does not already exist in the list.

Column Descriptions

Column Name	Description
Concatenation Number	Displays the concatenation sequence number that determines the concatenation order of the procedure libraries

Data Set Name of Procedure Libraries	Displays the data set name of the procedure library
---	---

Defining Module Change Alert Suppression

When you choose option AS on the Parameters Menu, the MODC alert suppression panel is displayed. If there are already defined some entries, they are shown in the list panel. Use this panel to enter module change alert suppression to be examined by Alert Handling of the Central Component.

```
APCBPP26 --- PMA Central Component - MODC alert suppression -----
COMMAND ==>

Job names 1 : D1*      Job names or generic job names (using '*')
Job names 2 : _S_J*    ' ' is a placeholder for one byte
Job names 3 : _A*      '*' is a generic value used at the end

Examples:
Job name  Comment
PRJ123*   all jobs starting with PRJ123
P_J_2345  all jobs with two wild cards
_P*       all jobs with 'P' as second letter

ACTIONS: CAN (to leave panel unchanged) OR
          PF3 (to store changes)
```

You can define up to three job names or generic job names. If the Alert Handling of the Central Component would set a pending alert for a specific job because of changed module, the pending alert and the following measurement on the next run of the job is suppressed if the job name does match with one pattern entry of the module change alert suppression list.

PMA Thresholds

Thresholds are definable limits you can use to control different actions within PMA.

You can use thresholds to

- Activate measurements
- Reduce measurement activities
- Reduce the number of open alerts

Thresholds are considered

- During execution of batch jobs
- By the Server

in different ways, as described below.

For a better understanding of thresholds, you must be aware of the meaning of the term, **Alert**, and the corresponding activities, such as measurement requests or processing of measurement results.

Thresholds to Activate Measurements: Alert Thresholds

Alert thresholds are used to select job steps for measurement and can be set against the measured use of resources (**absolute alert thresholds**) and/or the rate of use of resources (**performance index alert thresholds**). Either way, when a threshold is exceeded, the job step will be selected for measurement.

Depending on whether you use the batch jobs or the Server to perform the alert activities, the thresholds are used to trigger actions against current job step activities (**dynamic alert**) and/or to set up actions for the next execution (**step end alert**).

Absolute Alert Thresholds

This section describes absolute alert thresholds.

Defining Absolute Alert Thresholds

When you choose option **TA** on the Parameters Menu, the List Absolute Alert Thresholds panel is displayed. Use this panel to enter absolute alert threshold values to be examined by the alert handling function of PMA.

```

APCBPP10 --- PMA - List Absolute Alert Thresholds -----
COMMAND ==>                                         SCROLL ==> HALF

Search Mode : F  ( F =First B =Best )
Commands    : INS Insert  CAN Cancel  END Exit and Save
Line Commands: I - Insert  D - Delete  C - Change
-----
LC Jobname  Time      Elapsed CPU  EXCPs  Total  Service Units  SRB
            (hh:mm) (hh:mm:ss)
-----
***** Bottom of data *****

```

The Central Component determines which jobs a threshold alert should be generated for by using the absolute alert thresholds.

The Central Component allows you to enter separate threshold consumption values for session time, CPU time, EXCPs and Service Units per job or group of jobs. Thresholds for each job or job group are represented by two detail lines on the bottom half of the panel. This area of the panel can be scrolled.

Search Mode

When you choose option **F** (first fit), the values from the threshold with the first matching fit for the job name are used. If no match is found, the default threshold values (if available) are used.

Using this mode, you can select a generic fit over a fully-qualified fit or better generic fit.

When you choose option **B** (best fit), threshold values are used in the following order if they are available:

1. The fully matching non-generic job name
2. The best high-order generic fit
3. The default threshold values

Example

In this example, thresholds are set for the following job names:

1. *
2. ABC*
3. ABC_E*
4. ABCDEFGH

When option **F** (first fit) is selected in this example, all jobs with names that start with **ABC** are assigned the threshold values for job name #2.

When option **B** (best fit) is selected in this example:

- A job named **ABCDEFGH** is assigned the threshold values for job name #4.
- Other job names with the first three characters **ABC** and a fifth character of **E** are assigned the threshold values for job name #3.
- The remaining jobs with names that start with **ABC** are assigned the threshold values for job name #2.

With both the first fit and best fit options, all other jobs are assigned the threshold values for job name #1.

If no default (*) is set, these jobs are not assigned threshold values.

Panel Elements

Both primary commands and line commands are allowed on this panel.

- To insert new application detail lines, use line command **I** or primary command **INS**. A panel is displayed on which you can enter the job name and the threshold values. Generic notation is allowed when defining job names.
- To delete detail lines of alert threshold definitions for a job name, place the cursor in the LC column next to the specific job name and enter line command **D**.
- To change job name or thresholds values of an existing detail line, place the cursor in the LC column next to the specific job name and enter line command **C**. A panel is displayed on which you can change the job name and thresholds. The job name can be changed only if it does not already exist on the list.

If line command **I** or **C**, or primary command **INS** (abbreviation **I**) is entered, the Define Threshold Values panel is displayed.

```
APCBPP11 --- PMA - Define Absolute Alert Thresholds -----
COMMAND ==>

Job name      :          Job name or generic job name (using '*')
                        ' ' is a placeholder for one byte
                        '*' is a generic value used at the end
                        Examples:
                        Job name  Comment
                        *         all jobs (default)
                        PRJ123*   all jobs starting with PRJ123
                        P_J_2345  all jobs with two wild cards

Elapsed time  : 00:00      Minutes (format hh:mm)
CPU time      : 00:00:00   Minutes (format hh:mm:ss)
EXCPs         : 000000000  No. of EXCPs
SRVUs         : 000000000  No. of SRVUs total
SRVUs CPU     : 000000000  No. of SRVUs for CPU
SRVUs SRB     : 000000000  No. of SRVUs for SRB
SRVUs I/O     : 000000000  No. of SRVUs I/O
SRVUs MSO     : 000000000  No. of SRVUs MSO (Main Storage Occupancy)

CANCEL: CAN OR PF3
```

Use this panel to define the job name or job name group and the corresponding thresholds.

If you want a value to be ignored for the threshold alert check, set zero as the parameter value.

Field Name	Description
Jobname	Defines the name of the job for which alert thresholds are defined Generic notation is allowed by using wildcards _ and *. An underscore _ is a one character placeholder. An asterisk (*) is a placeholder for one or more characters at the end of a name.
Elapsed	Defines the alert threshold for elapsed time in the format <i>hh:mm</i>
CPU Time	Defines the alert threshold for CPU time in the format <i>hh:mm:ss</i>
EXCPs	Defines the alert threshold for EXCPs The maximum value is 999999999.
SRVU TOTAL	Defines the alert threshold for total service units The maximum value is 999999999. This value represents all four separate Service Units.
SRVU CPU	Defines the alert threshold for service units that are consumed only by CPU The maximum value is 999999999.
SRVU SRB (Service Request Blocks)	Defines the alert threshold for service units that are consumed only by SRB The maximum value is 999999999.
SRVU I/O	Defines the alert threshold for service units that are consumed only by I/O The maximum value is 999999999.
SRVU MSO (Main Storage Occupancy)	Defines the alert threshold for service units service units that are consumed only by main storage occupancy The maximum value is 999999999. Note: If one of the defined thresholds of the generic or fully qualified job is less than or equal to the corresponding value of the SMF values of that job, the Alert Handling of the Central Component generates a <i>pending alert</i> ; see Alert Management. This alert results in a measurement request when the job executes the next time.

This section describes the usage of absolute alert thresholds.

Absolute Alert Threshold Check in Batch Job APCXJSMF

The thresholds are checked against the absolute values of the execution of the processed SMF input file that contains the performance values.

Only non-zero threshold values are used to check if a threshold has been reached. The values tested are CPU time, I/O count, elapsed time, the total service units consumed, and the individual service unit consumption for CPU, SRB, I/O, and MSO.

The PENDING alert created by exceeding the thresholds is considered for the next execution of the alerted job step after the corresponding measurement request is forwarded to the measurement product.

Absolute Alert Threshold Check in PMA Server During Job Step Execution

This threshold check is done when the feature option is set to **Y** or **C** and at least one alert threshold value is set. The values checked during the execution of a step are CPU time, I/O count, and elapsed time. Only non-zero threshold values are used to check if a threshold has been reached.

If the option feature is set to **Y**, all jobs in the scope are checked for a threshold alert condition. If the option feature is set to **C**, only jobs/steps/programs in the monitor scope are checked for alert thresholds.

If any non-zero alert threshold is reached, a dynamic threshold alert is made.

Absolute Alert Threshold Check in PMA Server at the End of Job Step Execution

The feature settings and conditions are the same as for dynamic alert processing.

The values tested at step end are CPU time, I/O count, elapsed time, the total service units consumed, and the individual service unit consumption for CPU, SRB, I/O, and MSO.

Performance Index Alert Thresholds

This section describes performance index alert thresholds.

Defining Performance Index (PIX) Alert Thresholds

When you choose option TX on the Parameters Menu, the List Performance Index Alert Thresholds panel is displayed. Use this panel to enter performance index alert threshold values to be examined by PMA.

```

APCBPPX0 --- PMA - List Performance Index Alert Thresholds -----
COMMAND ==>                                                    SCROLL ==> HALF

Search Mode  : F  ( F = First  B = Best )
Commands     : INS Insert   CAN Cancel   END Exit and Save
Line Commands: I - Insert   D - Delete   C - Change
-----
LC Jobname   SRVU/Elap  CPUT/Elap  EXCP/Elap  SRVU/EXCP  CPUT/EXCP  Elap/EXCP
-----
***** Bottom of data *****

```

You can enter performance index alert threshold values for a job or a generic job group. Each job step with consumption values higher than or equal to the specified thresholds generate a threshold alert. Before entering values into this table, it is highly recommended that you get some experience with the specific behavior of performance indexes in your installation by watching the performance index display functions of the Central Component.

Thresholds for each job or job group are represented by two detail lines on the bottom half of the panel. This area of the panel can be scrolled.

Search Mode

When you choose option **F** (first fit), the values from the threshold with the first matching fit for the job name are used. If no match is found, the default threshold values (if available) are used.

Using this mode, you can select a generic fit over a fully-qualified fit or better generic fit.

When you choose option **B** (best fit), threshold values are used in the following order if they are available:

1. The fully matching non-generic job name
2. The best high-order generic fit
3. The default threshold values

Example

In this example, thresholds are set for the following job names:

1. *
2. ABC*
3. ABC_E
4. ABCDEFGH

When option **F** (first fit) is selected in this example, all jobs with names that start with **ABC** are assigned the threshold values for job name #2.

When option **B** (best fit) is selected in this example:

- A job named **ABCDEFGH** is assigned the threshold values for job name #4.
- Other job names with the first three characters **ABC** and a fifth character of **E** are assigned the threshold values for job name #3.
- The remaining jobs with names that start with **ABC** are assigned the threshold values for job name #2.

With both the first fit and best fit options, all other jobs are assigned the threshold values for job name #1.

If no default (*) is set, these jobs are not assigned threshold values.

Panel Elements

Both primary commands and line commands are allowed on this panel.

- To insert new threshold detail lines, use line command **I** or primary command **INS**. A panel is displayed on which you can enter the job name and the threshold values. Generic notation is allowed when defining job names.
- To delete detail lines of performance index threshold definitions for a job name, place the cursor in the LC column next to the specific job name and enter line command **D**.
- To change job name or thresholds values of an existing detail line, place the cursor in the LC column next to the specific job name and enter line command **C**. A panel is displayed on which you can change the job name and thresholds. The job name can be changed only if it does not already exist on the list.

If line command **I** or **C**, or primary command **INS** (abbreviation **I**) is entered, the Define PIX Threshold Values panel is displayed.

```

APCBPPX1 --- PMA - Define Performance Index Alert Thresholds -----
COMMAND ==>

Job name      :          Job name or generic job name (using '*')
                  '_' is a placeholder for one byte
                  '*' is a generic value used at the end
Examples:
Job name      Comment
*             all jobs (default)
PRJ123*       all jobs starting with PRJ123
P_J_2345      all jobs with two wild cards

SRVU/EL Ratio: 000000000 Performance Index SRVUs/Elapse time( sec )
CPUT/EL Ratio: 000.00    Performance Index CPU time    of Elapse time
EXCP/EL Ratio: 000000000 Performance Index EXCPs/Elapse time(min)
SRVU/IO Ratio: 000000000 Performance Index SRVUs/EXCPs
CPUT/IO Ratio: 000000.00 Performance Index CPU time(sec)/EXCPs in thousands
ELAP/IO Ratio: 000000.00 Performance Index Elapse time(sec)/EXCPs in thousands

CANCEL: CAN OR PF3

```

Performance index threshold values for a job or a generic job group can be entered.

Jobname

Enter the job name for which thresholds shall be defined.

Generic notation is allowed.

Note: An asterisk must be used to represent one generic entry on the list.

SRVU/EL ratio

Enter the threshold for that performance index that is the quotient of service unit consumption divided by used elapsed time.

CPUT/EL ratio

Enter the threshold for that performance index that is the quotient of CPU time consumption divided by used elapsed time.

Usage of Performance Index (PIX) Alert Thresholds

Performance index alert threshold check in batch job APCXJSMF

The conditions are the same as for absolute alert thresholds.

The values tested at step end are SUs per minute, CPU seconds per minute, EXCPs per minute, SUs per 1000 EXCPs, CPUseconds per 1000 EXCPs, and elapsed time per 1000 EXCPs.

The PENDING alert created by exceeding the thresholds is considered for the next execution of the alerted job step after the corresponding measurement request is forwarded to the measurement product.

Performance Index Alert Threshold Check In PMA Server During Job Step Execution

The feature settings and conditions are the same as for absolute alert thresholds. The values checked at this time are CPU%, I/Os per minute, CPU seconds per 1000 I/Os, and elapsed seconds per 1000 I/Os.

Performance Index Alert Threshold Check In PMA Server at the End of Job Step Execution

The feature settings and conditions are the same as for absolute alert thresholds. The values tested at step end are SUs per minute, CPU seconds per minute, EXCPs per minute, SUs per 1000 EXCPs, CPUseconds per 1000 EXCPs, and elapsed time per 1000 EXCPs.

Thresholds for Reducing Measurement Activities

These thresholds can be used to reduce the overall number of measurement requests or to set a specific target that must be reached before a selected job becomes a candidate for measurement. The threshold values are set to the minimum levels of resource usage (**minimum consumption threshold**) that the job step must reach in order to be eligible for measurement for any reason.

Using Minimum Consumption Thresholds

Minimum consumption threshold check in batch job APCXJSMF

The thresholds are checked against the absolute values of the execution of the processed SMF input file that contains the performance values.

Only non-zero threshold values are used to check if a threshold has been reached. The values tested are CPU time, I/O count, elapsed time, the total service units consumed, and the individual service unit consumption for CPU, SRB, I/O, and MSO.

The PENDING alert created by exceeding the thresholds is considered for the next execution of the alerted job step after the corresponding measurement request is forwarded to the measurement product.

Server minimum threshold check during job step execution

This threshold check is done only if the feature option is set to **Y** or **A** and at least one minimum threshold is set. The values checked during execution are CPU time, I/O count, and elapsed time. Only the non-zero threshold values are used to check if a threshold has been reached.

If the feature option is set to **A**, all of the non-zero threshold values must be reached for a job to be eligible for measurement. If the feature option is set to **Y**, reaching any non-zero threshold makes the job eligible for measurement.

Server minimum threshold check at the end of job step execution

The feature settings and conditions are the same as for dynamic alert processing. The values tested at step end are CPU time, I/O count, elapsed time, the total service units consumed, and the individual service unit consumption for CPU, SRB, I/O, and MSO.

Defining Minimum Consumption Thresholds

When you choose option **TM** on the Parameters Menu, the List Minimum Consumption Alert Thresholds panel is displayed. If some entries are already defined, they are shown in the list panel. Use this panel to enter minimum threshold values to be examined by the Server.

```

APCBPP20 --- PMA - List Minimum Consumption Thresholds -----
COMMAND ==>                                                    SCROLL ==> HALF

Search Mode : F  ( F = First Fit  B = Best Fit )
Use of Min Thresholds for a) Batch : N (N/Y/A) b) Server : Y (N/Y/A)
  N not in use. Allow alert when Y if any or  A if all Min Thresholds exceeded.

Commands      : INS Insert    CAN Cancel    END Exit and Save
Line Commands: I - Insert    D - Delete    C - Change
-----
LC Jobname    Time          Service Units
              Elapsed CPU   EXCPs   Total   CPU      SRB
              (hh:mm) (hh:mm:ss)      I/O      MSO
-----
***** Bottom of data *****

```

You can enter minimum consumption threshold values for a job or a generic job group. In the case of a job captured by the Server, no measurement is generated if the job did not yet reach at least the defined minimum consumption values.

The Central Component allows you to enter separate threshold consumption values for session time, CPU time, EXCPs and Service Units per job or group of jobs. Thresholds for each job or job group are represented by two detail lines on the bottom half of the panel. This area of the panel can be scrolled.

Search Mode

When you choose option F (first fit), the values from the threshold with the first matching fit for the job name are used. If no match is found, the default threshold values (if available) are used.

Using this mode, you can select a generic fit over a fully-qualified fit or better generic fit.

When you choose option B (best fit), threshold values are used in the following order if they are available:

1. The fully matching non-generic job name
2. The best high-order generic fit
3. The default threshold values

Example

In this example, thresholds are set for the following job names:

1. *
2. ABC*
3. ABC_E*
4. ABCDEFGH

When option **F** (first fit) is selected in this example, all jobs with names that start with **ABC** are assigned the threshold values for job name #2.

When option **B** (best fit) is selected in this example:

- A job named **ABCDEFGH** is assigned the threshold values for job name #4.
- Other job names with the first three characters **ABC** and a fifth character of **E** are assigned the threshold values for job name #3.
- The remaining jobs with names that start with **ABC** are assigned the threshold values for job name #2.

With both the first fit and best fit options, all other jobs are assigned the threshold values for job name #1.

If no default (*) is set, these jobs are not assigned threshold values.

Use of Minimum Thresholds

Minimum consumption alert threshold values can be used with both the Server and CA MAT batch SMF processing, as described below.

Use minimum thresholds during batch runaway alert generation

Define how to consider the minimum consumption alert thresholds in the batch SMF processing (SMF processing by job APCXJSMF or by the Server SMF spooling), as follows:

If the option is set to **Y**, then passing any minimum threshold is sufficient.

If the option is set to **A**, then all minimum thresholds relevant to the job must be passed to allow the creation of a runaway alert request (PEND alert).

Use minimum thresholds during Server runaway alert generation

Define how to consider the minimum consumption alert thresholds in the Server processing (dynamic and step-end runaway check), as follows:

If the option is set to **Y**, then passing any minimum threshold is sufficient.

- If the option is set to **A**, then all minimum thresholds relevant to the job must be passed to allow a dynamic runaway or a step-end runaway alert.

This parameter can also be defined/changed in the Server options panel (**Min Threshold Alert Generation**).

Panel Elements

Both primary commands and line commands are allowed on this panel.

- To insert new application detail lines, use line command **I** or primary command **INS**. A panel is displayed on which you can enter the job name and the threshold values. Generic notation is allowed when defining job names.
- To delete detail lines of alert threshold definitions for a job name, place the cursor in the LC column next to the specific job name and enter line command **D**.
- To change job name or thresholds values of an existing detail line, place the cursor in the LC column next to the specific job name and enter line command **C**. A panel is displayed on which you can change the job name and thresholds. The job name can be changed only if it does not already exist on the list.

If line command I or C, or primary command INS (abbreviation I) is entered, the Define minimum thresholds panel is displayed.

```

APCBPP21 --- PMA - Define Minimum Consumption Thresholds -----
COMMAND ==>

Job name      :          Job name or generic job name (using '*')
                  '_' is a placeholder for one byte
                  '*' is a generic value used at the end
                  Examples:
                  Job name  Comment
                  *         all jobs (default)
                  PRJ123*   all jobs starting with PRJ123
                  P_J_2345  all jobs with two wild cards

Elapsed time  : 00:00      Minutes (format hh:mm)
CPU time      : 00:00:00   Minutes (format hh:mm:ss)
EXCPs         : 000000000  No. of EXCPs
SRVUs         : 000000000  No. of SRVUs total
SRVUs CPU     : 000000000  No. of SRVUs for CPU
SRVUs SRB     : 000000000  No. of SRVUs for SRB
SRVUs I/O     : 000000000  No. of SRVUs I/O
SRVUs MS0     : 000000000  No. of SRVUs MS0 (Main Storage Occupancy)

CANCEL: CAN OR PF3

```

Use this panel to define the job name or job name group and the corresponding thresholds.

Field Name	Description
Jobname	Enter the name of the job for which alert thresholds are defined. Generic notation is allowed by using wildcards _ and *. An underscore _ is a one character placeholder. An asterisk (*) is a placeholder for one or more characters at the end of a name.
Elapsed time	Enter the Elapsed time minimum in the format hh:mm. If a job does not reach at least this value, no measurement is generated.
CPU time	Enter the CPU time minimum in the format hh:mm:ss. If a job does not reach at least this value, no measurement is generated.
EXCPs (Execute Channel Program => I/O-Count)	Enter the EXCP minimum. If a job does not reach at least this value, no measurement is generated.
SRVUs	Enter the total SRVU minimum. If a job does not reach at least this value, no measurement is generated.
SRVUs CPU	Enter the CPU service units minimum. If a job does not reach at least this value, no measurement is generated.
SRVUs SRB (Service Request Blocks)	Enter the SRB service units minimum. If a job does not reach at least this value, no measurement is generated.

SRVUs I/O	Enter the I/O service units minimum. If a job does not reach at least this value, no measurement is generated.
SRVUs MSO (Main Storage Occupancy)	Enter the MSO service units minimum. If a job does not reach at least this value, no measurement is generated.

Thresholds to Reduce the Number of Open Alerts

These thresholds are used to reduce the number of open alerts for corresponding processed measurement results that need to be analyzed (**open alert thresholds**).

When you define the thresholds, you are defining the minimum consumption values that the measurement result must contain in order to be marked as an OPEN alert. Measurement results below the thresholds are marked as **CTHR -Closed by THResholds-** to indicate not being of interest.

Using Open Alert Thresholds

Thresholds are used by the Central Component to determine which CA MAT monitor data sets are important. The thresholds are not used if an alert was issued by a user.

A threshold value can be set for a specific job or a generic job group. All fields must be filled. The values tested are CPU time, I/O count, elapsed time, and the total service units consumed.

The threshold values are compared with the values from the measurement result and are considered on an **or** basis, as follows:

- If one of the values is reached or exceeded, the alert state is changed to OPEN.
- If the measurement results are all below the thresholds, the alert state is changed to CTHR (Closed by THResholds).

Defining Open Alert Thresholds

When you choose option **TH** on the Parameters Menu, the List Open Alert Threshold Values panel is displayed. Use this panel to enter threshold values to be examined by PMA.

```

APCBPP08 --- PMA - List Open Alert Thresholds -----
COMMAND ==>                                           SCROLL ==> HALF

Search Mode : F  ( F =First B =Best )
Commands    : INS Insert  CAN Cancel  END Exit and Save
Line Commands: I - Insert  D - Delete  C - Change

LC Jobname    Elapsed CPU Time EXCPs   SRVU
-----
***** Bottom of data *****

```

You can enter separate threshold consumption values for session time, CPU time, and EXCPs per job or group of jobs. To discount a field, enter the maximum possible value.

Thresholds for each job or job group are represented by a detail line on the bottom half of the panel. This area of the panel can be scrolled.

Search Mode

When you choose option F (first fit), the values from the threshold with the first matching fit for the job name are used. If no match is found, the default threshold values (if available) are used.

Using this mode, you can select a generic fit over a fully-qualified fit or better generic fit.

When you choose option B (best fit), threshold values are used in the following order if they are available:

1. The fully matching non-generic job name
2. The best high-order generic fit
3. The default threshold values

Example

In this example, thresholds are set for the following job names:

1. *
2. ABC*
3. ABC_E*
4. ABCDEFGH

When option **F** (first fit) is selected in this example, all jobs with names that start with **ABC** are assigned the threshold values for job name #2.

When option **B** (best fit) is selected in this example:

- A job named **ABCDEFGH** is assigned the threshold values for job name #4.
- Other job names with the first three characters **ABC** and a fifth character of **E** are assigned the threshold values for job name #3.
- The remaining jobs with names that start with **ABC** are assigned the threshold values for job name #2.

With both the first fit and best fit options, all other jobs are assigned the threshold values for job name #1.

If no default (*) is set, these jobs are not assigned threshold values.

Panel Elements

Both primary commands and line commands are allowed on this panel.

- To insert a new application detail line, use line command **I** or primary command **INS**. A panel is displayed on which you can enter the job name and the threshold values. Generic notation is allowed when defining job names.
- To delete a detail line of threshold definitions for a job name, place the cursor in the LC column next to the specific job name and enter line command **D**.
- To change job name or thresholds values of an existing detail line, place the cursor in the LC column next to the specific job name and enter line command **C**. A panel is displayed on which you can change the job name and thresholds. The job name can be changed only if it does not already exist on the list.

Column Name	Description
Jobname	Displays the name of the job name for which thresholds are defined Generic notation is allowed by using wildcards _ and *. An underscore _ is a one-character placeholder. An asterisk (*) is a placeholder for one or more characters at the end of a name. Note: One generic entry * is required (you will see this entry in the first line of the panel). If no generic entry is found, APCYJLNA generates an error message on DD statement APCREP and discontinue execution.
Elapsed	Displays the elapsed column that contains the elapsed time threshold in minutes
CPU Time	Displays the CPU time threshold in minutes
EXCPs	Displays the EXCP threshold
SRVU	Displays the service units threshold Note: If more than one threshold entry applies to one job, PMA takes the entry with highest hit ratio.

Chapter 3: Administration of the PMA Server

The server component of Performance Management Assistant is a batch monitor that monitors job steps and automatically generates measurement requests on an as needed basis. By hooking onto the official user exits of JES and SMF, it knows all job steps being executed.

This section contains the following topics:

- [Basic Requirements](#) (see page 171)
- [Functional Overview](#) (see page 172)
- [Technical Overview](#) (see page 177)
- [Set Server Parameters](#) (see page 182)
- [Set Selectable Features](#) (see page 184)
- [Operating the Server](#) (see page 185)

Basic Requirements

The Server has the following requirements.

JES/SMF User Exits

The following table shows the exit points that must be active for proper operation of the Server.

SYS.IEFACTRT	Job/step termination exit
SYS.IEFUJI	job initiation exit
SYS.IEFUSI	step initiation exit
SYS.IEFU83	SMF interval recording exit
SYS.IEFU84	SMF interval recording exit

APF Authorization and LINKLIST Modification

The load library CAMAT.PMA.CEETAUTH contains all the Server modules that must run with APF authorization.

For more information about assigning APF authorization to this library, see [Assigning APF authorization to the authorization library](#).

During evaluation of the Server, member LNKLISTxx of the SYS1.PARMLIB need not be modified because the Server can also run with a STEPLIB DD statement. However, to run the Server in a production environment, the APF-authorized library CAMAT.PMA.CEETAUTH should be added to your LINKLIST.

Start Procedure

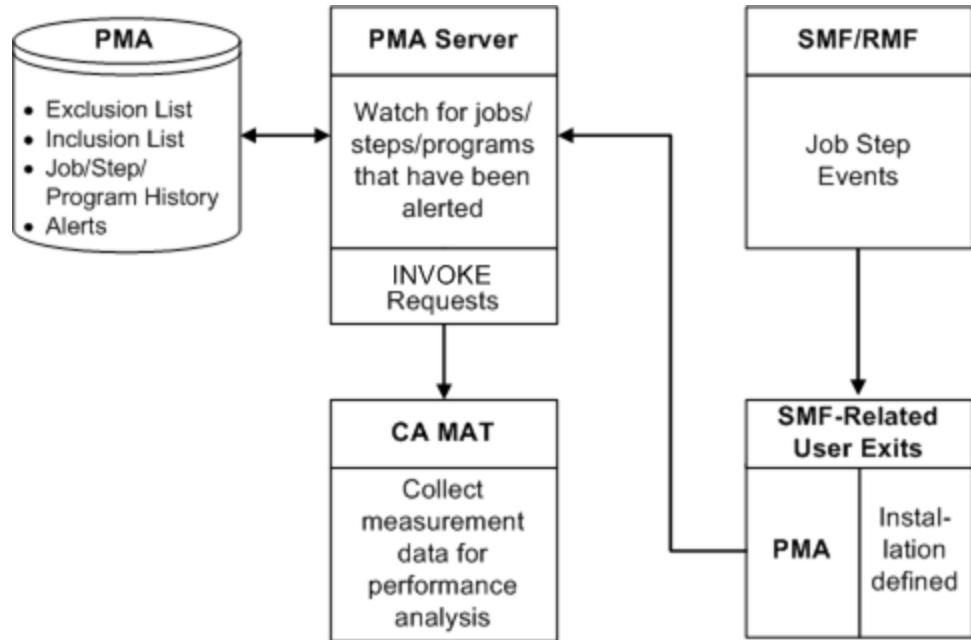
Member APCSJSTC in the product CNTL library contains the sample JCL to invoke the Server.

Review the DD statements and modify them to your needs and copy this member to one of your job control libraries for usage (PROCLIB). The member name can be any one of your choice.

Functional Overview

The background part of the performance control environment collects information supplied by SMF and RMF. That means SMF and RMF must be installed and active to collect performance control data. There must be, like SMF and RMF, a permanently active server in the system, which acts upon the recorded events monitored by SMF and RMF. The server can filter out the events of interest (for example, started jobs, steps, programs) and initiate some specific action, for example, inserting a measurement request to the Measurement Queue when a job exceeds its limits. The jobs, steps, and programs of interest are held in the database in the form of *alerts*. This alert database can be reviewed and maintained by using the online dialog under TSO/ISPF.

The jobs, steps, and programs in the system to be initiated are detected by the Server by using the SMF installation exits. The specific user-exits are designed in such a way that they can coexist with already existing exits of an installation.



The Server obtains the information about alerted job steps with STATE=PEND. Using this information, the Server reacts to the following scenarios:

- When an alerted job step is executed, either user alerted or alerted, a measurement request is issued automatically for the alerted job step.
- When a job step is finished and the Server has issued a measurement request, a DELETE or CANCEL request is performed to clean up the environment.

The following benefits are realized when the Server is used:

- Avoid measurement requests.

In the event that more than one MVS machine is connected through JES Complex, it is not known on which machine a submitted job runs because this decision is managed by JES. So, if a measurement is desired, a common practice is to issue a measurement request on each machine. Because the Server is also on each machine, it knows which job steps to monitor and it knows which machine. Therefore, the Server issues a measurement request on the MVS machine on which the job step is running.

- Eliminate the need for job scheduling day plan input. The job steps needed to be measured are now much more effectively detected without regard to the scheduler plan.

- User alerts are recognized in a timely manner through the alert refresh interval. Therefore, user alerts can be issued for ad hoc situations.
- Job restarts or reruns (that is, after abnormal end) are detected and measured.

The Server is intended to run 24 hours a day, 7 days a week. There are two refresh intervals:

- Alert refresh

The alert refresh interval, by default, is every hour. The alert refresh is critical if user alerts are to be monitored.

- Runtime interval refresh

The runtime interval refresh, by default, is every 24 hours. The runtime interval refresh simulates the stopping and restarting of the Server in order to reset internal counts and controls.

These refresh times can be changed.

Getting Information

In general, MVS provides information about the performance of batch jobs by using the following components:

- RMF - Resource Measurement Facility
- SMF - System Management Facility

RMF provides information related to the physical CPU environment, for example, processor utilization of address spaces, I/O wait times, and so on. Such information is presented at the address space level. Because a batch job can have more than one address space, there is usually no direct correlation between a specific batch job of interest and the information provided.

On the other hand, SMF provides information about the system activity, for example, started jobs, I/O requests issued from a job, and so on. SMF writes this information to SMF data sets, which can be later inspected offline with SAS or other user-written analysis procedures. SMF also writes the data collected by RMF to its own SMF data sets.

Analyzing SMF data offline is not desirable for controlling the performance of an MVS batch environment because the length of time between the analysis and the point of time where an action must be initiated is too long. The switching of SMF data sets is installation and activity dependent.

However, SMF provides a number of user-exits where performance control can *hook into* and analyze the SMF data at the point when they are created and before the SMF data is written out to the SMF data set. The user-exit candidates for performance control are as follows:

- Job Initiation user exit - IEFUJI

This exit is called by SMF whenever a job is selected for execution by JES. For performance control, this exit can be used to filter out jobs of interest.

- Step Initiation user exit - IEFUSI

This exit is called by SMF whenever a job step is set up by an initiator. For performance control, this exit can be used to filter out job steps of interest and (main) programs of interest.

- Step Termination user exit - IEFACTRT

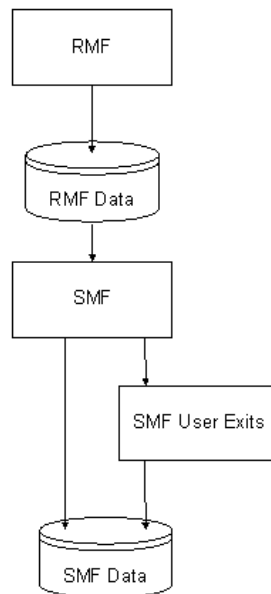
This exit is called by SMF whenever a job step is terminated by the terminator. For performance control, this exit can be used to obtain accumulated data for CPU time, SRB time, service units, EXCPs, and so on.

- Job Termination user exit - IEFACTRT

This exit is called by SMF whenever a job is abnormally terminated. For performance control, this exit can be used to delete jobs of interest from the *watch list* and write accumulated data for historical purposes.

- SMF Record Suppression user exit - IEFU83 / IEFU84

This exit is called by SMF whenever a record is created. For performance control, this exit is the most interesting one. Provided that the correlation between address spaces and currently active job steps are set up, performance control can *monitor* the resource utilization within the intervals because RMF provides the processor utilization data. This process results in very precise activity measurement of the job step of interest and recognition when a job step exceeds its limits. Additionally, all information presented by SMF is available for selection to create individual performance statistics.



Batch Tasks Replaced by Using the Server

The following jobs no longer need to be executed because their functions are now performed by the Server:

- Job APCXJINV - add new CA MAT requests

This function is fully replaced by the Server.

- Job APCXJSMF - extract performance data from SMF 30 records

This job is replaced by the Server if the SMF recording by Server option is set to **Y** (direct recording) or **S** (recording via spooling). If the SMF recording by Server option is set to **N**, you need to execute job APCXJSMF on a regular basis.

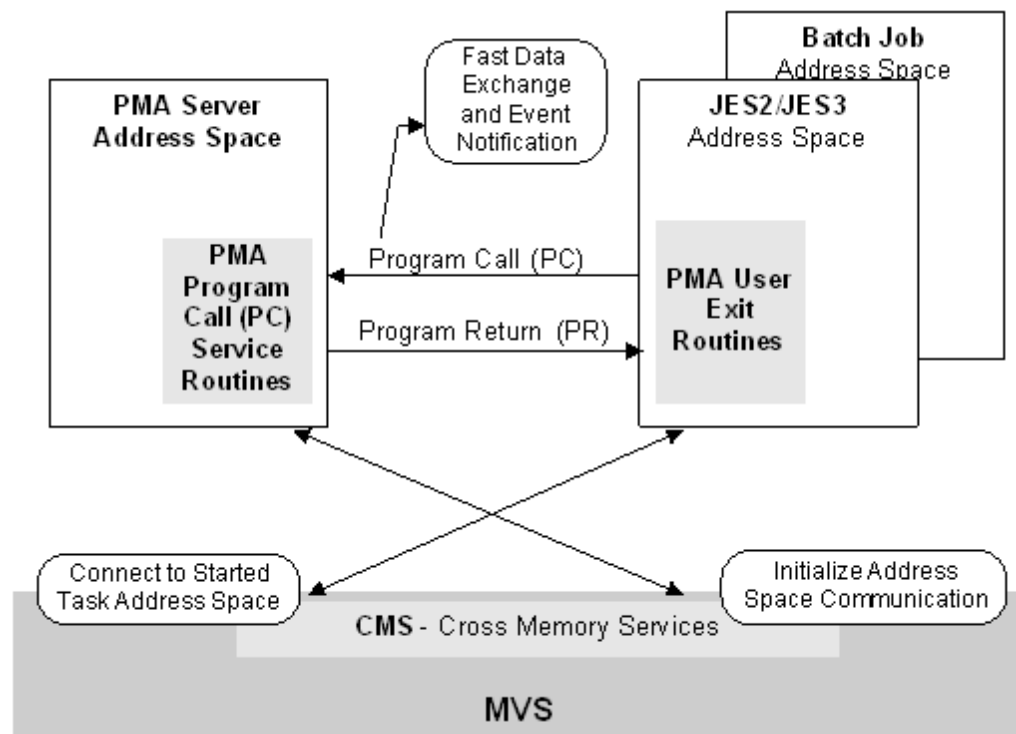
Technical Overview

The Server works with the Central Component to automate the control of measurements in batch. The Server collects information about the current system activity and compares this information with historical data in its database. When a job, step, or program appears to exceed its resource utilization, a measurement is initiated.

The Server runs like a subsystem of TSO, IMS, and so on, and uses Cross Memory Services (CMS) as well. That is, the Server acts as a service provider.

The MVS CMS is used to

- Provide fast communication across address spaces
- Exchange data across address spaces
- Propagate events across address spaces
- Provide authorized functions for clients



Server Components

To set up a full function service provider, the following components are required for the Server:

- Initialization
- Operator interface
- Database interface
- Process control
- Callable services for clients
- Termination

Each of these components is described in the following sections.

Initialization

The initialization component performs all the activity necessary to set up the Server as a service provider. The main tasks of this component are as follows:

- Initialize global programs.
 - Allocate the minimum amount of storage required for proper initialization.
 - Initialize internal control blocks.
 - Set up an error recovery environment.
- Check for the proper operating environment.
 - Check that required modules are available and have the expected authorization.
 - Check for a possible previous failure and try to recover. For example, Cross Memory resources are restricted and may not be freed until an IPL is performed. However, these resources can be identified and reused again. Refer to the IBM® publication titled *Authorized Assembler Services Guide*.
 - Check that required systems like SMF and RMF are operational.
- Setup the CMS environment. This task makes PC service routines for other address spaces available. These routines are used by SMF user exits for fast data exchange and event notification.
- Prepare and start all other components of the Server.

Operator Interface

The operator interface is simply a subtask that monitors input entered from MVS consoles. Its purpose is to operate the Server, for example, stop, change state, and so on, and to allow the operating staff to enter measurement requests immediately.

Database Interface

The database interface is simply a set of modules to access common used VSAM files from the Server and other components of the product.

Process Control

Process control is the event-driven main component of the Server. The system activity events that are recorded by SMF and RMF are propagated through the supplied SMF/RMF user-exits to this component. For every event (for example, start/terminate a job, step, or program, file activity, and so on), there is an action defined. If the event is of interest for batch controlling, the event data is summarized and compared with possible existing history data from the database. When abnormal resource consumption is detected, the process control component automatically initiates a measurement request for the job, step, or program in question.

Callable Services for Clients

The callable services is a set of program call routines, which represent a unique interface for other address spaces to communicate with the Server through Cross Memory and to have access to protected resources in the Server address space in a controlled manner.

Termination Component

This component does all the activity to bring down the Server in an orderly manner. Termination may be requested by operator intervention or during the complete system shutdown.

Cross-memory Environment

To get information and events from other address spaces, the Server sets up a cross-memory environment and acts as a cross-memory Server. All requests from other address spaces to the Server are managed through PC (program call) service routines.

PC Service Routine Specifications

All PC service routines of the Server run with the following specifications:

Call Type	Stacking
Amode	31
Rmode	Any
Storage Key	0
CPU state	Problem

PASN	Server address space
SASN	Callers address space

Transferring of information and data to or from the callers address space is performed in access-register mode.

Providing Linkage Information

The linkage information for the address space requesting service from the Server is provided with the MVS name/token service (before an address space can *call* a routine in another address space it must first *link* to the servicing address space). No explicit requests for common storage-neither above nor below the line-are made for this purpose by the Server. Instead, a name/token for the calling address space is created with the following specifications:

Type	System owned
Key	\$APC0900 appended with eight binary zeros
Duration	Non persistent, is deleted automatically when the Server ends abnormally

The token part contains the necessary linkage information to connect to the Server.

User Exits

The Server uses the following exit points in the system:

SYS.IEFUJI	Job start exit
SYS.IEFUSI	Step start exit
SYS.IEFACTRT	Step/Job termination exit
SYS.IEFU83	SMF record exit.
SYS.IEFU84	SMF record exit.

By default, the Server installs these exits dynamically when it comes up; no changes are necessary in the control members of the SYS1.PARMLIB. When the Server terminates, these exits are also uninstalled.

General Operation

All user exits of the Server operate in a similar way for best performance and security.

- The created name/token from the Server is retrieved to get the linkage information for the cross-memory environment. When this name/token cannot be found, the user exit returns to the caller immediately.
- The user exit connects to the Server address space and calls the proper service routine with a PC (Program call) instruction.
- After the Server service routine has returned control to the user exit, the connection to the Server address space is released.

All user exits return with a return code of zero to the caller. Thus, any KEEPRC specifications (either statically or dynamically) for other user exits of the same exit point in the system are not affected.

The above description determines that a user exit only has connection to the Server address space for the processing of a single event, not across multiple user exit calls by the system. This limitation is for safety aspects. Whenever the Server terminates for some reason (cancel or abend), the created name/token for the linkage information is deleted by the system and is no longer available for the user exits upon the next invocation. In this case, the user exits do nothing, even if they might still be activated. Also, it is possible to register the Server user exits in the PROGxx member of the SYS1.PARMLIB statically with an active state at IPL time. As long as the Server has not come up and the name token for the linkage is not present, the user exits effectively do nothing.

Set Server Parameters

To set parameters for the usage of the Server, use the online dialog shown below:

Using this dialog, you can define all parameters necessary to complete the installation and fine tune the Server.

1. From the Main Menu, select the Parameters option to display the Parameters Menu.
2. On the Parameters Menu, select option **S1** to display the Server General Parameters panel shown following.

```
APCSPP01 ----- PMA SERVER - General Parameters -----  
COMMAND ==>  
  
DSN of the library for the dynamic  
JES/SMF user-exits or "LNKLST" : LNKLST  
Calling Position of user-exits  : FIRST      FIRST/LAST/SYSTEM  
Additional 8 Subsystem IDs or set  
first to * to default to SYS   : *  
  
Alert refresh interval          : 0060      5-1440 minutes  
PMA SERVER runtime interval    : 24        1-24   hours  
Dynamic Alert PEND interval    : 1        1-7    days  
  
Monitor retry limit            : 2          0-9    retries  
  
Internal reader class to submit  
job APCYJLNA by the PMA SERVER : A        Internal Reader Value  
MSG level for PMA SERVER log   : 3        0-3
```

Cancel: CAN
Save : END OR PF3

3. Use this panel to define general parameters for the Server.

Field Name	Description
DSN of the library for the dynamic JES/SMF user exits or "LNKLST"	Enter the data set name of the library for the dynamic JES/SMF user exits. The value you define must be a valid data set name or special keyword "LNKLST". The default is LNKLST which means that LINKLIST/LPA/STEPLIB is used to locate the Server exit routines. Customization of this field is only required when one of the following statements is true: ■ During evaluation of the Server, you do not want to add the authorized library CAMAT.PMA.CEETAUTH, to the LINKLIST concatenation to prevent an IPL. ■ Quickfetch or PMO is being used and the Dynamic Exits Facility of MVS cannot locate exit routines in the LINKLIST concatenation. To instruct the Dynamic Exits Facility not to search the LINKLIST for the Server required exit routines, change the default parameter, LNKLST, to the name of the authorized library CAMAT.PMA.CEETAUTH.
Calling Position of user-exits	Define the order that the Server requests that its dynamic exits are called by exit processing services, as follows: FIRST (recommended) - requests that the exits are called before any other exits are called SYSTEM - specifies that the exits can be called in any order relative to other exists in the system LAST - requests that the exits are called after any other exits FIRST is recommended because some other exits might not follow the SMF guidelines, which can result in lost/corrupt data or the blocking of calls to the exits that should follow them. The exits do follow the guidelines and execute only a few instructions; therefore, they are ideal candidates for being called first.
Additional 8 Subsystem IDs for relevant jobs to watch	Enter up to 8 additional subsystems in which other jobs or Servers should be observed.
Alert refresh interval	Enter the alert refresh interval in minutes. The Server waits this number of minutes before obtaining new alerts from the alert file. The default is 60 minutes.
SERVER runtime interval	Enter the Server runtime interval in hours. The default is 24 hours.
Monitor retry limit	Define the number of times that the Server will retry an unsuccessful start measurement command to the measurement monitor program.
Internal reader class to submit job APCYJLNA by the STC	Define the internal reader class to be used by the Server when submitting job APCYJLNA. This value must be a valid installation-defined character. The default is A.
MSG level for SERVER log	Enter a valid message level class for the Server log. The value must be 0, 1, 2, or 3. The default is 3 to output all messages.

Set Selectable Features

To list all alerts for dynamic address spaces, select option **4** on the Server Component Menu to display the following panel.

```

APCSPP02 ----- PMA SERVER -  Option Setting  -----
COMMAND ==>

Dynamic Alert Generation      : Y          enter Y, D or N
  (If D the Default Measurement Duration is used for all Dynamic Alerts)
End of Step Alert Generation  : Y          enter Y or N
  (If Dynamic Alert set to Yes, only non-alerted steps considered)

Time Alert Generation        : Y          enter Y or N
  Max no. Alerts to be generated per entry :          enter no. from 1 to 10

Max Threshold Alert Generation : Y          enter Y, C or N
  (If C conditional only generate Max Threshold alert if in measurement scope)

Min Threshold Alert Generation : Y          enter Y, A or N
  (If A all min values must be exceeded before a job is eligible for runaway)

PXI Threshold Alert Generation : Y          enter Y or N

SMF Recording by Server       : Y          enter Y, S or N
  (If S recording to the KSDSJ0B file is indirect, via a Spooling Interface)

          Cancel: CAN   Save : END OR PF3

```

For each of the following options type **Y** (or special character as indicated) to enable or **N** to disable the feature:

Field name	Description
Dynamic Alert Generation	Steps with scope are checked each monitor interval for conditions that meet the step alert criteria. If the criterion is met, a measurement is started for the step. If the option is set to Y, the measurement duration will be calculated based on the average elapsed time of the step. If the option is set to D, the measurement duration default value will be used for all dynamic alerts.
End of Step Alert Generation	Steps in scope that meet the step alert criteria at end of step are first made critical and, if the next run meets the alert criteria again, an alert is added for the step. If an open alert already exists or a Dynamic Alert was made during execution, the step will not be made critical and an alert will not be issued. SMF Recording must also be enabled if this feature is to be used.

Field name	Description
Time Alert Generation	The Time Alert feature triggers measurements for STCs, jobs, and so on at preselected time/day combinations. Option 2 of the Server Component Menu is used to set Time Alerts. The maximum number of measurements that can be triggered by a Time Alert entry on each active server can be set between 1 and 10.
Max Threshold Alert Generation	Start a measurement or add an alert when a step exceeds any maximum threshold relevant to the job. If this option is set to C, only jobs that are eligible for runaway are checked. Use the TA option of the Parameters Menu to set maximum thresholds.
Min Threshold Alert Checking	Do not allow measurement or alert generation until at least one minimum threshold relevant to the job has been passed. If this option is set to A, all minimum thresholds that are relevant to the job must be passed. Use the TA option on the Parameters Menu to set minimum thresholds.
PXI Threshold Alert Generation	Trigger a measurement or add an alert if a step exceeds any PXI threshold value that is relevant to the job. Use the TX option on the Parameters Menu to set Performance Index thresholds.
SMF Recording by Server	The server updates the job file information for all relevant steps. If this option is disabled, the End of Step Alert Generation is also disabled. If this option is set to S, the updates are initially written to a temporary spool file and they are only transferred to the job file at the end of a user-specified spool interval. This method can be useful on very busy systems or when the number of servers that share the KSDS job cluster CAMAT.PMA.KSDSJOB is high (approximately five or more).

Operating the Server

This section explains

- How to activate and terminate the Server
- How to enable the Server to collect SMF data indirectly by using the spooling interface option (see Spooling Option)
- How to activate the Checkpoint Checker feature (see Checkpoint Checker)

Activating and Terminating the Server

This section describes ways of activating and terminating the server.

Activating the Server

When activating the Server as a normal batch job, submit the modified member APCSJSTC with a valid job card from your (possibly private) job product library.

When activating the Server as a real Server, enter the following command from a console:

```
S member
```

where **member** is the name of the prepared JCL for the Server in a JCL procedure library.

Terminating the Server

The Server can be terminated from a console with the stop command:

```
P name
```

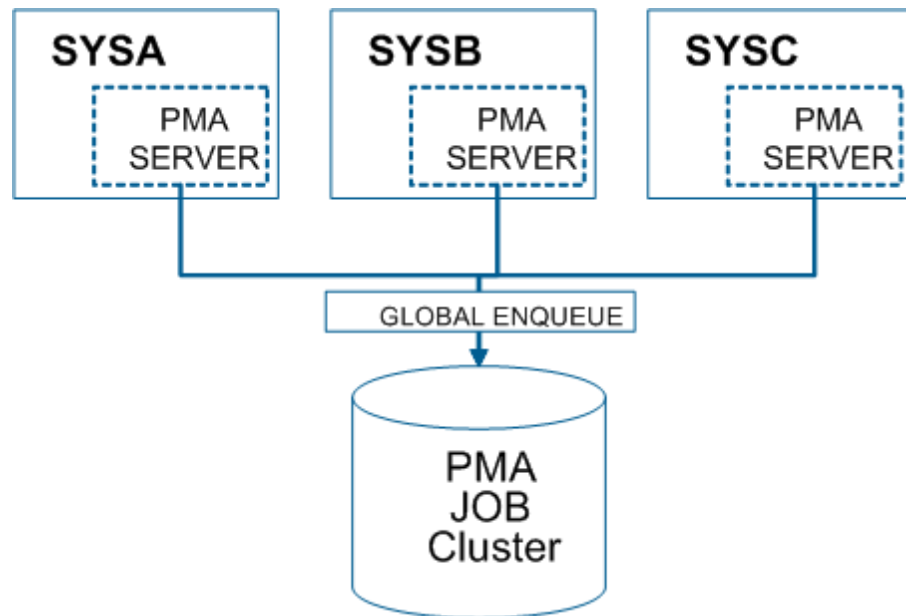
where **name** is the job name of the Server when activated as a *normal* batch job, or the name of the PROCLIB member when activated as a *real* Server.

Spooling Option

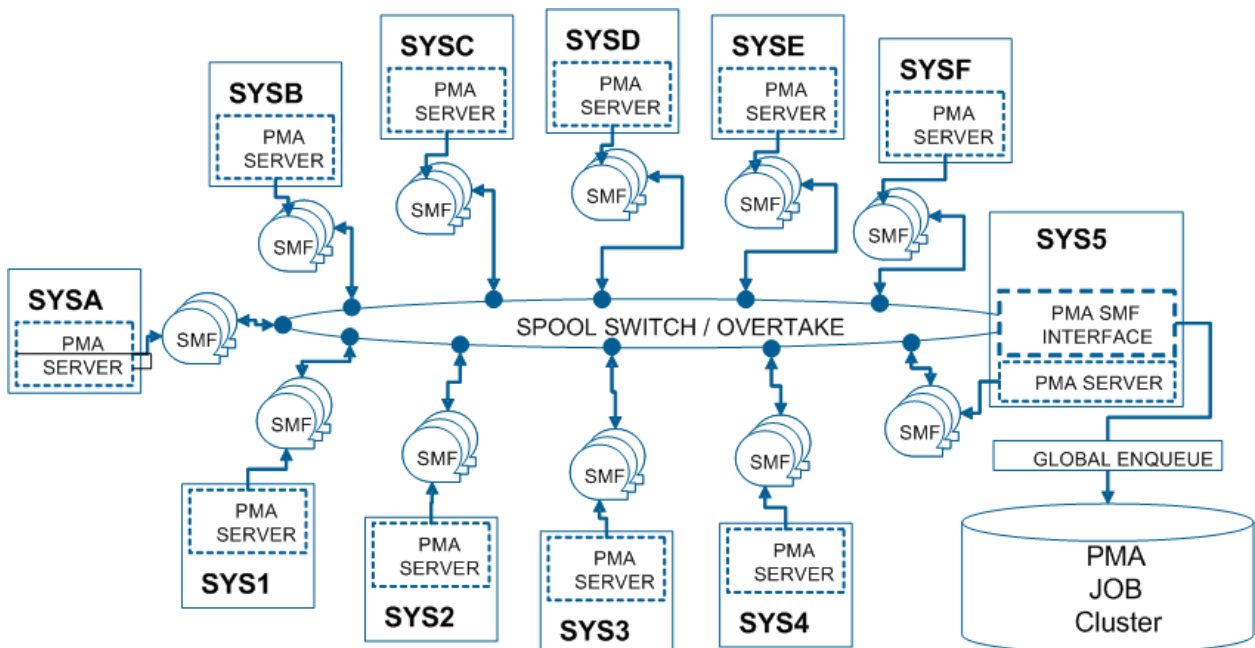
The Server can collect SMF data either directly or indirectly.

The following section describes how to enable the Server to collect SMF data indirectly by using the spooling interface option.

The following illustration shows how direct SMF recording works without using the spool feature.



The following illustration shows how indirect SMF recording works with the spool option enabled.



When the spooling interface option is enabled, the spool interface started task (APCSASIP) causes all active Servers to switch to new spool files at the end of each spool interval. It then sorts and merges the SMF data from the switched spool files, performs an update of the job file, and saves the sorted and merged SMF data in GDG.

If for some reason APCSASIP is not running, the Servers can still function and the SMF data will continue to be spooled as normal. If a spool file becomes full, an internal switch will take place and the switched data will be automatically processed when the SIP becomes available.

You can define spool data set allocation parameters and spool interval parameters by selecting option 5—Spool on the Server Component Menu.

For more information about defining spool parameters, see the *User Guide*.

Defining Spool Parameters

To define the Server spooling parameters, select option **5** on the Server Component Menu to display the following panel.

```
APCSPP03 ----- PMA SERVER - Spool Parameters -----  
COMMAND ==>  
  
Data Set Allocation Parameters  
  
Non SMS parameters (ignored if files are SMS controlled)  
VOLSER   for use with Spool files :          volume name or blank  
UNIT      "                        : SYSDA    unit type or blank  
  
SMS parameters (ignored if files are not SMS controlled)  
MGMTCLAS for use with Spool files :          management class or blank  
STORCLAS  "                        :          storage class or blank  
  
Spool Control Parameters  
  
Spool transfer interval           : 10         5-60 minutes  
Refresh the Top Scope values every: 144       12-999 Spool transfers  
                                   (interval * frequency = refresh period in minutes)  
  
Cancel: CAN  
Save  : END OR PF3
```

In the Spool Parameters panel, you can define both data set allocation parameters and spool control parameters, as discussed in the following sections.

Data Set Allocation Parameters

This section discusses the data set allocation parameters.

Non-SMS Parameters (ignored for SMS-controlled data sets)

If the spool files are not under SMS control, you can define either the **VOLSER** or **UNIT** parameters to control the placement of spool data sets.

In the **VOLSER** field, you can specify the volume serial number of the disk that will be used for the spool files. If this field is left blank, the system will select a volume based on **UNIT** type.

In the **UNIT** field, you can specify a generic device type such as 3390 or an esoteric device group name such as SYSALLDA. The default is SYSDA.

SMS Parameters

If the spool files are under SMS control, you can use these parameters to control the placement, archive, backup, etc. of the spool data sets.

In the **MGMTCLAS** field, you can specify the management class name to be used. This management class must be one of those that have been set up by the storage administrator at your site. It should also be a management class that excludes the spool data sets from backup and migration.

In the **STORCLAS** field, you can specify the storage class name to be used. This storage class must be one of those that have been set up by the storage administrator at your site. The storage class set by this parameter is used instead of the **UNIT=** and **VOLUME=** parameters and it determines where a data set is allocated.

Spool Control Parameters

The **Spool transfer interval** is the period between transfers from the spool to the KSDSJOB file. This parameter can be set in the range from 5 to 60 minutes. A short interval is recommended if currency of the job file is the prime consideration; the use of a longer interval will reduce the resources that are used by the servers.

The **Refresh the Top Scope values** parameter sets the frequency that the Top Scope values are recalculated during the spool transfer process. This function is a heavy resource user and the frequency should be set to reflect this fact. Once per day should be more than sufficient for most sites. The frequency can be related to time by using the calculation (interval * frequency = refresh period in minutes).

Setting the SMF Recording Option

Use the following steps to enable the Server to collect SMF data indirectly by using the spooling interface option:

1. Select option **4—Options** on the Server Component Menu.

```
APCSPMNU ----- PMA --- Server Component Menu ----- Release 8.5
OPTION ==> 4

      1 Commands      - Issue Server Commands
      2 Time Events   - Set Time Events
      3 Time Alerts    - List Time Generated Alerts
      4 Options        - Set Selectable Features
      5 Spool          - PMA SERVER Spooling Parameters

      6 Parameters    - General PMA SERVER Parameters
      T TUTORIAL       - Obtain PMA Help
      X or END         - End Server Component Dialog

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```

2. Type **S** in the **SMF Recording by Server** field, as shown following.

```
APCSP02 ----- PMA SERVER - Option Setting -----
COMMAND ==>

(If D the Default Measurement Duration is used for all Dynamic Alerts)
End of Step Alert Generation : Y      enter Y or N
(If Dynamic Alert set to Yes, only non-alerted steps considered)

Time Alert Generation        : Y      enter Y or N
Max no. Alerts to be generated per entry : 3      enter no. from 1 to 10

Max Threshold Alert Generation : Y      enter Y, C or N
(If C conditional only generate Max Threshold alert if in measurement scope)

Min Threshold Alert Generation : Y      enter Y, A or N
(If A all min values must be exceeded before a job is eligible for runaway)

PXI Threshold Alert Generation : Y      enter Y or N

SMF Recording by Server      : S      enter Y, S or N
(If S recording to the KSDSJOB file is indirect, via a Spooling Interface)

Cancel: CAN   Save : END OR PF3
```

3. Start the spool interface started task, APCSASIP.

When the Server option for SMF recording is set to Spool (as shown previously), it is necessary to start the spool interface started task, APCSASIP, in addition to the Server started task.

More information:

Startup JCL for the spool interface task APCSASIP

Activating the spool interface started task

Startup JCL for the Spool Interface Task APCSASIP

Member APCSJSIP in the product CNTL library contains the sample JCL to invoke the spool interface task, APCSASIP.

Review the DD statements and modify them to your needs. Copy this member to one of your job control libraries for usage (PROCLIB). The member name can be any one of your choice.

Activating the Spool Interface Started Task

To activate the spool interface task, enter the following command from a console:

S member

where **member** is the name of the prepared JCL for the spool interface task in a JCL procedure library.

Terminating the Spool Interface Started Task

The spool interface task can be terminated from a console with the stop command:

P name

where **name** is the name of the PROCLIB member that contains the spool interface task JCL.

Checkpoint Checker

To use the Checkpoint Checker feature, you must activate exit APCSAMPF

1. Exit APCSAMPF must be in a load library that is contained in the LINKLIST concatenation. If the exit is to be used before an IPL is performed, issue the operator command **F LLA, REFRESH**.

2. Modify an existing or add a new MPFLSTxx member as required by the PARMLIB (the MPF parameter on the INIT of the active CONSOLxx member tells you which MPFLSTxx members are active at IPL). The new or modified MPFLSTxx member should have the following lines inserted:

DFS681I,SUP(NO),USEREXIT(APCSAMPF)

DFS683I,SUP(NO),USEREXIT(APCSAMPF)

DFS0540I,SUP(NO),USEREXIT(APCSAMPF)

DFS0542I,SUP(NO),USEREXIT(APCSAMPF)

3. To activate the new/modified MPFLSTxx member prior to an IPL, issue the operator command **SET MPF =xx** (for our example if the member is MPFLSTAB, issue **SET MPF =AB**). If a new MPFLST member is used, add it to the MPF parameter on the INIT statement of the CONSOLxx member to activate it automatically at IPL time.

Chapter 4: Administration of the CICS Feature

This chapter provides an overview of the CICS Feature.

It also provides details about how to

- Modify the batch jobs
- Set the parameters to be used

This section contains the following topics:

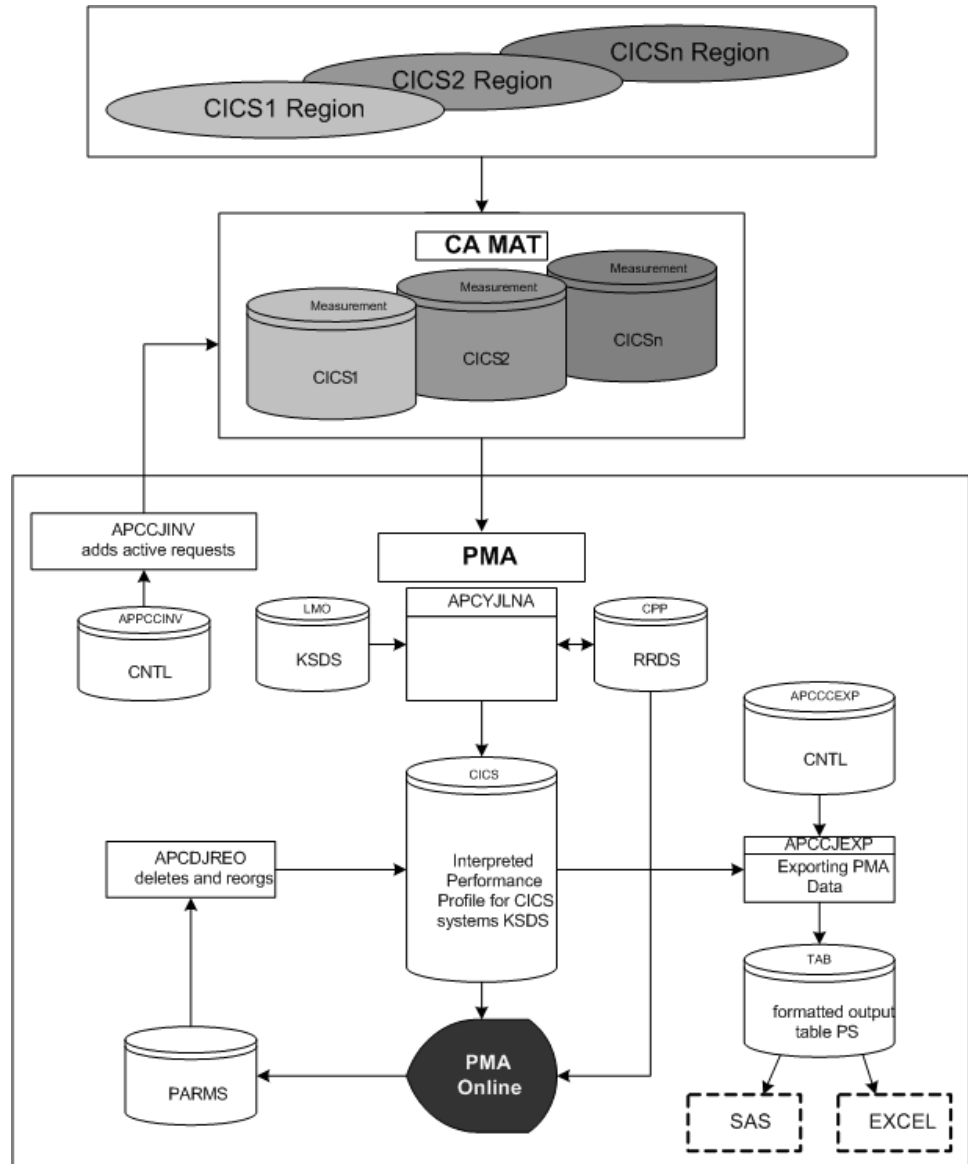
[Overview](#) (see page 194)

[Batch Jobs](#) (see page 198)

[Defining Parameters](#) (see page 217)

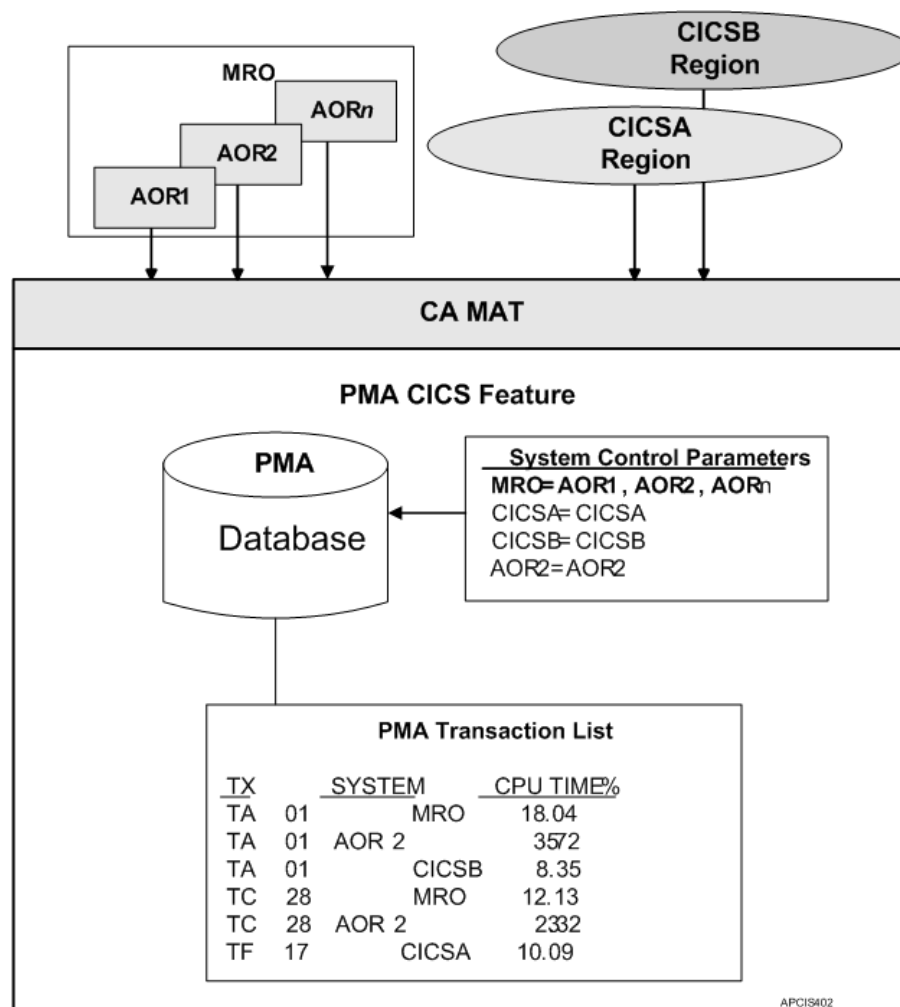
Overview

The following flowchart illustrates how the CICS Feature works.



How the CICS Feature System Control Works

The following flowchart illustrates how the System Control of the CICS Feature works.



Alert Management

In CICS there are hundreds of transactions but not all of these transactions need performance monitoring. Many transactions, even though they might be high consumers, only execute occasionally and do not warrant concern.

Each time the CICS Feature executes, important top consuming transactions can be automatically identified and alerted. This feature works in two steps:

1. The top number of consuming transactions are identified based on the scope you define as a parameter, for example, TOP Scope = 10.

2. Within this TOP Scope, the current execution consumption values of the transactions are compared to the statistical information maintained for the same transactions on the database. If the actual consumption exceeds the statistical limits, an alert is issued automatically. This alert is referred to as a *statistical alert*.

Additionally, the user can manually issue an alert explicitly for transactions by using the online Alert Management option. This alert is referred to as a *user alert*.

The alert management option provides all the information necessary to respond to the alert. Information is provided in the form of state and reason codes that identify the situation. For details about how to review and interpret alerts online, refer to the *User Guide* that corresponds with your measurement tool.

All alerted transactions are also listed in the APCSALT report file of job APCYJLNA. (For details regarding this job, see Jobs APCYJLST and APCYJLNA - process CA MAT measurement. Listed for each alert transaction is the average of CPU time, the current CPU time, the number of relevant history entries of the current transaction, and the resulting standard deviation in CPU time. Depending on the parameter setting for online alerting, these CPU times either are in percent as in previous releases or are the transactions' absolute CPU time. Using the APCSALT report file, user-written REXX procedures can use the keyword parameters to process the alert information, such as, pass information to change management or provide programmer notification of alerts. The following example shows an the APCSALT report file output for a runaway based on CPU time percent.

```
$$ALERT
$$SS=CICS
$$SN=PNP1
                                SUBSYSTEM ( CICS / IMS )
                                SYSTEM NAME

$CM=00627                      MEASURED CPU TIME %
$CA=00022                      AVERAGE CPU TIME %
$AT=005                         ALERT TEXT WITH NNN LINES

-----
TRANSACTION : OKSS             SYSTEM : PNP1             PGM : CIC1PNP1
CPU% MEAS   : 6.27            AVERAGE : .22            STD.DEV : .24
-----

$$ALEND
```

The following example shows the APCSALT report file output for a runaway based on the transaction's absolute CPU time.

```

$$ALERT
$$SS=CICS                                SUBSYSTEM ( CICS / IMS )
$$SN=CICS0001                            SYSTEM NAME
$TX=ED03                                TRANSACTION NAME
$CM=00011295                            MEASURED ABS CPU TIME PER TX
$CA=00782                                AVERAGE ABS CPU TIME PER TX
$AT=005                                  ALERT TEXT WITH NNN LINES
2010-03-01 PMA ALERT ID 00001    BY STAT
-----
TRANSACTION : ED03      SYSTEM : CICS0001      PGM : CIC1PCK1
CPU ABS MEAS:  1.1295  AVERAGE :   0.0782  STD.DEV:   0.0679
-----

$$ALERT
$$SS=CICS                                SUBSYSTEM ( CICS / IMS )
$$SN=PNP1                                SYSTEM NAME
$TX=OKSS                                TRANSACTION NAME
$CM=00627                                MEASURED CPU TIME %
$CA=00022                                AVERAGE CPU TIME %
$AT=005                                  ALERT TEXT WITH NNN LINES
2010-01-09 PMA ALERT ID 16187    BY STAT
-----
TRANSACTION : OKSS      SYSTEM : PNP1          PGM : CIC1PNP1
CPU% MEAS :   6.27     AVERAGE :    .22     STD.DEV :    .24
-----

$$ALEND

```

How the TOP Limit Works

In order to use the Alert Management option of the CICS Feature, the TOP Limit of work must be defined. TOP Limit processing works for each defined CICS system and is the last step in the total system management. To define the TOP Limit, use the parameter called **TOP Limit of most important transactions**. The **TOP Limit** field can contain a value from 0 to 999. A value of 0 deactivates the TOP Limit, thus deactivating Alert Management. Otherwise, the TOP Limit number defines how many important transactions are to be statistically observed.

Within the TOP Limit—meaning the number defined as a parameter—all transactions of the current system are statistically observed and, at the end, a runaway test check is performed. The statistical limits are based on up to eighteen months of stored interpreted measurements. To determine the TOP consumer and issue alerts, one of two conditions normally exists:

- Transaction consumption is static. A standard deviation check is done and if the result indicates an increase in the consumption (runaway), an alert is issued.
- Transaction consumption is not static. A standard deviation check is done and if the result indicates a drastic increase in the consumption (runaway), an alert is issued.

If there is a runaway situation, the transaction is added to the alert file with the state OPEN and the reason STAT. Alerts can be viewed under the Alert Management dialog.

The range of the statistical observation is limited to one year. For a transaction to be alerted, it must have been observed in at least three separate measurements collected during the period of statistical observation.

Batch Jobs

When running in a CA MAT environment, the CICS feature is divided into the following parts:

- Job APCCJSMF processes the CICS SMF records.
- Job APCCJINV calls CAMAT in order to activate one or more CICS measurements.
- Job APCCJLIB searches for changed online modules.
- Jobs APCYJLST and APCYJLNA create and interpret the measurement and generate the records that are used in the ISPF overviews.

All the JCL illustrated in this chapter should be customized by replacing lowercase italicized items with values that suit the needs of your environment. All JCL can be found in your product CNTL library.

The use of a job scheduling system to run the jobs on a regular basis is strongly recommended. All steps are fully restartable.

Processing the CICS SMF Records - APCCJSMF

The CICS SMF feature needs SMF Type 110 records with subtype 1 (CICS Monitoring). From these records, Class of Data = 1 (Dictionary) is used for verifying the existence and locating the offset of the relevant data. Class of Data = 3 (Performance) records contain one or more transaction-specific data according to the layout found in the dictionary record. These types of records must be activated and written to SMF data sets.

Starting with the CICS SMF feature for a specific CICS system is only possible after the startup of the region. Performance Management Assistant stores a dictionary information record containing the timestamp and processes only those transaction performance records after the stored timestamp.

Every time Performance Management Assistant recognizes a new dictionary record for a specific CICS system, the information about the relevant fields is compared to the stored information. If there are no changes, the new dictionary record is ignored. When there are changes in the dictionary, Performance Management Assistant stores a new dictionary information record containing the new timestamp. All records after the timestamp are processed with the new layout, where older ones are processed with the layout for this specific time period. This assures the correct functionality even when SMF data sets are not processed in the correct time sequence.

The CICS SMF features uses the following fields from the Monitor Control Table:

Performance Group	Informal Name	Description
DFHTASK	TRAN	Name of the transaction
DFHTASK	TTYPE	Start type of the transaction
DFHCICS	START	Time that the user task was attached
DFHCICS	STOP	Time that the user task was detached
DFHDATA	IMSREQCT	Number of IMS (DBCTL) requests that were issued by the user task
DFHDATA	DB2REQCT	Number of DB2® (EXEC SQL and IFI) requests that were issued by the user task
DFHTASK	USRDISPT	Total elapsed time that the user task was dispatched
DFHTASK	USRCPUT	Processor time that the user task was dispatched
DFHTASK	SUSPTIME	Total elapsed time that the user task was suspended by the dispatcher
DFHCICS	USERID	User identification at task creation

It is recommended that all of these fields are included on every CICS system that is used for the CICS SMF feature. If they are not present, the corresponding fields are either initialized or the record is ignored (if there is no information for transaction name and/or start time).

CICS SMF User Exit

Processing large data sets that contain CICS SMF records is a time-consuming task. If you need to extract additional information that is not used for the CICS SMF feature, you can define up to 15 additional performance data fields that will be extracted into the output data set of the first step of job APCCJSMF. If you define these data fields, there must be an appropriate action to process the additional data that is stored to a temporary data set by default.

You must define the additional fields in a data set with a fixed record length of 80. This data set must be used with DDname APCVARS in step APCCASDI of job APCCJSMF. The layout is described in the following table.

Field	Length	Description	Example
Informal Name	8	Informal name, as defined in the MCT	DB2WAIT
Type of Data	1	Processing type of the requested field: C - character B - binary (fullword) T - timestamp	B
Length of Data	2	Length of data that will be extracted and moved to the output data set	04
Displacement in output data set	3	Position in output data set where moved data will start; must be greater than 64; no check for overlaps is done	065

When the example data is used, the contents of the performance data field DB2WAIT is copied in binary format with a length of 4 bytes to the output data set of step APCCASDI starting at position 65.

Region and Transaction Scope

This function allows you to define regions and/or transactions that will be handled by the CICS SMF feature. It is possible to either include only specific regions or exclude regions that are not important, such as test regions. The same function is available for transactions, such as excluding transactions like CSS*.

See CICS SMF Scope definitions for more information about defining includes and excludes.

Summary Definitions

Application workload is very often distributed across multiple online regions. In this situation, you can define region summary definitions by using the CICS SMF feature.

For example, if the SMF data contains information about transactions from regions CICSPRD1 and CICSPRD2 and there is a summary definition CICSPROD containing the 2 regions, then all information available for the 2 single regions will be aggregated under CICSPROD.

See CICS SMF Summary Definitions for more information about defining summary definitions.

Transaction Call Statistics

Very often average values for performance metrics, such as CPU time or elapsed time, do not really represent the distribution of transactions. The CICS SMF feature groups transaction performance values in 7 predefined static intervals. These intervals are shown following.

CPU time	Elapsed time
CPU < 0.005 seconds	Elapsed time < 0.05 seconds
0.005 <= CPU < 0.01 seconds	0.05 <= elapsed time < 0.1 seconds
0.01 <= CPU < 0.02 seconds	0.1 <= elapsed time < 0.2 seconds
0.02 <= CPU < 0.03 seconds	0.2 <= elapsed time < 0.3 seconds
0.03 <= CPU < 0.05 seconds	0.3 <= elapsed time < 0.5 seconds
0.05 <= CPU < 0.1 seconds	0.5 <= elapsed time < 1 seconds
CPU >= 0.1 seconds	Elapsed time < 0.05 seconds

See the Transaction SMF information section in the *User Guide* for more information about how this information is displayed.

Data Contents

Use the following steps to create the data contents for the CICS SMF feature:

1. Extract the necessary information from SMF data sets to a temporary file (Module APCCASDI).
Excluded regions and/or transactions are eliminated in this stage.
If the CICS SMF User Exit is used, define the correct input data set for DDname APCVARS and either change the definition of temporary file APC1100 or add a step to copy the temporary data set.
2. Sort the temporary files by CICS system, transaction, and start time.
3. Process the sorted file and aggregate the detail information (Module APCCASSA).
For every fixed interval of 15 minutes (00:00 to 00:15, 00:15 to 00:30, and so on), a record containing performance information is written to a temporary file. For every existing summary definition of a CICS region, an interval record with the name of the summary region is created.
4. Sort the temporary data set with interval data files by CICS system, start date, transaction, and start time.
5. Process the sorted interval file and create the records in the data set (APCCASSB).

Job APCCJSMF

Job APCCJSMF gathers information about executed CICS transactions from SMF Type 110 records.

This job should execute daily after the CICS SMF information for the previous day are completed.

If the job is executed separately on each image in a SYSPLEX, all copies of this job need strict serialization.

```

...JOB CARD
//*
//*****
//*
//*      PMA: APCCJSMF
//*
//* MAINTENANCE: PMA TEAM
//*
//* ACTION:      INTERPRET CICS SMF RECORDS
//*
//*-----*
//* Copyright (C) 2012 CA. All Rights Reserved.
//* Copyright (C) Trilog AG.
//*****
//*
//*****
//*
//* ACTION:      EXTRACTION OF RECORDS TYPE 110 FROM SMF POOL
//*
//*****
//*
//APCCASDI EXEC PGM=APCCASDI
//STEPLIB DD DISP=SHR,DSN=CAMAT.PMA.CEETLOAD
//APCSMF DD DSN=cicssmfpool,
//          DISP=SHR,DCB=(BUFNO=50)
//APC1100 DD DSN=APC1100,
//          DISP=(,PASS),
//          UNIT=SYSDA,
//          DCB=(RECFM=VB,LRECL=3120,BLKSIZE=27998),
//          SPACE=(CYL,(100,200))
//APCVARS DD DUMMY          <= CHANGE IF CICS SMF USER EXIT IS USED
//APCREP DD SYSOUT=*
//SYSUDUMP DD SYSOUT=*
//APCPARAM DD DISP=SHR,DSN=CAMAT.PMA.PARMS
//APCCDIC1 DD DISP=SHR,DSN=CAMAT.PMA.KSDSDIC
//APCBEXC1 DD DISP=SHR,DSN=CAMAT.PMA.KSDSEXC
//*
```

```

//*****
//*
//* ACTION:      SORT INTERIM SMF RECORDS
//*
//*****
//*
//SORT  EXEC  PGM=SORT
//SORTIN DD DSN=&&APC1100,
//        DISP=(OLD,DELETE)
//SORTOUT DD DSN=&&APC110S,
//
//        UNIT=SYSDA,
//
//        SPACE=(CYL,(100,200))
//SYSOUT DD SYSOUT=*
//SYSIN  DD *
//        SORT FIELDS=(5,8,CH,A,23,4,BI,A,13,8,CH,A,27,5,BI,A)
//*
//*****
//*
//* ACTION:      PROCESS SORTED SMF RECORDS
//*
//*****
//*
//APCCASSA EXEC PGM=APCCASSA
//STEPLIB DD DISP=SHR,DSN=CAMAT.PMA.CEETLOAD
//APCPARAM DD DISP=SHR,DSN=CAMAT.PMA.PARMS
//APC110I DD DSN=&&APC110S,
//        DISP=(OLD,DELETE)
//APC1100 DD DSN=&&APC110X,
//        DISP=(,PASS),
//        UNIT=SYSDA,
//
//        SPACE=(CYL,(10,20))
//APCCST1 DD DISP=SHR,DSN=CAMAT.PMA.KSDSCST
//APCCDIC1 DD DISP=SHR,DSN=CAMAT.PMA.KSDSDIC
//SYSUDUMP DD SYSOUT=*
//APCREP DD SYSOUT=*
//APCEREP DD SYSOUT=*
//*

```

```

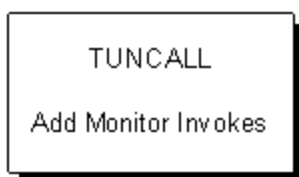
//*****
//*
//* ACTION:      SORT INTERVAL RECORDS
//*
//*****
//*
//SORT  EXEC  PGM=SORT
//SORTIN DD DSN=&&APC110X,
//        DISP=(OLD,DELETE)
//SORTOUT DD DSN=&&APC110I,
//        DISP=(,PASS),
//        UNIT=SYSDA,
//        DCB=(RECFM=VB,LRECL=255,BLKSIZE=27998),
//        SPACE=(CYL,(10,20))
//SYSOUT DD SYSOUT=*
//SORTDIAG DD SYSOUT=*
//SYSIN  DD *
//        SORT FIELDS=(5,8,CH,A,21,4,BI,A,13,8,CH,A,25,2,BI,A)
//
//
//*****
//*
//* ACTION:      PROCESS SORTED INTERVAL RECORDS
//*
//*****
//
//APCCASSB EXEC PGM=APCCASSB
//STEPLIB DD DISP=SHR,DSN=CAMAT.PMA.CEETLOAD
//APCPARAM DD DISP=SHR,DSN=CAMAT.PMA.PARMS
//APC110I DD DSN=&&APC110I,
//        DISP=(OLD,DELETE)
//APCCST1 DD DISP=SHR,DSN=CAMAT.PMA.KSDSCST
//SYSUDUMP DD SYSOUT=*
//APCREP DD SYSOUT=*
//APCEREP DD SYSOUT=*

```

Activating the Measurement Request - APCCJINV

The first part of the CICS Feature batch process is job APCCJINV. Job APCCJINV should be run during peak time to activate a measurement request for one or more CICS regions. The measurements should be done regularly, for example, daily, twice a week, weekly, and so on, and always at the same time of day. Otherwise, there is a high possibility that the measurements are not comparable.

- APCCJINV consists of one CA MAT program.
- APCCJINV is the CA MAT call for Monitor Invokes.
- APCCJINV cancels waiting monitors before doing new alerts.



Adding Invoke Requests - TUNCALL

The CA MAT program in step CICSINVK inserts the Monitor Invoke requests into the CA MAT queue.

Cancel Waiting Requests

Step APCTOK1 cancels waiting monitors in the CA MAT queue before doing new alerts.

```
//JOB CARD...
//*
//*
//*****
//*                                     *
//*                                     *
//* PMA: APCCJINV                      *
//*                                     *
//* MAINTENANCE: PMA TEAM              *
//*                                     *
//* ACTION:      CALL CA MAT FOR MEASUREMENT REQUESTS  *
//*                                     *
//* FUNCTION:    DAILY MEASUREMENT OF CICS REGIONS    *
//*                                     *
//*------*
//* Copyright (C) 2012 CA. All Rights Reserved.
//* Copyright (C) Trilog AG.
//*****
//*
//*****
//* CANCEL OF WAITING MONITORS BEFORE DOING NEW ALERTS FOR
//*****
//*
//APCTOK1 EXEC PGM=IKJEFT01,DYNAMNBR=30,PARM='APCXRIE'
//STEPLIB DD DISP=SHR,DSN=CAMAT.PMA.CEETLOAD
//SYSPRINT DD SYSOUT=*
//TUNPRINT DD SYSOUT=*
//APCPARM DD DISP=SHR,DSN=CAMAT.PMA.PARMS
//DELREQ DD DISP=OLD,DSN=CAMAT.PMA.CICRQ
//SYSEXEC DD DISP=SHR,DSN=CAMAT.PMA.EXEC
//SYSTSPRT DD SYSOUT=*
//SYSTSIN DD DUMMY
//*
//*
```

```

//*****
//* INVOKE MONITOR REQUESTS FOR CICS
//*****
//CICSINVK EXEC PGM=TUNCALL
//STEPLIB DD DISP=SHR,
//          DSN=CAMAT.CEESLOAD
//TUNPRINT DD DSN=&&TUNLOG,
//          DISP=(,PASS),
//          UNIT=SYSDA,
//          DCB=(DSORG=PS,LRECL=133,RECFM=FB),
//          SPACE=(CYL,(1,2))
//SYSPRINT DD SYSOUT=*
//TUNIN DD DISP=SHR,
//          DSN=CAMAT.PMA.CNTL(APCCCINV)
//*
//*****
//* SAVE TUNPRINT OUTPUT
//*****
//SAVETUNP EXEC PGM=IEBGENER
//SYSPRINT DD SYSOUT=*
//SYSUT1 DD DSN=*.CICSINVK.TUNPRINT,DISP=(OLD,PASS,KEEP)
//SYSUT2 DD SYSOUT=*
//SYSIN DD DUMMY
//*
//*****
//* SCAN INVOKE OUTPUT TO GET TOKEN FOR CANCEL OF WAITING MONITORS
//* BEFORE DOING NEW INVOKES FOR
//*****
//*
//APCTOK2 EXEC PGM=IKJEFT01,DYNAMNBR=30,PARM='APCXRTOK'
//SYSTSIN DD DUMMY
//SYSPRINT DD SYSOUT=*
//TUNPRINT DD DSN=&&TUNLOG,DISP=(OLD,DELETE)
//DELREQ DD DISP=OLD,DSN=CAMAT.PMA.CICRQ
//SYSEXEC DD DISP=SHR,DSN=CAMAT.PMA.EXEC
//SYSTSPRT DD SYSOUT=*

```

The SYSIN input for job APCCJINV is member APCCCINV in the product library. The entries within this member must be defined for each CICS region to be measured. The following table defines each of these entries.

APCCCINV Entry	What you should enter
Monitor name MONITOR INVOKE	Enter the Monitor name of your CA MAT Started Task.
JOBNAME(cics-region name)	Enter the active CICS region to be measured.

ELAPSTIME(seconds)	Enter the session duration in seconds. One hours (3600 seconds) or more is recommended. When measuring less than one hour, there is a chance that the measurement is influenced by a long running transaction, for example, a background transaction.
SAMPLECNT(10000)	Enter the target sample size. It is strongly recommended that you aim to get approximately 10000 execution samples in order to receive a CPU measurement with a minimal margin of error. Therefore, if the CICS region normally has approximately 50% CPU, the target sample size should be 10000, if the normal CPU usage is about 20%, the target sample size should be 50000, and so on.
MONDSN('your-monitord sn-prefix.&JOBNAME.&SY STIME')	Enter the prefix for the measurement data set. This prefix must match with the prefix defined on the Global Sample DS Processing panel. On this panel, you define the measurement data set prefix for all features (batch, CICS, IMS/DC). Job APCYJLST uses this parameter to inspect measurements and to decide which measurements belong to the feature.

Member APCCINV might contain the entries shown following for CICS region CIC1HHHH.

```
CA MAT MONITOR INVOKE -
JOBNAME(CIC1HHHH) -
ELAPSTIME(03600) -
SAMPLECNT(10000) -
MONDSN('PMA.CAMAT.DS.&JOBNAME.&SYSTIME')
```

Check the CPU usage of the MVS image to avoid potential problems.

CICS regions should be measured during peak time in order to get the best results.

The following example illustrates how APCCINV entries might be defined to measure multiple regions.

```
CA MAT MONITOR INVOKE -  
JOBNAME(CIC1REG1) -  
ELAPSTIME(07200) -  
SAMPLECNT(10000) -  
ONDSN('PMA.CAMAT.DS.CICS.&JOBNAME.&SYSTIME')  
CA MAT MONITOR INVOKE -  
JOBNAME(CIC1REG2) -  
ELAPSTIME(10800) -  
SAMPLECNT(10000) -  
MONDSN('PMA.CAMAT.DS.CICS.&JOBNAME.&SYSTIME')  
CA MAT MONITOR INVOKE -  
JOBNAME(CIC1REG3) -  
ELAPSTIME(03600) -  
SAMPLECNT(10000) -  
MONDSN('PMA.CAMAT.DS.CICS.&JOBNAME.&SYSTIME')
```

Activating the Online Changed Module Option - APCCJLIB

A second part of the CICS Feature is searching for changed online modules. If you want to measure changed online modules, job APCCJLIB must be planned on a regular basis. It is recommended to do this planning before the online process starts.

```
...JOB CARD  
/*  
/******  
/*  
/*      PMA: APCCJLIB  
/*  
/*  
/*      SEARCH DEFINED CICS LOAD LIBRARIES FOR CHANGED MODULES  
/*  
/*  
/*      MAINTENANCE: PMA TEAM  
/*  
/*  
/*-----  
/* Copyright (C) 2012 CA. All Rights Reserved.  
/* Copyright (C) Trilog AG.  
/******  
/*  
/*
```



```

//*****
//* SEARCH CICS LOAD LIBS
//*****
//APCCALMO EXEC PGM=APCCALMO
//STEPLIB DD DSN=CAMAT.PMA.CEETLOAD,
//          DISP=SHR
//APCBLMO1 DD DSN=CAMAT.PMA.KSDSCMO,
//          DISP=SHR
//APCPARAM DD DSN=CAMAT.PMA.PARMS,
//          DISP=SHR
//APCREP DD SYSOUT=*
//APCEREP DD SYSOUT=*
//APCJLOG1 DD DSN=CAMAT.PMA.LOG,
//          DISP=MOD
//*
//*****
//*
//* ACTION:      ALERT MANAGEMENT CICS  LOAD MODULE CHANGING      *
//*
//* FUNCTION:    DAILY MANAGEMENT OF LOAD MODULE FILE TO CREATE   *
//*              NEW ALERTS ON MODULE CHANGING FOR CICS            *
//*
//*****
//APDCALM EXEC PGM=APCDAALM
//STEPLIB DD DSN=CAMAT.PMA.CEETLOAD,
//          DISP=SHR
//APCPARAM DD DSN=CAMAT.PMA.PARMS,
//APCCHLMO DD DSN=NULLFILE,
//APCBLMO1 DD DSN=CAMAT.PMA.KSDSCMO,
//          DISP=SHR
//APCBALT1 DD DSN=CAMAT.PMA.KSDSALT,
//          DISP=SHR
//APCBEXC1 DD DSN=CAMAT.PMA.KSDSEXC,
//          DISP=SHR
//APCREP DD SYSOUT=*
//APCEREP DD SYSOUT=*
//APCJLOG1 DD DSN=CAMAT.PMA.LOG,
//          DISP=MOD

```

Creating and Interpreting the Measurements - APCYJLST and APCYJLNA

A second part of the CICS Feature batch process is jobs APCYJLST and APCYJLNA. These jobs create and interpret the CA MAT Performance Measurements. These jobs are part of the Central Component. In order to process all CICS measurements in one execution of APCYJLNA, member APCCINV, which names all CICS regions, is interpreted by job APCYJLST as well. For details about how to customize and use these jobs, see Jobs APCYJLST and APCYJLNA - process CA MAT measurement .

Job APCYJLST should be run after all CICS measurements have finished.

Deleting Performance Measurement History - APCDJREO

Job APCDJREO performs data maintenance and deletes the different CICS SMF data records based on the corresponding expiration times. The delete protocol shows the used expiration times and the deleted record types that were expired, as shown in the following example.

```
APCCALIF CICS SMF DATA MAINTENANCE

DEFINED CICS SMF RECORD EXPIRATION VALUES:

  FOR SYSTEM      RECORDS: 006 MONTH(S)
  FOR TRANSACTION RECORDS: 060 DAY(S)
  FOR INTERVAL    RECORDS: 030 DAY(S)

DELETED CICS SMF RECORDS:

SYSTEM      : 000000127
TRANSACTION: 000084822
INTERVAL    : 000172277
-----
TOTAL       : 000257226
```

For detailed information about job APCDJREO, see Job APCBJREO - Maintenance of Batch Data Cluster.

Maintaining the Database - APCCJRDR

Job APCCJRDR performs the following database maintenance functions:

- Saves data through IDCAMS REPRO, deletes and defines the VSAM clusters and reloads the saved data through IDCAMS REPRO.
- For each VSAM cluster a JCL &-variable is used and is set to 1.
That is, that the reload for this cluster is to process. If the reload should not be processed for a cluster, the variable must be set to 0 (or any other value than 1).
- The saved sequential data sets are not deleted. But if the reload job runs again, the previously saved data sets are deleted, if they still exist.

The job JCL for APCCJRDR is shown following.

```

...JOB CARD
//*
//*
//*
/*****
/* SAVE WITH REPRO, DELETE/DEFINE CLUSTER, LOAD WITH REPRO      *
/*****
/* DEFINE WHICH CLUSTER YOU WANT TO GET MANAGED                  *
/* 0=NO FILE 1=GO GET IT                                          *
/*****
/* SET GETCICF=1          CICS DATA CLUSTER          -KSDSCIC-
/* SET GETCPPF=1          CICS PROFILE CLUSTER         -RRDSCPP-
/* SET GETCMOF=1          CICS CHANGED MODULE CLUSTER -KSDSCMO-
/* SET GETDICF=1          CICS SMF DICTIONARY CLUSTER -KSDSDIC-
/* SET GETCSTF=1          CICS SMF DATA CLUSTER       -KSDSCST-

/*****
/* FILES :      CICS DATA FILE                                *
/*              CICS PROFILELIST FILE                          *
/*              CICS CHANGED ONLINE MODULES FILE              *
/*              CICS SMF DICTIONARY FILE                        *
/*              CICS SMF DATA FILE                            *
/*-----*
/* Copyright (C) 2011 CA. All Rights Reserved.
/* Copyright (C) Trilog AG.
/*****
/*
/* IF (&GETCICF EQ 1) THEN
/*
/*****
/* DELETE POSSIBLY EXISTING KSDSCIC TEMPFILE
/*****
//DELCICT EXEC PGM=IDCAMS
//SYSPRINT DD SYSOUT=T
//SYSOUT   DD SYSOUT=T
//SYSPRINT DD SYSOUT=T
//SYSIN    DD *
        DELETE prefix.PMA.REPROCIC
        SET MAXCC=0000
/*

```

```

//*****
//* CICS CLUSTER -KSDSCIC-
//*****
//KSDSCIC1 EXEC PGM=IDCAMS
//SYSPRINT DD SYSOUT=*
//INDD DD DISP=SHR,
//      DSN=prefix.PMA.KSDSCIC
//OUTDD DD DISP=(NEW,CATLG,DELETE),
//      SPACE=(CYL,(50,10)),
//      DCB=(LRECL=8189,RECFM=VB,BLKSIZE=8193),
//      UNIT=SYSDA,
//      DSN=prefix.PMA.REPROCIC
//SYSIN DD *
      REPRO INFILE(INDD) OUTFILE(OUTDD)
/*
//*
//KSDSCIC2 EXEC PGM=IDCAMS,COND=(0,NE)
//SYSPRINT DD SYSOUT=*
//SYSIN DD DISP=SHR,
//      DSN=prefix.PMA.CNTL(DEDFCIC)
//*
//KSDSCIC3 EXEC PGM=IDCAMS,COND=(0,NE)
//SYSPRINT DD SYSOUT=*
//TEMP DD DISP=OLD,
//      DSN=prefix.PMA.REPROCIC
//SYSIN DD DISP=SHR,
//      DSN=prefix.PMA.CNTL(REPROCIC)
//*
// ENDIF
//*
//*-----
//* END OF KSDSCIC PROCESSING
//*-----
// IF (&GETCPPE EQ 1) THEN
//*
//*****
//* DELETE POSSIBLY EXISTING RRDSCPP TEMPFILE
//*****
//DELCPTT EXEC PGM=IDCAMS
//SYSPRINT DD SYSOUT=T
//SYSOUT DD SYSOUT=T
//SYSTSPRT DD SYSOUT=T
//SYSIN DD *
      DELETE prefix.PMA.REPROCPP
      SET MAXCC=0000
/*

```

```

//*****
//* CPP CLUSTER -RRDSCPP-
//*****
//KSDSCPP1 EXEC PGM=IDCAMS
//SYSPRINT DD SYSOUT=*
//INDD DD DISP=SHR,
//      DSN=prefix.PMA.RRDSCPP
//OUTDD DD DISP=(NEW,CATLG,DELETE),
//      SPACE=(CYL,(50,10)),
//      DCB=(LRECL=8189,RECFM=VB,BLKSIZE=8193),
//      UNIT=SYSDA,
//      DSN=prefix.PMA.REPROCPP
//SYSIN DD *
      REPRO INFILE(INDD) OUTFILE(OUTDD)
/*
//*
//KSDSCPP2 EXEC PGM=IDCAMS,COND=(0,NE)
//SYSPRINT DD SYSOUT=*
//SYSIN DD DISP=SHR,
//      DSN=prefix.PMA.CNTL(DEDEFCPP)
//*
//KSDSCIC3 EXEC PGM=IDCAMS,COND=(0,NE)
//SYSPRINT DD SYSOUT=*
//TEMP DD DISP=OLD,
//      DSN=prefix.PMA.REPROCPP
//SYSIN DD DISP=SHR,
//      DSN=prefix.PMA.CNTL(REPROCPP)
//*
// ENDIF
//*
//*-----
//* END OF KSDSCPP PROCESSING
//*-----
// IF (&GETCMOF EQ 1) THEN
//*
//*****
//* DELETE POSSIBLY EXISTING KSDSCMO TEMPFILE
//*****
//DELCMOT EXEC PGM=IDCAMS
//SYSPRINT DD SYSOUT=T
//SYSOUT DD SYSOUT=T
//SYSTSPRT DD SYSOUT=T
//SYSIN DD *
      DELETE prefix.PMA.REPROCMO
      SET MAXCC=0000
/*

```

```

//*****
//* CMO CLUSTER -KSDSCMO-
//*****
//KSDSCM01 EXEC PGM=IDCAMS
//SYSPRINT DD SYSOUT=*
//INDD DD DISP=SHR,
//      DSN=prefix.PMA.KSDSCMO
//OUTDD DD DISP=(NEW,CATLG,DELETE),
//      SPACE=(CYL,(50,10)),
//      DCB=(LRECL=8189,RECFM=VB,BLKSIZE=8193),
//      UNIT=SYSDA,
//      DSN=prefix.PMA.REPROCNO
//SYSIN DD *
//      REPRO INFILE(INDD) OUTFILE(OUTDD)
/*
//*
//KSDSCM02 EXEC PGM=IDCAMS,COND=(0,NE)
//SYSPRINT DD SYSOUT=*
//SYSIN DD DISP=SHR,
//      DSN=prefix.PMA.CNTL(DEDEFNO)
//*
//KSDSCM03 EXEC PGM=IDCAMS,COND=(0,NE)
//SYSPRINT DD SYSOUT=*
//TEMP DD DISP=OLD,
//      DSN=prefix.PMA.REPROCNO
//SYSIN DD DISP=SHR,
//      DSN=prefix.PMA.CNTL(REPROCNO)
//*
// ENDIF
//*
//*-----
//* END OF KSDSCMO PROCESSING
//*-----
// IF (&GETDICF EQ 1) THEN
//*
//*****
//* DELETE POSSIBLY EXISTING KSDSDIC TEMPFILE
//*****
//DELCMOT EXEC PGM=IDCAMS
//SYSPRINT DD SYSOUT=T
//SYSOUT DD SYSOUT=T
//SYSTSPRT DD SYSOUT=T
//SYSIN DD *
//      DELETE prefix.PMA.REPRODIC
//      SET MAXCC=0000
/*

```

```

//*****
//* DIC CLUSTER -KSDSDIC-
//*****
//KSDSDIC1 EXEC PGM=IDCAMS
//SYSPRINT DD SYSOUT=*
//INDD DD DISP=SHR,
//      DSN=prefix.PMA.KSDSDIC
//OUTDD DD DISP=(NEW,CATLG,DELETE),
//      SPACE=(CYL,(50,10)),
//      DCB=(LRECL=8189,RECFM=VB,BLKSIZE=8193),
//      UNIT=SYSDA,
//      DSN=prefix.PMA.REPRODIC
//SYSIN DD *
      REPRO INFILE(INDD) OUTFILE(OUTDD)
/*
//*
//KSDSDIC2 EXEC PGM=IDCAMS,COND=(0,NE)
//SYSPRINT DD SYSOUT=*
//SYSIN DD DISP=SHR,
//      DSN=prefix.PMA.CNTL(DEDEFDIC)
//*
//KSDSDIC3 EXEC PGM=IDCAMS,COND=(0,NE)
//SYSPRINT DD SYSOUT=*
//TEMP DD DISP=OLD,
//      DSN=prefix.PMA.REPRODIC
//SYSIN DD DISP=SHR,
//      DSN=prefix.PMA.CNTL(REPRODIC)
//*
// ENDIF
//*
//*-----
//* END OF KSDSDIC PROCESSING
//*-----
// IF (&GETCSTF EQ 1) THEN
//*
//*****
//* DELETE POSSIBLY EXISTING KSDSCST TEMPFILE
//*****
//DELCSTT EXEC PGM=IDCAMS
//SYSPRINT DD SYSOUT=T
//SYSOUT DD SYSOUT=T
//SYSTSPRT DD SYSOUT=T
//SYSIN DD *
      DELETE prefix.PMA.REPROCST
      SET MAXCC=0000
/*
//*****

```

```

//*****
//* CST CLUSTER -KSDSCST-
//*****
//KSDSCST1 EXEC PGM=IDCAMS
//SYSPRINT DD SYSOUT=*
//INDD DD DISP=SHR,
//      DSN=prefix.PMA.KSDSCST
//OUTDD DD DISP=(NEW,CATLG,DELETE),
//        SPACE=(CYL,(50,10)),
//        DCB=(LRECL=8189,RECFM=VB,BLKSIZE=8193),
//        UNIT=SYSDA,
//        DSN=prefix.PMA.REPROCST
//SYSIN DD *
//      REPRO INFILE(INDD) OUTFILE(OUTDD)
//*
//*
//KSDSCST2 EXEC PGM=IDCAMS,COND=(0,NE)
//SYSPRINT DD SYSOUT=*
//SYSIN DD DISP=SHR,
//        DSN=prefix.PMA.CNTL(DEDEFCST)
//*
//KSDSCST3 EXEC PGM=IDCAMS,COND=(0,NE)
//SYSPRINT DD SYSOUT=*
//TEMP DD DISP=OLD,
//        DSN=prefix.PMA.REPROCST
//SYSIN DD DISP=SHR,
//        DSN=prefix.PMA.CNTL(REPROCST)
//*
// ENDIF
//*
//*-----
//* END OF KSDSCST PROCESSING
//*-----

```


Defining Parameters

To view or edit the CICS Feature parameters, select the **PARAMETERS** option on the Main Menu. The Parameters Menu is displayed.

```

APCXPP00 --- PMA --- Parameters Menu -----
Enter an Option ==>

TSO User          U1 Print Job JCL

Global Parameters  G1 Measurement DS processing
Global Online Pams G2 CICS and IMS

Central Component X1 General Central Component Parameters
                  X2 Scope of Work
                  X3 Standard Programs
                  X4 Standard Procedures
                  X5 Load Module Libraries
                  X6 Job Libraries
                  X7 Procedure Libraries

                  AS MDC Alert suppression

Thresholds         TA Absolute Alert Thresholds
                  TX Performance Index Alert Thresholds
                  TM Minimum Consumption Thresholds
                  TH Open Alert Thresholds

PMA SERVER         S1 General PMA SERVER Parameters

CICS Feature       C1 General CICS Feature Parameters
                  C2 System Control
                  C3 CICS Load Module Libraries
                  C4 CICS SMF Scope Definitions
                  C5 CICS SMF Aggregation Control

IMS Feature        I1 General IMS Feature Parameters
                  I2 System Control
                  I3 IMS Load Module Libraries
                  I4 IMS INFO Scope Definitions
                  I5 IMS INFO Aggregation Control
  
```

If the entire menu does not fit on your screen, press **F8** to view the remaining options.

All users need update access authority to the parameter data set.

To use the Parameters Menu, type the selection number in the **Enter an Option** field. The following list shows the parameter options:

- G2 define global online thresholds for CICS and IMS
- C1 define general parameters, for example to be used by the CICS Feature (password, TOP Limit thresholds)

- C2 define the system control parameters for the CICS Feature
- C3 define the CICS load module libraries
- C4 define regions and/or transactions that can be handled by the CICS SMF Feature
- C5 define summary regions for the CICS SMF Feature

Global Online Parameters

The Global Online Parameters panel is displayed when option **G2** on the PARAMETERS selection window is chosen.

APCDPP03 --- PMA Global OnLine Parameters -----
COMMAND ==>

Module Counts	: 00000000	0 - 99999999
Module CPU-Consumption	: 00.01	00.00-99.99 % CPU Time

Cancel: CAN
Save : END OR PF3

To reduce the effort for controlling and processing open alerts, you can define a consumption limit for threshold values that a module should consume. This function reflects your opinion regarding consumption information that is not important and allows the alert entries with consumption values below these thresholds to automatically be changed to state CTHR (Closed by THResholds). This feature allows you to concentrate your efforts on OPEN alerts.

The thresholds are valid for all types of online modules (that is, CICS and IMS). If the parameter is not defined in the parameter file, zero is used for each threshold as the default. If one of the consumption values is equal to or exceeds the corresponding threshold value (OR condition), the state of an existing pending alert is changed from PEND to OPEN. If no defined threshold is reached by any of the corresponding measurement consumption values, the state of an existing pending alert is changed from PEND to CTHR (closed by thresholds).

Field Name	Description
Module Counts	Enter the threshold value of the module calls.
Module CPU Consumption	Enter the percentage of the module CPU consumption threshold.

General Parameters

The General Parameters panel is displayed when option **C1** on the PARAMETERS selection window is chosen.

```

APCDPP01 --- PMA CICS Feature - General Parameters -----
COMMAND ==>

TOP Limit of most important TRAN      : 010      0-999 (0 = no alerts generated)

Threshold value for module statements: 00.01      00.01-99.99 % CPU Time
Threshold value for SQL statements:    00.01      00.01-99.99 % CPU Time
Threshold value for DLI statements:    00.01      00.01-99.99 % CPU Time
Threshold value for lib. subroutines : 00.01      00.01-99.99 % CPU Time

Delete stored measurements in
the PMA Profile Pool after              : 2          1-9 executions of the PMA
                                           Interpret Measurements Job
Delete measurement data if older than: 06          01-18 months
Delete SMF System data older than      : 06          01-18 months
Delete SMF TRX data older than         : 180         01-540 days
Delete SMF Interval data older than    : 180         01-540 days

For transaction runaway test use       : P          A = TX CPU time absolute seconds
                                           P = TX CPU time total percentage
                                           S = TX CPU Service Units per call
                                           C = TX CPU time per call

Cancel: CAN Save: END OR PF3

```

Use the General Parameters panel to view or edit parameters that control the report information maintained by the CICS Feature.

Field Name	Description
TOP Limit for most important transactions	Enter the number that you want PMA to use when identifying the top most consuming transactions. For example, if you enter 25, the batch TOP Limit processing determines the top 25 consuming transactions. A number from 1 to 999 is valid. If this field is blank, top consuming transactions are NOT identified. If the TOP Limit parameter is greater than 0 and transactions are found that exceed the statistical limits based on the database, an alert is generated. Use the Alert Management option of the Main Menu to view alerts. If the TOP Limit parameter is 0, alert management is deactivated.
Threshold value for:	Enter the threshold percentage of CPU time from which you would like PMA to save information. If a module statement (or a 64 byte part (standard resolution)), SQL statement, DLI statement or library subroutine exceeds this percentage of CPU time, the information is kept, if not the information is ignored by PMA.
Delete stored measurements in the Measurement Pool after:	Enter the number of times the Interpret Measurements Job should execute and process the measurements of CICS regions before deleting them from the Measurement Pool. A number from 1 to 9 is valid. The Measurement Pool is a wrap around file, meaning older measurement reports are dropped off as new ones are added. All measurement reports of at least one execution are stored in the Measurement Pool Cluster.
Delete measurement data if older than:	Enter the number of months (01 - 18) that you would like to keep the CICS measurement data available. PMA saves a lot of information, thus allowing you to compare performance of transactions, modules, DB2 statements, and so on, over a period of time. However, be aware that the longer the information is kept, the bigger the measurement pool cluster becomes. A monthly scheduled job will delete the CICS measurement data from the VSAM cluster if the expiration time is reached. For details about the job that maintains this file, see Job APCBJREO - Maintenance of Batch Data Cluster.
Delete SMF System data if older than:	Enter the number of months (01 - 18) that you would like to keep the CICS SMF system data available. A monthly scheduled job will delete all CICS SMF system records that have reached the defined expiration time.

Delete SMF TRX data if older than:	Enter the number of days (01 - 540) that you would like to keep the CICS SMF transaction data available. A monthly scheduled job will delete all CICS SMF transaction records that have reached the defined expiration time.
Delete SMF Interval data if older than:	Enter the number of days (01 - 540) that you would like to keep the CICS SMF interval data available. A monthly scheduled job will delete all CICS SMF interval records that have reached the defined expiration time.
For transaction runaway test use:	Enter P for percentage if online runaway tests of transactions will be done with the CPU time total percentage value of the transactions. Enter A for absolute if online runaway tests of transactions will be done with the transactions' absolute CPU time. Enter S for transaction CPU service units per call to be used as a base for calculations of a transaction runaway alert.

CICS Feature System Control

The System Control panel is displayed when option **C2** on the PARAMETERS selection window is chosen.

```

APCDPP02 --- PMA CICS Feature - System Control ----- Row 1 to 2 of 2
COMMAND ==> SCROLL ==> HALF

Commands      : CAN - CANcel      INS - INSeRt
Line Commands: I - Insert  D - DeLeTe  C - Change System name

LC PMA          PMA          Jobname      Start time HH
  internal ID   System name                               from to
-----
   001          CICS1          CICSSYS1      00   24
   002          CICS2          CICSSYS2      00   24
***** Bottom of data *****

```

The System Control panel shows you the default processing results of job APCYJLNA. APCYJLNA adds a new entry in this list for every new job name of a CICS region that is processed. By default, each new entry is added with a new distinct internal ID and the job name is used as the system name.

When creating system names, consider using appropriate definitions for the later easy use of **wildcards** for selecting systems that should be included for reporting or other tasks.

The following functions can be performed using the System Control panel:

- The default system name can be changed to a user-defined system name. The system name (whether user defined or default) should be used on other panels to filter the measurement data being accessed.
- New entries can be inserted to allow Performance Management Assistant to aggregate CICS measurements. All entries must have the same user-defined internal ID and the same user defined system name. The job names must be the real job names of the CICS startup jobs.

With the CICS feature, information about measurements can be aggregated to information for a whole online system. To understand this concept, assume the following parameters:

ID	System Name	Jobname	Start time from/to
8	MRO	AOR1CICS	00 24
8	MRO	AOR2CICS	00 24
8	MRO	AOR3CICS	00 24

Using the illustration above as an example, all measurements of CICS regions AOR1CICS, AOR2CICS, and AOR3CICS are interpreted and calculated by Performance Management Assistant to one logical system MRO. In the online dialog, the data of the measurements is seen as one although a transaction is called in all three regions. Thus, Performance Management Assistant aggregates the data of three measurements. For controlling transaction performance, look in the online dialog for the specific transaction in system MRO as one line of information.

- To have multiple measurements a day for one CICS, you can define an entry for each measurement and determine the time range of the start of the measurement. Use different values than from 00 to 24 only if you plan to measure a CICS region more than once a day. If you measure one CICS in the morning and again in the afternoon, job APCYJLNA know which measurements belong to which system by interpreting start time information. For example:

ID	System name	Jobname	Start time from/to
28	CIC1MORN	JOBCIC1	00 12
29	CIC1LATE	JOBCIC1	12 24

Change the parameter or the schedule plan for job APCCJINV accordingly.

Line Commands

To work with the system information entries that are displayed in the list, place the cursor to the left of the entry and enter one of the following line commands:

Line Command	Function
I	Inserts a new user defined system entry representing a CICS region measurement
C	Changes the system name of an existing system entry
D	Deletes a system entry

Column Descriptions

Column name	Description
Internal ID	Displays the internal key Every distinct internal ID corresponds to a distinct system name. Valid values are from 0 to 255.
System name	Displays the name of one CICS region or an aggregate of measurements of CICS regions The default system name consists of the job name. This field can be user defined. The maximum length of this field is 8 bytes.
Jobname	Displays the real job name of the startup job of a specific CICS
Start time HH from to	Displays the start time range of measurements defined by from time hours and to time hours Valid hours are from 00 to 24.

CICS Load Module Libraries

When you choose option **C3** on the Parameters Menu, the following panel is displayed. Use this panel to enter the load module libraries Performance Management Assistant should examine.

```

APCBPP05 --- PMA CICS Feature - List Load Libraries ----- Row 1 to 2 of 2
COMMAND ==> SCROLL ==> HALF

Commands      : INS Insert   CAN Cancel   END Exit and Save
Line Commands: I - Insert   D - Delete   C - Change

LC Dataset name
-----
      PROD.CICS.LOAD1
      PROD.CICS.LOAD2
***** Bottom of data *****
  
```

If you have not previously entered any load libraries, the insert panel is displayed and you are requested to enter the name of the load module library to be examined.

The load libraries defined here are examined in batch to determine whether programs have been modified.

If a new load library is defined, Performance Management Assistant detects the library automatically and prevents all pre-existing modules in the new load library from being treated as new modules regarding measurement.

Panel Elements

Both primary commands and line commands are allowed on this panel.

- To insert a new load library and define its size, use line command I or primary command INS and enter the data set name of the load library.
- To delete a load library definition in the list, place the cursor in the LC column next to the specific data set name and enter line command D. Once deleted, the load library is no longer searched for program modifications.

To change an existing detail line, place the cursor in the LC column next to the specific job name and enter line command C. You can change the load library name only if it does not already exist in the list.

CICS SMF Scope Definitions

This function allows you to define regions and/or transactions that will be handled by the CICS SMF feature. It is possible to either include only specific regions or exclude regions that are not important, such as test regions. The same function is available for transactions, such as excluding transactions like CSS*.

Select option **C4** on the Parameters Menu to access the CICS SMF Scope Definitions panel shown following.

```
APCDPS00 - PMA CICS SMF Scope Definitions -----
OPTION ==>

          1 - System      - System Name In/Exclusion
          2 - Transaction - Transaction Name In/Exclusion
          X - or END      - Leave Panel
```

Including and Excluding Systems

Select option **1** on the CICS SMF Scope Definitions panel to access the System In/Exclusion List panel shown following.

```
APCDPS10 --- PMA - SYSTEM In/Exclusion List (CICS SMF Scope) - Row 1 to 1 of 1
COMMAND ==>                                     SCROLL ==> HALF

Commands      : I -Insert
Line Commands: I -Insert  D -Delete  C -Change

          If EXCLUDED the following Systems are NOT in the CICS SMF Scope
          If INCLUDED ONLY the following Systems are in the CICS SMF Scope

LC System  IN/EXCLUDED  Description
-----
          CICSSYS1 EXCLUDED  EXCLUDE CICSSYS1
          ***** Bottom of data *****
```

You can use line commands to work with a specific inclusion/exclusion or to insert a new system. To use line commands, place the cursor in the **LC** column to the left of the system and enter one of the following values:

- I** Insert a new system exclusion or inclusion.
- D** Delete an existing system exclusion or inclusion.
- C** Change the name or description of an included or excluded system.

You can also use primary command **I** (Insert) to enter a new system inclusion or exclusion.

If you choose to insert (**I**) or change (**C**) a system exclusion or inclusion, the panel shown following is displayed.

```
APCDPS11 --- PMA - Insert System In/Exclusion (CICS SMF SCOPE)
COMMAND ==>

Please enter:
System Name : CICSSYS1 def. CICS SMF processing spectrum using a System Name
In/exclusion : E       I = inclusion  E = exclusion
                        decide whether all System definitions are
                        inclusions OR exclusions.
Description  : EXCLUDE SYSTEM CICSSYS1

                        use '_' as the placeholder for one byte
                        use '*' as a generic value at the end

                        for example: System
                                ABC123*
                                A_1_345
                                C1*

CANCEL: CAN OR PF3
SAVE  : ENTER
```

Inclusions are recommended when defining system names.

Generic notation of system names is allowed using ***** as a wildcard.

For example: **SYSP* INCLUDED**

In this example, all system names that do not begin with **SYSP*** are implicitly excluded from the CICS SMF Scope.

All defined system names must be **either** inclusions or exclusions.

You are not allowed to mix these definitions.

Including and Excluding Transactions

Select option **2** on the CICS SMF Scope Definitions panel to access the Transaction In/Exclusion List panel shown following.

```

APCDPS20 --- PMA - Transaction In/Exclusion List (CIC          ENTRY INSERTED
COMMAND ==>                                         SCROLL ==> HALF

Commands      : I -Insert
Line Commands: I -Insert  D -Delete  C -Change

  If EXCLUDED the following Transactions are NOT in the CICS SMF scope
  If INCLUDED ONLY the following Transactions are in the CICS SMF Scope

LC Tran  IN/EXCLUDED  Description
-----
   TRX1    EXCLUDED    EXCLUDE TRANSACTION TRX1
***** Bottom of data *****

```

You can use line commands to work with a specific inclusion/exclusion or to insert a new transaction. To use line commands, place the cursor in the **LC** column to the left of the transaction and enter one of the following values:

I

Insert a new transaction exclusion or inclusion.

D

Delete an existing transaction exclusion or inclusion.

C

Change the name or description of an included or excluded transaction.

You can also use primary command **I** (Insert) to enter a new transaction inclusion or exclusion.

If you choose to insert (I) or change (C) a transaction exclusion or inclusion, the panel shown following is displayed.

```
APCDPS21 --- PMA - Insert Transactions In/Exclusion (CICS SMF Scope)
COMMAND ==>

Please enter:

Transaction : TRX1      def. CICS SMF processing spectrum using a
                        Transaction name
In/exclusion : E        I = inclusion  E = exclusion
                        decide whether all System Definitions are
                        inclusions OR exclusions.
Description  : EXCLUDE TRANSACTION TRX1

                        use ' ' as the placeholder for one byte
                        use '*' as a generic value at the end

                        for example: System
                                ABC123*
                                A__1_345
                                C1*

                        CANCEL: CAN OR PF3
                        SAVE  : ENTER
```

Inclusions are recommended when defining transaction names.

Generic notation of transaction names is allowed using * as a wildcard.

For example: **TRAN* INCLUDED**

In this example, all transaction names that do not begin with **TRAN*** are implicitly excluded from the CICS SMF Scope.

All defined transaction names must be **either** inclusions or exclusions.

You are not allowed to mix these definitions.

CICS SMF Summary Definitions

When your application workload is distributed across multiple online regions, it is helpful to define region summary definitions.

All information about each of the single regions that are assigned to a summary region are put together and stored under the defined summary region name.

For example, if the SMF data contains information about transactions from regions CICSPRD1 and CICSPRD2 and you define a summary definition CICSPROD containing the 2 regions, then all information available for the 2 single regions will be aggregated under CICSPROD.

Select option **C5** on the Parameters Menu to access the CICS SMF Aggregation Control panel shown following.

```

APCCPA00 --- PMA CICS Feature SMF Aggregation Control ----- Row 1 to 6 of 6
COMMAND ==>                                     SCROLL ==> HALF

Commands      : INS - INSeRt
Line Commands: I -Insert  D -Delete  C -Change

LC PMA      Region
System Name Name
-----
CICSSUM1    CICSAOR1
CICSSUM1    CICSAOR2
CICSSUM1    CICSAOR3
CICSSUM2    CICSAOR4
CICSSUM2    CICSAOR5
CICSSUM2    CICSAOR6
***** Bottom of data *****

```

This panel displays the current defined aggregations.

You can insert (add) new definitions or delete or change existing definitions by using the following line commands:

Line Command	Function
I	Displays an input screen that is prefilled with the information from the line where the command was entered This data can be used as a model for building up a new aggregation definition by changing the System or Region name.
C	Displays an input screen that is prefilled with the information from the line where the command was entered

D	Deletes the selected definition A confirmation panel is displayed where you are asked to continue with the delete or to cancel the operation.
---	--

You can also use primary command **INS** (Insert) to enter a new system aggregation definition. This command displays an empty version of the the System Aggregation Definition panel, as shown following.

```
APCCPA01 ----- System Aggregation Definition -----  
COMMAND ==>  
  
PMA System Name:  
  
Region Name   :  
  
      CANCEL: CAN OR PF3  
      SAVE  : ENTER
```

Chapter 5: Administration of the IMS Feature

This chapter provides an overview of the IMS Feature.

It also provides details about how to

- Modify the batch jobs
- Set the parameters to be used

This section contains the following topics:

[Overview](#) (see page 232)

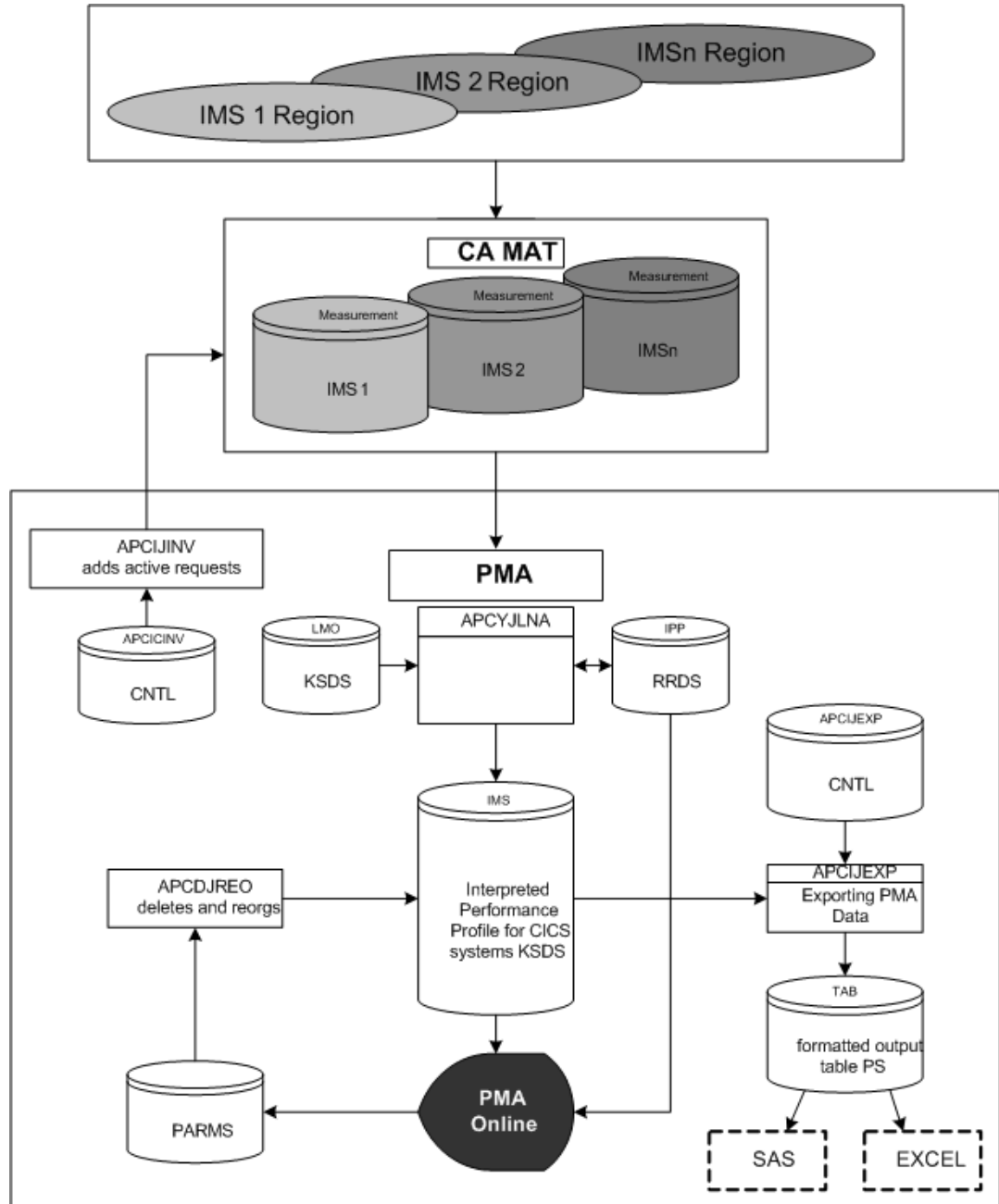
[Batch Jobs](#) (see page 235)

[Defining Parameters](#) (see page 249)

[Processing IMS Transaction Information Data](#) (see page 262)

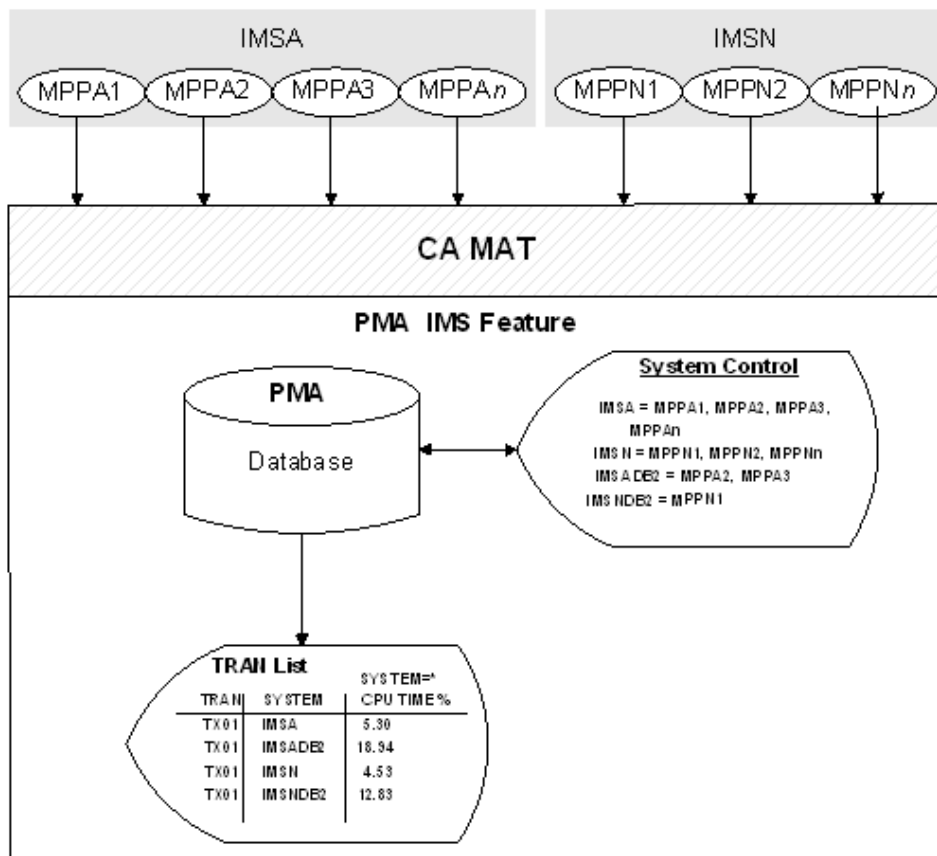
Overview

The following flowchart illustrates how the IMS Feature works.



How the IMS Feature System Control Works

The following graphic illustrates how the System Control of the IMS Feature works.



Alert Management

In IMS there are hundreds of transactions but not all of these transactions need performance monitoring. Many transactions, even though they might be high consumers, only execute periodically and do not warrant concern.

Each time the IMS Feature executes, important top consuming transactions can be identified and alerted automatically. This process works in two steps:

1. The top number of consuming transactions are identified based on the scope you define as a parameter, for example, TOP Limit = 10.
2. Within this TOP Limit, the current execution consumption values of the transactions are compared to the statistical information that is maintained for the same transactions on the database. If the actual consumption exceeds the statistical limits, an alert is issued automatically. This alert is referred to as a *statistical alert*.

Additionally, the user can manually issue alerts explicitly for transactions that use the online Alert Management option. These alerts are referred to as *user alerts*.

The alert management option provides all the information that is necessary to manage the alert. Information is provided in the form of state and reason codes that identify the situation. For details about how to review alerts online, see the *User Guide* that corresponds with your measurement tool.

All alerted transactions are also listed in the APCSALT report file of job APCYJLNA. (For details regarding this job, see Jobs APCYJLST and APCYJLNA - Process CA MAT Measurement). Listed for each alert transaction is the average of CPU time, the current CPU time, the number of relevant history entries of the current transaction, and the resulting standard deviation in CPU time. Depending on the parameter setting for online alerting, these CPU times either are in percent as in previous releases or are the transactions' absolute CPU time. Using the APCSALT report file, user written REXX procedures can use the key word parameters to process the alert information, for example, pass information to change management or provide programmer notification of alerts.

The example following shows the APCSALT report file output for a runaway based on CPU time percent.

```

$$ALERT
$SN=IMS123                      SYSTEM NAME
$TX=OZN31000                    TRANSACTION NAME
$CM=00339                      MEASURED CPU TIME %
$CA=00052                      AVERAGE CPU TIME %
$AT=005                        ALERT TEXT WITH NNN LINES
2010-01-09 PMA ALERT ID 16193   BY STAT
-----
TRANSACTION : OZN31000  SYSTEM : IMS123  PGM : IMSPR001
CPU% MEAS : 3.39  AVERAGE : .52  STD.DEV : .72
-----
$$ALEND
$$ALERT
$SS=IMS                        SUBSYSTEM ( CICS / IMS )
$SN=IMS123                      SYSTEM NAME
$TX=OZN31000                    TRANSACTION NAME
$CM=00339                      MEASURED CPU TIME %
$CA=00052                      AVERAGE CPU TIME %
$AT=005                        ALERT TEXT WITH NNN LINES
2010-01-09 PMA ALERT ID 16193   BY STAT
-----
TRANSACTION : OZN31000  SYSTEM : IMS123  PGM : IMSPR001
CPU% MEAS : 3.39  AVERAGE : .52  STD.DEV : .72
-----
$$ALEND

```

How the TOP Limit Works

In order to use the Alert Management option of the IMS Feature, the TOP Limit of work must be defined. TOP Limit processing works for each defined IMS system and is the last step in the total system managing. To define the TOP Limit, use the parameter called **TOP Limit of most important transactions**. The **TOP Limit** field can contain a value from 0 to 999. A value of 0 deactivates the TOP Limit, thus deactivating Alert Management. Otherwise, the TOP Limit number defines how many important transactions are to be statistically observed.

Within the TOP Limit, that is the number defined as a parameter, all transactions of the current system are statistically observed and, at the end, a runaway test check is performed. The statistical limits are based on up to eighteen months of stored interpreted measurements. To determine the top consumer and issue alerts, one of two conditions normally exist:

- Transaction consumption is static. A standard deviation check is performed and if the result indicates an increase in the consumption (runaway), an alert is issued.
- Transaction consumption is not static. A standard deviation check is performed and if the result indicates a drastic increase in the consumption (runaway), an alert is issued.

If there is a runaway situation, the transaction is added to the alert file with the state OPEN and the reason STAT. Alerts can be viewed under the Alert Management dialog.

The range of the statistical observation is limited to one year. There must be at least three occurrences of the transaction during the observation period.

Batch Jobs

When running in a CA MAT environment, the IMS Feature is divided into the following parts:

- Job APCIJINV calls CAMAT in order to activate one or more IMS measurements.
- Job APCIJLIB searches for changed online modules.
- Jobs APCYJLST and APCYJLNA create and interpret the measurements and generate the records that are to be used in the ISPF overviews.

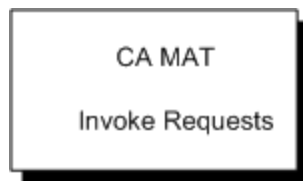
All the JCL illustrated in this chapter should be customized by replacing lower case italicized items with values that suit the needs of your environment. All JCL can be found in your product CNTL library.

The use of a job scheduling system to run the jobs on a regular basis is strongly recommended. All steps are fully *restartable*.

Activating the Measurement Request - APCIJINV

The first part of the IMS feature batch process is job APCIJINV. Job APCIJINV should be run during peak time to activate a CA MAT measurement request for one or more IMS regions. The measurements should be done regularly, for example, daily, twice a week, weekly, and so on, and always at the same time of day. Otherwise, there is a high possibility that the measurements are not comparable.

- APCIJINV consists of one CA MAT program.
- APCIJINV is the CA MAT call for Monitor Invokes.
- APCIJINV cancels waiting monitors before doing new alerts.



Adding Invoke Requests

The CA MAT program called TUNCALL in step IMSINVK inserts the measurement requests into the CA MAT queue.

Canceling Waiting Requests

Step APCTOK1 cancels waiting monitors in the CA MAT queue before doing new alerts.

```
//JOB CARD...
//*
//*
//*
//*****
//*
//* PMA: APCIJINV
//*
//* MAINTENANCE: PMA TEAM
//*
//* ACTION:      CALL  CA MAT FOR MEASUREMENT REQUESTS
//*
//* FUNCTION:    DAILY MEASUREMENT OF IMS REGIONS
//*
//*-----*
//* Copyright (C) 2012 CA. All Rights Reserved.
//* Copyright (C) Trilog AG.
//*****
//*
//*****
//* CANCEL OF WAITING MONITORS BEFORE DOING NEW ALERTS FOR
//*****
//*
//APCTOK1 EXEC PGM=IKJEFT01,DYNAMNBR=30,PARM='APCXRIE'
//STEPLIB DD DISP=SHR,DSN= CA MAT.LOAD
//SYSPRINT DD SYSOUT=*
//TUNPRINT DD SYSOUT=*
//APCPARM DD DISP=SHR,DSN=CAMAT.PMA.PARMS
//DELREQ DD DISP=OLD,DSN=prefix.IMSRQ
//SYSEXEC DD DISP=SHR,DSN=CAMAT.PMA.EXEC
//SYSTSPRT DD SYSOUT=*
//SYSTSIN DD DUMMY
//*
//*
```

```

//*****
//* INVOKE MONITOR REQUESTS FOR IMS
//*****
//IMSINVK EXEC PGM=TUNCALL
//STEPLIB DD DISP=SHR,
//          DSN= CA MAT.LIB
//TUNPRINT DD DSN=&&TUNLOG,
//          DISP=(,PASS),
//          UNIT=SYSDA,
//          DCB=(DSORG=PS,LRECL=133,RECFM=FB),
//          SPACE=(CYL,(1,2))
//SYSPRINT DD SYSOUT=*
//TUNIN DD DISP=SHR,
//          DSN=CAMAT.PMA.CNTL(APCICINV)
//*
//*****
//* SAVE TUNPRINT OUTPUT
//*****
//SAVETUNP EXEC PGM=IEBGENER
//SYSPRINT DD SYSOUT=*
//SYSUT1 DD DSN=*.IMSINVK.TUNPRINT,DISP=(OLD,PASS,KEEP)
//SYSUT2 DD SYSOUT=*
//SYSIN DD DUMMY
//*
//*****
//* SCAN INVOKE OUTPUT TO GET TOKEN FOR CANCEL OF WAITING MONITORS
//* BEFORE DOING NEW INVOKES FOR
//*****
//*
//APCTOK2 EXEC PGM=IKJEFT01,DYNAMNBR=30,PARM='APCXRTOK'
//SYSTSIN DD DUMMY
//SYSPRINT DD SYSOUT=*
//TUNPRINT DD DSN=&&TUNLOG,DISP=(OLD,DELETE)
//DELREQ DD DISP=OLD,DSN=prefix.IMSRQ
//SYSEXEC DD DISP=SHR,DSN=CAMAT.PMA.EXEC
//SYSTSPRT DD SYSOUT=*

```

The SYSIN input for job APCIJINV is member APCICINV in the product library. The entries within this member must be defined for each IMS MPP region to be measured. The following table defines each of these entries.

APCICINV entry	What you must enter
Monitorname MONITOR INVOKE	Enter the Monitor name of your CA MAT Started Task.
JOBNAME(ims-regionname)	Enter the active IMS region to be measured.

ELAPTIME(seconds)	Enter the session duration in seconds. One hour (3600 seconds) or more is recommended. When measuring less than one hour, there is a chance that the measurement is influenced by a long running transaction, for example, a background transaction.
SAMPLECNT(10000)	Enter the target sample size. It is strongly recommended that you aim to get approximately 10000 execution samples in order to receive a measurement with a minimal CPU margin of error. Therefore, if the region normally has approximately 50% CPU, the target sample size should be 10000; if the normal CPU usage is about 20%, the target sample size should be 50000, and so on.
MONDSN('your-monitordsn-prefix.&JOBNAME.&SYSTIME')	Enter the prefix for the measurement data set. This prefix must match the prefix defined on the Global Sample DS Processing panel. On this panel, you define the measurement data set prefix for all features (batch, CICS, IMS/DC). For details about defining global parameters, see Global Online Parameters. Job APCYJLST uses this parameter to inspect measurements and to decide which measurements belong to the feature.

Member APCICINV might contain the entries shown following for IMS region IMS1HHHH.

```
CA MAT MONITOR INVOKE -
JOBNAME(IMS1HHHH) -
ELAPTIME(03600) -
SAMPLECNT(10000) -
MONDSN('PMA.CAMAT.DS.&JOBNAME.&SYSTIME')
```

You can measure multiple IMS region at the same time. Check the CPU usage of the MVS image to avoid potential problems.

IMS regions should be measured during peak time to get the best results.

The following example illustrates how APCICINV entries might be defined to measure multiple regions.

```
CA MAT MONITOR INVOKE -
JOBNAME(IMS1REG1) -
ELAPTIME(07200) -
SAMPLECNT(10000) -
MONDSN('PMA.CAMAT.DS.IMS.&JOBNAME.&SYSTIME')
CA MAT MONITOR INVOKE -
JOBNAME(IMS1REG2) -
ELAPTIME(10800) -
SAMPLECNT(10000) -
MONDSN('PMA.CAMAT.DS.IMS.&JOBNAME.&SYSTIME')
CA MAT MONITOR INVOKE -
JOBNAME(IMS1REG3) -
ELAPTIME(03600) -
SAMPLECNT(10000) -
MONDSN('PMA.CAMAT.DS.IMS.&JOBNAME.&SYSTIME')
```

Activating the Online Changed Module Option - APCIJLIB

A second part of the IMS Feature is searching for changed online modules. If you want to measure changed online modules, job APCIJLIB must be planned on a regular basis. It is recommended to do this job before the online process starts.

```

...JOB CARD
//**/*****
//*
//*      PMA: APCIJLIB
//*
//* SEARCH DEFINED IMS  LOAD LIBRARIES FOR CHANGED MODULES
//*
//* MAINTENANCE: PMA TEAM
//*
//*-----*
//* Copyright (C) 2012 CA. All Rights Reserved.
//* Copyright (C) Trilog AG.
//*****
//*
//*
//*****
//* SEARCH IMS  LOAD LIBS
//*****
//APCIALMO EXEC PGM=APCIALMO
//STEPLIB DD DSN=CAMAT.PMA.CEETLOAD,
//          DISP=SHR
//APCBLMO1 DD DSN=CAMAT.PMA.KSDSIMO,
//          DISP=SHR
//APCPARAM DD DSN=CAMAT.PMA.PARMS,
//          DISP=SHR
//APCREP DD SYSOUT=*
//APCEREP DD SYSOUT=*
//APCJLOG1 DD DSN=CAMAT.PMA.LOG,
//          DISP=MOD
//*

```



```

//*****
//*
//* ACTION:      ALERT MANAGEMENT IMS   LOAD MODULE CHANGING
//*
//*
//* FUNCTION:    DAILY MANAGEMENT OF LOAD MODULE FILE TO CREATE
//*              NEW ALERTS ON MODULE CHANGING FOR IMS
//*
//*****
//APCDIALM EXEC PGM=APCDAALM
//STEPLIB DD DSN=CAMAT.PMA.CEETLOAD,
//          DISP=SHR
//APCPARAM DD DSN=CAMAT.PMA.PARMS,
//          DISP=SHR
//APCCHLMO DD DSN=NULLFILE,
//          DISP=SHR
//APCBLMO1 DD DSN=CAMAT.PMA.KSDSIMO,
//          DISP=SHR
//APCBALT1 DD DSN=CAMAT.PMA.KSDSALT,
//          DISP=SHR
//APCBEXC1 DD DSN=CAMAT.PMA.KSDSEXC,
//          DISP=SHR
//APCREP DD SYSOUT=*
//APCEREP DD SYSOUT=*
//APCJLOG1 DD DSN=CAMAT.PMA.LOG,
//          DISP=MOD

```

Creating and Interpreting the Measurements - APCYJLST and APCYJLNA

A second part of the IMS Feature batch process is jobs APCYJLST and APCYJLNA. These jobs create and interpret the measurements. These jobs are part of the Central Component. In order to process all IMS measurements in one execution of APCYJLNA, the member APCICINV, which names all IMS regions, is interpreted by job APCYJLST as well. For details about how to customize and use these jobs, refer to "Jobs APCYJLST and APCYJLNA – Process CA MAT Measurement".

Job APCYJLST should be run after all IMS measurements have finished.

Deleting Performance Measurement History - APCDJREO

Job APCDJREO performs data maintenance and deletes the different IMS INFO data records based on the corresponding expiration times. The delete protocol shows the used expiration times and the deleted record types that were expired, as shown following.

```
APCIALIF IMS INFO DATA MAINTENANCE

DEFINED IMS INFO RECORD EXPIRATION VALUES:

  FOR SYSTEM      RECORDS: 006 MONTH(S)
  FOR TRANSACTION RECORDS: 060 DAY(S)
  FOR INTERVAL    RECORDS: 030 DAY(S)

DELETED IMS INFO RECORDS:

SYSTEM      : 000000127
TRANSACTION: 000084822
INTERVAL    : 000172277
-----
TOTAL       : 000257226
```

For detailed information about job APCDJREO, see "Job APCDJREO - Maintenance of Online Data Cluster".

Maintaining the Database - APCIJRDR

Job APCIJRDR performs the following database maintenance functions:

- It saves data through IDCAMS REPRO, deletes and defines the VSAM clusters and reloads the saved data through IDCAMS REPRO.
- For each VSAM cluster, a JCL &-variable is used and is set to 1. That is, the reload for this cluster should be processed. If the reload should not be processed for a cluster, the variable must be set to 0 (or any value other than 1).
- The saved sequential data sets are not deleted. But if the reload job runs again, the previously saved data sets are deleted, if they still exist.

The job JCL for APCIJRDR is shown following:

```

//JOB CARD...
//*
//*
//*
//*****
/* SAVE WITH REPRO, DELETE/DEFINE CLUSTER, LOAD WITH REPRO      *
//*****
/* DEFINE WHICH CLUSTER YOU WANT TO GET MANAGED                  *
/* 0=NO FILE 1=GO GET IT                                         *
//*****
// SET GETIMSF=1      IMS DATA CLUSTER      -KSDSIMS-
// SET GETIPPF=1      IMS PROFILE CLUSTER     -RRDSIPP-
// SET GETIMOF=1      IMS CHANGED MODULE CLUSTER -KSDSIMO-
//*****
/* FILES :      IMS DATA FILE                                *
/*              IMS PROFILELIST FILE                          *
/*              IMS CHANGED ONLINE MODULES FILE              *
/*-----*
/* Copyright (C) 2012 CA. All Rights Reserved.
/* Copyright (C) Trilog AG.
//*****
/*
/* IF (&GETIMSF EQ 1) THEN
/*

//*****
/* DELETE POSSIBLY EXISTING KSDSIMS TEMPFILE
//*****
//DELIMST EXEC PGM=IDCAMS
//SYSPRINT DD SYSOUT=T
//SYSOUT DD SYSOUT=T
//SYSTSPRT DD SYSOUT=T
//SYSIN DD *
      DELETE CAMAT.PMA.REPROIMS
      SET MAXCC=0000
/*
//*****
/* IMS CLUSTER -KSDSIMS-
//*****
//KSDSIMS1 EXEC PGM=IDCAMS
//SYSPRINT DD SYSOUT=*
//INDD DD DISP=SHR,
//      DSN=KSDSIMS
//OUTDD DD DISP=(NEW,CATLG,DELETE),
//      SPACE=(CYL,(50,10)),
//      DCB=(LRECL=8189,RECFM=VB,BLKSIZE=8193),
//      UNIT=SYSDA,
//      DSN=CAMAT.PMA.REPROIMS
//SYSIN DD *

```

```
      REPRO INFILE(INDD) OUTFILE(OUTDD)
/*
/*-----
//KSDSIMS2 EXEC PGM=IDCAMS,COND=(0,NE)
//SYSPRINT DD  SYSOUT=*
//SYSIN DD DISP=SHR,
//          DSN=CAMAT.PMA.CNTL(DEDEFIMS)
/*-----
```

```

//KSDSIMS3 EXEC PGM=IDCAMS,COND=(0,NE)
//SYSPRINT DD SYSOUT=*
//TEMP DD DISP=OLD,
//      DSN=CAMAT.PMA.REPROIMS
//SYSIN DD DISP=SHR,
//      DSN=CAMAT.PMA.CNTL(REPROIMS)
//*
// ENDIF
//*
/*-----
/* END OF KSDSIMS PROCESSING

// IF (&GETIPPF EQ 1) THEN
/*
/******
/* DELETE POSSIBLY EXISTING RRDSIPP TEMPFILES

//DELIPPT EXEC PGM=IDCAMS
//SYSPRINT DD SYSOUT=T
//SYSOUT DD SYSOUT=T
//SYSTSPRT DD SYSOUT=T
//SYSIN DD *
      SET MAXCC=0000
/*
/******
/* IMS CLUSTER -RRDSIPP-
/******
//KSDSIPP1 EXEC PGM=IDCAMS
//SYSPRINT DD SYSOUT=*
//INDD DD DISP=SHR,
//      DSN=CAMAT.PMA.RRDSIPP
//OUTDD DD DISP=(NEW,CATLG,DELETE),
//      SPACE=(CYL,(50,10)),
//      DCB=(LRECL=8189,RECFM=VB,BLKSIZE=8193),
//      UNIT=SYSDA,
//      DSN=CAMAT.PMA.REPROIPP
//SYSIN DD *
      REPRO INFILE(INDD) OUTFILE(OUTDD)
/*
/*-----
//KSDSIPP2 EXEC PGM=IDCAMS,COND=(0,NE)
//SYSPRINT DD SYSOUT=*
//SYSIN DD DISP=SHR,
//      DSN=CAMAT.PMA.CNTL(DEDEFIPP)
/*-----
//KSDSIPP3 EXEC PGM=IDCAMS,COND=(0,NE)
//SYSPRINT DD SYSOUT=*
//TEMP DD DISP=OLD,

```

```
//          DSN=CAMAT.PMA.REPROIPP
//SYSIN DD DISP=SHR,
//          DSN=CAMAT.PMA.CNTL(REPROIPP)
//*
// ENDIF
```

```

/*
/*-----
/* END OF KSDSIPP PROCESSING
/*-----
// IF (&GETIMOF EQ 1) THEN
/*
/******
/* DELETE POSSIBLY EXISTING KSDSIMO TEMPFILES
/******

//SYSPRINT DD SYSOUT=T
//SYSOUT DD SYSOUT=T
//SYSTSPRT DD SYSOUT=T
//SYSIN DD *
    DELETE CAMAT.PMA.REPROIMO

/*
/******
/* IMO CLUSTER -KSDSIMO-
/******
//SYSPRINT DD SYSOUT=*
//INDD DD DISP=SHR,
//      DSN=CAMAT.PMA.KSDSIMO
//OUTDD DD DISP=(NEW,CATLG,DELETE),
//      SPACE=(CYL,(50,10)),
//      DCB=(LRECL=8189,RECFM=VB,BLKSIZE=8193),
//      UNIT=SYSDA,
//      DSN=CAMAT.PMA.REPROIMO
//SYSIN DD *
    REPRO INFILE(INDD) OUTFILE(OUTDD)
/*
/*-----
//KSDSIMO2 EXEC PGM=IDCAMS,COND=(0,NE)
//SYSPRINT DD SYSOUT=*
//SYSIN DD DISP=SHR,
//      DSN=CAMAT.PMA.CNTL(DEDEFIMO)
/*-----
//KSDSIMO3 EXEC PGM=IDCAMS,COND=(0,NE)
//SYSPRINT DD SYSOUT=*
//TEMP DD DISP=OLD,
//      DSN=CAMAT.PMA.REPROIMO
//SYSIN DD DISP=SHR,
//      DSN=CAMAT.PMA.CNTL(REPROIMO)
/*
// ENDIF
/*
/*-----
/* END OF KSDSIMO PROCESSING
/*-----

```


Defining Parameters

To view or edit the IMS Feature parameters, select the **PARAMETERS** option on the Main Menu. The Parameters Menu is displayed.

```

APCXPP00 --- PMA --- Parameters Menu -----
Enter an Option ==>

TSO User          U1 Print Job JCL

Global Parameters  G1 Measurement DS processing
Global Online Parm G2 CICS and IMS

Central Component  X1 General Central Component Parameters
                  X2 Scope of Work
                  X3 Standard Programs
                  X4 Standard Procedures
                  X5 Load Module Libraries
                  X6 Job Libraries
                  X7 Procedure Libraries

                  AS MDC Alert suppression

Thresholds         TA Absolute Alert Thresholds
                  TX Performance Index Alert Thresholds
                  TM Minimum Consumption Thresholds
                  TH Open Alert Thresholds

PMA SERVER         S1 General PMA SERVER Parameters

CICS Feature       C1 General CICS Feature Parameters
                  C2 System Control
                  C3 CICS Load Module Libraries
                  C4 CICS SMF Scope Definitions
                  C5 CICS SMF Aggregation Control

IMS Feature        I1 General IMS Feature Parameters
                  I2 System Control
                  I3 IMS Load Module Libraries
                  I4 IMS INFO Scope Definitions
                  I5 IMS INFO Aggregation Control
  
```

If the entire menu does not fit on your screen, press **F8** to view the remaining options.

All users need update access authority to the parameter data set.

To use the Parameters Menu, type the selection number in the **Enter an Option** field. The following list shows the parameter options:

- G2 Define global online thresholds for CICS and IMS
- I1 Define general parameters to be used by the IMS Feature (for example, password, TOP Limit, thresholds)

- 12 Define the system control parameters for the IMS Feature
- 13 Define the IMS load module libraries
- 14 Define regions and/or transactions that can be handled by the IMS INFO Feature
- 15 Define summary regions for the IMS INFO Feature

Global Online Parameters

The Global Online Parameters panel is displayed when option **G2** on the PARAMETERS selection window is chosen.

APCDPP03 --- PMA Global OnLine Parameters -----
COMMAND ==>

Module Counts	: 00000000	0 - 99999999
Module CPU-Consumption	: 00.01	00.00-99.99 % CPU Time

Cancel: CAN
Save : END OR PF3

To reduce the effort for controlling and processing open alerts, you can define a consumption limit for threshold values that a module should consume. This function reflects your opinion regarding consumption information that is not important. This allows the alert entries with consumption values below these thresholds to be changed automatically to state CTHR (closed by thresholds). This feature allows you to concentrate your efforts on OPEN alerts.

The thresholds are valid for all types of online modules (that is, CICS and IMS). If the parameter is not defined in the parameter file, zero is used for each threshold as the default. If one of the consumption values is equal to or exceeds the corresponding threshold value (OR condition), the state of an existing pending alert is changed from PEND to OPEN. If no defined threshold is reached by any of the corresponding measurement consumption values, the state of an existing pending alert is changed from PEND to CTHR (Closed by THResholds).

Field Name	Description
Module Counts	Enter the threshold value of the module calls.
Module CPU Consumption	Enter the percentage of the module CPU consumption threshold.

General Parameters

The General Parameters panel is displayed when option **1** on the PARAMETERS selection window is chosen.

```

APCIPP01 --- PMA IMS Feature - General Parameters -----
COMMAND ==>

TOP Limit of most important trans: 010          0-999 (0 = no alerts generated)

Threshold value for module statm.: 00.01         00.01-99.99 % CPU Time
Threshold value for SQL statm.: 00.01            00.01-99.99 % CPU Time
Threshold value for DLI statm.: 00.01            00.01-99.99 % CPU Time
Threshold value for lib. subrout.: 00.01          00.01-99.99 % CPU Time

Delete stored measurements in
the PMA Profile Pool after      : 2              1-9 executions of the PMA
                                          Interpret Measurements Job
Delete measurement data if older than : 06         01-18 months
Delete INFO System data older than   : 06         01-18 months
Delete INFO TRX data older than      : 180        01-540 days
Delete INFO Interval data older than : 180        01-540 days

For transaction runaway test use    : P          A = TX CPU time absolute seconds
                                          P = TX CPU time total percentage
                                          S = TX CPU Service Units per call
                                          C = TX CPU time per call

Cancel: CAN Save: END OR PF3

```

Use the General Parameters panel to view or edit parameters that control the report information maintained by the IMS Feature.

Field Name	Description
TOP Limit for most important transactions	Enter the number that you want to use when identifying the top most consuming transactions. For example, if you enter 25, the batch TOP Limit processing determines the top 25 consuming transactions. A number from 1 to 999 is valid. If this field is blank, top consuming transactions are NOT identified. If the TOP Limit parameter is greater than 0 and transactions are found that exceed the statistical limits based on the database, an alert is generated. Use the Alert Management option of the Main Menu to view alerts. If the TOP Limit parameter is 0, alert management is deactivated.
Threshold value for:	Enter the threshold percentage of CPU time from which you would like PMA to save information. If a module statement (or a 64-byte part (standard resolution)), SQL statement, DLI statement or library subroutine exceeds this percentage of CPU time, the information is kept; if not the information is ignored by PMA.
Delete stored measurements in the Measurement Pool after:	Enter the number of times the Interpret Measurements Job should execute and process the measurements of IMS regions before deleting them from the Measurement Pool. A number from 1 to 9 is valid. The Measurement Pool is a wraparound file, meaning older measurement reports are dropped off as new ones are added. All measurement reports of at least one execution are stored in the Measurement Pool Cluster.
Delete measurement data if older than:	Enter the number of months you would like to keep the information available. PMA saves a lot of information, thus allowing you to compare performance of transactions, modules, DB2® statements, and so on, over a period of time. However, be aware that the longer the information is kept, the bigger the measurement pool cluster becomes. For details about the job that maintains this file, see Job APCBJREO - Maintenance of Batch Data Cluster.
Delete INFO System data if older than:	Enter the number of months (01 - 18) that you would like to keep the IMS INFO system data available. A monthly scheduled job will delete all IMS INFO system records that have reached the defined expiration time.
Delete INFO TRX data if older than:	Enter the number of days (01 - 540) that you would like to keep the IMS INFO transaction data available. A monthly scheduled job will delete all IMS INFO transaction records that have reached the defined expiration time.

Delete INFO Interval data if older than:	Enter the number of days (01 - 540) that you would like to keep the IMS INFO interval data available. A monthly scheduled job will delete all IMS INFO interval records that have reached the defined expiration time.
For transaction runaway test use:	Enter P for percentage if online runaway tests of transactions will be done with the CPU time total percentage value of the transactions. Enter A for absolute if online runaway tests of transactions will be done with the transactions' absolute CPU time. Enter S for transaction CPU service units per call to be used as a base for calculations of a transaction runaway alert.

IMS Feature System Control

The System Control panel is displayed when option I2 on the PARAMETERS selection window is chosen.

```

APCDPP02 --- PMA IMS Feature - System Control ----- Row 1 to 3 of 3
COMMAND ==> SCROLL ==> HALF

Commands      : CAN - CANcel      INS - INSeRt
Line Commands: I - Insert   D - Delete   C - Change System name

LC PMA          PMA          Jobname      Start time HH
  internal ID   System name                from to
-----
001             IMS1          IMSSYS1      00   24
002             IMS2          IMSSYS2      00   24
003             IMS3          IMSSYS3      00   24
***** Bottom of data *****

```

The System Control panel shows you the default processing results of job APCYJLNA. APCYJLNA adds a new entry in this list for every new job name of an IMS region that is processed. By default, each new entry is added with a new distinct internal ID and the job name is used as the system name.

When creating system names, consider using appropriate definitions for the later easy use of *wildcards* for selecting systems that should be included for reporting or other tasks.

The following functions can be performed by using the System Control panel:

- The default system name can be changed to a user-defined system name. The system name (whether user defined or default) should be used on other panels to filter the measurement data being accessed.
- New entries can be inserted to allow Performance Management Assistant to aggregate IMS measurements. All entries must have the same user-defined internal ID and the same user-defined system name. The jobnames must be the real jobnames of the IMS startup jobs.

With the IMS Feature, information about measurements can be aggregated to information for a whole online system. To understand this concept, assume the following parameters:

ID	System Name	Jobname	Start time from/to
8	IMS01	IMSMPP1	00 24
8	IMS01	IMSMPP2	00 24
8	IMS01	IMSMPP3	00 24

Using the illustration above as an example, all measurements of IMS regions IMSMPP1, IMSMPP2, and IMSMPP3 are interpreted and calculated by Performance Management Assistant to one logical system IMS01. In the online dialog of PMA, the data of the measurements is seen as one although a transaction is called in all three regions. Thus, Performance Management Assistant aggregates the data of three measurements. For controlling transaction performance, look at the online panels for the specific transaction in system MRO as one line of information.

- To have multiple measurements a day for one IMS, you can define an entry for each measurement and determine the time range of the start of the measurement. Use different values other than from 00 to 24 only if you plan to measure an IMS region more than once a day. If you measure one IMS in the morning and again in the afternoon, job APCYJLNA know which measurements belong to which system by interpreting start time information. For example:

ID	System Name	Jobname	Start time from/to
28	IMSMORN	IMSMPP07	00 24
29	IMSLATE	IMSMPP07	00 24

Change the parameter or the schedule plan for job APCIJINV accordingly.

Line Commands

To work with the system information entries that are displayed among the list, place the cursor to the left of the entry and enter one of the following line commands:

Line command	Function
I	Inserts a new user defined system entry representing an IMS region measurement
C	Changes the system name of an existing system entry
D	Deletes a system entry

Column Descriptions

Column name	Description
Internal ID	Displays the internal key Every distinct internal ID corresponds to a distinct system name. Valid values are from 0 to 255.
System name	Displays the name of one IMS region or an aggregate of measurements of IMS regions The default system name consists of the job name. This field can be user-defined. The maximum length of this field is 8 bytes.
Jobname	Displays the real job name of the start up job of a specific IMS, MPP
Start time HH from to	Displays the start time range of measurements defined by from time hours and to time hours Valid hours are from 00 to 24.

IMS load Module Libraries

When you choose option **I3** on the Parameters Menu, the List Load Libraries panel is displayed. Use this panel to enter the load module libraries that Performance Management Assistant should examine.

```
APCBPP05 --- PMA IMS Feature - List Load Libraries ----- Row 1 to 2 of 2
COMMAND ==>                                         SCROLL ==> HALF

Commands      : INS Insert   CAN Cancel   END Exit and Save
Line Commands: I - Insert   D - Delete   C - Change

LC Dataset name
-----

      PROD. IMS. LOAD2
***** Bottom of data *****
```

If you have not previously entered any load libraries, the insert panel is displayed and you are requested to enter the name of the load module library to be examined.

The load libraries defined here are examined in batch to determine whether programs have been modified.

If a new load library is defined, Performance Management Assistant detects this library automatically and prevents all pre-existing modules in the new load library from being measured as new modules.

Panel Elements

Both primary commands and line commands are allowed on this panel.

- To insert a new load library and define its size, use line command I or primary command INS and enter the data set name of the load library.
- To delete a load library definition in the list, place the cursor in the LC column next to the specific data set name and enter line command D. Once deleted, the load library is no longer searched for program modifications.
- To change an existing detail line, place the cursor in the LC column next to the specific job name and enter line command C. You can change the load library name only if it does not already exist in the list.

IMS INFO Scope Definitions

This function allows you to define regions and/or transactions that will be handled by the IMS INFO feature. It is possible to either include only specific regions or exclude regions that are not important, such as test regions. The same function is available for transactions, such as excluding transactions like IMS*.

Select option **I4** on the Parameters Menu to access the IMS INFO Scope Definitions panel shown following.

```
APCDPS00 - PMA IMS INFO Scope Definitions -----
OPTION ==>

          1 - System      - System Name In/Exclusion
          2 - Transaction - Transaction Name In/Exclusion
          X - or END      - Leave Panel
```

Including and Excluding Systems

Select option **1** on the IMS INFO Scope Definitions panel to access the System In/Exclusion List panel shown following.

```
APCDPS10 --- PMA - SYSTEM In/Exclusion List (IMS INFO Scope) - Row 1 to 1 of 1
COMMAND ==>                                     SCROLL ==> HALF

Commands      : I -Insert

          If EXCLUDED the following Systems are NOT in the IMS INFO Scope
          If INCLUDED ONLY the following Systems are in the IMS INFO Scope

LC System  IN/EXCLUDED  Description
-----
IMSSYS1  EXCLUDED  EXCLUDE IMSSYS1
***** Bottom of data *****
```

You can use line commands to work with a specific inclusion/exclusion or to insert a new system. To use line commands, place the cursor in the **LC** column to the left of the system and enter one of the following values:

- I** Insert a new system exclusion or inclusion.
- D** Delete an existing system exclusion or inclusion.
- C** Change the name or description of an included or excluded system.

You can also use primary command **I** (Insert) to enter a new system inclusion or exclusion.

If you choose to insert (**I**) or change (**C**) a system exclusion or inclusion, the panel shown following is displayed.

```
APCDPS11 --- PMA - Insert System In/Exclusion (IMS INFO SCOPE)
COMMAND ==>

Please enter:
System Name : IMSSYS1 def. IMS INFO processing spectrum using a System Name
In/exclusion : E       I = inclusion   E = exclusion
                        decide whether all System definitions are
                        inclusions OR exclusions.
Description  : EXCLUDE IMSSYS1

                        use ' ' as the placeholder for one byte
                        use '*' as a generic value at the end

                        for example: System
                                ABC123*
                                A_1 345
                                C1*

CANCEL: CAN OR PF3
SAVE   : ENTER
```

Inclusions are recommended when defining system names.

Generic notation of system names is allowed using * as a wildcard.

For example: **SYSP* INCLUDED**

In this example, all system names that do not begin with **SYSP*** are implicitly excluded from the IMS INFO Scope.

All defined system names must be **either** inclusions or exclusions.

You are not allowed to mix these definitions.

Including and Excluding Transactions

Select option **2** on the IMS INFO Scope Definitions panel to access the Transaction In/Exclusion List panel shown following.

```

APCDPS20 --- PMA - Transaction In/Exclusion List (IMS INFO Sco Row 1 to 1 of 1
COMMAND ==>                                SCROLL ==> HALF

Commands      : I -Insert
Line Commands: I -Insert  D -Delete  C -Change

  If EXCLUDED the following Transactions are NOT in the IMS INFO scope
  If INCLUDED ONLY the following Transactions are in the IMS INFO Scope

LC Tran  IN/EXCLUDED  Description
-----
   TRX1    EXCLUDED    EXCLUDE TRANSACTION TRX1
***** Bottom of data *****

```

You can use line commands to work with a specific inclusion/exclusion or to insert a new transaction. To use line commands, place the cursor in the **LC** column to the left of the transaction and enter one of the following values:

- I** Insert a new transaction exclusion or inclusion.
- D** Delete an existing transaction exclusion or inclusion.
- C** Change the name or description of an included or excluded transaction.

You can also use primary command **I** (Insert) to enter a new transaction inclusion or exclusion.

If you choose to insert (I) or change (C) a transaction exclusion or inclusion, the panel shown following is displayed.

```
APCDPS21 --- PMA - Insert Transactions In/Exclusion (IMS INFO Scope)
COMMAND ==>

Please enter:

Transaction : TRX1      def. IMS INFO processing spectrum using a
                        Transaction name
In/exclusion : E         I = inclusion  E = exclusion
                        decide whether all System Definitions are
                        inclusions OR exclusions.
Description  : EXCLUDE TRANSACTION TRX1

                        use ' ' as the placeholder for one byte
                        use '*' as a generic value at the end

                        for example: System
                                ABC123*
                                A_1 345
                                C1*

                        CANCEL: CAN OR PF3
                        SAVE  : ENTER
```

Inclusions are recommended when defining transaction names.

Generic notation of transaction names is allowed using * as a wildcard.

For example: **TRAN* INCLUDED**

In this example, all transaction names that do not begin with TRAN* are implicitly excluded from the IMS INFO Scope.

All defined transaction names must be *either* inclusions or exclusions.

You are not allowed to mix these definitions.

IMS INFO Summary Definitions

When your application workload is distributed across multiple online regions, it is helpful to define region summary definitions.

All information about each of the single regions that are assigned to a summary region are put together and stored under the defined summary region name.

For example, if the INFO data contains information about transactions from regions IMSPRD1 and IMSPRD2 and you define a summary definition IMSPROD containing the 2 regions, then all information available for the 2 single regions will be aggregated under IMSPROD.

Select option **I5** on the Parameters Menu to access the IMS INFO Aggregation Control panel shown following.

```

APCCPA00 --- PMA IMS Feature INFO Aggregation Control ----- Row 1 to 6 of 6
COMMAND ==>                                     SCROLL ==> HALF

Commands      :  INS - INSeRt
Line Commands:  I -Insert  D -Delete  C -Change

LC PMA          Region
System Name     Name
-----
IMSSUM1        IMSSYS1
IMSSUM1        IMSSYS2
IMSSUM1        IMSSYS3
IMSSUM2        IMSSYS4
IMSSUM2        IMSSYS5
IMSSUM2        IMSSYS6
***** Bottom of data *****

```

This panel displays the current defined aggregations.

You can insert (add) new definitions or delete or change existing definitions by using the following line commands:

Line command	Function
I	Displays an input screen that is prefilled with the information from the line where the command was entered This data can be used as a model for building up a new aggregation definition by changing the System or Region name.
C	Displays an input screen that is prefilled with the information from the line where the command was entered

D	Deletes the selected definition A confirmation panel is displayed where you are asked to continue with the delete or to cancel the operation.
---	--

You can also use primary command **INS** (Insert) to enter a new system aggregation definition. This command displays an empty version of the the System Aggregation Definition panel, as shown following.

```
APCCPA01 ----- System Aggregation Definition -----  
COMMAND ==>  
  
PMA System Name:  
  
Region Name      :  
  
      CANCEL: CAN OR PF3  
      SAVE  : ENTER
```

Processing IMS Transaction Information Data

In order to use the IMS INFO feature (available as of release 4.6.02), you must first gather the input data by using a third-party IMS trace tool.

You need to gather the following IMS transaction information for each transaction execution.

Required Transaction Data	Description
TRANSACTION	transaction name
IMS REGION	IMS region name where the transaction was executed
START DATE	date the transaction was started
START TIME	time the transaction was started
END DATE	date the transaction has ended
END TIME	time the transaction has ended
ELAPSED TIME	elapsed time of the transaction
CPU TIME	CPU time consumed during the transaction execution
WAIT TIME	time the transaction was in a wait state

The following IMS transaction information is optional and can be provided if available.

Optional transaction data	Description
DB2 REQUESTS	Number of DB2 (EXEC SQL or IFI) requests issued by the transaction
IMS REQUESTS	Number of IMS (DBCTL) requests issued by the transaction

The collected data must be provided in a required format, which is described in the following section, Format Requirements for the IMS Transaction Information Interface.

Format Requirements for the IMS Transaction Information Interface

The input data for the IMS Transaction Information Interface must meet the following format requirements:

- The IMS transaction execution must be provided as a sequential input data set.
- The execution information for each transaction call must be in a separate line.
- The execution information in each line must be placed in a required order and separated by a comma delimiter, as follows:

field1,field2,field3,...

field1,field2,field3,...

The execution information that you need to provide for each IMS transaction call is listed following.

Required fields:	
Field:	TRANSACTION
Description:	transaction name
Relative position in data line:	1
Format:	alphanumeric
Length:	1 - 8 characters
Range:	valid transaction name
Example:	DAT1, TRAN0001
Field:	IMS REGION
Description:	IMS region name where the transaction was executed

Relative position in data line:	2
Format:	alphanumeric
Length:	1 - 8 characters
Range:	valid region name
Example:	IMS1, IR01
Field:	START DATE
Description:	date the transaction was started
Relative position in data line:	3
Format:	numeric, date format <i>YYYYMMDD</i>
Length:	8 characters
Range:	valid date value
Example:	20081121
Field:	START TIME
Description:	time the transaction was started
Relative position in data line:	4
Format:	numeric, time format <i>HHMMSS.nn</i> to <i>HHMMSS.nnnn</i>
Length:	6 to 11 characters, including the decimal point
Range:	valid clock time, with up to 4 decimal places for ten thousandth of a second
Example:	123118, 123118.12, 123118.1256
Field:	END DATE
Description:	date the transaction has ended
Relative position in data line:	5
Format:	numeric, date format <i>YYYYMMDD</i>
Length:	8 characters
Range:	valid date value
Example:	20081121
Field:	END TIME
Description:	time the transaction has ended

Relative position in data line:	6
Format:	numeric, time format <i>HHMMSS.nn</i> to <i>HHMMSS.nnnn</i>
Length:	6 to 11 characters, including the decimal point
Range:	valid clock time, with up to 4 decimal places for ten thousandth of a second
Example:	123118, 123118.12, 123118.1256
Field:	ELAPSED TIME
Description:	elapsed time of the transaction
Relative position in data line:	7
Format:	decimal, from <i>N</i> to <i>NNNNNNNNN.nnnnnn</i>
Length:	1 to 16 characters, including the decimal point
Range:	0 - 999999999.999999
Example:	9, 15.2374, 145.873922
Field:	CPU TIME
Description:	CPU time consumed during the transaction execution
Relative position in data line:	8
Format:	decimal, from <i>N</i> to <i>NNNNNNNNN.nnnnnn</i>
Length:	1 to 16 characters, including the decimal point
Range:	0 - 999999999.999999
Example:	9, 15.2374, 145.873922
Field:	WAIT TIME
Description:	time the transaction was in a wait state
Relative position in data line:	9
Format:	decimal, from <i>N</i> to <i>NNNNNNNNN.nnnnnn</i>
Length:	1 to 16 characters, including the decimal point
Range:	0 - 999999999.999999
Example:	9, 15.2374, 145.873922
Optional fields:	
Field:	DB2 REQUESTS
Description:	number of DB2 (EXEC SQL or IFI) requests issued by the transaction

Relative position in data line:	10
Format:	numeric, from <i>N</i> to <i>NNNNNNNNN</i>
Length:	1 to 9 characters
Range:	0 - 999999999
Example:	0, 356823, 5923456
Field:	IMS REQUESTS
Description:	number of IMS (DBCTL) requests issued by the transaction
Relative position in data line:	11
Format:	numeric, from <i>N</i> to <i>NNNNNNNNN</i>
Length:	1 to 9 characters
Range:	0 - 999999999
Example:	0, 356823, 5923456

Job APCIJIFU—Importing the Data

After collecting the data in the required format, use job APCIJIFU to import the IMS transaction execution information into PMA.

The JCL for job APCIJIFU is in the CAMAT.PMA.CNTL library in member APCIJIFU.

Job APCIJIFU performs the steps listed following while importing the data.

Job Step	Description
Step 1	Convert user-provided input to the internal format
Step 2	Scope handling - verify data against defined In-/Exclusions
Step 3	Sort 1
Step 4	IMS transaction information import phase 1
Step 5	Sort 2
Step 6	IMS transaction information import phase 2

Step 1

In the first step, the provided IMS transaction information is checked for data validation and converted to the required format for further processing.

You should be aware of the following details when running this step:

- There are two parameters available to control the number of errors to be tolerated and the maximum number of warning messages to be issued. See [Parameters](#) for more information.
- The IMS transaction details must be provided as a sequential file in the required record format (FB 130 or VB 134) under DD statement APCINF. See [DD statement Information](#) for more information.
- Each file record must contain the IMS transaction information in the required format. See [Format Requirements](#) for the IMS Transaction Information Interface for a complete description of the format requirements.

Parameters

Use the parameters listed following to control the execution of step 1 of the import job, as shown following.

The formats and the definitions with/without quotes are mandatory.

Parameter	Format	Description
ERRLIM	1 to 7 characters, a number between 0 and 9999999, or keyword ALL	definition of an error toleration limit With this parameter, you can define if and how many input records with errors should be tolerated and skipped from the import before the job has to end because of the input errors.
MSGLIM	1 to 7 characters, a number between 0 and 9999999, or keyword ALL	definition of the maximum number of warning messages to be issued With this parameter, you can define how many warning messages that refer to input record errors should be written to the job log.

```

//*****
//* INITIALIZE PARAMETERS FOR IMPORT FAILURE TOLERATION
//*****
//*
//* ERROR LIMIT:  NUMBER OF ERRORNOUS INPUT LINES TO TOLERATE UNTIL
//*                JOB HAS TO BE STOPPED.
//*                NOTE: ERRORNOUS LINES WILL BE SKIPPED.
//*                YOU CAN DEFINE A VALUE BETWEEN 0 AND 9999999 OR ALL TO
//*                IGNORE ALL INPUT LINES WITH ERRORNOUS DATA
// SET ERRLIM='0'
//*SET ERRLIM='ALL'

//*
//*                JOB LOG. IF THIS NUMBER IS EXCEEDED, NO FURTHER
//*                WARNING MESSAGE IS CREATED. IMPORT PROCESSING IS
//*                CONTINUED.
//*                YOU CAN DEFINE A VALUE BETWEEN 0 AND 9999999 OR ALL TO
//*                WRITE ALL WARNING MESSAGES TO THE JOB LOG.
// SET MSG LIM='1000'
//*SET MSG LIM='ALL'
//*
//*****

```

DD Statement Information

Provide the IMS transaction details as a sequential file in the required record format (FB 130 or VB 134) under DD statement APCINF.

Each file record must contain the IMS transaction information in the required format. (See Format Requirements for the IMS Transaction Information Interface for a complete description of the format requirements.)

Other DD statement information is shown following.

DD statement	Organization	Format	Record length	Description
APCINF	PS	FB or VB	FB130 or VB 1347	input file with the IMS transaction data
APCOUTF	PS	VB	3120	temporary output file, input for next step
APCREP	PS	FB	80	information messages
APCEREP	PS	FB	80	warning and error messages

JCL Example

Convert the user-provided input to internal format by running step 1 of job APCIJIFU.

In the first step, the provided IMS transaction information is checked for data validation and converted to the required format for further processing.

Be sure to make the following changes:

- Provide the name of the sequential file that contains the IMS transaction data under DD statement APCINF.

```
//*****
//* INPUT SOURCE: USER PROVIDED INFORMATIONS *
//* CONVERT PROVIDED INPUT TO PMA IMS INFO FORMAT *
//*****
//STEP1 EXEC PGM=APCIAIFU,PARM='&ERRLIM,&MSG LIM',REGION=4M
//STEPLIB DD DISP=SHR,DSN=YOUR.PMA.CEETLOAD
//APCINF DD DSN=IMS-TRANSACTION-EXECUTION- INFORMATION- FILE,
// DISP=SHR
//APCOUTF DD DSN=&APCIMS1,
// DISP=(,PASS),
// UNIT=SYSDA,
// DCB=(RECFM=VB,LRECL=3120,BLKSIZE=27998),
// SPACE=(CYL,(100,200))
//SYSUDUMP DD SYSOUT=*

//APCEREP DD SYSOUT=*
//*
```

Steps 2—6

Run steps 2 through 6 of job APCIJIFU, as shown following.

In these steps, the input data is tested against the defined Scope (In-/Exclusions), the summary regions (if defined) are built up, and the data is stored in the database.

```
// IF STEP1.RC LE 8 THEN
//*****
//*
//* ACTION:      CHECK INPUT FOR SYSTEM/TRX IN/EXCLUSIONS
//*
//*****
//STEP2  EXEC PGM=APCIASDI,REGION=4M
//STEPLIB DD DISP=SHR,DSN=CAMAT.PMA.CEETLOAD
//APCINF  DD DSN=&APCIMS1,
//         DISP=(OLD,DELETE)
//APCOUTF DD DSN=&APCIMS2,
//         DISP=(,PASS),
//         UNIT=SYSDA,
//         DCB=(RECFM=VB,LRECL=3120,BLKSIZE=27998),
//         SPACE=(CYL,(100,200))
//SYSUDUMP DD SYSOUT=*
//APCBEXC1 DD DISP=SHR,DSN=CAMAT.PMA.KSDSEXC
//APCREP  DD SYSOUT=*
//APCEREP DD SYSOUT=*
//*
// IF STEP1.RC LE 8 THEN
//*****
//*
//* ACTION:      CHECK INPUT FOR SYSTEM/TRX IN/EXCLUSIONS
//*
//*****
//STEP2  EXEC PGM=APCIASDI,REGION=4M
//STEPLIB DD DISP=SHR,DSN=CAMAT.PMA.CEETLOAD
//APCINF  DD DSN=&APCIMS1,
//         DISP=(OLD,DELETE)
//APCOUTF DD DSN=&APCIMS2,
//         DISP=(,PASS),
//         UNIT=SYSDA,
//         DCB=(RECFM=VB,LRECL=3120,BLKSIZE=27998),
//         SPACE=(CYL,(100,200))
//SYSUDUMP DD SYSOUT=*
//APCBEXC1 DD DISP=SHR,DSN=CAMAT.PMA.KSDSEXC
//APCREP  DD SYSOUT=*
//*
```

```

//*****
//*
//* ACTION:      SORT EXTRACTED IMS INFORMATION
//*
//*****
//STEP3  EXEC PGM=SORT
//SORTIN  DD DSN=&&APCIMS2,
//          DISP=(OLD,DELETE)
//SORTOUT DD DSN=&&APCIMS3,
//          DISP=(,PASS),
//          UNIT=SYSDA,
//          DCB=(RECFM=VB,LRECL=3120,BLKSIZE=27998),
//          SPACE=(CYL,(100,200))
//SYSOUT  DD SYSOUT=*
//SORTDIAG DD SYSOUT=*
//SYSIN   DD *
        SORT FIELDS=(5,8,CH,A,23,4,BI,A,13,9,CH,A,27,5,BI,A)
/*
//*
//*****
//*
//* ACTION:      PROCESS SORTED IMS RECORDS
//*
//*****
//STEP4  EXEC PGM=APCCASSA
//STEPLIB DD DISP=SHR,DSN=CAMAT.PMA.CEETLOAD
//APCPARAM DD DISP=SHR,DSN=CAMAT.PMA.PARMS
//APC110I DD DSN=&&APCIMS3,
//          DISP=(OLD,DELETE)
//APC1100 DD DSN=&&APCIMS4,
//          DISP=(,PASS),
//          UNIT=SYSDA,
//          DCB=(RECFM=VB,LRECL=255,BLKSIZE=27998),
//          SPACE=(CYL,(10,20))
//APCCST1 DD DISP=SHR,DSN=CAMAT.PMA.KSDSCST
//APCDIC1 DD DISP=SHR,DSN=CAMAT.PMA.KSDSDIC
//SYSUDUMP DD SYSOUT=*
//APCREP  DD SYSOUT=*
//APCEREP DD SYSOUT=*
//*

```

```

//*****
//*
//* ACTION:      SORT INTERIM IMS RECORDS
//*
//*****
//STEP5  EXEC PGM=SORT
//SORTIN  DD DSN=&&APCIMS4,
//          DISP=(OLD,DELETE)
//SORTOUT DD DSN=&&APCIMS5,
//          DISP=(,PASS),
//          UNIT=SYSDA,
//          DCB=(RECFM=VB,LRECL=255,BLKSIZE=27998),
//          SPACE=(CYL,(10,20))
//SYSOUT  DD SYSOUT=*
//SORTDIAG DD SYSOUT=*
//SYSIN   DD *
        SORT FIELDS=(5,8,CH,A,21,4,BI,A,13,8,CH,A,25,2,BI,A)
/*
//*
//*****
//*
//* ACTION:      PROCESS SORTED SMF RECORDS
//*
//*****
//STEP6  EXEC PGM=APCCASSB
//STEPLIB DD DISP=SHR,DSN=CAMAT.PMA.CEETLOAD
//APCPARM DD DISP=SHR,DSN=CAMAT.PMA.PARMS
//APC110I DD DSN=&&APCIMS5,
//          DISP=(OLD,DELETE)
//APCCST1 DD DISP=SHR,DSN=CAMAT.PMA.KSDSCST
//SYSUDUMP DD SYSOUT=*
//APCEREP DD SYSOUT=*
//*
// ENDIF
//

```

Return Codes

Check the return code after the job completes.

Possible return codes are listed following.

Return Code	Description
RC 0	Normal completion; all values were OK.
RC 4	Process finished; values exceeding format directions have been adjusted.
RC 8	Process finished with errors; error toleration limit was not exceeded.
RC 12	Process was stopped by errors exceeding the toleration limit.

Job APCIJM44—Importing IMS Data from MainView for IMS Transaction Log Records

You also can use job APCIJM44 to import IMS transaction execution information from MainView for IMS transaction log records.

The JCL for job APCIJM44 is in the CAMAT.PMA.CNTL library in member APCIJM44.

Job APCIJM44 performs the following steps while importing the data.

Job Step	Description
Step 1	Extract transaction execution information from MainView for IMS version 4.4 FA records
Step 2	Scope handling - verify data against defined In-/Exclusions
Step 3	Sort 1
Step 4	IMS transaction information import phase 1
Step 5	Sort 2
Step 6	IMS transaction information import phase 2
Step 1	Convert user-provided input to the internal format

Step 1

In the first step, the provided IMS transaction information is checked for data validation and converted to the required format for further processing.

DD Statement Information

Provide the MainView for IMS version 4.4 transaction log records as a sequential file in the required record format (VB 23472) under DD statement APCINF.

Each file record must contain the IMS transaction information in the required format. (See Format Requirements for the IMS Transaction Information Interface for a complete description of the format requirements.)

Other DD statement information is shown following.

DD statement	Organization	Format	Record length	Description
APCINF	PS	VB	VB 23472	input file with the IMS transaction data
APCOUTF	PS	VB	3120	temporary output file, input for next step

APCREP	PS	FB	80	information messages
APCEREP	PS	FB	80	warning and error messages

JCL Example

Extract the transaction execution information and convert it to internal format by running step 1 of job APCIJM44, as shown following.

In the first step, the provided IMS transaction information is checked for data validation and converted to the required format for further processing.

Be sure to make the following changes:

- Provide the name of the sequential file that contains the Main View for IMS transaction log records under DD statement APCINF.

```
//APCIAM44 EXEC PGM=APCIAM44
//STEPLIB DD DISP=SHR,DSN=CAMAT.PMA.CEETLOAD
//APCINF DD DSN=MAINVIEW. IMS.FA.RECORDS,
// DISP=SHR
//APCOUTF DD DSN=&&APCIMS1,
// DISP=(,PASS),
// UNIT=SYSDA,
// DCB=(RECFM=VB,LRECL=3120,BLKSIZE=27998),
// SPACE=(CYL,(10,20))
//SYSUDUMP DD SYSOUT=*
//APCREP DD SYSOUT=*,DCB=(RECFM=FB,LRECL=80)
//APCEREP DD SYSOUT=*,DCB=(RECFM=FB,LRECL=80)
//*
```

Steps 2–6

Run steps 2 through 6 of job APCIJM44, as shown following.

In these steps, the input data is tested against the defined Scope (In-/Exclusions), the summary regions (if defined) are built up, and the data is stored in the database.

```

//*****
//*
//* ACTION:      CHECK INPUT FOR SYSTEM/TRX IN/EXCLUSIONS
//*
//*****
//APCIASDI EXEC PGM=APCIASDI,REGION=4M
//STEPLIB DD DISP=SHR,DSN=CAMAT.PMA.CEETLOAD
//          DISP=(OLD,DELETE)
//APCOUTF DD DSN=&&APCIMS2,
//          DISP=(,PASS),
//          UNIT=SYSDA,
//          DCB=(RECFM=VB,LRECL=3120,BLKSIZE=27998),
//          SPACE=(CYL,(10,20))
//SYSUDUMP DD SYSOUT=*
//APCBEXC1 DD DISP=SHR,DSN=CAMAT.PMA.KSDSEXC
//APCREP DD SYSOUT=*,DCB=(RECFM=FB,LRECL=80)
//APCEREP DD SYSOUT=*,DCB=(RECFM=FB,LRECL=80)
//*
//*****
//*
//* ACTION:      SORT EXTRACTED IMS INFORMATION
//*
//*****
//SORT01 EXEC PGM=SORT
//SORTIN DD DSN=&&APCIMS2,
//          DISP=(OLD,DELETE)
//SORTOUT DD DSN=&&APCIMS3,
//          DISP=(,PASS),
//          UNIT=SYSDA,
//          DCB=(RECFM=VB,LRECL=3120,BLKSIZE=27998),
//          SPACE=(CYL,(10,20))
//SYSOUT DD SYSOUT=*
//SORTDIAG DD SYSOUT=*
//SYSIN DD *
        SORT FIELDS=(5,8,CH,A,23,4,BI,A,13,9,CH,A,27,5,BI,A)
/*
//*
```

```
//*****  
//*                                                                    *  
//* ACTION:      PROCESS SORTED IMS RECORDS                          *  
//*                                                                    *  
//*****  
//APCCASSA EXEC PGM=APCCASSA,PARM='IMS'  
//STEPLIB DD DISP=SHR,DSN=CAMAT.PMA.CEETLOAD  
//APCPARAM DD DISP=SHR,DSN=CAMAT.PMA.PARMS  
//APC110I DD DSN=&&APCIMS3,  
//          DISP=(OLD,DELETE)  
//APC1100 DD DSN=&&APCIMS4,  
//          DISP=(,PASS),  
//          UNIT=SYSDA,  
//          DCB=(RECFM=VB,LRECL=255,BLKSIZE=27998),  
//          SPACE=(CYL,(10,20))  
//APCCST1 DD DISP=SHR,DSN=CAMAT.PMA.KSDSCST  
//APCCDIC1 DD DISP=SHR,DSN=CAMAT.PMA.KSDSDIC  
//SYSUDUMP DD SYSOUT=*  
//APCREP DD SYSOUT=*  
//APCEREP DD SYSOUT=*  
//*  
//*****  
//*                                                                    *  
//* ACTION:      SORT INTERIM IMS RECORDS                            *  
//*                                                                    *  
//*****  
//SORT02 EXEC PGM=SORT  
//SORTIN DD DSN=&&APCIMS4,  
//          DISP=(OLD,DELETE)  
//SORTOUT DD DSN=&&APCIMS5,  
//          DISP=(,PASS),  
//          UNIT=SYSDA,  
//          DCB=(RECFM=VB,LRECL=255,BLKSIZE=27998),  
//          SPACE=(CYL,(10,20))  
//SYSOUT DD SYSOUT=*  
//SORTDIAG DD SYSOUT=*  
//SYSIN DD *  
      SORT FIELDS=(5,8,CH,A,21,4,BI,A,13,8,CH,A,25,2,BI,A)  
/*  
//*  
//*****  
//*                                                                    *  
//* ACTION:      PROCESS SORTED RECORDS                              *  
//*                                                                    *  
//*****  
//APCCASSB EXEC PGM=APCCASSB,PARM='IMS'  
//STEPLIB DD DISP=SHR,DSN=CAMAT.PMA.CEETLOAD  
//APCPARAM DD DISP=SHR,DSN=CAMAT.PMA.PARMS  
//APC110I DD DSN=&&APCIMS5,
```

```
//          DISP=(OLD,DELETE)
//APCCST1 DD DISP=SHR,DSN=CAMAT.PMA.KSDSCST
//SYSUDUMP DD SYSOUT=*
//APCREP  DD SYSOUT=*

//
```

Return Codes

Check the return code after the job completes.

Possible return codes are listed following.

Return Code	Description
RC 0	Normal completion; all values were OK.
RC 4	Process finished; values exceeding format directions have been adjusted.
RC 8	Process finished with errors; error toleration limit was not exceeded.
RC 12	Process was stopped by errors exceeding the toleration limit.

Job APCIJS34—Importing IMS Data from SysView

You also can use job APCIJS34 to import IMS transaction execution information from SysView IMS History Log.

The JCL for job APCIJS34 is in the PMA.CNTL library in member APCIJS34.

Job APCIJS34 performs the following steps while importing the data.

Job Step	Description
Step 1	Extract SMF 255(34) from APCINF
Step 2	Scope handling - verify data against defined In-/Exclusions
Step 3	Sort 1
Step 4	IMS transaction information import phase 1
Step 5	Sort 2
Step 6	IMS transaction information import phase 2
Step 1	Convert user-provided input to the internal format

DD Statement Information

Provide the SysView IMS transaction history log records in the form of SMF type 255 subtype 34 as a sequential file under DD statement APCINF.

Each file record must contain the IMS transaction information in the required format. (For a complete description of the format requirements, see Format Requirements for the IMS Transaction Information Interface.)

Other DD statement information is shown next.

DD statement	Organization	Format	Record length	Description
APCINF	PS	VB	VB 32760	input file with the SysView for IMS transaction log records
APCOUTF	PS	VB	3120	temporary output file, input for next step
APCREP	PS	FB	80	information messages
APCEREP	PS	FB	80	warning and error messages

JCL Example

Extract the transaction execution information and convert it to internal format as shown next.

In the first step, the provided IMS transaction information is checked for data validation and converted to the required format for further processing.

Be sure to make the following changes:

1. Provide the name of the sequential file that contains the SysView for IMS transaction log records under DD statement APCINF.

```
//APCIAS34 EXEC PGM=APCIAS34
//STEPLIB DD DISP=SHR,DSN=CAMAT.PMA.CEETLOAD
//APCINF DD DSN=SMF.INPUT.DATASET
// DISP=SHR
//APCOUTF DD DSN=&&APCIMS1,
// DISP=(,PASS),
// UNIT=SYSDA,
// DCB=(RECFM=VB,LRECL=3120,BLKSIZE=27998),
// SPACE=(CYL,(10,20))
//SYSABEND DD SYSOUT=*
//*YSUDUMP DD SYSOUT=*
//APCREP DD SYSOUT=*,DCB=(RECFM=FB,LRECL=80)
//APCEREP DD SYSOUT=*,DCB=(RECFM=FB,LRECL=80)
//*
```

2. Run steps 2 through 6 of job APCIJS34, as shown following.

In these steps, the input data is tested against the defined Scope (In-/Exclusions), the summary regions (if defined) are built up, and the data is stored in the database.

```

//*****
//*
//* ACTION:      CHECK INPUT FOR SYSTEM/TRX IN/EXCLUSIONS
//*
//*****
//APCIASDI EXEC PGM=APCIASDI,REGION=4M
//STEPLIB DD DISP=SHR,DSN=CAMAT.PMA.CEETLOAD
//APCINF DD DSN=&&APCIMS1,
//        DISP=(OLD,DELETE)
//APCOUTF DD DSN=&&APCIMS2,
//        DISP=(,PASS),
//        UNIT=SYSDA,
//        DCB=(RECFM=VB,LRECL=3120,BLKSIZE=27998),
//        SPACE=(CYL,(10,20))
//SYSUDUMP DD SYSOUT=*
//APCBEXC1 DD DISP=SHR,DSN=CAMAT.PMA.KSDSEXC
//APCREP DD SYSOUT=*,DCB=(RECFM=FB,LRECL=80)
//APCEREP DD SYSOUT=*,DCB=(RECFM=FB,LRECL=80)
//*
//*****
//*
//* ACTION:      SORT EXTRACTED IMS INFORMATION
//*
//*****
//SORT01 EXEC PGM=SORT
//SORTIN DD DSN=&&APCIMS2,
//        DISP=(OLD,DELETE)
//SORTOUT DD DSN=&&APCIMS3,
//        DISP=(,PASS),
//        UNIT=SYSDA,
//        DCB=(RECFM=VB,LRECL=3120,BLKSIZE=27998),
//        SPACE=(CYL,(10,20))
//SYSOUT DD SYSOUT=*
//SORTDIAG DD SYSOUT=*
//SYSIN DD *
        SORT FIELDS=(5,8,CH,A,23,4,BI,A,13,9,CH,A,27,5,BI,A)
/*
//*
//*****
//*
//* ACTION:      PROCESS SORTED IMS RECORDS
//*
//*****
//APCCASSA EXEC PGM=APCCASSA,PARM='IMS'
//STEPLIB DD DISP=SHR,DSN=CAMAT.PMA.CEETLOAD
//APCPARAM DD DISP=SHR,DSN=CAMAT.PMA.PARMS
//APC110I DD DSN=&&APCIMS3,
//        DISP=(OLD,DELETE)
//APC1100 DD DSN=&&APCIMS4,
```



```

//          DISP=(,PASS),
//          UNIT=SYSDA,
//          DCB=(RECFM=VB,LRECL=255,BLKSIZE=27998),
//          SPACE=(CYL,(10,20))
//APCCST1 DD DISP=SHR,DSN=CAMAT.PMA.KSDSCST
//APCCDIC1 DD DISP=SHR,DSN=CAMAT.PMA.KSDSDIC
//SYSUDUMP DD SYSOUT=*
//APCREP DD SYSOUT=*
//APCEREP DD SYSOUT=*

//*
//*****
//*
//* ACTION:      SORT INTERIM IMS RECORDS
//*
//*****
//SORT02 EXEC PGM=SORT
//SORTIN DD DSN=&&APCIMS4,
//          DISP=(OLD,DELETE)
//SORTOUT DD DSN=&&APCIMS5,
//          DISP=(,PASS),
//          UNIT=SYSDA,
//          DCB=(RECFM=VB,LRECL=255,BLKSIZE=27998),
//          SPACE=(CYL,(10,20))
//SYSOUT DD SYSOUT=*
//SORTDIAG DD SYSOUT=*
//SYSIN DD *
        SORT FIELDS=(5,8,CH,A,21,4,BI,A,13,8,CH,A,25,2,BI,A)
/*
//*
//*****
//*
//* ACTION:      PROCESS SORTED SMF RECORDS
//*
//*****
//APCCASSB EXEC PGM=APCCASSB,PARM='IMS'
//STEPLIB DD DISP=SHR,DSN=CAMAT.PMA.CEETLOAD
//APCPARAM DD DISP=SHR,DSN=CAMAT.PMA.PARMS
//APC110I DD DSN=&&APCIMS5,
//          DISP=(OLD,DELETE)
//APCCST1 DD DISP=SHR,DSN=CAMAT.PMA.KSDSCST
//SYSUDUMP DD SYSOUT=*
//APCREP DD SYSOUT=*
//APCEREP DD SYSOUT=*
//

```

Return Codes

Return Codes

Check the return code after the job completes.

Possible return codes are as follows:

Return Code	Description
RC 0	Normal completion; all values were OK.
RC 4	Process finished; values exceeding format directions have been adjusted.
RC 8	Process finished with errors; error toleration limit was not exceeded.
RC 12	Process was stopped by errors exceeding the toleration limit.

Option **6** on the Main Menu displays the Maintenance Menu to perform these functions.

```

=====
APCXP900
-----
-----
P M A
Version 9.0.00
-----
-----
PMA V9.0----- >>>>> M A I N T E N A N C E <<<<< -----
-----
=====

OPTION ==>
        1 CICS Feature Process Control
        2 IMS Feature Process Control
        3 Central Component Job Log
        4 Central Component Measurement Access
        5 Central Component Alert Delete Options
        X or END

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```

- 1 View or delete system performance information for CICS.
- 2 View or delete system performance information for IMS.
- 3 Review log information of the batch jobs.
- 4 View or delete measurements from the Central Component database.
- 5 Define the delete options to be used for automatically deleting the alerts for the Central Component.

This section contains the following topics:

[CICS and IMS Feature Process Control](#) (see page 284)

[Central Component Job Log](#) (see page 287)

[Central Component Measurement or Measurement Access](#) (see page 289)

[Central Component Alert Delete Options](#) (see page 290)

CICS and IMS Feature Process Control

When option **1** for CICS or option **2** for IMS is selected, detail lines of information is displayed for each system. For illustration, the IMS Feature is used to demonstrate this option in the following example.

```
APCDP906 --- PMA - CICS Feature - MAINTENANCE ----- Row 1 to 1 of 1
COMMAND ==>                                           SCROLL ==> HALF

                                Date: 2010.12.17
Line Commands: SO - System Overview
               D  - Delete all PMA data of the selected system and date

LC   System      CC   NoPro      CPUsec   Waitsec   IntID     NoVSAM
-----
      CICS09NZ    OK      1         14         001       16
***** Bottom of data *****
```

Panel Elements

Both primary commands and line commands are allowed on this panel.

Line commands can be used to work with a particular job name that is displayed in the list. To use line commands, place the cursor in the LC column to the left of the job name and enter one of the following commands:

SO Review the System Overview panel.

D Delete the data for the selected system and date.

Column Descriptions

The column names and descriptions are as follows:

System

Displays the system name from the System Control panel.

CC

Displays the condition code of processing measurement results by PMA.

The following codes are valid:

OK = Scan process completed normal.

F1 or F2 = Scan process did not complete. Access in online may lead to abnormal termination.

NoPro

Displays the number of added profiles.

CPUsec

Displays the total CPU time in seconds.

Waitsec

Displays the total wait time in seconds.

IntID

Displays the internal system identification number (0-255).

NoVSAM

Displays the total number of VSAM records for deletion.

CICS and IMS System Maintenance

When line command **SO** is used on the Maintenance panel, an overview of all performance information is listed. By default, the historical information is displayed for the last three months. However, historical information for up to 18 months can be displayed by changing the Show Recent Months field.

APCDP962 --- PMA - CICS Feature - MAINTENANCE -----										Row 1 to 1 of 1	
COMMAND ==>										SCROLL ==> HALF	
System : CICSC9NZ										Show recent months: 03	
Date	Jobname	CC	Time	Consuming	Time min	EXCPS	Sam.	Error	Marg.%		
				Elps CPU	Wait		pro	Run	CPU		

2010.12.17	CICSC9NZ	OK	13.18	1	0	0	42				
***** Bottom of data *****											

All measurements are displayed. For each processed measurement, the related system is listed. The measurement can relate to two systems if so defined under System Control.

Using the Panel

1. Review the list of measurements.
2. To review more information, change the number of months in the **Show Recent Months** field. A maximum of 18 months is allowed.

Column Descriptions

Column name	Description
System	displays the system name from the System Control panel
Jobname	displays the job name of the startup job
CC	displays the condition code from processing the measurements An OK indicates that the processing has completed. An F1 or F2 indicates job APCYJLNA did not complete processing access in the online, which might lead to abnormal termination. All F1 and F2 data should be deleted
Time	displays the start time of the measurement
Consuming Time Elps	displays the elapsed time of measurement
Consuming Time Wait	displays the total wait time consumed during measurement
Consuming Time CPU	displays the total CPU time consumed during measurement
EXCPs	displays the total EXCPs, in thousands, performed during measurement
Sam Pro	displays the total samples, in thousands, processed during measurement
Error Margin %-Run	displays the error margin of run time figures during measurement
Error Margin %-CPU	displays the error margin of CPU figures during measurement

Central Component Job Log

To review the processing status of batch jobs and to see some statistical information about processed job steps, select option **3** on the Maintenance Menu.

```

APCXP800 --- PMA - Central Component Job Log ----- Row 2 from 38
COMMAND ==>                                         SCROLL ==> HALF

Show : S Short/Long
-----
#>>>>> START APCYALST 2011-02-23 4:39 PMA COLLECTING MEASUREMENT PROFILES
#<<<<<< ENDED APCYALST 2011-02-23 4:39 CONDITION CODE: 00
#<<<<<< ENDED APCYALST 2011-02-23 4:39 CONDITION CODE: 00
#>>>>> START APCYALST 2011-02-23 4:40 PMA COLLECTING MEASUREMENT PROFILES
#<<<<<< ENDED APCYALST 2011-02-23 4:40 CONDITION CODE: 00
#<<<<<< ENDED APCYALST 2011-02-23 4:40 CONDITION CODE: 00
#>>>>> START APCYANAR 2011-02-23 4:40 PMA PROCESSING OF MEASUREMENT LISTS
#<<<<<< ENDED APCYANAR 2011-02-23 4:40 CONDITION CODE: 00
#>>>>> START APCYANAR 2011-02-23 4:40 PMA PROCESSING OF MEASUREMENT LISTS
#<<<<<< ENDED APCYANAR 2011-02-23 4:40 CONDITION CODE: 00
***** Bottom of data *****

```

For the most current production cycle, batch jobs of the Central Component are displayed along with a processing summary and statistics for each of the following batch job steps.

- APCBASMf gathers information about executed job steps from SMF record 30 (subtype 4). Your Scope of work definitions are used in determining which jobs to look at.
- APCXACAL uses the gathered information from APCBASMf to calculate statistical values regarding consumed elapsed time and service units and checks if the last job step execution exceeds them. If it finds a runaway job step, a pending alert is created.
- APCYANAR evaluates CA MAT measurements that resulted from PMA-generated measurements. Performance Management Assistant saves the information if one of the user-defined threshold values (CPU time, Elapsed time or EXCPs) is exceeded.
- APCBAJCL scans all JCL libraries to gather information for cross referencing which job step calls which application program or which program is called from which job steps.
- APCXALMO scans all load libraries for new and changed programs.
- APCBAALM performs alert management. Alerts with reason code = module changed are created. Pending alerts are selected to generate CA MAT measurement requests.

Both long and short views of the available job log information can be selected. A short view of information is displayed as the default when the Job Log option is entered on the Maintenance Menu. A long view of the information includes the processing statistics for each job. To switch between short and long views, enter **S** or **L** in the **Show** field. The following example is a panel that illustrates the information available with the long view.

```

APCXP800 --- PMA - Central Component Job Log ----- Row 1 from 38
COMMAND ==> SCROLL ==> HALF

Show : L Short/Long
-----

#>>>>> START APCYALST 2011-02-23 4:39 PMA COLLECTING MEASUREMENT PROFILES
#<<<<< ENDED APCYALST 2011-02-23 4:39 CONDITION CODE: 00

THE PMA PREFIX FOR REPORT DS DID NOT MATCH WITH ANY EXISTING DATA SET NAME.
#<<<<< ENDED APCYALST 2011-02-23 4:39 CONDITION CODE: 00

#>>>>> START APCYALST 2011-02-23 4:40 PMA COLLECTING MEASUREMENT PROFILES
#<<<<< ENDED APCYALST 2011-02-23 4:40 CONDITION CODE: 00

>>> JOB GENERATED TYPE = CICS JOB# = 001 MEMBER# = 001
>>> JOB GENERATED TYPE = BATCH JOB# = 002 MEMBER# = 001
#<<<<< ENDED APCYALST 2011-02-23 4:40 CONDITION CODE: 00

#>>>>> START APCYANAR 2011-02-23 4:40 PMA PROCESSING OF MEASUREMENT LISTS
APCYANAR TOTAL STATISTIC FROM DATE 2011-02-23
=====
BATCH PROFILES HANDLED 0000
CICS PROFILES HANDLED 0001
IMS PROFILES HANDLED 0000
ERROR PROFILES HANDLED 0000
TOTAL PROFILES HANDLED 0001
=====
APCYANAR ENDED SUCCESSFUL USED TIME 0004 SEC
#<<<<< ENDED APCYANAR 2011-02-23 4:40 CONDITION CODE: 00

APCYANAR TOTAL STATISTIC FROM DATE 2011-02-23
=====
BATCH PROFILES HANDLED 0001
CICS PROFILES HANDLED 0000
IMS PROFILES HANDLED 0000
ERROR PROFILES HANDLED 0000
TOTAL PROFILES HANDLED 0001
=====
APCYANAR ENDED SUCCESSFUL USED TIME 0001 SEC
#<<<<< ENDED APCYANAR 2011-02-23 4:40 CONDITION CODE: 00

```


Central Component Measurement or Measurement Access

Option **4** of the Maintenance Menu allows you to review measurements of the Central Component.

```

APCBP901 --- PMA - Measurement Maintenance ----- Row 1 from 1
COMMAND ==>                                         SCROLL ==> HALF

Jobname      : *                From date: 2011.01.18
Commands     : SORT J/D/M/E/C/W/EX - Job/Date/Mea/Elpsd/Cpu/Wait/EXcps
Line Commands: D - Delete Profile

LC Jobname  Stepname Procstep Date      Time Meas Elpsd  CPU Wait Excps
-----
TESTJOBX BATCH TEST    2011.01.18 13:26 100    1    0    0    0
***** Bottom of data *****

```

The Measurement Maintenance panel is similar to the Central Component Measurement List panel.

Using the Panel

1. To sort the information listed in the columns, use the **SORT** primary command for the column in which the lines should be sorted.
2. To delete unwanted measurements, enter linecommand **D** in the LC column to the left of the unwanted measurement.

Central Component Alert Delete Options

Option 5 of the Maintenance Menu allows you to define the options to be used for automatically deleting alerts within the Central Component.

```
APCBP902 --- PMA - Alert Delete Options -----  
COMMAND ==>  
  
Define the lifetime of alerts for job steps.  
  
Immediate delete of alerts in TSO: N Y,N (processed with ENTER key)  
  
State    Days until deleted    Alert state description  
-----  
PEND      190                Alert waiting for a measurement  
OPEN       090                Alert waiting to be processed by user  
REV        360                Alert in process by user  
CUSE       360                Alert closed by user  
CMUL       360                Alert closed because multiple implicit closes  
COVT       360                Alert closed by take over (new statistical base)  
CTHR       007                Alert closed because out of scope of work  
CIMP       007                Alert closed implicit by statistics  
  
Cancel: CAN  
Save  : END OR PF3
```

The Alert Delete Options panel should be used to define the alert lifetime and/or the method to be used when automatically deleting alerts within the Central Component.

Using the Panel

- To delete alerts immediately, that is, during your current online TSO session, enter **Y** in the **Immediate delete of alerts** field. Press **Enter**.
- To define the lifetime for particular alert states in days, place the cursor in the Day Until Deleted column and enter the maximum number of days that an alert with this state should be kept. You can use this delete option in addition to the use of the TSO online delete process. The lifetime definitions are used the next time job APCBJREO is executed to reorganize the database.
- To disable the delete process for a specific alert state, enter a lifetime value of 999.

Chapter 7: CA Mainframe Application Tuner Settings

Performance Management Assistant retrieves performance information about measured job steps or regions from a measurement result data set: the CA MAT list file. After a measurement has finished, CA MAT activates the batch task to create the list file for further usage with PMA.

The settings described in this chapter must be done in CA MAT in order to enable the successful creation of the list files.

This section contains the following topics:

[Customize](#) (see page 291)

[Parameter File](#) (see page 294)

Customize

Use the following steps to customize CA MAT:

1. Call CAMAT.
2. Call Global monitoring and listing registration by selecting option **G** from the CA MAT Primary Option Menu, as shown following.

```
----- CA Mainframe Application Tuner -- Primary Option Menu -----
OPTION ==>

  0 Parameters      - Enter user-specific parameters      Userid: TUNUSER
                   -                                     Server ID: MATUNER
  1 Monitor         - Create and analyze Monitor Sets      Status: INACTIVE
                                                           Version 9.0.00
  2 Active          - Select an active job to monitor
  3 Registration    - Register source listings
  4 Grouping        - Define groups of monitors
  5 External        - Analyze other user's monitor files

  S Status          - Display and manage invoked monitors
  G Global          - Global monitoring and listing registration
  A Administration - CA MAT system administration
  M Messages        - List CA MAT messages
  T Tutorial        - CA MAT tutorial

*****
*                  CA Mainframe Application Tuner Version 9.0.00                  *
*                  Copyright (c) 2012 CA. All rights reserved.                    *
*****
                                     Copyright 2009
Enter an option or press END to exit    AQM Solutions, a TRILOGexpert Company
```

3. Choose Parameters (option **0**) from the CA MAT Global Monitoring Menu, as shown following.

```
TUN@GLOB----- Global Monitoring Menu -----
OPTION ==>

0 Parameters      - Enter global monitor parameters      Userid: TUNUSER
1 Monitor         - Create and analyze Monitor Sets      Server ID: MATUNER
2 Active          - Select an active job to monitor      Status: INACTIVE
3 Registration    - Shared listing registration          Version 9.0.00
4 Grouping        - Define groups of monitors
5 Status          - Display and manage invoked monitors

Enter an option or press END to return to the CA MAT Primary Option
Menu
```

4. Scroll to Batch Job Cards in the Profile Parameters panel, as shown following.

Batch Options for CodeView		
Threshold	==> 1.00	CodeView mode
All-User-Top5	==> Y	Csect
Histogram Csect 1	==>	Module
Histogram Csect 2	==>	Pseudo
Histogram Csect 3	==>	4GL
Histogram Csect 4	==>	
Batch Options for DataView		
Linklist	==> N	DB2 Code Detail
Batch Options for TranView		
Code Detail	==> N	Delay Detail
Data Detail	==> N	
Transaction 1	==> *	Transaction 2
Transaction 3	==>	Transaction 4
Batch CSV Output File Parameters		
Tracks Primary	==> 15	Secondary
Volume Serial	==>	or Storage Class
Unit	==> SYSALLDA	Data Class
		Management Class
Batch JES Parameters		
Lines per page	==> 60	Sysout class
Column width	==> 80	Sysout form
Destination	==>	
JES Writer Name	==>	
Report Scope		
Report Detail	==> N	Field Detail
Batch Job Cards		
==> //MATBATCH JOB (123456789), 'CA MAT BATCH REPORT',		
==> // CLASS=A,MSGCLASS=A,MSGLEVEL=(1,1),REGION=0M,		
==> // NOTIFY=&SYSUID		
==> //MATJCL JCLLIB ORDER=CAMAT.JCLLIB		

5. Enter a valid jobcard.

This information is necessary for the CA MAT job to create the Report data set.

6. For JCLLIB, you must enter the data set name where the customized TUNBATCH procedure (normally in UTRSAMP) has been saved to.

Parameter File

To create a CA MAT list data set through CA MAT, you can edit the parameters in the parameter file listed in the following table:

Parameter entry	What you should enter
RP00075	Primary space (Default is 00075.)
RS00030	Secondary space (Default is 00030.)
RUSYSDA	UNIT (Default is SYSDA.)
RV	VOLUME (Default is blank.)
RO	STORAGECLASS (Default is blank.)
RM	MANAGEMENTCLASS (Default is blank.)
RD	DATACLASS (Default is blank.)

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