RM/COS (TM)

A

MULTI-USER

COMMERCIAL OPERATING SYSTEM

PRINT QUEUE SUBSYSTEM

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The RM/COS Print Queue Subsystem is a set of utilities provided by Ryan-McFarland Corporation. This subsystem manages printing of files on one or more printers. Facilities are provided for the management and manipulation of the queue, the queue servers, and custom printer initialization data.

This manual is organized in the order that the various parts of the subsystem are likely to be encountered by the user: adding servers for the printers configured, queueing entries to be printed, controlling the servers and queue entries, and customizing print control strings for programmable printers.

Chapter 1 describes the Server Manager. One server is associated with each physical printer. This utility adds and deletes queue servers. It can be used only when the Print Queue Subsystem is inactive.

Chapter 2 describes the QPRINT JDL command. This command provides a means for queueing print files from batch streams but can also be used at a user terminal.

Chapter 3 describes the Queue Manager. This utility is the main interface for queue and server control. It is intended as, but not limited to, an operator interface to the Print Queue Subsystem.

Chapter 4 describes the Print Control String Editor. This utility adds, deletes, and modifies the data strings which may be sent to the printer to initialize its options before printing the queue entry.

Appendix A describes the server state entry fields referred to in the Server Manager and Queue Manager.

Appendix B describes the queue entry fields referred to in the Queue Manager.

Appendix C describes the print banner page produced by the Print Queue Server before each file printed.

Appendix D lists the JDL batch streams provided with the Print Queue Subsystem which are used to execute the subsystem utilities.

CHAPTER 1

SERVER MANAGER

SERVER MANAGER OVERVIEW

The Server Manager is an interactive COBOL program used to add and delete servers within the Print Queue Subsystem. Servers are added and deleted by adding and deleting records from the server state file, .SPOOLER.SRVSTATE.

A batch stream with the name .SPOOLER.JDL.SMANAGER is provided. This batch stream assigns the appropriate files, initiates the Server Manager and releases the files upon completion of the program.

Note that when servers are added or deleted corresponding changes must be made in the QSTART batch stream which initiates the servers. See Appendix D, JDL Batch Streams, for details.

Prompting

The Server Manager uses two types of prompts: interactive response prompting and full screen field prompting.

Interactive response prompts appear on the bottom of the screen or under a key screen heading. Responses are checked for validity and prompting recurs until a valid response or the abort key (see below) is entered.

Full screen field input prompts appear under the screen headings which identify the modifiable fields of a record. This type of prompting is used to obtain data necessary to add or modify entries. All of the function keys described below may be used to move the cursor from field to field and to enter responses. Field input is checked for validity. If the response is valid the cursor is positioned to the next modifiable field on the screen. If the field is not valid a message is displayed at the bottom of the screen and prompting recurs until valid input is entered, the abort key is pressed, or the field is blanked and the Send, Home, Up Arrow or Tab Left key is entered.

Function Keys

The Server Manager makes use of several function keys for display and data entry purposes. Because RM/COS supports several keyboards, the following key names may not match the actual keycap mnemonics of your keyboard. The key names are related to the actual keycap mnemonics of the various supported keyboards in your RM/COS Terminal Guide.

The following function keys may be used to direct data input for "Add Server" and "Delete Server" requests:

Key Name	Action
Return or Erase Right	The field is accepted and validated. If the field is not required or the field is required and valid, the cursor is moved to the first character of the next modifiable field. Otherwise, a diagnostic message is displayed at the bottom of the screen; when the operator presses the Return key to acknowledge the message the cursor is positioned to the first character of the field to allow reentry.
Home	If the current field is blank, the cursor is moved to the first character of the first modifiable field on the screen. Otherwise it is validated as for the Return key and if valid then the cursor is moved to the first character of the first modifiable field on the screen.
Up Arrow or Tab Left	If the current field is blank, the cursor is moved to the first character of the previous modifiable field. Otherwise it is validated as for the Return key and if valid then the cursor is moved to the first character of the previous modifiable field.. If the current field is the first modifiable field on the screen, the cursor is not moved.
Send	If the current field is blank, the current value is left unmodified and entry of the remaining fields is skipped. Otherwise it is validated as for the Return key and if valid entry of the remaining fields is skipped.

An abort key is provided as a means of terminating the current request. It may be used at any time during the execution of the Server Manager by pressing the Command key in response to any prompt.

Key Name	Action
Command or Delete Line	Terminate the current request and return to the main menu.

Error messages are displayed on the bottom line of the screen. Acknowledge error messages by pressing the Return key.

SERVER MANAGER WALKTHROUGH

After entering the BATCH JDL command for the pathname .SPOOLER.JDL.SMANAGER the initial Server Manager menu screen will be displayed as follows:

```
                    SERVER MANAGER MENU

        AS  Add Server                      Q   Quit
        DS  Delete Server


        Enter Request
```

At this point, the Server Manager is ready to accept requests. Requests are entered as the one- or two-character abbreviations depicted on the menu (e.g. AS for the request to Add a Server entry).

If an invalid request is entered, a message is displayed and prompting recurs. A valid request results in immediate action or further prompting, depending on the request. The Quit request result in immediate action; Add Server and Delete Server result in further prompting.

The Server Manager requests are described below. Each description is a "walkthrough" of the request, including prompts and messages, rules governing input, and actions taken. The requests are listed alphabetically by request abbreviation.

AS - ADD SERVER

Prompts:

Server entry field headings
Full screen field prompting
Screen OK?

Rules:

The data items entered must be valid as described in Appendix A.

Action:

Server entry field headings are displayed on the screen (Appendix A describes the server entry fields). The cursor is positioned to the first field and full screen field prompting occurs until all the required fields are entered. Screen verificaion is requested with the following prompt:

Screen OK?

A NO response causes the cursor to be positioned to the first field on the screen to allow the user to enter modifications. Pressing the Tab Left or Up Arrow key positions the cursor to the last field.

A YES response results in the addition of the server entry to the server state file. The following message is displayed upon the successful addition of a server entry:

Server entry added

Press the return key to acknowledge the message and return to the main menu.

The abort key may be pressed at any time during this process to cause the Server Manager to abandon the request and return to the main menu.

DS - DELETE SERVER

Prompts:

Server entry field headings
Field prompting under the server name heading
Is this the server entry to be deleted?

Rules:

The entry must exist in the server state file.

Action:

The server entry field headings are displayed on the screen. Field prompting occurs under the server name heading to obtain the name of the server to be deleted. The Tab Right key may be used to display successive servers. When the Return key is pressed the next server entry in alphabetical sequence that is equal to or greater than the server name displayed is read from the server state file and its data displayed under the appropriate field headings. The following prompt is displayed at the bottom of the screen:

Is this the server entry to be deleted?

A NO response causes the cursor to be positioned to the server name field to allow the user to reenter the server name or to press the Tab Right key to step to the next entry.

A YES response results in the deletion of the displayed server entry. The following message is displayed upon the successful deletion of a server entry:

Server entry deleted

Press the return key to acknowledge the message and return to the main menu.

The abort key may be pressed at any time during this process to cause the Server Manager to abandon the request and return to the main menu.

CHAPTER 2

QPRINT JDL COMMAND

FUNCTION

The QPRINT command queues a file for printing in accordance with the carriage control information specified for the file. Qualifications for selection by a particular print server, a prioritization value, the number of copies to be printed, file deletion disposition, forms parameters and printer initialization sequences may also be specified.

FORMAT

```
NAME: acnm
QUALIFIER: [ string ] [, string ] ...
DELETE AFTER PRINT: YES ; NO
NUMBER OF COPIES: int ; 1
CONTROL: ANSI ; ASCII ; NONE
CATEGORY: int ; 5
```

Where:

NAME
: Pathname of a file to be queued for printing in the queue on the file .SPOOLER.QFILE.PRINT.

QUALIFIER
: An optional one to eight character string which is used to qualify the file for service by a particular Print Queue Server with the identical qualifier string. If omitted a blank qualifier is assumed. Optionally, Print Control String (PCS) keywords may be entered following the qualifier. The keywords are one to eight characters and are used by the Print Queue Server for forms control (see Chapter 4, the Print Control String Editor, for further details regarding PCS keywords). The qualifier string and any PCS keywords are separated by commas. If the qualifier string is omitted a leading comma must introduce the list of PCS keywords.

DELETE AFTER PRINT
: When YES is entered, the file is deleted after all requested copies have been printed unless it is delete protected. When NO is entered the file is not deleted.

NUMBER OF COPIES
: The number entered determines the number of times the file is printed and must be in the range of 1 through 999. If no value is entered a default of one copy is assumed.

CONTROl

Any carriage control embedded in the file is indicated by the keyword entered for this prompt. ANSI indicates that the character in column one of each record in the file specifies the desired carriage control (i.e. "1" for top-of-form, "0" for double-space, "+" for overprint, and space for single-space). ASCII indicates that control characters from the ASCII character set are embedded in the file and are to be sent to the printer with the text. No additional carriage control information is sent to the printer by the server. NONE indicates that neither of the above types of carriage control is present in the file. NONE should be used for SPOOL type files for proper interpretation of the associated carriage control information. NONE should also be used for files which are simply text files without any carriage control information; such files are printed one record per print line (single-spaced). Note that such files are considered to be all one page since they have no top-of-form controls to delimit pages. NONE is the default when no value is entered.

CATEGORY

The value entered is the category within the queue with which the queue entry is associated. This value must be in the range 0 through 9. The priority of the file within the category is computed by QPRINT and is dependent upon file size; the larger the file the larger the priority value (0 through 9). Category and priority are evaluated by the Print Queue Server as a two-digit number when determining the order for service. The category is the most significant digit and the priority is the least significant digit. An entry is selected for service from eligible queue entries by the numerically smallest category and priority. Entries with identical category and priority values are serviced chronologically, that is, first-in-first-out. Category and priority are evaluated independently with regard to server category and priority cutoffs. A queue entry with a category or priority higher than the category cutoff or priority cutoff of a given Print Queue Server is not eligible for service by that server.

ERROR CODES

7421 BAD CATEGORY

1) The value entered for the CATEGORY parameter is not an integer between zero and nine inclusive.

7422 INVALID FILE ORGANIZATION

1) The pathname referenced by value entered for NAME parameter is not a sequential, relative, or indexed organization file.

EXAMPLES

```
[ ] QPR
NAME: AR.REPORT
QUALIFIER:
DELETE AFTER PRINT: NO
NUMBER OF COPIES: 1
CONTROL: ANSI
CATEGORY: 5
```

The command queues the file AR.REPORT with a blank qualifier in category 5. One copy is to be printed with no forms control. The first character of each record is deleted and used to generate carriage control information for the printer. The file is not deleted after printing.

```
[ ] QPRINT
NAME: GREEN.PRINT.LABELS
QUALIFIER: ,ALIGN3
DELETE AFTER PRINT: YES
NUMBER OF COPIES: 2
CONTROL: NONE
CATEGORY: 9
```

The command queues the file GREEN.PRINT.LABELS with a blank qualifier in category 9. The reserved keyword ALIGN3 specifies that three alignment pages are to be printed to assist in forms alignment in the printer before two copies of the file are printed. Since this is a SPOOL type file the carriage control information generated with the text is interpreted to control printer spacing. The file is deleted after both copies have been printed.

CHAPTER 3

QUEUE MANAGER

QUEUE MANAGER OVERVIEW

The Queue Manager is an interactive COBOL program used to communicate with the queue servers and to manipulate the order of files within a queue. The queue and server state files may be displayed or printed, queue entries may be added, deleted or modified, and server state entries may be modified.

A batch stream with the name .SPOOLER.JDL.QMANAGER is provided. This batch stream assigns the appropriate files, initiates the Queue Manager, releases the files upon completion of the program, and conditionally queues any reports generated for printing.

Prompting

The Queue Manager uses two types of prompts: interactive response prompting and full screen field prompting.

Interactive response prompts appear on the bottom of the screen or under a key screen heading. Responses are checked for validity and prompting recurs until a valid response or the abort key (see below) is entered.

Full screen field input prompts appear under the screen headings which identify the modifiable fields of a record. This type of prompting is used to obtain data necessary to add or modify entries. All of the function keys described below may be used to move the cursor from field to field and to enter responses. Field input is checked for validity. If the response is valid the cursor is positioned to the next modifiable field on the screen. If the field is not valid a message is displayed at the bottom of the screen and prompting recurs until valid input is entered, the abort key is pressed, or the field is blanked and the Send, Home, Up Arrow or Tab Left key is entered.

Function Keys

The Queue Manager makes use of several function keys for display and data entry purposes. Because RM/COS supports several keyboards, the following key names may not match the actual keycap mnemonics of your keyboard. The key names are related to the actual keycap mnemonics of the various supported keyboards in your RM/COS Terminal Guide.

The following function keys may be used to direct data input for add and modify requests:

Key Name	Action
Return or Erase Right	The field is accepted and validated. If the field is not required or the field is required and valid, the cursor is moved to the first character of the next modifiable field. Otherwise, a diagnostic message is displayed at the bottom of the screen; when the operator presses the Return key to acknowledge the message the cursor is positioned to the first character of the field to allow reentry.
Home	If the current field is blank, the cursor is moved to the first character of the first modifiable field on the screen. Otherwise it is validated as for the Return key and if valid then the cursor is moved to the first character of the first modifiable field on the screen.
Up Arrow or Tab Left	If the current field is blank, the cursor is moved to the first character of the previous modifiable field. Otherwise it is validated as for the Return key and if valid then the cursor is moved to the first character of the previous modifiable field. If the current field is the first modifiable field on the screen, the cursor is not moved.
Send	If the current field is blank, the current value is left unmodified and entry of the remaining fields is skipped. Otherwise it is validated as for the Return key and if valid entry of the remaining fields is skipped.

An abort key is provided as a means of terminating the current request. It may be used at any time during the execution of the Queue Manager by pressing the Command key in response to any prompt.

Key Name	Action
Command or Delete Line	Terminate the current request and return to the main menu.

Error messages are displayed on the bottom line of the screen. Acknowledge error messages by pressing the Return key.

QUEUE MANAGER WALKTHROUGH

After entering the BATCH JDL command for the pathname .SPOOLER.JDL.QMANAGER the initial Queue Manager menu screen will be displayed as follows:

```
                    QUEUE MANAGER MENU

    AQ   Add Queue Entry          IS   Interrupt Service
    DQ   Delete Queue Entry       MS   Modify Server
    MQ   Modify Queue Entry       PS   Print Servers
    PQ   Print Queue              SS   Show Servers
    SQ   Show Queue               TS   Terminate All Servers


    Q    Quit


    Enter Request
```

At this point, the Queue Manager is ready to accept requests. Requests are entered as the one- or two-character abbreviations depicted on the menu (e.g. AQ for the request to Add a Queue entry).

If an invalid request is entered, a message is displayed and prompting recurs. A valid request results in immediate action or further prompting, depending on the request. Show Queue, Show Servers, and Quit requests result in immediate action; all others result in further prompting.

The Queue Manager requests are described below. Each description is a "walkthrough" of the request, including prompts and messages, rules governing input, and actions taken. The requests are listed alphabetically by request abbreviation.

AQ - ADD QUEUE ENTRY

Prompts:

Queue entry field headings
Full screen field prompting
Screen OK?

Rules: The data items entered must be valid as described in Appendix B.

Action:

Queue entry field headings are displayed on the screen (Appendix B describes the queue entry fields). Values are displayed under the headings for fields which have defaults. They are:

field	default value
category	5
priority	5
repeat count 1	001
first page	0000
last page	0000

Values are also displayed under headings for fields which are system-generated and thus nonmodifiable. They are:

field	value
sequence	next available sequence number
date/time	current date and time of entry
state	W (waiting)
repeat count 2	000
restart page	0001

The cursor is positioned to the first modifiable field. Full screen field prompting occurs until all the required fields are entered. Screen verificaion is requested with the following prompt:

Screen OK?

A NO response causes the cursor to be positioned to the first modifiable field on the screen to allow the user to enter modifications. Pressing the Tab Left or Up Arrow key positions the cursor to the last modifiable field.

A YES response causes synonyms in the file pathname entered to be resolved and the expanded pathname to be redisplayed. The data entered is validated and if

valid the entry is added to the queue. Otherwise the cursor is positioned to the invalid field to allow the user to enter modifications. The following message is displayed upon successful addition of the queue entry:

Queue entry added

Press the return key to acknowledge the message and return to the main queue manager menu.

The abort key may be pressed at any time during this process to cause the Queue Manager to abandon the request and return to the main menu.

DQ - DELETE QUEUE ENTRY

Prompts:

Queue entry field headings
Field prompting under the sequence number heading
Is this the queue entry to be deleted?

Rules:

The entry must exist in the queue file.

Action:

The queue entry field headings are displayed on the screen. Field prompting occurs under the sequence number heading to obtain the number of the queue entry to be deleted. The Tab Right key may be used to display successive queue entries. When the Return key is pressed the next queue entry with a sequence number equal to or greater than the sequence number displayed is read from the queue file and its data displayed under the appropriate field headings. If the queue entry is being served a message is displayed and prompting recurs for another sequence number. This process is repeated until an inactive queue entry is found. The following prompt is then displayed at the bottom of the screen:

Is this the queue entry to be deleted?

A NO response causes the cursor to be positioned to the sequence number field to allow the user to reenter the sequence number or to press the Tab Right key to step to the next entry.

A YES response results in the deletion of the displayed queue entry. The following message is displayed upon the successful deletion of a queue entry:

Queue entry deleted

Press the return key to acknowledge the message and return to the main menu.

The abort key may be pressed at any time during this process to cause the Queue Manager to abandon the request and return to the main menu.

IS - INTERRUPT SERVICE

Prompts:

Server State field headings
Field prompting for server name.
Is this the server to be interrupted?
Override current request?
Enter Interrupt Request
Other prompts depend on interrupt request and are described in the detailed text which follows.

Rules:

The server state entry must exist in the server state file.

Action:

The server state field headings are displayed on the screen. Field prompting occurs under the server name heading to obtain the name of the server to be interrupted. The Tab Right key may be used to display successive server names. When the Return key is pressed the next server name in alphabetical order equal to or greater than the server name displayed is read from the server state file and its data displayed under the appropriate field headings.

If the server name found does not match the server name entered the following prompt is displayed at the bottom of the screen:

Is this the server to be interrupted?

A NO response causes the cursor to be repositioned to the server name field to allow the user to reenter the server name or to press the Tab Right key to step to the next entry.

If a YES response is entered and the server is not active a message is displayed and the cursor is repositioned to the server name field to allow the user to reenter the server name. If the server is active but an interrupt request is already pending (i.e. the current request is not blank) the following prompt is displayed:

Override current request?

A NO response causes the cursor to be repositioned to the server name field to allow the user to reenter the server name or to press the Tab Right key to step to the next entry.

A YES response allows the Queue Manager to continue and replace the pending request with a new request.

If no request is pending for the server the following interrupt menu is displayed:

```
                SERVICE INTERRUPT REQUESTS

     CS  Continue Service      AS  Abort Service
     MS  Move Server           HS  Halt Server
     PS  Pause Server
     RS  Restart Service

   Enter Interrupt Request
```

At this point the Queue Manager is ready to accept the specific interrupt request desired. Requests are entered as the two-character abbreviation of the request (e.g. CS for the Continue Service request). If an invalid request is entered, a message is displayed and prompting recurs.

A valid request results in immediate action or further prompting, depending on the interrupt request. After any required information is obtained, the new request and request argument are displayed under the appropriate headings. If the server state entry is successfully modified the following message is displayed:

```
          Server modified
```

Press the return key to acknowledge the message and return to the main menu.

The abort key may be pressed at any time during this process to cause the Queue Manager to abandon the request and return to the main menu.

The interrupt requests are described on the following pages. They are listed in alphabetical order by interrupt request abbreviation.

AS - Abort Service (Interrupt Service request)

Additional Prompt:
Are you Sure?

Action:
The Abort Service interrupt request is used to stop service of the queue entry currently being printed. The entry is returned to the queue in the suspended state (state code equal S) and the server searches the queue for another entry which qualifies for service.

The prompt "Are you sure?" is displayed to verify the request prior to aborting service. A NO response abandons the request and returns to the main menu.

Note that some printers have internal buffers for print data, thus one or more lines may be printed after the server aborts printing.

The suspended queue entry can subsequently be deleted (see DQ, Delete Queue Entry) or modified (see MQ, Modify Queue Entry). If selected for modification the queue entry is returned to the waiting state (state code equal W) and is eligible for selection by the queue server. Note that no queue entry fields actually need be changed to cause this state change; the modify request need only be completed successfully.

CS - Continue Service (Interrupt Service request)

Additional Prompts:

None

Action:

This request resumes service by a server from the point where service was suspended, whether by the queue server or by a Pause Server request. This request is ignored if the server is not paused.

HS - Halt Server (Interrupt Service request)

Additional Prompt:

Immediately (I), End-of-file (EOF) or End-of-service (EOS)
When?

Action:

The Halt Server interrupt request is used to terminate a specific server. The "When?" prompt is issued to determine when the server should terminate. Prompting recurs until a valid response (I, EOF or EOS) is entered.

Immediately (I) causes the server to return the queue entry it is currently printing to waiting status (state code equal W) and terminate. End-of-file (EOF) causes the server to terminate at the completion of the current copy of the queue entry being served. End-of-server (EOS) causes the server to terminate when no queue entries can be found which are elegible for service.

MS - Move Server (Interrupt Service request)

Additional Prompt:

	BLOCK	NUMBER
Pages (P)	or Records (R)	(+/-) (1-9999)

Action:

This request is used to position the current record pointer for the file currently being printed. The server positions the file forward (+) or backward (-) by the number of pages (P) or records (R) specified.

Field prompting occurs under the headings shown above. Responses are checked for validity and if a response is invalid a message is displayed. Prompting recurs until valid responses are entered.

Note that forward positioning by many pages or records and backward positioning to a position many pages or records into a file will cause printing to stop for some period of time while the file is positioned.

PS - Pause Server (Interrupt Service request)

Additional Prompt:

None

Action:

This request is used to temporarily suspend service. The queue entry remains in the active state (state code equal A) but the server state entry remarks field shows that the server is paused. Printing is suspended until a CS (Continue Service), AS (Abort Service), or HS (Halt Server) request is issued.

Note that some printers have internal buffers for print data, thus one or more lines may be printed after the server suspends printing.

RS - Restart Service (Interrupt Service request)

Additional Prompt:

None

Action:

The Restart Service interrupt request is used to restart service on the current copy of the queue entry, as though the entry had just been selected from the queue. Use the Continue Service (CS) interrupt request to contue printing when the server is paused.

MQ - MODIFY QUEUE ENTRY

Prompts:

Queue entry field headings
Full screen field prompting
Is this the queue entry to be modified?
Screen OK?

Rules:

The entry must exist in the queue file.
The modified fields must be valid as described in Appendix B.

Action:

The queue entry field headings are displayed on the screen. Field prompting occurs under the sequence number heading to obtain the number of the queue entry to be modified. The Tab Right key may be used to display successive queue entries. When the Return key is pressed the next queue entry with a sequence number equal to or greater than the sequence number displayed is read from the queue file and its data displayed under the appropriate field headings. If the queue entry is being served a message is displayed and prompting recurs for another sequence number. This process is repeated until an inactive queue entry is found.

If the sequence number found is not the same as the sequence number entered the following prompt is displayed at the bottom of the screen:

Is this the queue entry to be modified?

A NO response causes the cursor to be positioned to the sequence number field to allow the user to reenter the sequence number or to press the Tab Right key to step to the next entry.

A YES response causes the cursor to be positioned to the first modifiable field on the screen. Full screen prompting then allows the user to modify fields as desired.

Category and priority changes affect the queue entry's order for service. Modification of the qualifier identification affects queue entry selection. Changes to qualifier information affects forms control selection. Repeat count changes modify the number of copies printed for the queue entry. Changes to the tag field affects carriage control format and changes to the disposition field determines whether or not a file is deleted after printing. Appendix B describes the queue entry fields.

When the last modifiable field on the screen has been entered or bypassed by pressing the Send key, verification is requested with the following prompt:

Screen OK?

A NO response causes the cursor to be positioned to the first modifiable field on the screen to allow the user to reenter modifications. Pressing the Tab Left or Up Arrow key positions the cursor to the last modifiable field.

A YES response causes synonyms in the file pathname to be resolved, the expanded pathname to be redisplayed and the modified data to be validated. If the modified data is valid the entry is placed in the waiting state (state code equal W) and is rewritten to the queue file. Otherwise the cursor is positioned to the invalid field to allow the user to reenter modifications. The following message is displayed upon the successful modification of the queue entry:

Queue entry modified

Press the return key to acknowledge the message and return to the main menu.

The abort key may be pressed at any time during this process to cause the Queue Manager to abandon the request and return to the main menu.

MS - MODIFY SERVER

Prompts:

Server State field headings
Full screen field prompting
Is this the queue entry to be modified?
Screen OK?

Rules:

The server state record must exist in the server state file.
Modified fields must be valid as described in Appendix A.

Action:

The server state field headings are displayed on the screen. Field prompting occurs under the server name heading to obtain the name of the server to be modified. The Tab Right key may be used to display successive server names. When the Return key is pressed the next server in alphabetical order that is equal to or greater than the server name displayed is read from the server state file and its data displayed under the appropriate field headings. If the server name found is not the same as the server name entered the following prompt is displayed at the bottom of the screen:

Is this the server to be modified?

A NO response causes the cursor to be positioned to the server name field to allow the user to reenter the server name or to press the Tab Right key to step to the next entry.

A YES response causes the cursor to be positioned to the first modifiable field on the screen. Full screen prompting then allows the user to modify fields as desired.

Attention station changes determine the primary and secondary stations used to notify the operator of exception conditions. Modification of the category cutoff affects the upper category limit for queue entry service selection as does modification of the priority cutoff. Changes to the qualifier affects queue entry selection.

When the last modifiable field on the screen has been entered or bypassed by pressing the Send key, verification is requested with the following prompt:

Screen OK?

A NO response causes the cursor to be positioned to the first modifiable field on the screen to allow the user to reenter modifications. Pressing the Tab Left or Up Arrow key positions the cursor to the last modifiable field.

A YES response causes the server state entry to be validated. If the modified data is valid the entry is rewritten to the server state file. The following message is displayed upon successful server entry modification:

Server modified

Press the return key to acknowledge the message and return to the main menu.

The abort key may be pressed at any time during this process to cause the Queue Manager to abandon the request and return to the main menu.

PQ - PRINT QUEUE

Prompts:

Extend (E) or Replace (R) print file?

Rules:

None

Action:

If the queue is empty, the following message is displayed:

Queue File empty

Press the return key to acknowledge the message and return to the main menu.

If the queue is not empty the following prompt is displayed:

Extend (E) or Replace (R) print file?

An E response causes a report of the current queue status to be added to the end of any previous reports written to logical file name LO (logical file name LO is assigned by the .SPOOLER.JDL.QMANAGER batch stream).

An R response causes the report to replace any previous reports written to logical file name LO.

The report generated is similar to the report displayed by the Show Queue (SQ) request (see figure 2.1). The following message is displayed on completion of the report:

Report printed

Press the return key to acknowledge the message and return to the main menu.

When the Queue Manager completes (see the Quit request), the .SPOOLER.JDL.QMANAGER batch stream displays the following prompt if any printed reports were generated:

Pathname for listing file:

Enter a valid pathname to a file that doesn't currently exist on the system disk. This file is created, the scratch file containing the reports REPLACEs it, and it is queued for printing with a blank qualifier.

PS - PRINT SERVERS

Prompts:

Extend (E) or Replace (R) print file?

Rules:

None

Action:

If no servers are defined for the queue, the following message is displayed:

Server State File empty

Press the return key to acknowledge the message and return to the main menu.

If servers are defined the following prompt is displayed:

Extend (E) or Replace (R) print file?

An E response will cause a report of the current server states to be added to the end of any previous reports written to logical file name LO (logical file name LO is assigned by the .SPOOLER.JDL.QMANAGER batch stream).

An R response will cause the report to replace any previous reports written to logical file name LO.

The report generated is similar to the report displayed by the Show Servers (SS) request (see figure 2.2). The following message is displayed on completion of the report:

Report printed

Press the return key to acknowledge the message and return to the main menu.

When the Queue Manager completes (see the Quit request), the .SPOOLER.JDL.QMANAGER batch stream displays the following prompt if any printed reports were generated:

Pathname for listing file:

Enter a valid pathname to a file that doesn't currently exist on the system disk. This file is created, the scratch file containing the reports REPLACEs it, and it is queued for printing with a blank qualifier.

Q - QUIT

Prompt:
None

Rules:
None

Action:
The Queue Manager terminates.

SQ - SHOW QUEUE

Prompts:

None

Rules:

None

Action:

The queue status is displayed on the screen. Entries are displayed under headings as shown in Figure 2.1. The screen can show from three to nine entries at a time, depending on the length of the longest variable length field. The display pauses when there are not enough lines remaining on the screen to show the next entry. Press the return key to show the next group of queue entries or press the abort key to return to the main menu.

The following message is displayed after all entries have been shown:

Show Queue complete

Press the return key to acknowledge the message and return to the main menu.

```
          YY/MM/DD - HH:MM:SS.CC    SHOW QUEUE    ee ENTRIES

Seq  C P  Date  S Qual ID   Access Name Rep Rep  User  T D Frst Last Rstr
Num  A R  Time  T     Info              1   2    Text  A I Page Page Page
     T I        A                                     G S

nnnn c p yymmdd s qqqqqqqq  aaaa...aaaa 111 222 uuuuuu t d ffff llll rrrr
         hhmmss   qqqq...qq aaaa...aaaa         uuuuuu
                  qqqq...qq aaaa...aaaa         uuuuuu
                  qqqq...qq aaaa...aaaa         uuuuuu
                  qqqq...qq aaaa...aaaa         uuuuuu
```

Where:

YYMMDD - the date at the start of the Show Queue request

HHMMSSCC- the time at the start of the Show Queue request

ee - the number of entries in the queue at the start of the Show Queue request

Appendix B describes the following queue entry fields.

nnnn - sequence number
c - category
p - priority
yymmdd - date
hhmmss - time
s - state
qqq... - qualifier (first line) and qualifier information (second through fifth lines)
aaa... - access name
111 - repeat count 1
222 - repeat count 2
uuu... - user text
t - slewing control tag
d - delete disposition
ffff - first page
llll - last page
rrrr - restart page

Show Queue format
Figure 2.1

SS - SHOW SERVERS

Prompts:

None

Rules:

None

Action:

The server status is displayed on the screen. Entries are displayed under headings as shown in Figure 2.2. The screen can show from six to eighteen entries at a time depending on the length of the longest variable length field. The display pauses when there are not enough lines remaining on the screen to show the next entry. Press the Return key to show the status of the next group of server entries or press the abort key to return to the main menu.

The following message is displayed after all records have been shown:

Show Servers complete

Press the return key to acknowledge the message and return to the main menu.

```
        YY/MM/DD - HH:MM:SS:CC      SHOW SERVERS

Server    Queue     ------ Current -------- Cutoffs Qualifier Attn Remarks
 Name     Name      Request  Seq  Dev  Ptn Cat Pri             Stns

ssssssss qqqqqqqq ff aaaaa ssss dddd ttt  c   p  iiiiiiii 11 22 rrr...rr
                                                               rrr...rr
                                                               rrr...rr
```

Where:

YYMMDD - the date of the start of the Show Servers request

HHMMSSCC- the time of the start of the Show Servers request

Appendix A describes the following server state entry fields.

ssssssss- server name
qqqqqqqq- queue name
ff - pending interrupt request
aaaaa - pending interrupt request argument
ssss - sequence
dddd - server device
ttt - server partition
c - category cutoff
p - priority cutoff
iiiiiiii- qualifier
11 - attention station 1
22 - attention station 2
rrr... - remarks

Show Servers format
Figure 2.2

TS - TERMINATE ALL SERVERS

Prompts:

Immediately (I), End-of-file (EOF) or End-of-Service (EOS)
When?
Override current request?

Rules:

None

Action:

The Terminate All Servers request is used to terminate all servers that are serving the queue. The "When?" prompt is displayed to determine when the servers should terminate. Prompting recurs until a valid response (I, EOF or EOS) is entered.

Immediately (I) causes the servers to return the queue entries they are currently serving to waiting status (state code equal W) and terminate. End-of-file (EOF) causes the servers to terminate at the completion of the current copy of the queue entries being printed. End-of-service (EOS) causes the servers to terminate when no queue entries can be found which are elegible for service.

For each server the following process occurs:

If an interrupt request is already pending (i.e. current request for that server is not equal spaces), the server name and the following prompt are displayed:

Override current request?

A NO response indicates the server is not to be terminated by the TS request. Otherwise the server is issued a Halt Server request with an argument appropriate for the response to the "When?" prompt.

After all servers for the queue are processed as described above the following message is displayed:

Command Complete

Press the return key to acknowledge the message and return to the main menu.

CHAPTER 4

PRINT CONTROL STRING EDITOR

PRINT CONTROL STRING EDITOR OVERVIEW

The Print Control String Editor (PCS Editor) is an interactive COBOL program used to add, modify, and delete print control keywords in the print control file .SPOOLER.PRINTSP.

A batch stream with the name .SPOOLER.JDL.PCSEDIT is provided to invoke the PCS Editor program.

Prompting

The PCS Editor uses two types of prompting: interactive response prompting and full screen field prompting.

Interactive response prompts appear on the bottom of the screen or under a key screen heading. Responses are checked for validity and prompting recurs until a valid response or the abort key (see below) is entered.

Full screen field input prompts appear under the screen headings which identify the modifiable fields of a record. This type of prompting is used to obtain data necessary to add or modify entries. All of the function keys described below may be used to move the cursor from field to field and to enter responses. Field input is checked for validity. If the response is valid the cursor is positioned to the next modifiable field on the screen. If the field is not valid a message is displayed at the bottom of the screen and prompting recurs until valid input is entered, the abort key is pressed, or the field is blanked and the Send, Home, Up Arrow or Tab Left key is entered.

Function Keys

The PCS Editor makes use of several function keys for display and data entry purposes. Because RM/COS supports several keyboards, the following key names may not match the actual keycap mnemonics of your keyboard. The key names are related to the actual keycap mnemonics of the various supported keyboards in your RM/COS Terminal Guide.

The following function keys may be used to direct data input for all command:

Key Name	Action
Return or Erase Right	The field is accepted and validated. If the field is not required or the field is required and valid, the cursor is moved to the first character of the next modifiable field. Otherwise, a diagnostic message is displayed at the bottom of the screen; when the operator presses the Return key to acknowledge the message the cursor is positioned to the first character of the field to allow reentry.
Home	If the current field is blank, the cursor is moved to the first character of the first modifiable field on the screen. Otherwise it is validated as for the Return key and if valid then the cursor is moved to the first character of the first modifiable field on the screen.
Up Arrow or Tab Left	If the current field is blank, the cursor is moved to the first character of the previous modifiable field. Otherwise it is validated as for the Return key and if valid then the cursor is moved to the first character of the previous modifiable field. If the current field is the first modifiable field on the screen, the cursor is not moved.
Send	If the current field is blank, the current value is left unmodified and entry of the remaining fields is skipped. Otherwise it is validated as for the Return key and if valid entry of the remaining fields is skipped.

An abort key is provided as a means of terminating the current request. It may be used at any time during the execution of the PCS Editor by pressing the abort key in response to any prompt.

Key Name	Action
Command or Delete Line	Terminate the current request and return to the main menu.

Error messages are displayed on the bottom line of the screen. Acknowledge error messages by pressing the Return key.

Character Strings

Add Keyword and Modify String both involve editing the "characters" of the string field. The following rules apply for entering the value of a character:

(1) A single printable character (i.e. those characters in the range hex 21 thru hex 7E), whether left- or right-justified, is accepted as a literal character.

(2) Two character mnemonics for the ASCII graphics characters (ANSI X3.23-1973) are translated into those characters (i.e. hex 00 thru hex 20, and hex 7F). See Table 3.1 for these mnemonics.

(3) Two character hexadecimal numbers are translated as a single character.

(4) Any entry which does not qualify under rules (1),(2) or (3) is not accepted.

"Characters" are initially displayed according to rules 1 and 2 above. The Toggle Display Mode command causes the value of the "characters" to alternately be displayed as hexadecimal numbers or encoded according to rules 1 and 2 above.

"Characters" may be deleted from within the string by positioning the cursor on the "character" to be deleted and pressing the Function 1 key.

Entering a "character" of spaces at the end of the string terminates input of the string.

ANSI X3.23 2-Character Mnemonic	ANSI X3.4 Mnemonic	Hexadecimal Representation
NU	NUL	00
SH	SOH	01
SX	STX	02
EX	ETX	03
ET	EOT	04
EQ	ENQ	05
AK	ACK	06
BL	BEL	07
BS	BS	08
HT	HT	09
LF	LF	0A
VT	VT	0B
FF	FF	0C
CR	CR	0D
SO	SO	0E
SI	SI	0F
DL	DLE	10
D1	DC1	11
D2	DC2	12
D3	DC3	13
D4	DC4	14
NK	NAK	15
SY	SYN	16
EB	ETB	17
CN	CAN	18
EM	EM	19
SB	SUB	1A
EC	ESC	1B
FS	FS	1C
GS	GS	1D
RS	RS	1E
US	US	1F
SP	SP	20
DT	DEL	7F

Table 3.1

Mnemonics used for ASCII graphics characters

Reserved Keywords

Twelve keywords are reserved for print control as follows:

ALIGN0	ALIGN3	ALIGN6	ALIGN9
ALIGN1	ALIGN4	ALIGN7	NOBANNER
ALIGN2	ALIGN5	ALIGN8	SSF

The ALIGNn (ALIGN0, ALIGN1, ..., ALIGN9) keywords are used for page alignment, where n is the number of alignment pages to print.

The NOBANNER keyword is used to suppress the identification banner which normally precedes each file printed.

The SSF keyword is used to specify single sheet feed as opposed to the default, continuous forms.

PRINT CONTROL STRING EDITOR WALKTHROUGH

After entering the BATCH JDL command using the pathname .SPOOLER.JDL.PCSEDIT, the main menu is displayed, as follows:

```
                PRINTER CONTROL STRING EDIT

A           Add Keyword
D           Delete Keyword
M           Modify String
Q           Quit
T           Toggle Display Mode

Enter Command:
```

The PCS Editor is now ready to accept commands. A request is entered by typing the one-character abbreviation of the desired command and pressing the Return key.

If an invalid command is entered, a message is displayed and prompting recurs until a valid request is entered.

The PCS Editor commands are described on the following pages. Each description is a "walkthrough" of the command which includes prompts and messages, rules governing input and actions taken. The commands are listed in alphabetical order by command abbreviation.

A - ADD KEYWORD

Prompts:

Server Name:
Keyword:
String:

Rules:

At least one string "character" must be entered.

Action:

The print control record field prompts are displayed. Field prompting occurs until all the required fields are entered. Screen verification is requested on completion with the following prompt:

Screen OK?

A NO response causes the cursor to be positioned to the server name field. A Tab Left or Up Arrow key positions the cursor to the last string "character" field.

A YES response causes the string field to be validated. If it is empty an error message is displayed. When the message is acknowledged by pressing the Return key, the cursor is positioned on the server name field for reentry of the print control string entry.

If all the string "characters" are valid, the entry is added to the file and the message "Entry added" is displayed. Press the return key to acknowledge the message and return to the PCS Editor main menu.

The abort key may be pressed at any time during this process to cause the PCS Editor to abandon the request and return to the main menu.

D - Delete Keyword

Prompts:

Server Name:
Keyword:
String:

Rules:

None

Action:

The prompts are displayed. Field prompting occurs for the server name. The Tab Right key may be pressed to display successive server names in alphabetical order. When the Return key is pressed the next server name in alphabetical order equal to or greater than the displayed server name is read from the print control string file. If the server name read does not match the server name entered the following prompt is displayed:

Is this the correct Server?

A NO response causes the cursor to be positioned to the server name field to allow the user to reenter the server name or to press the Tab Right key to step to the next entry.

A YES response causes the cursor to be positioned to the keyword field just as when the server name entered exactly matches the actual server name found.

Field prompting continues for the keyword. The Tab Right key may be pressed to display successive keywords for this server in alphabetical order. When the Return key is pressed the keyword in alphabetical order equal to or greater than the displayed keyword is read from the print control string file and its string displayed. Verification is requested with the following prompt:

Is this the entry to be deleted?

A NO response causes the cursor to be positioned to the server name field to allow the user to reenter the server name and keyword or to press the Tab Right key to step to the next entry.

A YES response causes the displayed print control string to be deleted and the message "Entry deleted" to be displayed. Press the Return key to acknowledge the message and return to the main menu.

The abort key may be pressed at any time during this process to cause the PCS Editor to abandon the request and return to the main menu.

M - Modify String

Prompts:

Server Name:
Keyword:
String:

Rules:

At least one character must remain in the string.

Action:

The prompts are displayed. Field prompting occurs for the server name. The Tab Right key may be pressed to display successive server names in alphabetical order. When the Return key is pressed the next server name in alphabetical order equal to or greater than the displayed server name is read from the print control string file. If the server name read does not match the server name entered the following prompt is displayed:

Is this the correct Server?

A NO response causes the cursor to be positioned to the server name field to allow the user to reenter the server name or to press the Tab Right key to step to the next entry.

A YES response causes the cursor to be positioned to the keyword field just as when the server name entered matches the actual server name found.

Field prompting continues with the keyword. The Tab Right key may be pressed to display successive keywords for this server in alphabetical order. When the Return key is pressed the keyword in alphabetical order equal to or greater than the displayed keyword is read from the print control string file and its string displayed. If the keyword read does not match the keyword entered the following prompt is displayed:

Is this the entry to be modified?

A NO response causes the cursor to be positioned to the server name field to allow the user to reenter the server name and keyword. or to press the Tab Right key to step to the next entry.

A YES response causes the cursor to be positioned to the first "character" of the string field to allow the user to modify the contents of the string field. Note that a "character" may be deleted by pressing the Function 1 key while the cursor is positioned on the "character".

String modification is terminated by entering a blank "character" at the end of the string or by pressing the Send key. Verification is requested with the following prompt:

Screen OK?

A NO response causes the cursor to be placed on the first "character" field of the string to allow further modification. Pressing the Tab Left or Up Arrow key positions the cursor to the last "character" field of the string.

A YES response causes the string to be validated. If it is empty an error message is displayed. Acknowledge the message by pressing the Return key. The cursor is then positioned to the first "character" field of the string for entry of string "characters".

If the string is valid, it is rewritten to the file and the message "Entry modified" is displayed. Press the Return key to acknowledge the message and return to the main menu.

The abort key may be pressed at any time during this process to cause the PCS Editor to abandon the request and return to the main menu.

Q - Quit

Prompts:
None

Rules:
None

Action:
The PCS Editor terminates.

T - Toggle Display Mode

Prompts:

None

Rules:

None

Action:

The mode for displaying "characters" in strings is changed to hexadecimal from encoded, or vice versa.

APPENDIX A

SERVER STATE ENTRY FIELDS

The fields described in the following paragraphs comprise an entry in the server state file. After the name of each field are indications of the source of the field's data, system or user, and the format or acceptable values that data may take. Fields supplied by the system may not be modified by the user. Literal values separated by a hyphen (-) indicate an inclusive range of values whereas comma separated items describe an exclusive list of allowed values.

Server Name (user: 8 characters)

A nonblank name that uniquely identifies a server. This name must syntactically qualify as an RM/COS file name.

Queue Name (user: 8 characters)

A nonblank name that uniquely identifies a queue. This name must syntactically qualify as an RM/COS file name. As installed, the Print Queue Subsystem assumes the name PRINT.

Interrupt Request (system: AS, CS, HS, MP, MR, PS, RS, spaces)

The pending Queue Manager request to the server (see Chapter 3, Queue Manager, Interrupt Service request):

AS = Abort Service
CS = Continue Service
HS = Halt Server
MP = Move Pages
MR = Move Records
PS = Pause Server
RS = Restart Service
space = no pending request

Interrupt Request Argument (system: 4 digits with trailing sign, spaces)

The argument for certain Queue Manager requests to the server:

Halt Server

0000+ = halt immediately
0001+ = halt at end-of-file
0002+ = halt at end-of-service

Move Pages

nnnn+ = number of pages to move forward in the print file
nnnn- = number of pages to move backward in the print file

Move Records
nnnn+ = number of records to move forward in the print file
nnnn- = number of records to move backward in the print file

Current Sequence (system: 0000-9999)
The sequence number of the queue entry being served by the server. This field is zero (displayed as blank) if the server is not currently servicing a queue entry.

Current Device (user: 4 characters)
The device name of the device controlled by the server. This name must be a valid device name as defined by RM/COS and the device must be configured in the system. Only LPxx type devices are meaningful for the Print Queue Subsystem.

Current Partition (user: 000, 101-199)
The partition number in which the server is executing or zero (displayed as blank) when the server is inactive. The partition is specified as part of the JDL BATCH command when print service is initiated, usually at system initialization.

Attention Station 1 (user: 00-99)
The station number of the station at which it is preferred to receive messages from the server in the event of exception conditions. The station must be configured and logged-in to receive such messages. The server cannot display exception messages when this field is zero (displayed as blank).

Attention Station 2 (user: 00-99)
The station number of the alternate station that is to receive messages from the server in the event of exception conditions. The station must be configured and logged-in to receive such messages. The server cannot display exception messages when this field is zero (displayed as blank) and Attention Station 1 is not logged-in.

Category Cutoff (user: 0-9)
The upper limit of the categories served by the server. Queue entries in categories greater than this number are not eligible for service by this server.

Priority Cutoff (user: 0-9)
The upper limit of the priorities served by the server. Queue entries with a priority greater than this number are not eligible for service by this server.

Qualifier (user: 8 characters)

A factor in determining a queue entry's eligibility for service. The queue entry qualifier must exactly match this string before the entry is eligible for service by the server.

Remarks (system: 40 characters)

Text describing the current state of the server (i.e. Paused for Single Sheet Feed) or blank when the server is active and not requiring attention.

APPENDIX B

QUEUE ENTRY FIELDS

The fields described in the following paragraphs comprise an entry in the print queue. After the name of each field are indications of the source of the field's data, system or user, and the format or acceptable values that data may take. Fields supplied by the system may not be modified by the user. Literal values separated by a hyphen (-) indicate an inclusive range of values whereas comma separated items describe an exclusive list of allowed values.

Sequence (system: 0001-9999)
: A reference number that uniquely identifies a queue entry.

Category (user: 0-9)
: The primary criterion for determining relative position in the queue. When evaluated as a two-digit number, the category and priority establish a relative position in the queue for selection of a queue entry.

  Also a factor in determining eligibility for service. A queue entry having a category greater than the category cutoff of a given server is not eligible for selection by that server.

Priority (user: 0-9)
: The secondary criterion for determining relative position in the queue. When evaluated as a two-digit number, the category and priority establish a relative position in the queue for selection of a queue entry.

  Also a factor in determining eligibility for service. A queue entry having a priority greater than the priority cutoff of a given server is not eligible for selection by that server.

Date (system: YYMMDD)
: The date (year, month, and day) the queue entry was added to the queue.

Time (system: HHMMSSCC)
: The time (hour, minute, second, and centisecond) the queue entry was added to the queue.

State (system: A, E, R, S, W)
: The current status of the queue entry:
  - A = Active; being served by a server
  - E = Error; the server encountered an error while serving the entry
  - R = Reserved; selected for service
  - S = Suspended; removed from active service
  - W = Waiting; queued pending selection for service

Qualifier (user: 8 characters)
A factor in determining eligibility for service. This string must exactly match the corresponding string in a server's state entry in order to qualify for service by the server.

Qualifier Information (user: 30 characters)
A comma separated list of one- to eight-character keywords which are used for forms control and printer initialization (see Chapter 4, the Print Control String Editor).

Access Name (user: 80 characters)
The pathname of the file to be printed. Synonyms embedded in the pathname are resolved and the pathname is validated for correct syntax as defined by RM/COS.

Repeat Count 1 (user: 001-999)
The number of times the file is to be printed.

Repeat Count 2 (system: 000-999)
The number of times the file has been printed.

User Text (user: 30 characters)
Optional commentary for queue entry identification, etc. This field appears on queue status reports (see Show Queue and Print Queue in Chapter 3, Queue Manager) and on the banner page (see Appendix C, Banner Page Format).

Slewing Control Tag (user: A, C, space)
The type of carriage control interpretation to be used by the server when printing the file:

A = ANSI, i.e. the first character in each record of the file is to be deleted and interpreted to cause slewing as follows:

+ = zero lines
space = one line
0 = two lines
1 = top of page
all others = one line

C = ASCII control characters are embedded in each record of the file for transmission to the printer to perform slewing.

space = (SPOOL type file) slewing information is associated with each record of the file.

space = (nonSPOOL type file) a single line feed is appended to each record.

Delete Disposition (user: D, space)
A flag indicating whether or not the file is to be deleted after all requested copies have been printed:

D = delete file
space = don't delete file

First Page (user: 0000-9999)

The page number at which to begin printing the file. Either a zero or one indicates printing from the beginning of the file.

Last Page (user: 0000-9999)

The page number after which to stop printing the file. Zero indicates printing to end-of-file.

Restart Page (system: 0000-9999)

The page number of page being printed. May be zero or one during banner and alignment page printing. Files without carriage control are considered to have only one page since pages are delimited by top-of-form controls.

APPENDIX C

PRINT BANNER FORMAT

A banner page is printed as a preamble to each queue entry to aid in identification and to act as a visual separator. The banner page is suppressed when forms alignment (ALIGNn), single sheet feed (SSF), or banner suppression (NOBANNER) keywords are specified for a queue entry (see Chapter 4, Print Control String Editor, for details regarding PCS keywords).

The format of the banner page is simple: three bars of print, each separated by six blank lines. Each bar consists of twelve identical lines. The information in each line is repeated, if neccessary, with four spaces seperating each repetition, to fill the page width assumed from the file's logical record length. Since trailing spaces are removed before repetition no space is reserved for blank trailing fields. Blank intermediate fields, however, are printed as blank areas within the line.

The first print bar is the file pathname specified by the queue entry. This is the name most recognizable to the user in identifying the printed file.

The second print bar is of the following format:

```
YY/MM/DD HH:MM:SS.CC UUUU...UUUU
```

Where:

YY/MM/DD =	the date (year/month/day) that the entry was added to the queue.
HH:MM:SS.CC =	the time (hour:minute:second.centi-second) that the entry was added to the queue.
UUUU...UUUU =	the user text from the queue entry. This field could be used to aid in the distribution of the printed material to the proper person.

The third print bar contains operator information in the following format (Appendix B describes queue entry fields):

```
SSSS NNN RRRRRRRR CP TD QQQQQQQQ IIII...IIII
```

Where:

SSSS =	the sequence number of the queue entry.
NNN =	the number of copies to be printed.
RRRRRRRR =	the number of records in the file.
C =	the category of the queue entry.
P =	the priority of the queue entry.
T =	the slewing control tag in the queue entry.
D =	the delete disposition of the file.
QQQQQQQQ =	the qualifier of the queue entry.
IIIII... =	the qualifier information in the queue entry.

APPENDIX D

JDL BATCH STREAMS

Introduction

The JDL batch streams listed in this section are provided as a means of integrating the various parts of the print queue subsystem and providing a first level user interface. As installed, these batch streams reside in the directory .SPOOLER.JDL, but the installation of the subsystem may be modified to suit individual needs. Note, however, that the QPRINT JDL command uses only the queue file .SPOOLER.QFILE.PRINT.

Extensive use of synonyms characterizes this interface: two hundred bytes of available synonym table space, the system synonym $PART, and a privilege level sufficient to access the files to be printed are required of the user login that initiates print queue service. Somewhat less synonym space is required to use most of the other services such as the Queue Manager. The queue server must be executed in a (nonterminal) partition with 20,000 bytes allocated to it (assuming a 200 byte synonym table).

Each batch stream begins by assigning synonyms for the control and data directories in which the subsystem is installed. As shipped, these directories are one and the same, but may be split into separate directories, even on separate disks, by editing these files to make the corresponding synonymn assignments appropriately or by assigning those synonyms prior to execution of these batch streams.

Adding servers to control additional printers also requires editing the QSTART batch stream to initiate the additional servers. This is done by adding the appropriate server name synonym assignments and BATCHing the QSTART1 batch stream in each server's partition. The QSTART batch stream provided assumes the server name PRINTER1.

Print Control String Editor Batch Stream

The Print Control String Editor is invoked by the following batch stream which is located in file .SPOOLER.JDL.PCSEDIT.

```
/SYNONYM, SYNONYM=SP$D, VALUE=.SPOOLER
/SYNONYM, SYNONYM=SP$C, VALUE=.SPOOLER
/ASSIGN,  LOGICAL=PCSFILE, NAME=@SP$C.PRINTSP, ACCESS=EW
/ASSIGN,  LOGICAL=PROGRAM, NAME=@SP$C.PROGFILE.PCSEDIT, ACCESS=RO
/ASSIGN,  LOGICAL=C$SUBS, NAME=.C$SUBS, ACCESS=RO
/EXECUTE, PROGRAM=PCSEDIT
!  /<NE>RELEASE, LOGICAL=<PCSFILE,PROGRAM,C$SUBS>
!  /SYNONYM, SYNONYM=SP$D
!  /SYNONYM, SYNONYM=SP$C
```

Print Server Batch Streams

Five batch streams are used to control Print Queue Servers. The first batch stream, QSTART, is simply a driver for QSTART1 and is intended to be called during processing of the .TIME batch stream during system initialization. The next two, QSTART1 and QSERVER, perform the same function, namely, starting queue service. QSTART1 assumes all parameters and forces a queue cleanup. QSERVER prompts for the parameters and assumes valid queue and server state files. It is intended for use in restarting print queue service after its normal termination, especially when it is desired to extend the queue service message file rather than deleting all previous server messages. Each starts print queue service when it UNCOUPLEs from the initiating partition and CHAINs to the QSERVER1 batch stream, which executes the QSERVER1 run unit. When QSERVER1 finds work to do, it causes the QSERVER1 batch stream to CHAIN to the QSERVER2 batch stream, which executes the QSERVER2 run unit. Upon normal termination of QSERVER2, the QSERVER2 batch stream CHAINs back to the QSERVER1 batch stream to search for more work.

The QSTART batch stream is located in file .SPOOLER.JDL.QSTART.

```
    /SYNONYM, SYNONYM=SP$D, VALUE=.SPOOLER
    /SYNONYM, SYNONYM=SP$C, VALUE=.SPOOLER
;
; Initiate additional servers by duplicating the next two commands,
; removing the semicolon, and filling in the indicated values
;   /SYNONYM, SYNONYM=Q$SERVER, VALUE=server name
;   /BATCH, NAME=@SP$C.JDL.QSTART1, PARTITION=partition number
;
    /SYNONYM, SYNONYM=Q$SERVER, VALUE=PRINTER1
    /BATCH, NAME=@SP$C.JDL.QSTART1, PARTITION=102
```

The QSTART1 batch stream is located in file .SPOOLER.JDL.QSTART1.

```
    /SYNONYM, SYNONYM=Q$QUEUE, VALUE=PRINT
    /SYNONYM, SYNONYM=Q$DEVICE, VALUE=LP01
    /SYNONYM, SYNONYM=Q$HALT,   VALUE=NODUMMY
    /SYNONYM, SYNONYM=Q$DELETE, VALUE=NODUMMY
    /SYNONYM, SYNONYM=PRACCESS, VALUE=
         "56 CHARACTERS + ODUMMY + ODUMMY = 68 CHARACTER FILE NAME"
Z   /MESSAGE, TEXT="Inadequate synonym table. Print queue NOT started",
         STATION=0
Z   /EXIT
    /<NE,NL>RECLOSE, NAME=@SP$D.QFILE.@Q$QUEUE
Z   /SETCOND
    /<NE,NL>RECLOSE, NAME=@SP$D.SRVSTATE
Z   /SETCOND
    /<NE>DELETE, NAME=@SP$D.MESSAGE.@Q$SERVER
Z   /SETCOND
    /CREATE, LOGICAL=LO, NAME=@SP$D.MESSAGE.@Q$SERVER,
         ALLOCATION=1, SECONDARY=1, PRIVILEGE=0, TYPE=COMPRESS
    /ASSIGN, LOGICAL=QFILE, NAME=@SP$D.QFILE.@Q$QUEUE, ACCESS=SH
    /ASSIGN, LOGICAL=LPFILE, NAME=@Q$DEVICE, ACCESS=EA
    /ASSIGN, LOGICAL=SRVSTATE, NAME=@SP$D.SRVSTATE, ACCESS=SH
    /ASSIGN, LOGICAL=OUTPUTSP, NAME=@SP$C.PRINTSP, ACCESS=RO
    /ASSIGN, LOGICAL=PROGRAMS, NAME=@SP$C.PROGFILE.QSERVERS, ACCESS=RO
    /ASSIGN, LOGICAL=C$SUBS, NAME=.C$SUBS, ACCESS=RO
    /EXECUTE, PROGRAM=QCLEANUP
    /UNCOUPLE
    /CHAIN, NAME=@SP$C.JDL.QSERVER1
```

The QSERVER batch stream is located in file .SPOOLER.JDL.QSERVER.

```
     /SYNONYM, SYNONYM=SP$D, VALUE=.SPOOLER
     /SYNONYM, SYNONYM=SP$C, VALUE=.SPOOLER
     /SYNONYM, SYNONYM=Q$QUEUE, VALUE=PRINT
     /SYNONYM, SYNONYM=Q$SERVER, VALUE=PRINTER1
     /ASSIGN, LOGICAL=QFILE, NAME=@SP$D.QFILE.@Q$QUEUE, ACCESS=SH
Z    /EXIT
     /LOOP
Y    /SETCOND
     /SYNONYM, SYNONYM=Q$SERVER, VALUE("Server Name")=(@Q$SERVER)
     /SETCOND, VALUE("Restart message file? (Y/N)")=(Y)
Y    /<NE>DELETE, NAME=@SP$D.MESSAGE.@Q$SERVER
Z    /SETCOND, VALUE=Y
Y    /CR, LOGICAL=LO, NAME=@SP$D.MESSAGE.@Q$SERVER,
          ALLOCATION=1, SECONDARY=1, PRIVILEGE=0, TYPE=COMPRESS
N    /ASSIGN, LOGICAL=LO, NAME=@SP$D.MESSAGE.@Q$SERVER, ACCESS=EW
YN   /SETCOND
Z    /SETCOND, VALUE("Invalid Server Name. Retry? (Y/N)")=(Y)
Y    /REPEAT
NZ   /EXIT
     /LOOP
Y    /SETCOND
     /SYNONYM, SYNONYM=Q$DEVICE, VALUE("Device Name")=(LP01)
     /ASSIGN, LOGICAL=LPFILE, NAME=@Q$DEVICE, ACCESS=EA
Z    /SETCOND, VALUE("Invalid Device. Retry? (Y/N)")=(Y)
Y    /REPEAT
NZ   /EXIT
     /SYNONYM, SYNONYM=Q$HALT,    VALUE=NODUMMY
     /SYNONYM, SYNONYM=Q$DELETE, VALUE=NODUMMY
     /SYNONYM, SYNONYM=PRACCESS, VALUE=
          "56 CHARACTERS + ODUMMY + ODUMMY = 68 CHARACTER FILE NAME"
Z    /MESSAGE, TEXT="Inadequate synonym table. Print queue NOT started",
          STATION=O
Z    /EXIT
     /UNCOUPLE
     /ASSIGN, LOGICAL=SRVSTATE, NAME=@SP$D.SRVSTATE, ACCESS=SH
     /ASSIGN, LOGICAL=OUTPUTSP, NAME=@SP$C.PRINTSP, ACCESS=RO
     /ASSIGN, LOGICAL=PROGRAMS, NAME=@SP$C.PROGFILE.QSERVERS, ACCESS=RO
     /ASSIGN, LOGICAL=C$SUBS,    NAME=.C$SUBS, ACCESS=RO
     /CHAIN,  NAME=@SP$C.JDL.QSERVER1
```

The batch stream for the QSERVER1 run unit is located in file .SPOOLER.JDL.QSERVER1.

```
!       /SETCOND
        /REPOINT
************************ QSERVER1 Batch Stream ***************************
        /LOOP
!       /<NE>SYNONYM, SYNONYM=PRACCESS
!       /SETCOND
        /EXECUTE, PROGRAM=QSERVER1
Z       /QUIT
        /REPEAT
!       /SETCOND
        /<NE>ASSIGN, LOGICAL=PRACCESS, NAME=@PRACCESS, ACCESS=RC
        /CHAIN, NAME=@SP$C.JDL.QSERVER2
!       /SETCOND
        /EXECUTE, PROGRAM=QRESTORE
!       /<NE>RELEASE, LOGICAL=PRACCESS
!       /REPEAT
```

The batch stream for the QSERVER2 run unit is located in file .SPOOLER.JDL.QSERVER2.

```
********************** QSERVER2 Batch Stream **********************
        /SYNONYM, SYNONYM=Q$HALT, VALUE=N
        /SYNONYM, SYNONYM=Q$DELETE, VALUE=N
        /EXECUTE, PROGRAM=QSERVER2
Z       /SYNONYM, SYNONYM=Q$HALT, VALUE=Y
!       /<NE>RELEASE, LOGICAL=PRACCESS
!       /SETCOND, VALUE=QQ$DELETE
Y       /<NE>DELETE, NAME=@PRACCESS
!       /SETCOND, VALUE=QQ$HALT
#Y      /CHAIN, NAME=@SP$C.JDL.QSERVER1
!       /RELEASE
```

Queue Cleanup Batch Stream

The queue cleanup batch stream is located in file .SPOOLER.JDL.QCLEANUP.

```
/SYNONYM, SYNONYM=SP$D, VALUE=.SPOOLER
/SYNONYM, SYNONYM=SP$C, VALUE=.SPOOLER
/SYNONYM, SYNONYM=Q$QUEUE, VALUE=PRINT
/ASSIGN, LOGICAL=QFILE, NAME=@SP$D.QFILE.@Q$QUEUE, ACCESS=EA
/ASSIGN, LOGICAL=SRVSTATE, NAME=@SP$D.SRVSTATE, ACCESS=EA
/ASSIGN, LOGICAL=PROGRAM, NAME=@SP$C.PROGFILE.QSERVERS, ACCESS=RO
/ASSIGN, LOGICAL=C$SUBS, NAME=.C$SUBS, ACCESS=RO
/EXECUTE, PROGRAM=QCLEANUP
!   /<NE>RELEASE, LOGICAL=<QFILE,SRVSTATE,PROGRAM,C$SUBS>
!   /SYNONYM, SYNONYM=SP$D
!   /SYNONYM, SYNONYM=SP$C
!   /SYNONYM, SYNONYM=Q$QUEUE
```

Queue Manager Batch Stream

The Queue Manager is invoked by the batch stream located in file .SPOOLER.JDL.QMANAGER.

```
      /SYNONYM, SYNONYM=SP$D, VALUE=.SPOOLER
      /SYNONYM, SYNONYM=SP$C, VALUE=.SPOOLER
      /SYNONYM, SYNONYM=Q$QUEUE, VALUE=PRINT
      /SYNONYM, SYNONYM=Q$PF, VALUE=.QRPRT@$PART
      /CREATE,  LOGICAL=LO, ALLOCATION=1, SECONDARY=1,
                TYPE=<WORK,COMPRESS,SPOOL,SCRATCH>
      /ASSIGN,  LOGICAL=QFILE, NAME=@SP$D.QFILE.@Q$QUEUE, ACCESS=SH
      /ASSIGN,  LOGICAL=SRVSTATE, NAME=@SP$D.SRVSTATE, ACCESS=SH
      /ASSIGN,  LOGICAL=PROGRAM, NAME=@SP$C.PROGFILE.QMANAGER, ACCESS=RO
      /ASSIGN,  LOGICAL=C$SUBS, NAME=.C$SUBS, ACCESS=RO
      /EXECUTE, PROGRAM=QMANAGER
P     /LOOP
Y     /SETCOND, VALUE=P
P     /SYNONYM, SYNONYM=Q$PF,
                VALUE("Pathname for listing file")=(@Q$PF)
P     /CREATE,  LOGICAL=QLO, NAME=@Q$PF, ALLOCATION=1
P     /REPLACE, LOGICAL=QLO, SCRATCH=LO
Z     /SETCOND,
         VALUE("Unable to catalog listing file.  Retry? (Y/N)")=(Y)
Y     /REPEAT
!     /<NE>RELEASE, LOGICAL=<LO,QFILE,SRVSTATE,PROGRAM,C$SUBS,QLO>
P     /QPRINT,  NAME=@Q$PF, DELETE=YES, CATEGORY=O
!     /SYNONYM, SYNONYM=SP$D
!     /SYNONYM, SYNONYM=SP$C
!     /SYNONYM, SYNONYM=Q$QUEUE
!     /SYNONYM, SYNONYM=Q$PF
```

Server Manager Batch Stream

The Server Manager is invoked by the batch stream located in file .SPOOLER.JDL.SMANAGER.

```
/SYNONYM, SYNONYM=SP$D, VALUE=.SPOOLER
/SYNONYM, SYNONYM=SP$C, VALUE=.SPOOLER
/ASSIGN,  LOGICAL=SRVSTATE, NAME=@SP$D.SRVSTATE, ACCESS=SH
/ASSIGN,  LOGICAL=PROGRAM, NAME=@SP$C.PROGFILE.SMANAGER, ACCESS=RO
/ASSIGN,  LOGICAL=C$SUBS, NAME=.C$SUBS, ACCESS=RO
/EXECUTE, PROGRAM=SMANAGER
!   /<NE>RELEASE, LOGICAL=<SRVSTATE,PROGRAM,C$SUBS>
!   /SYNONYM, SYNONYM=SP$D
!   /SYNONYM, SYNONYM=SP$C
```