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# Unicenter

## Management Services Report Writer User's Guide

4th edition

P01- 192



**Computer Associates**  
The Software That Manages eBusiness



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### ***Report Writer User's Guide, 4th Edition, P01-192***

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# What's New in This Manual

This manual is a new edition of the *Report Writer User's Guide* (P01-192-31). The new publication number for this manual is P01-192.

## Summary of Enhancements

Appendixes E, F and G – The user data variables, &SRWUSRDC are now shared back to the caller of \$RWCALL if WAIT=NO is specified. The variable *c* is now between 0 and 5 alphanumeric and/or national characters.

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# About This Manual

This manual is a user's guide for the Report Writer facility of the SOLVE management Services.

The purpose of Report Writer is to provide an easy to use facility which allows all users to easily define and generate reports.

The readers of this manual are assumed to be familiar with the use of an IBM 3270 series computer terminal. Report Writer uses the SOLVE management services panels to interact with the user, so a familiarity with the management services is also assumed. (If you are not familiar with the management Services, please refer to the *SOLVE Management Services User's Guide*.)

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## How This Manual is Organised

This manual contains the following chapters:

**Chapter 1: *Introduction to Report Writer***

This chapter gives an overview of Report Writer, and describes how it can be used.

**Chapter 2: *Report Writer Concepts***

This chapter describes the basic concepts of Report Writer and the terms used.

**Chapter 3: *Getting Started***

This chapter describes preliminary functions that must be performed before using Report Writer.

#### Chapter 4: *Defining and Printing a Simple Report*

This chapter steps you through the setup and printing of a simple report.

#### Chapter 5: *Report Writer Primary Menu*

This chapter describes the Primary Menu which is the entry point to all the functions available under Report Writer.

#### Chapter 6: *Report Definition Maintenance*

This chapter describes each of the panels used to define a report layout and the source of the report data to Report Writer.

#### Chapter 7: *Generate a Report*

This chapter describes the panel used to generate the printing of a report which has been defined to Report Writer.

#### Chapter 8: *Schedule a Report*

This chapter describes the panels used to cause automatic printing of reports at regular intervals.

#### Chapter 9: *Reports in Progress*

This chapter describes the panel used to list all ad hoc and scheduled reports which are currently in progress in the system.

#### Appendix A: *Customer Support Services*

This appendix describes the customer support services available to users of the SOLVE product worldwide, and contact addresses.

#### Appendix B: *Commands and Function Key Usage*

This appendix is a reference for Report Writer commands and function key assignments.

#### Appendix C: *Editor Line Commands*

This appendix is a reference for all editor commands.

#### Appendix D: *System Field List*

This appendix is a description of all the system fields available for use with Report Writer.

### Appendix E: *The Report Writer NCL Interface*

This appendix describes the link between an application-written NCL procedure and Report Writer.

### Appendix F: *Report Exit Procedure*

This appendix describes the variables that are passed to a report exit procedure and the return codes and variables it can set.

### Appendix G: *Service Procedure*

This appendix describes the variables that are passed to a service procedure and the return codes and variables it can set.

### Appendix H: *Generator Logic Flow*

This appendix consists of diagrams which show the flow of control between the generator, the service procedure and the report exit procedure, during Report Writer processing.

### Appendix I: *Distributed Service Procedures*

This appendix describes the service procedures which are distributed with Report Writer.

---

## How to Use This Manual

This manual is designed for use by all users of the SOLVE products, technical and non-technical, as a guide to creating reports using Report Writer. Chapters 1 to 4 are an introductory guide and, as such, are recommended reading.

This manual is also serves as a reference manual. Chapters 5 to 9 describe the panels used to interact with all the functions of Report Writer.

The appendices contain technical information for NCL programmers who wish to write Report Exits and Service Procedures, or to call Report Writer from their own NCL procedures.

# Introduction to Report Writer

This chapter is an overview of the Report Writer facility of the SOLVE management services.

---

## What is Report Writer?

The purpose of Report Writer is to provide an easy to use facility which allows non-technical users to easily define report layouts and to generate defined reports immediately, or at specified times. Report Writer is a facility within Managed Object Development Services (MODS).

Report Writer is designed to operate totally independently of the database in which the data to be used to generate a report is contained—it interfaces with the application, to access that application's data from the database. Data is secured against illegal access, using the User Access Maintenance Subsystem (UAMS) facility of management services.

Report Writer interfaces with Print Services Manager (PSM) for the management of the report output.

Figure 1-1 is a schematic representation of Report Writer operating within a SOLVE system.

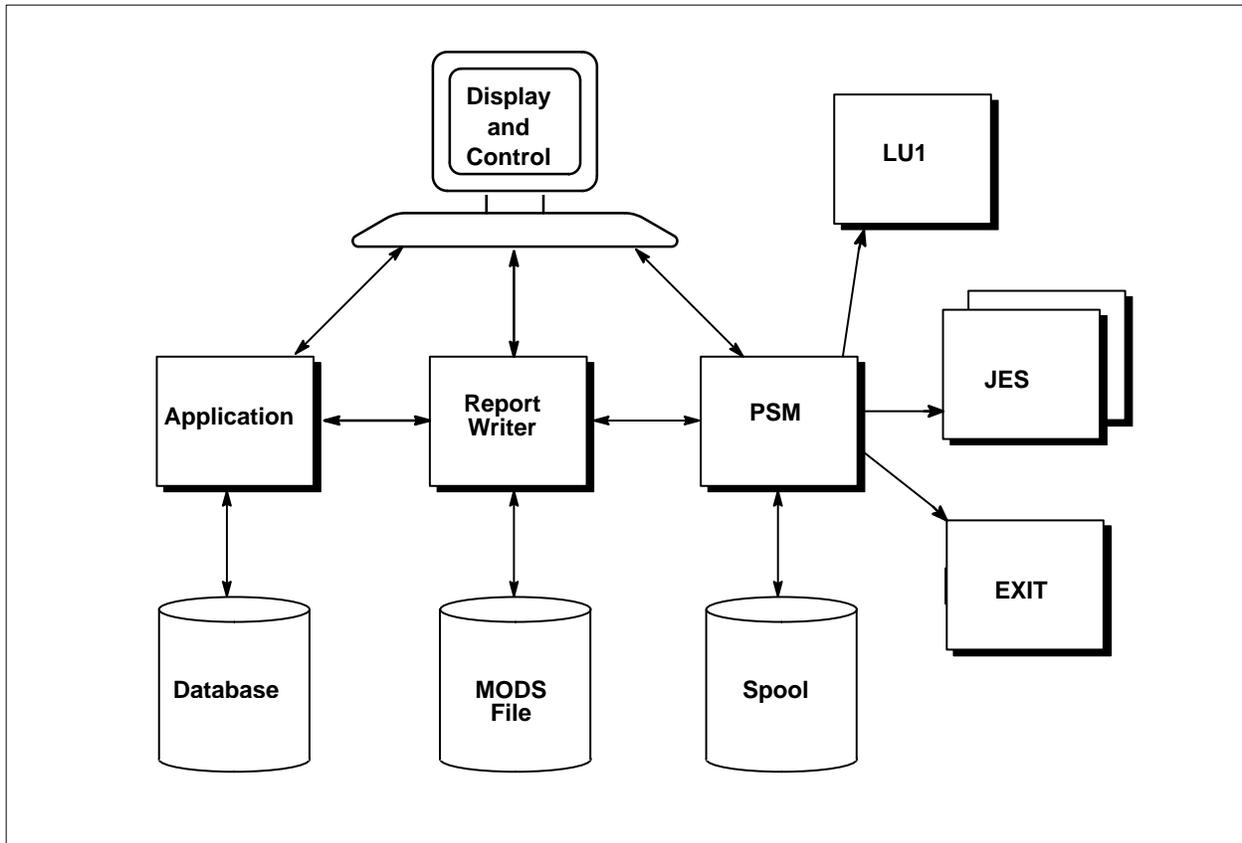


Figure 1-1. Schematic Representation of Report Writer

---

## Report Writer Facilities

The facilities provided by Report Writer are as follows:

- ▶ The ability to draw a report layout using an editor
- ▶ The ability to view a report layout on screen
- ▶ The ability to generate a report upon request by an application or user
- ▶ The ability to generate reports automatically based on a schedule
- ▶ User exit points perform specialised processing such as field formatting, complex arithmetic and conditional suppression of data during report generation
- ▶ Report Writer can be integrated with other NCL based components of the SOLVE management services
- ▶ The ability to look at reports in progress in the system

- ▶ Management services panels are used to interact with the user
- ▶ An on-line help facility allows you to get information about the current panel

## Defining a Report

A *Report Definition* contains all the information required to format a report. It is created using a specialised editor which allows you to *draw* the layout of a report on the screen. The report definition is then stored on the MODS file and can be recalled at any time to produce a report. It can also be recalled to perform maintenance functions, such as updating, copying or deleting.

## Viewing a Report Layout

The *View Report Layout* function allows you to see how the report will appear before it is generated.

## Generating Reports

A report can be generated in two ways:

- ▶ Requested by a user or application
- ▶ Automatically generated by Report Writer according to a user-defined schedule

To generate a report on request, requires the report name and the printer destination to be passed to the generator.

For a report to be automatically generated, you must define a schedule which Report Writer uses to determine which report is required, and when and where it is to be generated.

## Printing Reports

Report printing and validation of printer names is controlled by PSM. You can choose to print a report as soon as the printer is available or to hold the report output on the PSM print spool where it can be viewed before printing.

## Report Exit Procedures

A Report Exit is an NCL procedure which allows you to do specialised processing of data while a report is being generated. Functions that can be performed by a Report Exit procedure are:

- ▶ Initialisation processing, for example, opening files and defining variables
- ▶ Specialised field formatting, for example complex arithmetic and conditional suppression of data
- ▶ Item processing, for example retrieving data from another source
- ▶ Termination processing, for example, closing files and deleting variables

See Appendix F, *Report Exit Procedure* in this manual for information on writing report exits.

## Reports in Progress

A list of reports currently in progress in the system can be displayed. From this list you can view report output on the screen, or cancel processing or purge the report output.

---

## Using Management Services Panels

Report Writer uses standard management services panel layouts. There are three types of panels:

- ▶ Menus
- ▶ Data entry panels
- ▶ Selection lists

### Menus

Report Writer functions are provided by full-screen menus. Figure 1-2 shows the Report Writer Primary Menu, which is the entry point to all functions available within Report Writer.

```

SOLVPROD----- Report Writer : Primary Menu -----$RW001
Select Option ==>

R - Report Definition Maintenance      Userid USER01
G - Generate a Report                  LU      TERM001
S - Schedule a Report                  Time    14.15.08
P - Reports in Progress                 WED 28-JUL-1993
T - Table Maintenance
X - Exit

Userid ... _____ ( Optional P )

F1=Help      F2=Split      F3=Exit      F4=Return
              F9=Swap

```

*Figure 1-2. Primary Menu Panel*

A menu is a list of choices that appears on your screen. Each choice will usually take you to another panel (sometimes, another menu). You select a menu option by typing in the letter or number that appears to the left of your choice into the Select Option ==> field and pressing the ENTER key. This is called selecting a menu option.

The top line of a menu panel usually displays (from left to right), the management services system identifier, the name of the application, the name of the menu and the menu identifier.

To get from a menu to the previous panel, press the Exit function key or select option X. To get from a menu to the previous primary menu, press the Return function key.

To get specific help about a menu, press the Help function key. In many cases menus will contain input fields in addition to the list of available options. These fields are preceded by a brief description of the field (the field label) and are followed by relevant comments. The comments will indicate to which options the fields are related, when they are required and optional and other relevant information.

## Data Entry Panels

Data Entry panels allow you to type in or enter information (data) or to look at information previously entered. Figure 1-3 shows the Report Writer : Report Description data entry panel.

```

SOLVPROD----- Report Writer : Report Description -----Page 1 of 1
Command ==>                                         Function=Add

Report Appl .....+ _____
Report Type ..... _____ (PUBLIC or PRIVATE)
Userid ..... _____ (Userid if PRIVATE)
Report Name ..... _____
Description ..... _____

Status ..... ACTIVE__ (ACTIVE or INACTIVE)
Report Width ..... 132 (Range 3 to 256)
Suit Single Record? NO_ (YES or NO)
Report Exit ..... _____ (NCL procedure name)
Group .....+ _____
Criteria Appl ID ..+ _____
  Type ..... _____ (PUBLIC or PRIVATE or FREEFORM)
  Userid ..... _____ (Userid if PRIVATE)
  Name .....+ _____
Comments ..... _____
_____
_____

F1=Help      F2=Split      F3=File
              F9=Swap
              F12=Cancel

```

**Figure 1-3. Data Entry Panel**

The top line of a data entry panel usually displays (from left to right), the management services system identifier, the name of the application, the name of the data entry panel and a panel sequence number.

Data is entered and displayed in fields. There are two types of fields: input fields and output fields. Any field into which you enter data to be recorded or stored is an input field. Output fields display information and cannot be modified.

Input fields only appear when adding new data or updating existing data. When browsing data previously entered, the information is displayed in output fields. Each field is preceded by a brief description of the field (the field label) and may be followed by explanatory comments. The comments explain the type of data to be entered into the field and other relevant information.

Some input fields on data entry panels must have data entered into them before you can proceed. These fields are called mandatory fields. As an indicator, on terminals that support colour, the underscore characters are white for mandatory fields and turquoise for all other input fields.

After you have entered data into every mandatory field and into any other application fields on a data entry panel, you may FILE or SAVE the data you have entered by pressing the appropriate function key.

The function key values are displayed at the bottom of the screen. The validity of the data you have entered will be checked before the action you have selected is performed. Press the ENTER key if you only want

to validate the data. If you have not entered data into one of the mandatory fields, or data you have entered is incorrect, the fields that are in error will be highlighted in red, the cursor will be placed on the first field in error and a message that indicates the type of error will appear. (On terminals that do not support colour, the fields in error are displayed in high intensity.)

To exit from a data entry panel without making any changes to the data at all, press the Cancel function key. When browsing data press the Exit function key.

To perform some operations you may need to enter data into more than one data entry panel. To get to the next panel in a sequence of data entry panels, press the Forward function key. To get to the previous panel in a sequence of data entry panels, press the Backward function key.

To get specific help about a data entry panel, press the Help function key.

## Selection Lists

A selection list is a list of related entries that appears on your screen. Figure 1-4 shows the Report Writer : Report Definition List, which is a list of all reports defined to Report Writer.

Functions are provided to find the entry you are interested in and then to select it or perform actions against it (for example, update or delete).

```

SOLVPROD----- Report Writer : Report Definition List -----
Command ==>>>                                     Scroll ==>> PAGE

                S/B=Browse U=Update D=Delete C=Copy LC=Components V=View
Rep Appl  Typ  Userid   Name           Description           File ID
$ADAR    PUB           $DETAIL        Application Definition Detail  MODSDIS
$ADAR    PUB           $SUMMARY       Application Definition Summary MODSDIS
$ADCM    PUB           $DETAIL        Command Definition Detail     MODSDIS
$ADCM    PUB           $SUMMARY       Command Definition Summary    MODSDIS
$ADCR    PUB           $DETAIL        Criteria Definition Detail     MODSDIS
$ADCR    PUB           $SUMMARY       Criteria Definition Summary    MODSDIS
$ADHM    PUB           $DETAIL        Help Definition Detail        MODSDIS
$ADHM    PUB           $SUMMARY       Help Definition Summary       MODSDIS
$ADLH    PUB           $DETAIL        List Definition Detail        MODSDIS
$ADLH    PUB           $SUMMARY       List Definition Summary       MODSDIS
$ADMH    PUB           $DETAIL        Menu Definition Detail        MODSDIS
$ADMH    PUB           $SUMMARY       Menu Definition Summary       MODSDIS
$ADMS    PUB           $DETAIL        Message Definition Detail     MODSDIS
$ADMS    PUB           $SUMMARY       Message Definition Summary    MODSDIS
$ADOSCL  PUB           $DETAIL        Class Definition Detail       MODSDIS
$ADOSCL  PUB           $SUMMARY       Class Definition Summary      MODSDIS
**END**

F1=Help      F2=Split    F3=Exit     F4=Return   F5=Find     F6=Refresh
F7=Backward  F8=Forward  F9=Swap     F11=Right

```

Figure 1-4. Selection List Panel

To exit from a selection list, press the Exit or Return function key. To get specific help about a selection list use the Help function key. To find a specific entry use the scrolling Forward or Backward keys. You may also use the Find or Locate commands. The selection list title usually displays the management services system ID, the application name and the name of the list. The selection list heading, immediately above the selection list entries, describes each of the fields appearing in the list.

There are three types of selection lists:

- ▶ **Action Selection Lists**  
These lists allow you to enter an option to the left of one or more entries in the list. The options that can be entered are displayed on the fourth line of the screen immediately above the selection list heading. Each option entered is actioned in sequence. The list is then redisplayed to allow further options to be entered. The Report Writer : Report Definition List, as shown in Figure 1.4, is an action selection list.
- ▶ **Single Choice Selection Lists**  
These lists allow you to choose only one of the entries in the list. Each entry has a number displayed to the left of the entry. To select an entry, enter the entry number in the Select Entry ==> field and press the ENTER key.
- ▶ **Multiple Choice Selection Lists**  
These lists allow you to choose a number of entries in the list. Enter an S to the left of each entry you wish to select. Press the ENTER key when you have completed your selections.

## Prompted Fields

Report Writer supports field prompting on menus and data entry panels. This means that if a data entry field is immediately preceded by a plus (+) sign, you can enter a question mark (?) into the field to produce a list of valid values for that field. You can then make a selection from the list. (Note that you can also enter characters preceding the question mark if you want your search to be more specific.)

### Prompting on the Report Appl Field

If you prompt for a list of Report Applications from the Report Appl field, lists are displayed in one of the following ways:

- ▶ If you enter three or more characters and a question mark, the first three characters are treated as the Application ID, and a list of Report Applications for that Application ID is displayed.
- ▶ If you enter two or less characters and a question mark (or just a question mark), a list of valid Application IDs is displayed first. You

can then select an entry from this list to display a list of Report Applications for the selected Application ID.

---

## Getting Help

Extensive on-line Help facilities are provided with Report Writer. You can access the Help facility for the currently displayed panel by pressing the Help key. Further associated Help information can be accessed from the Help panel by pressing the HelpHelp or Index key.

---

## Primary Commands

Primary commands can be entered at the Command ==> prompt, which is at the top left-hand corner of the panel. These commands are described in Appendix B, *Commands and Function Key Usage*.

## Scrolling Functions

Panels which have a scrollable window can be scrolled forward or backward, either by entering a primary command or pressing the appropriate function key. Most of these panels (data entry panels are the exception) contain an input field on the second line of the panel which is labelled Scroll ==>. The value specified in this field is referred to as the scroll amount. Valid scroll amounts and their meanings are shown in Table 1-1.

*Table 1-1. Valid Scroll Amounts and Their Meanings*

<b>Scroll Amt.</b>	<b>Meaning</b>
PAGE	Scroll a full page—a page is the number of records or lines visible in the current window
HALF	Scroll half a page
DATA	Scroll a full page less one row
CSR	Specifies scroll based on the current cursor position
MAX	Scroll to the first or last page
nnn	Scroll <i>nnn</i> rows or columns

---

## Function Keys

Commonly used primary commands are assigned to function keys to allow the command to be invoked by pressing the function key, thus simplifying command entry. The valid function, or F, keys for Report Writer are always displayed at the bottom of the panel. Only the keys that are relevant to the panel are displayed. The assignments of the F1 to F12 keys are fixed. F13 to F24 can be changed by the user using the KEYS SET command.

Generally function keys are standard across all panels in the application. However there are some panels where the key values depend on the type of panel being displayed.

For a complete list of function key assignments, see Appendix B, *Commands and Function Key Usage*.

---

## Security

Report Writer uses the User Access Maintenance Subsystem (UAMS) facility of management services to control user access to data.

Security is based on user IDs. A user ID defines the function and privilege level that a particular person is entitled to when they sign on to the system. It is associated with a secret password, known only to the user.

To secure Report Writer from unauthorised use, users must be defined to the security system with the required Report Writer resource keys. In general, all users can browse any public reports, and their own private reports. Depending upon access privileges, users can be prevented from adding, browsing, updating, deleting or generating any, or all, reports.

For further information on security see the chapter titled *Access and Security* in the *SOLVE Management Services Planning and Installation* manual.

# Report Writer Concepts

This chapter describes Report Writer concepts and terminology.

---

## Defining a Report

Before a report can be produced, it must first be defined to Report Writer. Report definitions are created using a specialised editor which is similar to the industry-standard ISPF editor. This allows you to *draw* the layout of a report on the screen. The report definition is then stored on a database and may be recalled at any time to produce the report or for maintenance functions.

There are 9 components of a report definition:

- ▶ The report description
- ▶ Sort fields
- ▶ Report header
- ▶ Page header
- ▶ Data formats
- ▶ Control break headers
- ▶ Control break trailers
- ▶ Page trailer
- ▶ Report trailer

These components are described on the following pages.

## The Report Description

The *report description* contains the following control information about the report:

- ▶ Report application
- ▶ Report type
- ▶ User ID
- ▶ Report name
- ▶ Group name
- ▶ Description
- ▶ Status
- ▶ Report width
- ▶ Suit single record indicator
- ▶ Criteria identifier
- ▶ Report exit name
- ▶ Comments

### Report Application

The *report application* is the ID of the report application to which the report belongs. The report application defines the service procedure and whether or not it supports sort fields, and if so how many.

A report application ID must begin with an application ID that is defined in the Application Register. The report application must be defined in a \$RWAPPL table for the specified application. For example, given report application YKZ123, the application YKZ must be defined in the Application Register and YKZ123 must be an entry in the YKZ.\$RWAPPL table. (Refer to the chapter *Registering an Application* in the *Managed Object Development Services Programming and Administration Guide* for information on how to define an application ID to the Application Register.)

### Report Type

Each report must be assigned a *report type*. Valid types are PUBLIC and PRIVATE. The report type is used to secure reports from illegal access. Your UAMS definition defines whether you can access PUBLIC and/or PRIVATE reports.

### User ID

The *user ID* is used to define the owner of PRIVATE reports.

## Report Name

The *report name* identifies the report within a report application.

## Group Name

*Groups* are defined by your installation and are used to define different groups within your organisation, with different reporting requirements. Group names can be used to simplify the administration of reports and maintaining report definitions. Valid group names are stored in a SADGROUP table for the application to which the report belongs.

## Description

The report *description* indicates the use of the report (for example the INFO/MASTER Category Summary report). This description appears in the report selection list to assist in the selection of reports.

## Status

The report *status* indicates whether or not a report is disabled. When it is set to ACTIVE the report can be generated and appears on selection list displays. When set to INACTIVE, these functions are disabled.

---

**Note:** Reports defined using NET/MASTER Version 2.2 are treated as if the status field is set to ACTIVE.

---

## Report Width

The *report width* indicates the maximum number of columns that can be printed per page for the report.

## Suit Single Record Indicator

The *suit single record* field indicates that the report definition is suitable for printing a single record when set to YES, and that it is not suitable for printing a single record when set to NO.

---

**Note:** Reports defined using NET/MASTER Version 2.2 are treated as if the suit single record field is set to NO.

---

## Criteria Identifier

The *criteria identifier* is the identifier of a Common Application Services (CAS) criteria definition or the value FREEFORM. When the report is generated, CAS is called to build the criteria or to present the CAS Criteria panel when FREEFORM is defined. The criteria received from CAS is then passed to the service procedure and the report exit procedure. This enables criteria to be shared between different reports and for ad-hoc enquiries to be easily handled.

## Report exit name

A *report exit* is an installation-written NCL procedure which can be used if specialised processing of data is to be carried out before printing.

## Comments

The *comments* give a more detailed description of the report and any associated information.

## Sort Fields

The *sort fields* are the fields on which data records will be sorted before printing. These field names are stored with details of how sorting will be performed (for example, whether in ascending or descending order).

Sort fields are assigned a number to allow data to be sorted on several fields within a record. For example, if you want to sort Problem file records on severity within priority, the severity field would be defined as sort field 1 and the priority field would be defined as sort field 2.

The maximum number of sort fields that can be defined depends on the report application for which the report is defined.

For each sort field, there can be defined a control break header and/or control break trailer. These will be printed on a control break, that is, when the value of the sort field changes. A control break header could be used, for example, to print column headings which describe the data being printed. A control break trailer may be a total line, showing the total values of the data in the reported group of records.

Control break headers and trailers are linked to the sort field by the sort field number, which is stored as part of their definition. So, for example, when the value of sort field number 1 changes, the control break trailer assigned to it (if one is defined) will be printed before processing continues.

## Format Items

The remaining report components are the *format items*, which are the lines that will be printed on the report. Each format item may consist of any number of lines, made up of both constant and variable data.

Constant data is printed exactly as it is entered or *drawn* on the screen. It is mainly used to define headings and subheadings. Variable data is retrieved by the service procedure from a database, or from a report exit procedure, to be displayed on the report.

Variable data is prefixed by an ampersand (&) to indicate it is a database field, or an exclamation mark (!) to indicate it is a system field. Database field names are validated against the field names in the Data Fields Table for the report application. System field names are validated against the field names in the System Fields Table.

## Report Header

The *report header* is printed once at the beginning of a report. Report Headers can be used to explain what the report is about and to indicate the beginning of a new report.

## Page Header

The *page header* is printed at the top of every page (including the report header and trailer pages). It can consist of one or several lines of constant and/or variable data. A page header may contain a description of the use of the report, for example, Weekly Network Error Warning System (NEWS) Attention Summary. A page header may also contain the date and page number.

## Data Formats

*Data Formats* are the details that are printed for each record that is passed to Report Writer by the service procedure. Any number of data formats can be defined. A report exit NCL procedure can be used to determine which data format or group of data formats is to be printed for each individual record. If there is no report exit, all data formats will be printed in ascending order.

## Control Break Headers

*Control Break Headers* are the details which are printed as a heading above a group of records. If defined, a control break header will be printed each time the sort field to which it is assigned, changes value.

## Control Break Trailers

*Control Break Trailers* are the details which are printed as a trailer below a group of records. If defined, a control break trailer will be printed each time the sort field to which it is assigned, changes value. Control break trailers are most commonly used to print sub-total and total lines.

## Page Trailer

The *Page Trailer* is printed as a footer at the bottom of each page (including the report header and trailer pages). It can contain, for example, your company name or the page number.

## Report Trailer

The *Report Trailer* is printed at the end of the report.

## The Report Layout

The View Report Layout panel can be displayed at any time during the definition of a report. This allows you to see on the screen the layout of the report as it will be when it is printed.

---

## Defining a Report Application

Report applications are stored as entries in the \$RWAPPL table for the specified application—the application is indicated by the first three characters of the report application. New report applications must be added using CAS.

Data fields for each application must be defined to Report Writer by defining a Data Fields Table, using CAS.

If the data input to your report needs to be sorted before printing, the fields on which the data will be sorted must be defined to Report Writer during definition of the report. The sort fields are stored in a Sort Fields Table which is controlled by CAS.

For details on how to define a report application, a data fields table and a sort fields table, see Chapter 3, *Getting Started*. For more information about CAS see the *Managed Object Development Services Programming and Administration Guide*.

---

## The Report Generator

The Report Writer *Report Generator* controls the generation of reports. Reports can be generated in two ways:

- ▶ Directly, on request by a user or application
- ▶ Automatically by the Schedule facility of Report Writer

The report generator reads the control information and report layout from the MODS file and calls the *service procedure* to access data from the application database. If there is a *report exit* associated with this report definition, the generator calls it to do any specialised processing of data, then passes the formatted data to PSM for printing. Figure 2-1 illustrates their relationship .

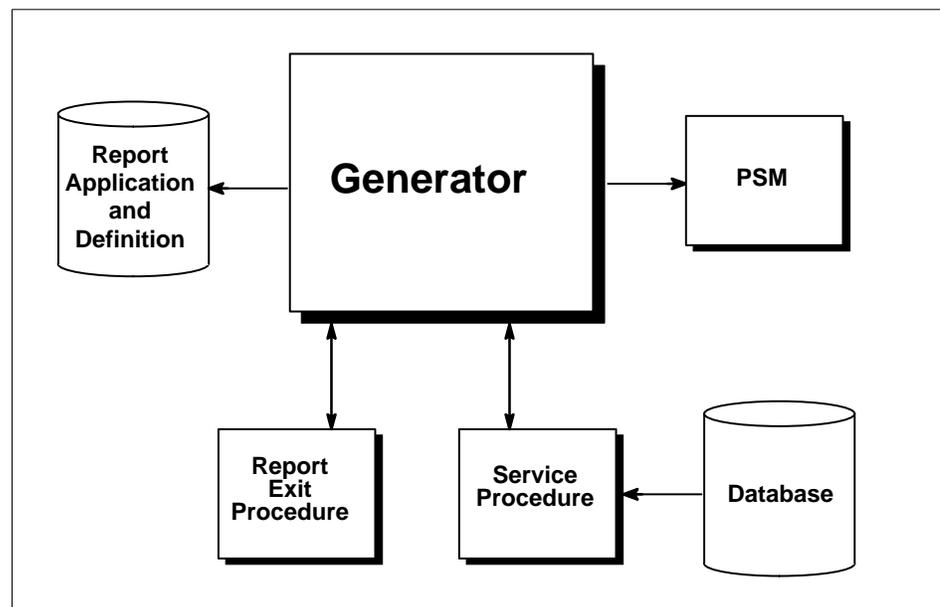


Figure 2-1. The Report Generator

### The Service Procedure

The *service procedure* is an NCL procedure whose purpose is to provide the generator with data to be used to generate a report. The service procedure knows the database from which the data is to be retrieved and the format of the data. The name of the service procedure is defined in the report application to which the report belongs and is executed by the generator.

Functions of the service procedure are as follows:

- ▶ Initialisation processing, for example, opening files and searching the database
- ▶ Get the next record to be processed
- ▶ Get the value of the sort fields for the next record to be processed
- ▶ Termination processing, for example, closing files

Information regarding writing your own service procedures can be found in Appendix G, *Service Procedure*.

## The Report Exit

The purpose of a *report exit* procedure is to allow the user to do specialised processing, based on installation requirements, while the report is being generated. For example, data can have arithmetic performed upon it or it can be conditionally suppressed.

The report exit procedure knows the format of the data, that is, the names of the variables that contain the data and the format of that data. The name of the report exit procedure is defined in the report definition and is executed by the generator.

Functions performed by the report exit procedure are as follows:

- ▶ Initialisation processing, for example, define variables
- ▶ Item processing, for example, complex arithmetic
- ▶ Termination processing, for example, delete variables.

For more information on writing your own report exit procedure see Appendix F, *Report Exit Procedure*.

---

## Defining a Schedule

Report Writer can automatically generate reports according to a user-defined *schedule*. To do this you must first define the schedule.

A Schedule Definition consists of the following information:

- ▶ The name, report type, owner and associated information about the report to be generated
- ▶ The intervals at which the report will be generated
- ▶ The printer name where the report will be printed

- ▶ Whether the report is required to be printed immediately the printer is available or held on the PSM print spool until released for printing
- ▶ Whether the report is to be kept on the print spool after it has been printed, or deleted
- ▶ The number of copies to be printed

The Schedule function of Report Writer passes report control information to the generator each time the report is scheduled to be generated, as shown in Figure 2-2.

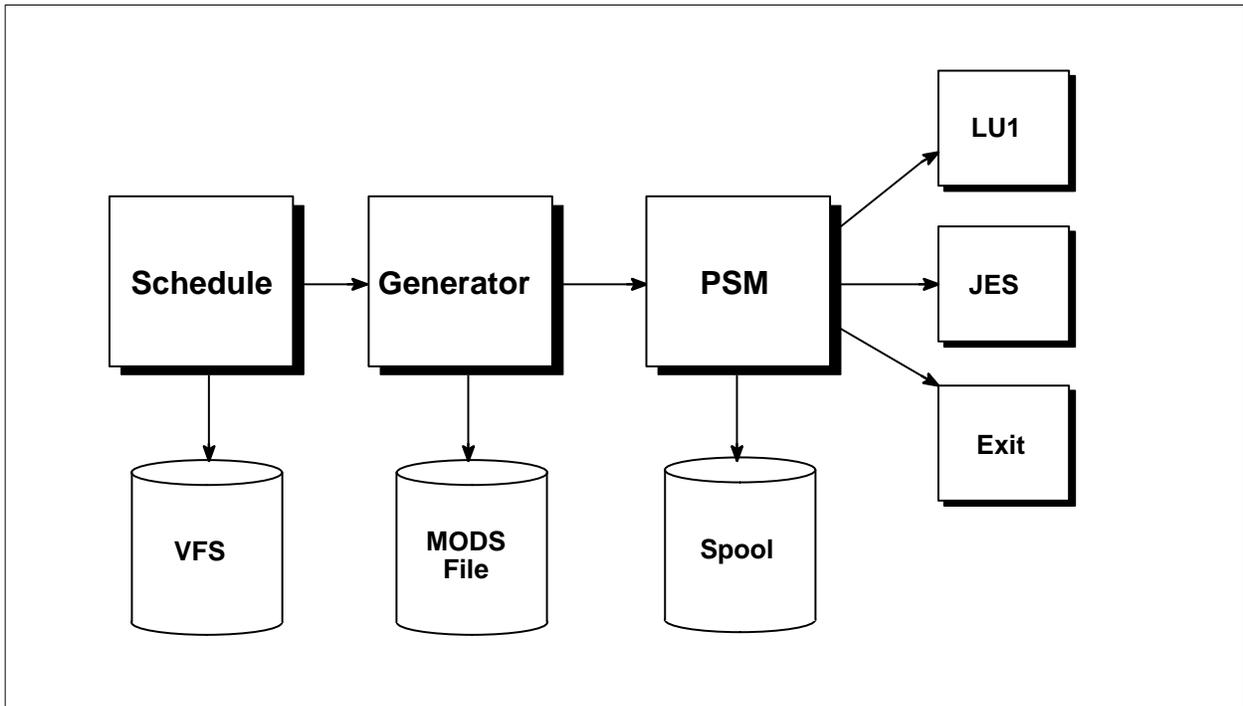


Figure 2-2. The Schedule

A report can be scheduled to run, for example, on the first day of every month at midday or at 10am on Mondays, Tuesdays and Fridays.

# Getting Started

This chapter describes the preliminary functions that need to be performed before a report can be defined to Report Writer. These customising functions should be performed by the Systems Administrator when a new report application needs to be defined. If you are using one of the distributed report applications, you might only need to perform *Step 5 Defining Groups*, to add your installation's groups to the group table.

The steps required to define a new report application are as follows:

1. Define the report application ID
2. Define a service procedure
3. Define data fields table
4. Define sort fields table
5. Define groups
6. Reload tables

Common Application Services (CAS) tables are used by Report Writer for defining report applications, data fields tables, sort fields tables, and groups. These tables must be defined by your installation for each application requiring reports.

---

## Step 1: Defining a New Report Application ID

A report application table must be defined for each application requiring the definition and generation of reports. The name of the report application table must be \$RWAPPL.

The steps to create a report application table are as follows:

1. Select option T – Table Maintenance from the Report Writer : Primary Menu. The CAS : Table Maintenance Menu will be displayed with the Appl ID field pre-set to \$RW.
2. Select option T – Table Definitions. The CAS : Table Definition Menu will be displayed with the Appl ID field pre-set to \$RW.
3. From this menu:
  - Select option C – Copy Table
  - The Appl ID field should be pre-set to \$RW, but if it is not, enter \$RW in this field
  - Enter \$RWAPPL in the Field Name field
  - Press ENTER

The CAS : Table Description panel, as shown in Figure 3-1 will be displayed.

```
SOLVPROD----- CAS : Table Description -----Page 1 of 2
Command ==>                                         Function=Add

Appl ID ..... $RW
Field name ..... $RWAPPL_____
Field description ..... Report Appl_____
Edit type ..... TABLE (TABLE, OSATT, OSFLD, IMFLD or IMREC)
For Edit type = TABLE:
  Validation exit ..... $RWVM70X
  Sequence numbers ..... NO_ (YES or NO)
  Load table? ..... YES (YES or NO)
  Max abbreviation length ..... ___ (3 - 8 or blank if none)
  Max full value length ..... 8_ (3 - 20)
  Max description length ..... 38_ (3 - 38 or blank if none)
For Edit type = IMFLD or IMREC:
  INFO/MASTER category ..... _____
For Edit type = IMREC:
  INFO/MASTER field ..... _____
  INFO/MASTER description field ... _____
For Edit type = OSATT or OSFLD:
  Object Services Class ID ..... _____

F1=Help      F2=Split    F3=File     F4=Save
              F8=Forward  F9=Swap
                                              F12=Cancel
```

*Figure 3-1. CAS : Table Description Panel*

4. Define your new report application table by entering the ID of the application to which the table is to belong, in the Appl ID field. All other fields have their values pre-set and should not be changed.

5. When the Appl ID field has been modified, enter the FILE command, or press the File key, to create the new Report Application table.

### **Defining Report Application Table Entries**

Valid report application IDs are stored in a table called \$RWAPPL for the application to which the report application belongs—that is, the first three characters of the report application ID.

To add a new report application to a \$RWAPPL table, follow these steps:

1. Select option T – Table Maintenance from the Report Writer : Primary Menu. The CAS : Table Maintenance Menu will be displayed with the Appl ID field pre-set to \$RW.
2. Select option E – Table Entries. The CAS : Table Entry Definition Menu will be displayed with the Appl ID field pre-set to \$RW.
3. From this menu:
  - Select option A – Add Table Entry
  - Enter the first three characters of the report application ID in the Appl ID field
  - Enter \$RWAPPL in the Field Name field
  - Press ENTER

The CAS : Table Entry Definition panel, as shown in Figure 3-2 will be displayed.

4. Define your new report application ID by entering values in the fields on this panel, as described below.
5. When all of these fields have been specified, enter the FILE command or press the File key to create the new report application.

```

SOLVPROD----- CAS : Table Entry Definition -----Page 1 of 1
Command ==>                                         Function=Add

Appl ID ..... YAC
Field name ..... $RWAPPL

Full value ..... _____

Description ..... _____

Active? ..... YES (YES or NO)

I/M Application ? ..... ____
Service Procedure ..... _____
System Name ..... _____
Record Category ..... _____
Maximum Sort Fields ..... ____
Sort Order Support ..... ____
Sort Offset Support ..... ____

F1=Help      F2=Split      F3=File      F4=Save
              F9=Swap
                                         F12=Cancel

```

Figure 3-2. The CAS : Table Entry Definition Panel for the \$RWAPPL Table

**Appl ID**

This field contains the ID of the application to which the report application belongs—indicated by the first three characters of the report application ID.

**Field name**

This field contains \$RWAPPL (the field name of the report application ID table).

**Full Value**

Enter the 1 to 8 character ID of your report application. The first 3 characters of the ID must be a valid application ID defined in the Application Register. (For information on defining entries in the Application Register see the *Managed Object Development Services Programming and Administration Guide*.)

**Description**

Enter a brief description of the report application (maximum length 38 characters).

**Active?**

Enter YES in this field.

The fields that follow are required by the service procedure to access data. The data in the fields is dependant on the service procedure used by the report application. Appendix I, *Distributed Service Procedures*, indicates the values required in each of these fields for the *distributed* service procedures. (When writing service procedures to service your

installation applications, you will determine the values that are required in these fields.)

**I/M Application ?**

Enter YES if this is an INFO/MASTER application, otherwise enter NO.

**Service Procedure**

Enter the name of the service procedure which Report Writer calls to access the database for this report application.

**System Name**

Enter the 1 to 8 character system name that is required by the service procedure.

**Record Category**

Enter the 1 to 8 character name of the record category that is required by the service procedure.

**Maximum Sort Fields**

Enter the number of sort fields supported by the service procedure. For INFO/MASTER applications, this cannot be greater than 7. For other applications, it can be 0 to 10. The default is 7 for INFO/MASTER applications and 0 for other applications.

**Sort Order Support**

Enter one of the following values, to indicate the type of sorting supported by the service procedure:

- A**            Indicates only ascending order
- D**            Indicates only descending order
- BOTH**       Indicates both ascending and descending order
- MIXED**      Indicates mixed sorting is supported

The default is MIXED for INFO/MASTER applications and A for other applications.

**Sort Offset Support**

Enter YES if the service procedure supports partial field sorting (for example, starting from position 4 within a field), otherwise enter NO. The default for this field is YES for INFO/MASTER applications and NO for other applications.

---

## Step 2: Defining a Service Procedure

If you are not using a distributed service procedure, you now need to write a service procedure to access data from your database. A service procedure is an NCL procedure which is executed for any report which is generated for this report application. It provides the generator with data which is used to generate the report.

The names of the distributed service procedures are listed in Appendix I, *Distributed Service Procedures*. For further information on writing your own service procedure, see Appendix F, *Service Procedure*.

---

## Step 3: Defining a Data Fields Table

A data fields table must be defined for all new report applications, for validation of data names entered into the report definition. The steps to create a data fields table are as follows:

1. Select option T – Table Maintenance from the Report Writer : Primary Menu. The CAS : Table Maintenance Menu will be displayed with the Appl ID field pre-set to \$RW.
2. Select option T – Table Definitions. The CAS : Table Definition Menu will be displayed with the Appl ID field pre-set to \$RW.
3. From this menu:
  - Select option A – Add Table
  - Enter the first three characters of the report application ID in the Appl ID field
  - Press ENTER

The CAS : Table Description panel, as shown in Figure 3-3 will be displayed.

4. Define your new data fields table by entering values in the fields on this panel, as described below.
5. When all of these fields have been specified, enter the FILE command or press the File key to create the new Data Fields Table.

```

SOLVPROD----- CAS : Table Description -----Page 1 of 2
Command ==>                                         Function=Add

Appl ID ..... YAC
Field name ..... YACDATA_____
Field description ..... _____
Edit type ..... TABLE (TABLE, OSATT, OSFLD, IMFLD or IMREC)
For Edit type = TABLE:
  Validation exit ..... _____
  Sequence numbers ..... ____ (YES or NO)
  Load table? ..... ____ (YES or NO)
  Max abbreviation length ..... ____ (3 - 8 or blank if none)
  Max full value length ..... ____ (3 - 20)
  Max description length ..... ____ (3 - 38 or blank if none)
For Edit type = IMFLD or IMREC:
  INFO/MASTER category ..... ____
For Edit type = IMREC:
  INFO/MASTER field ..... _____
  INFO/MASTER description field ... _____
For Edit type = OSATT or OSFLD:
  Object Services Class ID ..... _____

F1=Help      F2=Split    F3=File     F4=Save
              F8=Forward  F9=Swap
                                              F12=Cancel

```

*Figure 3-3. CAS : Table Description Panel*

**Appl ID**

This field contains the ID of the application to which the report application belongs—indicated by the first three characters of the report application ID.

**Field Name**

Enter the name of the data fields table. This must be the report application ID followed by DATA. For example, if the report application ID is YAC, then this field name will be YACDATA.

**Field Description**

Enter a description of the table.

**Edit Type**

Enter one of the following values to indicate the way in which the table is to be validated:

- TABLE**    The valid values for this table are defined as table entries for this table
- OSATT**    The valid values for the table are the attribute IDs in an Object Services class
- OSFLD**    The valid values for the table are the database field names in an Object Services class
- IMFLD**    The valid values for the table are the field names which are defined in the specified category of an INFO/MASTER database
- IMREC**    This edit type is not used by Report Writer

The remaining fields on this panel are dependent on the value in the Edit Type field.

When the Edit Type is TABLE, enter the values as shown in the following fields:

**Validation Exit**

Not applicable for data fields tables and should be left blank.

**Sequence Numbers**

Enter NO.

**Load Table?**

Enter YES.

**Max abbreviation length**

Not applicable for data fields tables and should be left blank.

**Max full value length**

Enter 12.

**Max description length**

Enter 38.

When the Edit Type is IMFLD, enter the value as shown in the following field:

**INFO/MASTER category**

Enter the INFO/MASTER category name.

When the Edit Type is OSATT or OSFLD, enter the value as shown in the following field:

**Object Services Class ID**

Enter the ID of the Object Services class whose attribute IDs or database field names are the valid field values.

## Defining Data Fields Table Entries

If you have created a table with an Edit Type of TABLE, you must now create the entries for the table which are all the valid data fields for your report application.

It is not necessary to create the table entries for Edit Types of OSATT, OSFLD or IMFLD, as CAS dynamically builds them using the specified INFO/MASTER category or Object Services Class ID, so go to *Step 4: Defining a Sort Fields Table*.

1. Select option T – Table Maintenance from the Report Writer : Primary Menu. The CAS : Table Maintenance Menu will be displayed with the Appl ID field pre-set to \$RW.
2. Select option E – Table Entries. The CAS : Table Entry Definition Menu will be displayed with the Appl ID field pre-set to \$RW.
3. From this menu
  - Select option A – Add Table Entry
  - Enter the first three characters of the data fields table name in the Appl ID field
  - Enter the name of the data fields table in the Field Name field
  - Press ENTER

The CAS : Table Entry Definition panel, as shown in Figure 3-4 will be displayed.
4. Define a table entry by entering values in the fields on this panel, as described below.
5. When all of these fields have been specified, enter the FILE command or press the File key to create the new table entry.
6. Repeat this process until all your data fields have been defined.

```

SOLVPROD----- CAS : Table Entry Definition -----Page 1 of 1
Command ==>                                         Function=Add

Appl ID ..... YAC
Field name ..... YACDATA

Full value ..... _____
Description ..... _____

Active? ..... YES (YES or NO)

F1=Help      F2=Split      F3=File      F4=Save
              F9=Swap
                                         F12=Cancel
  
```

*Figure 3-4. CAS : Table Entry Definition Panel*

### **Appl ID**

This field contains the ID of the application to which the data fields table belongs—indicated by the first three characters of the data fields table name.

**Field name**

This field contains the name of the data fields table.

**Full Value**

Enter the 1 to 12 character name of the data field.

**Description**

Enter a brief description of the data field (maximum length 38 characters).

**Active?**

Enter YES in this field.

---

## Step 4: Defining a Sort Fields Table

A sort fields table must be defined for any report application which requires data to be sorted before printing. The steps to create a sort fields table are as follows:

1. Select option T – Table Maintenance from the Report Writer : Primary Menu. The CAS : Table Maintenance Menu will be displayed with the Appl ID field pre-set to \$RW.
2. Select option T – Table Definitions. The CAS : Table Definition Menu will be displayed with the Appl ID field pre-set to \$RW.
3. From this menu:
  - Select option A – Add Table
  - Enter the first three characters of the report application ID in the Appl ID field
  - Press ENTER

The CAS : Table Description panel, as shown in Figure 3-5 will be displayed.

4. Define your sort fields table by entering values in the fields on this panel, as described below.
5. When all of these fields have been specified, enter the FILE command or press the File key to create the new sort fields table.

```

SOLVPROD----- CAS : Table Description -----Page 1 of 2
Command ==>                                         Function=Add

Appl ID ..... YAC
Field name ..... YACSORT_____
Field description ..... _____
Edit type ..... TABLE (TABLE, OSATT, OSFLD, IMFLD or IMREC)
For Edit type = TABLE:
  Validation exit ..... _____
  Sequence numbers ..... ____ (YES or NO)
  Load table? ..... ____ (YES or NO)
  Max abbreviation length ..... ____ (3 - 8 or blank if none)
  Max full value length ..... ____ (3 - 20)
  Max description length ..... ____ (3 - 38 or blank if none)
For Edit type = IMFLD or IMREC:
  INFO/MASTER category ..... ____
For Edit type = IMREC:
  INFO/MASTER field ..... _____
  INFO/MASTER description field ... _____
For Edit type = OSATT or OSFLD:
  Object Services Class ID ..... _____

F1=Help      F2=Split    F3=File     F4=Save
              F8=Forward  F9=Swap
                                              F12=Cancel

```

*Figure 3-5. CAS : Table Description Panel*

**Appl ID**

This field contains the ID of the application to which the report application belongs—indicated by the first three characters of the report application ID.

**Field Name**

Enter the name of the sort fields table. This must be the report application ID followed by SORT. For example, if the report application ID is YAC, then this field name will be YACSORT.

**Field Description**

Enter a description of the table.

**Edit Type**

Enter one of the following values to indicate the way in which the table is to be validated:

- TABLE**    The valid values for this table are defined as table entries for this table
- OSATT**    The valid values for the table are the attribute IDs in an Object Services class
- OSFLD**    The valid values for the table are the database field names in an Object Services class
- IMFLD**    The valid values for the table are the field names which are defined in the specified category of an INFO/MASTER database
- IMREC**    This edit type is not used by Report Writer

The remaining fields on this panel are dependent on the value you entered in the Edit Type field.

When the Edit Type is TABLE, enter the values, as shown, in the following fields:

**Validation Exit**

Not applicable for sort fields tables and should be left blank.

**Sequence Numbers**

Enter NO.

**Load Table?**

Enter YES.

**Max abbreviation length**

Not applicable for sort fields tables and should be left blank.

**Max full value length**

Enter 12.

**Max description length**

Enter 38.

When the Edit Type is IMFLD enter the value as shown in the following field:

**INFO/MASTER category**

Enter the INFO/MASTER category name.

When the Edit Type is OSATT or OSFLD, enter the value as shown in the following field:

**Object Services Class ID**

Enter the ID of the Object Services class whose attribute IDs are the valid field values.

## Defining Sort Fields Table Entries

If you have created a table with an Edit Type of TABLE, you must now create the entries for the table which are all the valid sort fields for your report application.

It is not necessary to create the entries for Edit Types of OSATT, OSFLD or IMFLD, as CAS dynamically builds them using the specified INFO/MASTER category or Object Services Class ID, so go to *Step 5: Defining Groups*.

1. Select option T – Table Maintenance from the Report Writer : Primary Menu. The CAS : Table Maintenance Menu will be displayed with the Appl ID field pre-set to \$RW.
2. Select option E – Table Entries. The CAS : Table Entry Definition Menu will be displayed with the Appl ID field pre-set to \$RW.
3. From this menu
  - Select option A – Add Table Entry
  - Enter the first three characters of the data fields table name in the Appl ID field
  - Enter the name of the sort fields table in the Field Name field
  - Press ENTER

The CAS : Table Entry Definition panel, as shown in Figure 3-6 will be displayed.
4. Define a table entry by entering values in the fields on this panel, as described below.
5. When all of these fields have been specified, enter the FILE command or press the File key to create the new table entry.
6. Repeat this process until all your sort fields have been defined.

```

SOLVPROD----- CAS : Table Entry Definition -----Page 1 of 1
Command ==>                                         Function=Add

Appl ID ..... YAC
Field name ..... YACSORT

Full value ..... _____
Description ..... _____

Active? ..... YES (YES or NO)

F1=Help      F2=Split      F3=File      F4=Save
              F9=Swap
                                         F12=Cancel
  
```

*Figure 3-6. CAS : Table Entry Definition Panel*

**Appl ID**

This field contains the ID of the application to which the sort fields table belongs—indicated by the first three characters of the sort fields table name.

**Field name**

This field contains the name of the sort fields table.

**Full Value**

Enter the 1 to 12 character name of the sort field.

**Description**

Enter a brief description of the sort field (maximum length 38 characters).

**Active?**

Enter YES in this field.

---

## Step 5: Defining Groups

Groups can be defined within your installation, for ease of distribution of output, to control access to data and to simplify the use of Report Writer. Whenever a value is entered into the Group field on a Report Writer panel, this value will be validated against all entries defined in the \$ADGROUP table for the specified application.

Enter a question mark (?) into a group field to display the CAS : Valid Value List. This list shows all defined groups for the specified application. Select the group that you require from this list. The application is indicated by the first three characters of the report application. This must be a valid application ID that is defined in the Application Register.

For information on maintaining application groups, see the chapter *Registering an Application* in the *Managed Object Development Services Programming and Administration Guide*.

---

## Step 6: Reloading Tables

The Reload Tables function of CAS reloads the tables for the specified application. This function must be invoked every time maintenance is performed on any table. To reload the Report Writer tables, follow the steps listed below:

1. Select option T – Table Maintenance from the Report Writer : Primary Menu. The CAS : Table Maintenance Menu will be displayed with the Appl ID field pre-set to \$RW. (This function is also available from the Table Definition Menu and the Table Entry Definition Menu.)

2. From this menu:
  - Select option R – Reload Tables
  - Enter the application ID of the table on which maintenance was performed, in the Appl ID field
  - Press ENTER

When the tables have successfully reloaded a message will be displayed at the top of the screen, as shown in Figure 3-7.

```
SOLVPROD----- CAS : Table Maintenance Menu -----$VM002
Select Option ==>
VM0003 VALIDATION TABLES LOADED SUCCESSFULLY FOR APPLICATION YAC
  T - Table Definitions
  E - Table Entries
  R - Reload Tables
  X - Exit

Appl ID .....+ YAC ( Required R Optional T E )

F1=Help      F2=Split      F3=Exit      F4=Return
              F9=Swap
```

Figure 3-7. Validation Tables Loaded Successfully Message

---

## Now You can Define and Generate Reports

When all of the functions defined above have been carried out successfully, you can begin to define and print reports, which is described in Chapter 4, *Defining and Printing a Simple Report*.

# Defining and Printing a Simple Report

This chapter is in tutorial form and steps through the definition and printing of a simple report. The report used in the examples is the UAMS Summary report which is distributed with Report Writer. Finally there is an example of a schedule definition.

The steps involved in defining and printing a report, which are described in this chapter, are as follows:

- ▶ Accessing and leaving Report Writer
- ▶ Adding a report definition
- ▶ Printing the report
- ▶ Scheduling the report

---

## Accessing and Leaving Report Writer

Report Writer is accessed through the SOLVE : Primary Menu as follows:

- ▶ Select option MS – Management Services. The Management Services : Primary Menu is presented.
- ▶ Select option R – Report Writer. The Report Writer : Primary Menu is presented.

---

**Note:** Report Writer access is dependant on UAMS authority settings.

---

There are several ways to exit Report Writer depending on the current screen displayed.

- ▶ When browsing a data entry panel, enter the EXIT command or press the Exit key. This returns you to the previous menu.
- ▶ When editing a data entry panel, enter the FILE or CANCEL command, or press the File or Cancel key. This returns you to the previous menu.
- ▶ From a menu or selection list panel, enter the RETURN command or press the Return key. This returns you to the Report Writer Primary Menu.
- ▶ Using the panel skipping facility of management services, enter =MS to return to the Management Services : Primary Menu.

---

## Adding a Report Definition

To add a new report definition to Report Writer, select option R – Report Definition Maintenance from the Report Writer Primary Menu. The Report Definition Menu, as shown in Figure 4-1 will be presented.

```
SOLVPROD----- Report Writer : Report Definition Menu -----SRW010
Select Option ==>

  A - Add Report Definition
  B - Browse Report Definition
  U - Update Report Definition
  D - Delete Report Definition
  C - Copy Report Definition
  LC - List Components in Report Definition
  L - List Report Definitions
  V - View Report Layout
  X - Exit

Report Appl ..+ _____ ( Required B U D C LC V Optional A L )
Report Type ... _____ ( Required B U D C LC V Optional A L )
Userid ..... _____ ( Optional A B U D C LC L V )
Report Name ... _____ ( Required B U D C LC V Optional A L )
Group .....+ _____ ( Optional L )

F1=Help      F2=Split      F3=Exit      F4=Return
              F9=Swap
```

*Figure 4-1. Report Definition Menu*

From the Report Definition Menu, select option A – Add Report Definition. The Report Description panel, as shown in Figure 4-2 is presented .

```

SOLVPROD----- Report Writer : Report Description -----Page 1 of 1
Command ==>                                         Function=Add

Report Appl .....+ _____
Report Type ..... _____ (PUBLIC or PRIVATE)
Userid ..... _____ (Userid if PRIVATE)
Report Name ..... _____
Description ..... _____

Status ..... ACTIVE__ (ACTIVE or INACTIVE)
Report Width ..... 132 (Range 3 to 256)
Suit Single Record? NO_ (YES or NO)
Report Exit ..... _____ (NCL procedure name)
Group .....+ _____
Criteria Appl ID ..+ _____
  Type ..... _____ (PUBLIC or PRIVATE or FREEFORM)
  Userid .... _____ (Userid if PRIVATE)
  Name .....+ _____
Comments ..... _____
_____
_____

F1=Help      F2=Split      F3=File
              F9=Swap
              F12=Cancel

```

*Figure 4-2. Report Description Panel*

Enter the following information in the fields on the Report Description panel:

**Report Appl**  
 Enter the ID of a report application. The report application must be defined in table \$RWAPPL for the specified application—indicated by the first three characters of the report application.

**Report Type**  
 Enter PUBLIC or PRIVATE.

**Userid**  
 If the Report Type is PRIVATE, this field will default to the logged-on user ID, or enter the user ID of the owner of the report.

**Report Name**  
 Enter the name of your report.

**Description**  
 Enter a brief description of the use of the report. This field is mandatory.

**Status**  
 Enter ACTIVE or INACTIVE to indicate whether or not the report is disabled. Defaults to ACTIVE.

**Report Width**

Enter the width of your report if this is different from the default of 132.

**Suit Single Record?**

Enter YES or NO to indicate whether this report is suitable to print a single record (YES) or many records (NO). The default is NO.

**Report Exit**

If there is an NCL procedure used to do special processing of data, enter the name of that procedure in this field.

**Group**

Enter your group name if applicable. This field is optional. The group name must be defined in the table \$ADGROUP for the specified application—indicated by the first three characters of the report application.

For more information on maintaining application groups, see the chapter *Registering and Application in the Managed Object Development Services Programming and Administration Guide*.

**Criteria Appl ID**

Enter the application ID of a CAS criteria definition. This field must be blank if the Criteria Type is FREEFORM.

**Type**

Enter the type of criteria. Valid values are :

<b>PUBLIC</b>	The criteria is a public criteria
<b>PRIVATE</b>	The criteria is a private criteria
<b>FREEFORM</b>	The Criteria panel is to be presented when a report is generated

**Userid**

Enter the user ID of the user who owns the criteria if it is a private criteria.

**Name**

Enter the name of the criteria, if the criteria type is PUBLIC or PRIVATE.

**Comments**

Enter a more detailed description of the report.

Press the File key to file this control data for the report or press the ENTER key to verify the data entered. If any fields are in error, an error message will be displayed and the field in error will be highlighted.

If all the entries are valid, the Report Definition Component Menu is displayed with a message indicating that the report description details have been added to the database. The Report Definition Component Menu is presented as shown in Figure 4-3.

```
SOLVPROD----- Report Writer : Report Definition Component Menu -----$RW014
Select Option ==>

D - Description
RH - Report Header
PH - Page Header
CH - Control Break Header
DF - Data Format
CT - Control Break Trailer
PT - Page Trailer
RT - Report Trailer
SF - Sort Fields
LC - List all Components
V - View Report Layout
X - Exit

Report Details
Report Appl ... $UASYS
Type.Userid ... PUBLIC
Report Name ... $SUMMARY
Description ... UAMS Summary

F1=Help      F2=Split      F3=Exit      F4=Return
              F9=Swap
```

*Figure 4-3. Report Definition Component Menu*

From this menu choose the component that you want to define.

A simple report may have only a data format definition, and, if the input data is to be sorted, a sort field definition. A more complex report may have report headers and trailers, page headers and trailers, and control break headers and trailers as well.

This tutorial will step through the definition of the Page Header and Data Format for the UAMS Summary report, which is one of the distributed report definitions.

### Defining a Page Header

Page headers are printed at the top of each new page. To define a page header, select option PH from the Report Definition Component Menu. The Edit Page Header Layout panel, as shown in Figure 4-4, will be presented.

```

SOLVPROD----- Report Writer : Edit Page Header Layout -----
Command ==>                                         Scroll ==> PAGE

Report Appl ..... $UASYS      Type ... PUBLIC          Name ... $SUMMARY

Line Fmt  1-+-----10-+-----20-+-----30-+-----40-+-----50-+-----60-+-----
**** ***** TOP OF DATA *****
**** ***** BOTTOM OF DATA *****

F1=Help      F2=Split      F3=File      F4=Save      F5=Fields      F6=View
F7=Backward  F8=Forward      F9=Swap      F10=Left     F11=Right     F12=Cancel

```

**Figure 4-4. Edit Page Header Layout Panel**

The Report Appl, Type and Name fields appear on line four as entered in the Report Description panel. Input fields on the Edit Page Header Layout panel are the Line, Fmt and layout fields. These are explained below. The layout area of the panel, delimited by the \*\*\*\* TOP OF DATA \*\*\*\* and \*\*\*\* BOTTOM OF DATA \*\*\*\* lines, is clear, ready for you to *draw* your report layout.

**Line**

Editor line commands are entered in the line sequence number field. The editor line commands are fully described in Appendix B, *Editor Line Commands*. To begin entering data, first position the cursor on the first asterisk in the Line field and enter the insert command, I or *Inn*. After entering the insert command, the requested number of blank lines will be presented for you to begin entering data.

**Fmt**

This field determines how the data in the layout line will be formatted before being printed. The format options available are as follows:

- B** The data on this line will be printed in bold.
- C** The data in the line will be centred.
- H** Indicates that this line is a heading line. A heading line will only be printed if the component previously printed was not this type of component, for example, a different data format or a control break trailer. (This option can only be specified in a data format definition.)

- L** The data in the line will be left aligned.
- O** This line will overlay the previous line. This option is used on the UAMS Summary report page header to overlay the page number field on the first line of the heading.
- P** Advance to a new page—this line is not printed and must be blank
- Pnn** Advance to a new page and reset the page number to *n*, where *n* is in the range 0 to 9999. This line is not printed and must be blank.
- R** The data in the line will be right aligned.
- X** This line will not be printed if all the fields in the line are blank (that is, all fields being reported are null or blank).

Except for P and Pnn, these options can be combined in the Fmt field. H, B, O and X can be combined with either L or R or C (L, R and C being mutually exclusive). For example, line 2 in Figure 4-5 combines R, B and O. This will bold and right align the data and overlay it on the previous line.

These formatting options apply to the whole line. Formatting can also be performed at field level through the Edit Page Header Fields panel (see the section *Defining Fields* later in this chapter).

```

SOLVPROD----- Report Writer : Edit Page Header Layout -----
Command ==> Scroll ==> PAGE

Report Appl ..... $UASYS      Type ... PUBLIC                Name ... $SUMMARY

Line Fmt  1---+-----10---+-----20---+-----30---+-----40---+-----50---+-----60---+-----
**** ***** ***** TOP OF DATA *****
0001 CB__ User Access Maintenance Subsystem - Summary Report (!DATE2      )
0002 RBO__ Page !P
0003 CB__ -----
**** ***** ***** BOTTOM OF DATA *****

F1=Help      F2=Split      F3=File      F4=Save      F5=Fields    F6=View
F7=Backward  F8=Forward    F9=Swap     F10=Left    F11=Right   F12=Cancel

```

Figure 4-5. UAMS Summary Report Page Header

## Layout

The Layout field is the field in which you enter the variable and constant data which make up the page header. There are two types of data which can be entered in the layout field:

- ▶ Constant data  
This is data which appears on the report exactly as it is typed in the layout field, after being formatted according to any of the formatting options specified in the Fmt field.
  
- ▶ Variable data  
When data retrieved from a database or from an exit procedure is to be included in the report, a variable name is entered in the layout field. There are two types of variable fields:
  - Data Fields  
Data fields must be read from a database by the service procedure or set by a report exit, and are prefixed by an ampersand (&). The data field name must be 1 to 12 alphanumeric and/or national characters long and can be terminated by an asterisk (\*) to indicate a repeating field. At any time a data field list can be obtained by typing an ampersand followed by a question mark (&?). A data field list is a list of all valid data fields for the current report application, from which a selection can be made.
  
  - System Fields  
A System field is denoted by the prefix of an exclamation mark (!) and must be defined in the system fields table. Fields in the system fields table are listed in Appendix D, *System Field List*. At any time a system field list can be obtained by typing an exclamation mark followed by a question mark (!?). The system field list is a list of all valid system fields, from which a selection can be made.

If the name of a field is too long to be entered in the report layout, it can be given a shorter name which will be related to the real name of the field on the Edit Page Header Fields panel.

Variable data is further described to Report Writer using the Edit Report Page Header Fields panel. This panel is accessed by entering the FIELDS command, or by pressing the Fields key, on the Edit Page Header Layout panel. Figure 4-6 shows the Edit Page Header Fields panel.

```

SOLVPROD----- Report Writer : Edit Page Header Fields -----
Command ==>                                     Scroll ==> PAGE

Report Appl ..... $UASYS      Type ... PUBLIC          Name ... $SUMMARY

Report Field   Real Field   Func   Format   Align   Leng   Pad   Bold   Ulin   Caps
!DATE2        !DATE2        VALUE  _____  _____  ___ (   ) ___  ___  NO_
!P             !P             VALUE  _____  _____  ___ (   ) ___  ___  NO_
**END**

F1=Help      F2=Split      F3=File      F4=Save      F5=Layout      F6=View
F7=Backward  F8=Forward    F9=Swap

```

Figure 4-6. Edit Page Header Fields Panel

**Defining Fields**

The Edit Page Header Fields panel allows you to view the variable fields entered on the layout panel and change the real field names if necessary. Other attributes of the field, can be changed through this panel.

The fields on the Edit Page Header Fields panel are as follows:

**Report Appl**

This is the ID of the report application to which the report being processed belongs.

**Type**

This is the type of report being processed and may be PUBLIC or PRIVATE. If PRIVATE, it will be followed by the user ID of the owner of the report.

**Name**

This is the name of the report being processed.

**Report Field**

This is the name used to define the field in the layout.

### Real Field

This is the name of the data or system field that contains the data to be printed. If the field starts with an exclamation mark (!) it is a system field, otherwise it is a data field. System fields are set by the system and are defined in the system fields table (see Appendix D, *System Field List*). Data fields are read from a database by the service procedure or set by a report exit.

A valid data field name must be 1 to 12 alphanumeric or national characters long. An asterisk (\*) terminating a data field name indicates that it is a repeating field. An asterisk (\*) is displayed to the left of each data field that is not defined in the data fields table for the report application to which the report belongs.

A data field list can be obtained by entering a question mark (?) in this field. A data field list is a list of all valid data fields for the current report application, from which a selection can be made. A system field list can be obtained by entering an exclamation mark followed by a question mark (!?). The system field list is a list of all valid system fields, from which a selection can be made.

### Func

This field determines the function of the field. Valid values for the Func field are:

<b>COUNT</b>	The number of non-blank occurrences of the real field will be printed
<b>MAX</b>	The maximum value of the real field will be printed
<b>MEAN</b>	The mean value of the real field will be printed
<b>MIN</b>	The minimum value of the real field will be printed
<b>SUM</b>	The total value of the real field will be printed
<b>VALUE</b>	The value of the real field will be printed (this is the default for the Func field)

A list of valid values for this field can be obtained by entering a question mark (?) in this field.

### Format

This field determines whether the data is to be formatted. Valid values for the Format field are as follows:

<b><i>F</i><i>n</i></b>	Indicates that this is a floating point number that is to be rounded to <i>n</i> decimal digits ( <i>n</i> is in the range 1 to 15)
<b><i>D</i><i>x.y</i></b>	Indicates that this field is a date that is to be converted from DATE <i>x</i> to DATE <i>y</i> format ( <i>x</i> and <i>y</i> are in the range 1 to 9)

---

**Note:** The variables *x* or *y* can be an asterisk (\*), if either is to be replaced by a 4 or 5 at report generation, based on the setting of the system variable &ZUSERLC. If &ZUSERLC is set to 'US' the asterisk is replaced by 5, otherwise it is replaced by 4.

---

### **Align**

This field determines whether the data is to be aligned. Valid values for the Align field are:

- CENTRE** Indicates that the data is to be centred within the length specified in the Leng field
- LEFT** Indicates that the data is to be left justified within the length specified in the Leng field
- RIGHT** Indicates that the data is to be right justified within the length specified in the Leng field

A list of valid values for this field can be obtained by entering a question mark (?) in this field.

### **Leng**

This field indicates the length of the data that will be printed, the length in which the data will be aligned if the Align field is specified, and the length of the data that will be underlined if the Ulin field is set to YES.

If this field is not specified, the length used will be the length from the beginning of this field in the layout to the next non-blank character.

### **Pad**

This field determines the character that will be used to pad the data, if it is aligned and the length of the data is shorter than the Leng field. Pad may be any character.

### **Bold**

This field can be YES or NO to indicate whether or not the data will be bolded. A list of valid values for this field can be obtained by entering a question mark (?) in this field. Entering NO in this field will override bolding, if specified, in the Fmt field on the Edit Page Header Layout panel.

### **Ulin**

This field can be YES or NO to indicate whether or not the field is to be underlined. When YES is specified, the value in the Leng field specifies the length of the data to be underlined. A list of

valid values for this field can be obtained by entering a question mark (?) in this field.

### Caps

This field can be YES or NO to indicate whether or not the data in the field is to be converted to upper case characters before printing. The default is NO. A list of valid values for this field can be obtained by entering a question mark (?) in this field.

When all the fields on the page header layout have been defined on the fields panel, enter the FILE command, or press the File key. The Report Definition Component Menu will be displayed with the message,

```
RW1507 PAGE HEADER UPDATED
```

## Defining a Data Format

Data formats describe how to print each record passed to Report Writer by the service procedure. To define a data format, select option DF – Data Format from the Report Definition Component Menu. The Data Format Menu, as shown in Figure 4-7 will be presented .

```
SOLVPROD----- Report Writer : Data Format Menu -----$RW022
Select Option ==>

  A - Add Data Format
  B - Browse Data Format
  U - Update Data Format
  D - Delete Data Format
  C - Copy Data Format
  L - List Data Formats
  X - Exit

Data Format Number ... ____ ( Required B U D C Optional A )

Report Details
Report Appl ... $UASYS
Type.Userid ... PUBLIC
Report Name ... $SUMMARY
Description ... UAMS Summary

F1=Help      F2=Split      F3=Exit      F4=Return
              F9=Swap
```

*Figure 4-7. Data Format Menu*

From the Data Format Menu choose option A – Add Data Format. Next you must enter the number of the data format you are defining in the Data Format Number field.

The UAMS Summary report, shown in Figures 4-8 and 4-9, has only one data format, consisting of several lines. The Report Appl, Type and

Name fields appear on line four as entered in the Report Description panel. The Description field is mandatory, and is a brief description of this data format.

```

SOLVPROD----- Report Writer : Edit Data Format Layout -----
Command ==> Scroll ==> PAGE

Report Appl ..... $UASYS      Type ... PUBLIC          Name ... $SUMMARY
Data Format Num .. 001        Desc ... Data Format_____

Line Fmt  1---+---10---+---20---+---30---+---40---+---50---+---60---+---
**** ***** ***** TOP OF DATA *****
0001 HB__  Userid      Name              Location          Phone            C
0002 HB__  -----
0003 _____ &sec0010  &sec0011          &sec0012          &sec0013      &
**** ***** ***** BOTTOM OF DATA *****

F1=Help      F2=Split     F3=File      F4=Save      F5=Fields    F6=View
F7=Backward  F8=Forward   F9=Swap      F10=Left     F11=Right   F12=Cancel

```

Figure 4-8. Edit Data Format Layout Panel for UAMS Summary Report

```

SOLVPROD----- Report Writer : Edit Data Format Layout -----
Command ==> Scroll ==> PAGE

Report Appl ..... $UASYS      Type ... PUBLIC          Name ... $SUMMARY
Data Format Num .. 001        Desc ... Data Format_____

Line Fmt  +---70---+---80---+---90---+---100---+---110---+---120---+---130
**** ***** ***** TOP OF DATA *****
0001 HB__  Cmds  UAMS  OCS  B/S  N/S  S/S  E/S  FTS  MAI  AOM  I/S  I/M  NEWS  NTS  NCS
0002 HB__  --  -----
0003 _____ &cm  &ua  &oc  &bs  &ns  &ss  &es  &ft  &ma  &ao  &is  &im  &nw  &nt  &nc
**** ***** ***** BOTTOM OF DATA *****

F1=Help      F2=Split     F3=File      F4=Save      F5=Fields    F6=View
F7=Backward  F8=Forward   F9=Swap      F10=Left     F11=Right   F12=Cancel

```

Figure 4-9. Edit Data Format Layout for UAMS Summary Report Paged Right

To define a data format to Report Writer, draw the fields in the layout area of the layout panel, as described for a page header, beginning on page 4-9.

In the example, lines 1 and 2 are constant data and will be printed exactly as shown, in bold. Line 3 consists of variable data names positioned as they are required to be printed.

When the data format layout is complete, the variable fields must be defined to Report Writer using the Edit Data Format Fields panel. This panel is accessed by entering the FIELDS command, or pressing the Fields key.

```

SOLVPROD----- Report Writer : Edit Data Format Fields -----
Command ==>                                         Scroll ==> PAGE

Report Appl ..... $UASYS      Type ... PUBLIC          Name ... $SUMMARY
Data Format Num .. 001        Desc ... Data Format_____

Report Field  Real Field  Func   Format  Align  Leng  Pad  Bold Ulin Caps
SEC0010      SEC0010  VALUE_  _____  _____  ____ (  ) _____ NO_
SEC0011      SEC0011  VALUE_  _____  _____  ____ (  ) _____ NO_
SEC0012      SEC0012  VALUE_  _____  _____  ____ (  ) _____ NO_
SEC0013      SEC0013  VALUE_  _____  _____  ____ (  ) _____ NO_
CM           SEC0050  VALUE_  _____  RIGHT_  4_ (  ) _____ NO_
UA           SEC002A  VALUE_  _____  CENTRE  3_ (  ) _____ NO_
OC           SEC0020  VALUE_  _____  CENTRE  3_ (  ) _____ NO_
BS           SEC0021  VALUE_  _____  CENTRE  3_ (  ) _____ NO_
NS           SEC0022  VALUE_  _____  CENTRE  3_ (  ) _____ NO_
SS           SEC0023  VALUE_  _____  CENTRE  3_ (  ) _____ NO_
ES           SEC0024  VALUE_  _____  CENTRE  3_ (  ) _____ NO_
FT           SEC0025  VALUE_  _____  CENTRE  3_ (  ) _____ NO_
MA           SEC0027  VALUE_  _____  CENTRE  3_ (  ) _____ NO_
AO           SEC002B  VALUE_  _____  CENTRE  3_ (  ) _____ NO_
IS           SEC0081  VALUE_  _____  CENTRE  3_ (  ) _____ NO_

F1=Help      F2=Split    F3=File      F4=Save      F5=Layout    F6=View
F7=Backward  F8=Forward  F9=Swap      F12=Cancel

```

Figure 4-10. Edit Data Format Fields Panel for UAMS Summary Report

```

SOLVPROD----- Report Writer : Edit Data Format Fields -----
Command ==>                                         Scroll ==> PAGE

Report Appl ..... $UASYS      Type ... PUBLIC          Name ... $SUMMARY
Data Format Num .. 001        Desc ... Data Format_____

Report Field  Real Field  Func   Format  Align  Leng  Pad  Bold Ulin Caps
IM           SEC0080  VALUE_  _____  CENTRE  3_ (  ) _____ NO_
NW           SEC0026  VALUE_  _____  CENTRE  3_ (  ) _____ NO_
NT           SEC0151  VALUE_  _____  CENTRE  3_ (  ) _____ NO_
NC           SEC002D  VALUE_  _____  CENTRE  3_ (  ) _____ NO_
**END**

F1=Help      F2=Split    F3=File      F4=Save      F5=Layout    F6=View
F7=Backward  F8=Forward  F9=Swap      F12=Cancel

```

Figure 4-11. Edit Data Format Fields Panel for UAMS Summary Report Paged Forward

Figures 4-10 and 4-11 show the Edit Data Format Fields panels for the UAMS Summary report.

You will see that the editor has entered the field names as you defined them in the layout, and set the default for the Func and Caps fields. Through this panel you can define attributes of the individual fields and relate report name fields to their real field names. This process is described in the section *Defining Fields* in this chapter.

### View the Report Layout

At any time during the definition of a report, the complete report layout can be viewed, by selecting option V from the Report Definition Component Menu. The View Report Layout panel, as shown in Figure 4-12, shows the completed UAMS Summary report layout.

```

SOLVPROD----- Report Writer : View Report Layout -----Line 1 of 7
Command ==>                                           Scroll ==> PAGE

Comp Num  Data
-----+-----10-----+-----20---+-----30---+-----40---+-----50---+-----60---+-----
PH                                               User Access Maintenance Subsystem - S
PH
PH
DF 001  Userid      Name                Location                Phone                Cm
DF 001  -----
DF 001  &sec0010    &sec0011                &sec0012                &sec0013                &c
RT ----- End of Rep
***** BOTTOM OF DATA *****

F1=Help      F2=Split      F3=Exit                F5=Find      F6=Exit
F7=Backward  F8=Forward    F9=Swap                F11=Right

```

*Figure 4-12. View Report Layout Panel*

This panel can be paged backwards, forwards, left and right to view the complete layout. Figure 4-13 shows the UAMS Summary layout paged right.

```

SOLVPROD----- Report Writer : View Report Layout -----Line 1 of 7
Command ==>                                           Scroll ==> PAGE

-----60-----70-----80-----90-----100-----110-----120-----130
ce Subsystem - Summary Report (!DATE2                )
                                                    Page !P

-----
Phone          Cmds UAMS OCS B/S N/S S/S E/S FTS MAI AOM I/S I/M NEWS NTS NCS
-----
&sec0013      &cm  &ua  &oc &bs &ns &ss &es &ft &ma &ao &is &im &nw &nt &nc
----- End of Report -----
***** BOTTOM OF DATA *****

F1=Help      F2=Split      F3=Exit      F5=Find      F6=Exit
F7=Backward  F8=Forward     F9=Swap     F10=Left

```

Figure 4-13. View Report Layout Panel Paged Right

---

## Generating and Printing the Report

Once the report is defined to Report Writer, it can be generated and printed. To do this, select option G – Generate a Report from the Primary Menu. The Generate a Report panel, as shown in Figure 4-14 will be displayed.

```

SOLVPROD----- Report Writer : Generate a Report -----Page 1 of 1
Command ==>                                           Function=Generate

Report Appl .....+ $UASYS__
Report Type ..... PUBLIC_      (PUBLIC or PRIVATE)
Userid .....          (Userid if PRIVATE)
Report Name .....+ $SUMMARY___

Owner ..... USER01_____

Printer Name .....+ MYPRINTER__
Hold Report? ..... YES        (YES or NO)
Keep Report? ..... NO_        (YES or NO)
Number of Copies ... 1_        (1 to 255)

F1=Help      F2=Split      F3=Exit      F6=Action
F9=Swap

```

Figure 4-14. Generate a Report Panel

The input fields on the Generate a Report panel are as follows:

**Report Appl**

Enter the ID of the report application to which the report belongs. This value is set up by your installation in the Appl table.

**Report Type**

Enter PRIVATE or PUBLIC (or abbreviate to the first two characters). (Report access is dependant on the security (UAMS) definition of the logged-on user ID.)

**Userid**

The user ID is required to be entered for a private report (if not entered, the system will enter the logged-on user ID).

**Report Name**

Enter the name of the report to be produced. (This must be an already defined report.)

**Owner**

Enter the user ID of the owner (or receiver) of the report.

**Printer Name**

Enter the name of the printer to which the report is to be sent. Printer names are set by your installation.

**Hold Report?**

Enter YES to hold the report in the PSM print spool or NO to print the report as soon as the printer becomes available.

**Keep Report?**

Enter YES to retain a copy of the report in the PSM print spool after it has been printed, NO to delete the report from the print spool as soon as it has printed successfully.

**Number of Copies**

Enter the number of copies of the report you require to be printed. The valid range is 1 to 255.

**Error Processing**

If an error occurs during the generation of the report, an error message is written to the activity log. If the print file was successfully opened before the error occurred, an error message is also written at the end of the report, and the report is placed on the PSM output spool with a status of HELD-ERROR or DIRECT-ERR.

---

## Scheduling the Report

It is possible to generate a report automatically at regular intervals using the scheduling function of Report Writer.

To do this, select option S – Schedule a Report, from the Report Writer Primary Menu. The Schedule Definition Menu will be presented. Then, select option A – Add Schedule Definition. The Schedule Definition panel will be presented .

The Schedule Definition panel shown in Figure 4-15 is a simple schedule definition which will cause the report to be generated every 7 days, on Monday.

```
SOLVPROD----- Report Writer : Schedule Definition -----Page 1 of 2
Command ==>                                           Function=Add

Schedule Name ..... WEEK1_____ Status ... ACTIVE__ (ACTIVE or INACTIVE)
Description ..... Weekly UAMS Summary Report_____

Frequency Type ..... DAYS__ (TIME, DAYS or MONTHS)
Frequency ..... 7_____ (HH.MM, number of DAYS or MONTHS)

Start Date ..... 27-JUL-1993 (Date)
Expiry Date ..... _____ (Date)
Delete Expired ..... NO_ (Yes or No)

Start Time ..... 00.00 (HH.MM)
End Time ..... _____ (HH.MM)
Valid Days ..... MON_____ (Blank OR MON,TUE ...)
Catchup if missed ... NO_ (Yes or No)

Execution Region .... *_____ (* for your own or MON, LOG or SYS)
Keep Region ..... LOG (MON, LOG or SYS)

F1=Help      F2=Split    F3=File     F4=Save
              F8=Forward  F9=Swap
                                           F12=Cancel
```

*Figure 4-15. Schedule Definition Panel*

The fields on the Schedule Definition panel are as follows:

### Schedule Name

This is the name of the report schedule. It must be unique, 1 to 12 alphanumeric or national characters long and is the name used to access the schedule for maintenance.

### Status

This field determines whether the schedule is currently in use. When adding or updating a schedule definition, enter ACTIVE for a schedule you wish to be operative, or INACTIVE for a schedule definition which is not currently in use—only the first character needs to be entered.

**Description**

A short (up 45 characters) description of the schedule definition. This is for information only. The system makes no use of this field.

**Frequency Type**

The Frequency Type and Frequency fields are interrelated. The Frequency Type indicates the units of time at which the schedule will repeat. The possible values are:

**TIME** The Frequency field will be expressed in hours and minutes

**DAYS** The schedule will repeat in the number of days defined in the Frequency field

**MONTHS** The schedule will repeat in the number of months defined in the Frequency field

**Frequency**

Enter time in the format HH.MM if the Frequency Type is TIME. Enter a whole number when the Frequency Type is DAYS or MONTHS, to indicate the elapse time between repeated executions of the schedule. For example, if the Frequency Type is TIME, and the Frequency is 12.00, the schedule will be due to run every 12 hours.

**Start Date**

The first date on which the schedule will execute. When adding a new schedule, this field will default to the current date, but you can enter a date in the past or future.

**Expiry Date**

The last date on which the schedule will execute. If this field is omitted, the schedule does not expire. If specified, the expiry date must be later than the start date.

**Delete Expired**

If you want the schedule definition to be deleted after the expiry date, enter YES in this field. The schedule definition will be deleted the next time schedule processing starts after the expiry date. The default of NO means that the schedule will not be deleted.

**Start Time**

This is the start time in HH.MM format. For Frequency Types of DAYS or MONTHS, this is the time when the schedule will be executed. If the frequency type is TIME, this is the first time that the schedule will execute on the start date. The schedule is then executed at the specified interval until the end time (if specified) or the end of the expiry date. The default is midnight.

**End Time**

This is the end time in HH.MM format. This is only used if Frequency Type is TIME. It specifies the last time that the schedule will execute each day. If omitted, the schedule will execute every frequency interval until the end of the day defined as the Expiry Date.

**Valid Days**

When scheduling a report, the next time and day a schedule is due is determined from the Frequency Type and Frequency values. The list of valid days is then checked to ensure that the day is allowed for the schedule.

You can specify a list of days when the schedule is required to execute. The default (blank) allows the schedule to execute on any day of the week (as determined by the Frequency and Frequency Type). If you only want the schedule to execute on certain days of the week, enter the names of the days in this field. The day names must be abbreviated to the first three characters of the day name. If you specify more than one day, separate the days with commas. Valid day names are MON TUE WED THU FRI SAT and SUN. For example, a schedule that will execute only on Mondays, Wednesdays and Fridays would be entered as follows:

MON , WED , FRI

**Catchup if missed**

Specify YES in this field if it is important that a schedule executes, even if the system is not operative at its normal due time. This will force the schedule to be executed when the system next starts up after the due time. The schedule will be executed once only, regardless of the number of times it normally would have executed if the system was running. The default is NO.

**Execution Region**

This is the name of the region (user ID) where the schedule is to be executed. This may contain an asterisk (\*) to indicate your own user ID, MON to indicate the background monitor user ID, LOG for the background logger, or SYS for the background system user ID. Only the first letter of your choice needs to be entered. The default is an asterisk.

**Keep Region**

If you are not logged on when the schedule is due to execute, and you specified an asterisk (\*) in the Execution Region field, this will define the user ID which will generate the report. Valid entries are:

<b>MON</b>	The background monitor user ID
<b>LOG</b>	The background logger user ID
<b>SYS</b>	The background system user ID

Only the first letter of your choice needs to be entered. The default is LOG.

After entering the schedule details on the Schedule Definition panel, enter the FORWARD command or press the Forward key. The Generate a Report panel will be presented for you to enter the report details. See the section *Generating and Printing a Report* beginning on page 4-16 for a description of the fields on the Generate a Report panel.

# Report Writer Primary Menu

The Report Writer Primary Menu is the entry point to all the functions available in Report Writer. To access the Primary Menu, select option R – Report Writer from the Management Services : Primary Menu. The Primary Menu, as shown in Figure 5-1 will be displayed .

```
SOLVPROD----- Report Writer : Primary Menu -----$RW001
Select Option ==>

R - Report Definition Maintenance          Userid USER01
G - Generate a Report                     LU      TERM001
S - Schedule a Report                     Time   14.15.08
P - Reports in Progress                   WED 28-JUL-1993
T - Table Maintenance
X - Exit

Userid ... _____ ( Optional P )

F1=Help      F2=Split      F3=Exit      F4=Return
              F9=Swap
```

Figure 5-1. Primary Menu

Enter an option from the menu into the Select Option ==> field to invoke the required function.

Valid options on the Primary Menu are as follows:

- ▶ **R – Report Definition Maintenance**  
Selecting this option will display the Report Definition Menu which provides a range of functions for maintaining Report Definitions. These functions are described in Chapter 6, *Report Definition Maintenance*.
- ▶ **G – Generate a Report**  
Selecting this option will display the Generate a Report panel which provides the facility to submit a report for generation. The Generate a Report function is described in Chapter 7, *Generate a Report*.
- ▶ **S – Schedule a Report**  
Selecting this option will display the Schedule Definition Menu which provides a range of functions for maintaining Schedule Definitions. These functions are described in Chapter 8, *Schedule a Report*.
- ▶ **P – Reports in Progress**  
Selecting this option will display the Reports in Progress panel which is a list of all reports which are currently being generated by the system. The Reports in Progress function is described in Chapter 9, *Reports in Progress*.
- ▶ **T – Table Maintenance**  
Selecting this option will display the CAS : Table Maintenance Menu which provides a range of functions for maintaining Table Definitions and Table Entries. These functions are described in the *Managed Object Development Services Programming and Administration Guide*.
- ▶ **X – Exit**  
Selecting this option will return you to the Management Services Primary Menu.

There is one input field on the Primary Menu—the Userid field, which can be entered when selecting option P—the Reports in Progress list. It allows you to enter a generic prefix for the user ID of the users whose reports are to be displayed. For example, if you entered the letters USER, the displayed list would contain all reports being generated that were owned by users whose user ID started with USER.

# Report Definition Maintenance

The report definition maintenance function of Report Writer is used to:

- ▶ Define new reports to Report Writer
- ▶ Perform maintenance functions on existing report definitions
- ▶ Display a list of all reports defined on the system
- ▶ Look at (view) the layout of existing report definitions

This chapter describes all of the panels used to perform these functions.

---

## Report Definition Menu

To access the report definition maintenance functions, select option **R** on the Report Writer : Primary Menu, or enter **MS.R.R** on the SOLVE : Primary Menu. The Report Definition Menu, as shown in Figure 6-1, is presented.

```
SOLVPROD----- Report Writer : Report Definition Menu -----$RW010
Select Option ==>

  A - Add Report Definition
  B - Browse Report Definition
  U - Update Report Definition
  D - Delete Report Definition
  C - Copy Report Definition
  LC - List Components in Report Definition
  L - List Report Definitions
  V - View Report Layout
  R - Reset Report Cache
  X - Exit

Report Appl ..+ _____ ( Required B U D C LC V Optional A L )
Report Type ... _____ ( Required B U D C LC V Optional A L )
Userid ..... _____ ( Optional A B U D C LC L V )
Report Name ... _____ ( Required B U D C LC V Optional A L )
Group .....+ _____ ( Optional L )

F1=Help      F2=Split      F3=Exit      F4=Return
              F9=Swap
```

*Figure 6-1. Report Definition Menu*

This menu lists all the options available for defining and maintaining reports. To make a selection, enter one of the following options from the menu in the Select Option ==> field:

- A** Enter A to add a new report definition
- B** Enter B to browse an existing report definition
- U** Enter U to update an existing report definition
- D** Enter D to delete an existing report definition
- C** Enter C to make a copy of an existing report definition
- LC** Enter LC to display a list of all the components of an existing report definition
- L** Enter L to display a list of all existing report definitions
- V** Enter V to view the layout of an existing report definition
- R** Enter R to reset the report cache
- X** Enter X to return to the Primary Menu

The fields that can be entered on the Report Definition Menu are as follows:

**Report Appl**

This is the ID of the report application to which the report that is being processed belongs. When selecting the list option, you can enter a prefix in this field to list only those report definitions for the report application IDs which begin with that prefix.

**Report Type**

This is the type of report—it can be PUBLIC or PRIVATE. Only the first two characters are required to be entered. If left blank this field will default to PUBLIC if the Userid field is blank, or PRIVATE if the Userid field is not blank.

**Userid**

This field is mandatory for options B, U, D, C, LC and V, when the Report Type is PRIVATE. When selecting the list option, you can enter a prefix in this field to list only those report definitions for the user IDs beginning with that prefix. If not entered, this field will default to the logged-on user ID if the Report Type is PRIVATE.

**Report Name**

This is the name of the report which is to be processed. Report name has a maximum of 12 alphanumeric and/or national characters. When selecting the list option, you can enter a prefix in this field to list only those report definitions whose names begin with that prefix.

**Group**

Group names are set up by your installation in the Group table. This field can be used with the list option to select only those report definitions for a particular group. You can enter a prefix in this field to list only those reports belonging to groups beginning with that prefix.

---

## Report Definition Component Menu

When you select option A, B, U, D or C from the Report Definition Menu, the Report Definition Component Menu, as shown in Figure 6-2, is displayed. It allows you to select the particular component of the report you want to access.

```
SOLVPROD----- Report Writer : Report Definition Component Menu -----$RW014
Select Option ==>

D   - Description
RH  - Report Header
PH  - Page Header
CH  - Control Break Header
DF  - Data Format
CT  - Control Break Trailer
PT  - Page Trailer
RT  - Report Trailer
SF  - Sort Fields
LC  - List all Components
V   - View Report Layout
X   - Exit

Report Details
Report Appl ... $SAIMPB
Type.Userid ... PRIVATE.USER01
Report Name ... $SUMMARY
Description ... Sample Problem Record Summary

F1=Help      F2=Split      F3=Exit      F4=Return
              F9=Swap
```

*Figure 6-2. Report Definition Component Menu*

To make a selection from the Report Definition Component Menu enter one of the following options in the Select Option ==> field:

- D** Enter D to access the Report Description panel—the report description contains control information about the report
- RH** Enter RH to access the Edit or Browse Report Header panel—the report header is printed at the beginning of the report
- PH** Enter PH to access the Edit or Browse Page Header panel—the page header is printed at the top of every page of the report
- CH** Enter CH to access the Control Break Header Menu—control break headers define a heading that is printed above a group of records, each time a field on which the records are sorted changes value
- DF** Enter DF to access the Data Format Menu—data formats define how to print each record passed to Report Writer

- CT** Enter CT to access the Control Break Trailer Menu—control break trailers are used to print trailers below groups of data. They are most commonly used for printing sub-totals and totals. If defined, the control break trailer will be printed each time a field on which the data is sorted, changes value.
- PT** Enter PT to access the Edit or Browse Page Trailer Layout panel—the page trailer is printed at the bottom of every page
- RT** Enter RT to access the Edit or Browse Report Trailer Layout panel—the report trailer is printed at the end of the report
- SF** Enter SF to access the Sort Fields panel which is used to define the fields that will be used to sort the input data records for the report
- LC** Enter LC to access the Report Definition Component List—this is a list of all the components defined for the selected report definition
- V** Enter V to access the View Report Layout panel for the selected report, which displays all of the components defined for the selected report definition
- X** Enter X to return to the Report Definition Menu

When selecting a component, either the edit or browse panel for that component will be presented, depending on the function selected when entering the Component Menu. For example, when adding a new report definition, the edit screen will be presented for each component selected.

The fields on the Report Definition Component Menu are as follows:

**Report Appl**

The ID of the report application to which the report being processed belongs.

**Type.Userid**

This is the type of report—it can be PUBLIC or PRIVATE. If PRIVATE, it will be followed by the user ID of the owner of the report.

**Report Name**

This is the name of the report being processed.

**Description**

This field is a short description or purpose of the report.

---

## Report Description Panel

The Report Description panel, as shown in Figure 6-3, is used to add a new report definition or modify or delete an existing report definition. To access this panel, select option D from the Report Definition Component Menu. It is also the first panel presented when adding a new report definition. The current function is displayed in the top right-hand corner of the panel.

```
SOLVPROD----- Report Writer : Report Description -----Page 1 of 1
Command ==>                                         Function=Update

Report Appl ..... $SAIMPB
Report Type ..... PRIVATE          (PUBLIC or PRIVATE)
Userid ..... USER01             (Userid if PRIVATE)
Report Name ..... $SUMMARY
Description ..... Sample Problem Record Summary_____

Status ..... ACTIVE__           (ACTIVE or INACTIVE)
Report Width ..... 132           (Range 3 to 256)
Suit Single Record? NO_          (YES or NO)
Report Exit ..... $PBRWEX1       (NCL procedure name)
Group .....+
Criteria Appl ID ..+ _____
      Type .....                (PUBLIC or PRIVATE or FREEFORM)
      Userid ....                (Userid if PRIVATE)
      Name .....+
Comments ..... Summary of all problem records, grouped by severity.____
_____
_____

F1=Help      F2=Split      F3=File      F4=Save
              F9=Swap
              F12=Cancel
```

*Figure 6-3. Report Description Panel*

If the Report Appl, Report Type, Userid and Report Name were entered on the menu panel, they will now appear on the Report Description panel.

The fields on the Report Description panel are as follows:

### **Report Appl**

This field is the ID of the report application to which the report being processed belongs.

### **Report Type**

This is the type of report—it can be PUBLIC or PRIVATE. Only the first two characters are required to be entered. Report access is dependant on the security (UAMS) definition of the logged-on user ID.

### **Userid**

This field is the user ID of the owner of the report and is required only when the Report Type is PRIVATE.

**Report Name**

This is the name of the report. Report Name has a maximum of 12 alphanumeric and/or national characters. It must begin with an alphabetic or national character.

**Description**

This field is used to briefly describe the use of the report.

**Status**

This is the status of the report and can be ACTIVE or INACTIVE to indicate whether or not the report is disabled.

**Report Width**

This field determines the width of the report. That is, the maximum number of columns that may be printed on a page. The default is 132.

**Suit Single Record?**

This field indicates whether this report is suitable to print a single record (YES) or many records (NO).

**Report Exit**

The name of the NCL procedure which is executed during the generation of the report.

**Group**

This is the name of the group to which this report belongs. Group names are set up by your installation in the Group table.

**Criteria Appl ID**

This is the report application ID of a CAS criteria definition.

**Type**

This is the type of criteria. Valid values are :

**PUBLIC**                    The criteria is a public criteria

**PRIVATE**                The criteria is a private criteria

**FREEFORM**            The Criteria panel is to be presented when a report is generated

**Userid**

This is the user ID of the user who owns the criteria if it is a private criteria.

**Name**

This is the name of the criteria, if the criteria type is PUBLIC or PRIVATE.

For more information on CAS criteria, see the *Managed Object Development Services Programming and Administration Guide*.

### Comments

This field is a more detailed description of the report.

---

## Browse Report Header Layout Panel

A report header is printed at the beginning of a report. The Browse Report Header Layout panel is used to browse or view the layout of a report header. This panel is presented after selecting option RH from the Report Definition Component Menu, when in browse mode. It is similar to the Edit Report Header Layout panel except that fields cannot be updated. See the section *Edit Report Header Layout Panel* for a description of all fields on the Browse Report Header Layout panel.

---

## Edit Report Header Layout Panel

A report header is printed at the beginning of a report. The Edit Report Header Layout panel is used to add a new report header or to perform maintenance on an existing report header layout. This panel is accessed by selecting option RH from the Report Definition Component Menu.

```
SOLVPROD----- Report Writer : Edit Report Header Layout -----
Command ==>                                         Scroll ==> PAGE

Report Appl ..... $SAIMPB   Type ... PRIVATE.USER01   Name ... $SUMMARY

Line Fmt  1-----10-----20-----30-----40-----50-----60-----
**** **** ***** TOP OF DATA *****
0001 _____
0002 _____
0003 _____
0004 _____          SSSSS  AAAAA  M   M  P P P P L   EEEEE  P P P P
0005 _____          S   A   A  M M M  P  P  L   E       P  P
0006 _____          S   A   A  M M M  P  P  L   E       P  P
0007 _____          S   A   A  M   M  P  P  L   E       P  P
0008 _____          SSSSS  AAAAA  M   M  P P P P L   EEEEE  P P P P
0009 _____          S   A   A  M   M  P   L   E       P
0010 _____          S   A   A  M   M  P   L   E       P
0011 _____          S   A   A  M   M  P   L   E       P
0012 _____          SSSSS  A   A  M   M  P   L L L L L EEEEE  P
0013 _____
0014 _____
0015 _____
F1=Help      F2=Split      F3=File      F4=Save      F5=Fields    F6=View
F7=Backward  F8=Forward     F9=Swap     F10=Left    F11=Right   F12=Cancel
```

Figure 6-4. Edit Report Header Layout Panel

Figure 6-4 shows the Edit Report Header Layout panel. It can be scrolled backward, forward, left and right, to view the complete report header.

The layout consists of lines containing constant and variable data. Constant data is printed as entered on the panel, after formatting. Variable data is represented by a field name, which will be replaced by data when the report is generated.

The fields on the Edit Report Header Layout panel are as follows:

**Report Appl**

This field is the ID of the report application to which the report being processed belongs.

**Type**

This is the type of report being processed—it can be PRIVATE or PUBLIC. If PRIVATE, it will be followed by the user ID of the owner of the report.

**Name**

This is the name of the report being processed.

**Line**

This is the sequence number field. This field is also used for the entry of editor line commands. Editor line commands can be used to perform such functions as inserting blank lines, moving and deleting lines. These commands are fully described in Appendix C, *Editor Line Commands*.

**Fmt**

This field determines how the data in the layout line will be formatted before being printed. The format options available are as follows:

- P** Advance to a new page—this line is not printed and must be blank
- Pnn** Advance to a new page and reset the page number to *n*, where *n* is in the range 0 to 9999—this line is not printed and must be blank
- B** The data on this line will be printed in bold
- O** This line will overlay the previous line—this option is useful for underlining
- X** This line will not be printed if all the fields in the line are blank (that is, all fields being reported are null or blank)
- L** The data in the line will be left aligned

**R** The data in the line will be right aligned

**C** The data in the line will be centred

Except for P and Pnn, these options can be combined in the Fmt field. B, O and X can be combined with either L or R or C (L, R and C being mutually exclusive). For example, the combination BOR will bold and right align the data and overlay it on the previous line.

These formatting options apply to the whole line. Formatting can be performed at field level through the Edit Report Header Fields panel which is described in this chapter, beginning on page 6-11.

### Layout

The layout field is the field in which you enter the variable and constant data which make up the report header. There are two types of data which can be entered into the layout field:

- ▶ Constant data  
This is data which appears on the report exactly as it is entered into the layout field, after being formatted according to any of the formatting options specified in the Fmt field.
- ▶ Variable data  
When data retrieved from a database or from an exit procedure is to be included in the report, a variable name is entered in the layout field.

There are two types of variable fields:

- Data Fields  
Data fields must be read from a database by the service procedure, or set by a report exit, and are prefixed by an ampersand (&). The data field name must be 1 to 12 alphanumeric and/or national characters long and can be terminated by an asterisk (\*) to indicate a repeating field. At any time a data field list can be obtained by entering an ampersand followed by a question mark (&?). A data field list is a list of all valid data fields for the current report application (not including those set by the report exit), from which a selection can be made.
- System Fields  
A system field is denoted by the prefix of an exclamation mark (!) and must be defined in the system fields table. Fields in the system fields table are listed in Appendix D, *System Field List*. At any time a system field list can be obtained by entering an exclamation mark followed by a

question mark (!?). The system field list is a list of all valid system fields, from which a selection can be made.

If the name of a field is too long to be entered into the report layout, it can be given a shorter name which will be related to the real name of the field on the Edit Report Header Fields panel. For example, see Figure 6-9. The Control Break Header Layout has a two-character space to show the severity level. So, this is defined by the field name &S, which is related to the real field name SPBSEVERITY on the fields panel (Figure 6-10).

Variable data is further described to Report Writer using the Edit Report Header Fields panel. This panel is accessed by entering the FIELDS command (or pressing the Fields key), on the Edit Report Header Layout panel.

---

## Browse Report Header Fields Panel

The Browse Report Header Fields panel is presented after entering the FIELDS command (or pressing the Fields key) from the Browse Report Header Layout panel. This panel allows you to view the variable fields entered on the layout panel. It is similar to the Edit Report Header Fields panel, except that fields cannot be updated. See the section *Edit Report Header Fields Panel* for a description of all fields on the Browse Report Header Fields panel.

---

## Edit Report Header Fields Panel

The Edit Report Header Fields panel is presented after entering the FIELDS command (or pressing the Fields key) from the Edit Report Header Layout panel. This panel allows you to view the variable fields entered on the layout panel and change the real field names if necessary. Other attributes of the field, can be changed through this panel.

```

SOLVPROD----- Report Writer : Edit Report Header Fields -----
Command ==>                                     Scroll ==> PAGE

Report Appl ..... $SAIMPB   Type ... PRIVATE.USER01   Name ... $SUMMARY

Report Field   Real Field   Func    Format  Align  Leng  Pad   Bold Ulin Caps
**END**

F1=Help      F2=Split    F3=File    F4=Save    F5=Layout   F6=View
F7=Backward  F8=Forward  F9=Swap

```

**Figure 6-5. Edit Report Header Fields Panel**

Figure 6-5 shows the Edit Report Header Fields panel. The fields on the Edit Report Header Fields panel are as follows:

**Report Appl**

This is the ID of the report application to which the report being processed belongs.

**Type**

This is the type of report being processed—it can be PUBLIC or PRIVATE. If PRIVATE, it will be followed by the user ID of the owner of the report.

**Name**

This is the name of the report being processed.

**Report Field**

This is the name used to define the field in the layout.

**Real Field**

This is the name of the data or system field that contains the data to be printed. If the field starts with an exclamation mark (!) it is a system field, otherwise it is a data field. System fields are set by the system and are defined in the system fields table (see Appendix D, *System Field List*). Data fields are read from a database by the service procedure, or set by a report exit.

A valid data field name must be 1 to 12 alphanumeric or national characters long. An asterisk (\*) terminating a data field name indicates that it is a repeating field. An asterisk (\*) is displayed to

the left of each data field that is not defined in the data fields table for the report application to which the report belongs.

A data field list can be obtained by entering a question mark (?) into this field. A data field list is a list of all valid data fields for the current report application (not including those set by the report exit), from which a selection can be made. A system field list can be obtained by entering an exclamation mark followed by a question mark (!?). The system field list is a list of all valid system fields, from which a selection can be made.

### **Func**

This field determines the function of the field. Valid values for the Func field are:

<b>COUNT</b>	The number of non-blank occurrences of the real field will be printed
<b>MAX</b>	The maximum value of the real field will be printed
<b>MEAN</b>	The mean value of the real field will be printed
<b>MIN</b>	The minimum value of the real field will be printed
<b>SUM</b>	The total value of the real field will be printed
<b>VALUE</b>	The value of the real field will be printed—this is the default for the Func field

A list of valid values for this field can be obtained by entering a question mark (?) into this field.

### **Format**

This field determines whether the data is to be formatted. Valid values are as follows:

<b><i>F</i><i>n</i></b>	Indicates that this is a floating point number that is to be rounded to <i>n</i> decimal digits, where <i>n</i> is in the range 1 to 15
<b><i>D</i><i>x</i>.<i>y</i></b>	Indicates that this field is a date that is to be converted from DATE <i>x</i> to DATE <i>y</i> format, where <i>x</i> and <i>y</i> are in the range 1 to 9

---

**Note:** The variables *x* or *y* can be represented by an asterisk (\*) if either is to be replaced by a 4 or 5 at report generation, based on the setting of the system variable &ZUSERLC. If &ZUSERLC is set to 'US' the asterisk is replaced by 5, otherwise it is replaced by 4.

---

**Align**

This field determines whether the data is to be aligned. Valid values for the Align field are:

- CENTRE** Indicates that the data is to be centred within the length specified in the Leng field
- LEFT** Indicates that the data is to be left justified within the length specified in the Leng field
- RIGHT** Indicates that the data is to be right justified within the length specified in the Leng field

A list of valid values for this field can be obtained by entering a question mark (?) into this field.

**Leng**

This field indicates the length of the data that will be printed, the length in which the data will be aligned if the Align field is specified, and the length of the data that will be underlined if the ULIN field is set to YES.

If this field is not specified, the length used will be the length from the beginning of the field in the layout to the next non-blank character.

**Pad**

This field determines the character that will be used to pad the data, if it is aligned, and the length of the data is shorter than the Leng field. Pad may be any character.

**Bold**

This field indicates whether the data will be bolded and may be YES or NO. A list of valid values for this field can be obtained by entering a question mark (?) into this field. Entering NO in this field will override bolding, if specified, in the Fmt field on the Edit Report Header Layout panel.

**Ulin**

This field indicates whether or not the field is to be underlined and may be YES or NO. The value in the Leng field specifies the length of the data to be underlined when YES is specified. A list of valid values for this field can be obtained by entering a question mark (?) into this field.

**Caps**

This field determines whether or not the data in the field will be converted to upper case letters before printing, and may be YES or NO. The default is NO. A list of valid values for this field can be obtained by entering a question mark (?) into this field.

---

## Browse Page Header Layout Panel

A page header is printed at the beginning of each page of a report, including the report header and trailer pages. The Browse Page Header Layout panel is used to browse or view the layout of a page header. This panel is presented after selecting option PH from the Report Definition Component Menu, when in browse mode. It is similar to the Edit Page Header Layout panel except that fields cannot be updated. See the section *Edit Page Header Layout Panel* for a description of all fields on the Browse Page Header Layout panel.

---

## Edit Page Header Layout Panel

A page header is printed at the beginning of each page of a report, including the report header and trailer pages. The Edit Page Header Layout panel is used to add a new page header or to perform maintenance on an existing page header layout. This panel is accessed by selecting option PH from the Report Definition Component Menu.

Figure 6-6 shows the Edit Page Header Layout panel. It can be scrolled backward, forward, left and right, to view the complete page header.

```
SOLVPROD----- Report Writer : Edit Page Header Layout -----
Command ==> Scroll ==> PAGE

Report Appl ..... $SAIMPB   Type ... PRIVATE.USER01   Name ... $SUMMARY

Line Fmt  1-----10-----20-----30-----40-----50-----60-----
**** **** ***** TOP OF DATA *****
0001 CB__ Sample Problem Record Summary ( !DATE2      )
0002 CB__ =====
**** **** ***** BOTTOM OF DATA *****

F1=Help      F2=Split      F3=File      F4=Save      F5=Fields    F6=View
F7=Backward  F8=Forward    F9=Swap     F10=Left    F11=Right   F12=Cancel
```

*Figure 6-6. Edit Page Header Layout Panel*

The layout consists of lines containing constant and variable data. Constant data is printed as entered on the panel, after formatting.

Variable data is represented by a field name, which will be replaced by data when the report is generated.

The fields on the Edit Page Header Layout panel are as follows:

**Report Appl**

This is the ID of the report application to which the report being processed belongs.

**Type**

This is the type of report being processed—it can be PRIVATE or PUBLIC. If PRIVATE, it will be followed by the user ID of the owner of the report.

**Name**

This is the name of the report being processed.

**Line**

This is the sequence number field. This field is also used for the entry of editor line commands. Editor line commands can be used to perform such functions as inserting blank lines, moving and deleting lines. These commands are fully described in Appendix C, *Editor Line Commands*.

**Fmt**

This field determines how the data in the layout line will be formatted before being printed. The format options available are as follows:

- P** Advance to a new page—this line is not printed and must be blank
- Pnn** Advance to a new page and reset the page number to *n*, where *n* is in the range 0 to 9999—this line is not printed and must be blank
- B** The data on this line will be printed in bold
- O** This line will overlay the previous line—this option is useful for underlining
- X** This line will not be printed if all the fields in the line are blank (that is, all fields being reported are null or blank)
- L** The data in the line will be left aligned
- R** The data in the line will be right aligned
- C** The data in the line will be centred

Except for P and Pnn, these options can be combined in the Fmt field. B, O and X can be combined with either L or R or C (L, R and C being mutually exclusive). For example, the combination

BOL will bold and left align the data and overlay it on the previous line.

These formatting options apply to the whole line. Formatting can be performed at field level through the Edit Page Header Fields panel—this panel description begins on page 6-18.

### Layout

The layout field is the field in which you enter the variable and constant data which make up the page header. There are two types of data which can be entered into the layout field:

- ▶ Constant data  
This is data which appears on the report exactly as it is entered into the layout field, after being formatted according to any of the formatting options specified in the Fmt field.
  
- ▶ Variable data  
When data retrieved from a database or from an exit procedure is to be included in the report, a variable name is entered in the layout field. There are two types of variable fields:
  - Data Fields  
Data fields must be read from a database by the service procedure, or set by a report exit, and are prefixed by an ampersand (&). The data field name must be 1 to 12 alphanumeric and/or national characters long and can be terminated by an asterisk (\*) to indicate a repeating field. At any time a data field list can be obtained by entering an ampersand followed by a question mark (&?). A data field list is a list of all valid data fields for the current report application (not including those set by the report exit), from which a selection can be made.
  
  - System Fields  
A system field is denoted by the prefix of an exclamation mark (!) and must be defined in the system fields table. Fields in the system fields table are listed in Appendix D, *System Field List*. At any time a system field list can be obtained by entering an exclamation mark followed by a question mark (!?). The system field list is a list of all valid system fields, from which a selection can be made.

If the name of a field is too long to be entered into the report layout, it can be given a shorter name which will be related to the real name of the field on the Edit Page Header Fields panel. For example, see Figure 6-9. The Control Break Header Layout panel has a two-character space to show the severity level. So, this is

defined by the field name &S, which is related to the real field name \$PBSEVERITY on the fields panel (Figure 6-10).

Variable data is further described to Report Writer using the Edit Page Header Fields panel. This panel is accessed by entering the FIELDS command, or by pressing the Fields key, on the Edit Page Header Layout panel.

---

## Browse Page Header Fields Panel

The Browse Page Header Fields panel is presented after entering the FIELDS command (or pressing the Fields key) from the Browse Page Header Layout panel. This panel allows you to view the variable fields entered on the layout panel. It is similar to the Edit Page Header Fields panel, except that fields cannot be updated. See the section *Edit Page Header Fields Panel* for a description of all fields on the Browse Page Header Fields panel.

---

## Edit Page Header Fields Panel

```
SOLVPROD----- Report Writer : Edit Page Header Fields -----
Command ==>                                         Scroll ==> PAGE

Report Appl ..... $SAIMPB   Type ... PRIVATE.USER01   Name ... $SUMMARY

Report Field  Real Field  Func   Format  Align  Leng  Pad  Bold  Ulin  Caps
!DATE2       !DATE2   VALUE  _____  _____  ___ (   )  ___  ___  NO_
**END**

F1=Help      F2=Split    F3=File     F4=Save     F5=Layout   F6=View
F7=Backward  F8=Forward  F9=Swap     F12=Cancel
```

Figure 6-7. *Edit Page Header Fields Panel*

The Edit Page Header Fields panel is presented after entering the FIELDS command (or pressing the Fields key) from the Edit Page Header Layout panel. This panel allows you to view the variable fields

entered on the layout panel and change the real field names if necessary. Other attributes of the field, can be changed through this panel. Figure 6-7 shows the Edit Page Header Fields panel.

The fields on the Edit Page Header Fields panel are as follows:

**Report Appl**

This is the ID of the report application to which the report being processed belongs.

**Type**

This is the type of report being processed—and can be PUBLIC or PRIVATE. If PRIVATE, it will be followed by the user ID of the owner of the report.

**Name**

This is the name of the report being processed.

**Report Field**

This is the name used to define the field in the layout.

**Real Field**

This is the name of the data or system field that contains the data to be printed. If the field starts with an exclamation mark (!) it is a system field, otherwise it is a data field. System fields are set by the system and are defined in the system fields table (see Appendix D, *System Field List*). Data fields are read from a database by the service procedure, or set by a report exit.

A valid data field name must be 1 to 12 alphanumeric or national characters long. An asterisk (\*) terminating a data field name indicates that it is a repeating field. An asterisk (\*) is displayed to the left of each data field that is not defined in the data fields table for the report application to which the report belongs.

A data field list can be obtained by entering a question mark (?) into this field. A data field list is a list of all valid data fields for the current report application (not including those set by the report exit), from which a selection can be made. A system field list can be obtained by entering an exclamation mark followed by a question mark (!?). The system field list is a list of all valid system fields, from which a selection can be made.

**Func**

This field determines the function of the field. Valid values for the Func field are:

**COUNT** The number of non-blank occurrences of the real field will be printed

<b>MAX</b>	The maximum value of the real field will be printed
<b>MEAN</b>	The mean value of the real field will be printed
<b>MIN</b>	The minimum value of the real field will be printed
<b>SUM</b>	The total value of the real field will be printed
<b>VALUE</b>	The value of the real field will be printed—this is the default for the Func field

A list of valid values for this field can be obtained by entering a question mark (?) into this field.

### **Format**

This field determines whether the data is to be formatted. Valid values for the Format field are as follows:

<b>F<math>n</math></b>	Indicates that this is a floating point number that is to be rounded to $n$ decimal digits, where $n$ is in the range 1 to 15
<b>D<math>x.y</math></b>	Indicates that this field is a date that is to be converted from DATE $x$ to DATE $y$ format, where $x$ and $y$ are in the range 1 to 9

---

**Note:** The variables  $x$  or  $y$  can be an asterisk (\*) if either is to be replaced by a 4 or 5 at report generation, based on the setting of the system variable &ZUSERLC. If &ZUSERLC is set to 'US' the asterisk is replaced by 5, otherwise it is replaced by 4.

---

### **Align**

This field determines whether the data is to be aligned. Valid values for the Align field are:

<b>CENTRE</b>	Indicates that the data is to be centred within the length specified in the Leng field
<b>LEFT</b>	Indicates that the data is to be left justified within the length specified in the Leng field
<b>RIGHT</b>	Indicates that the data is to be right justified within the length specified in the Leng field

A list of valid values for this field can be obtained by entering a question mark (?) into this field.

**Leng**

This field indicates the length of the data that will be printed, the length in which the data will be aligned if the Align field is specified, and the length of the data that will be underlined if the Ulin field is set to YES.

If this field is not specified, the length used will be the length from the beginning of the field in the layout to the next non-blank character.

**Pad**

This field determines the character that will be used to pad the data, if it is aligned, and the length of the data is shorter than the Leng field. Pad may be any character.

**Bold**

This field indicates whether the data will be bolded and may be YES or NO. A list of valid values for this field can be obtained by entering a question mark (?) into this field. Entering NO in this field will override bolding, if specified, in the Fmt field on the Edit Page Header Layout panel.

**Ulin**

This field indicates whether or not the field is to be underlined and may be YES or NO. The value in the Leng field specifies the length of the data to be underlined when YES is specified. A list of valid values for this field can be obtained by entering a question mark (?) into this field.

**Caps**

This field determines whether or not the data in the field will be converted to upper case letters before printing, and may be YES or NO. The default is NO. A list of valid values for this field can be obtained by entering a question mark (?) into this field.

---

## Control Break Header Menu

A control break header is printed above a group of records each time the sort field to which it is assigned, changes value.

The Control Break Header Menu allows you to select the particular function you wish to perform on a control break header. The Control Break Header Menu, as shown in Figure 6-8, is presented after selecting option CH from the Report Definition Component Menu.

```

SOLVPROD----- Report Writer : Control Break Header Menu -----$RW020
Select Option ==>

A - Add Control Break Header
B - Browse Control Break Header
U - Update Control Break Header
D - Delete Control Break Header
C - Copy Control Break Header
L - List Control Break Headers
X - Exit

Sort Field Number ... ____ ( Required B U D C Optional A )

Report Details
Report Appl ... $SAIMPB
Type.Userid ... PRIVATE.USER01
Report Name ... $SUMMARY
Description ... Sample Problem Record Summary

F1=Help      F2=Split      F3=Exit      F4=Return
              F9=Swap

```

**Figure 6-8. Control Break Header Menu**

To make a selection from the Control Break Header Menu, enter one of the following options in the Select Option ==> field.

- A** Enter A to add a new control break header
- B** Enter B to browse an existing control break header
- U** Enter U to update an existing control break header
- D** Enter D to delete an existing control break header
- C** Enter C to make a copy of an existing control break header
- L** Enter L to list all existing control break headers
- X** Enter X to return to the previous menu

Options A, U, D, and C are not displayed on the menu when the report definition is being browsed.

The fields on the Control Break Header Menu are:

**Sort Field Number**

This is the number of the sort field assigned to the control break header which is to be processed.

**Report Appl**

This is the ID of the report application to which the report being processed belongs.

**Type.Userid**

This is the type of report being processed, followed by the user ID of the owner of the report, if the type is PRIVATE.

**Report Name**

This is the name of the report being processed.

**Description**

This is the description for the report being processed.

---

## Browse Control Break Header Layout Panel

A control break header is printed above a group of records, each time the sort field to which it is assigned, changes value. The Browse Control Break Header Layout panel is used to browse or view the layout of a control break header. This panel is presented after selecting option B from the Control Break Header Menu. It is similar to the Edit Control Break Header Layout panel except that fields cannot be updated. See the section *Edit Control Break Header Layout Panel* for a description of all fields on the Browse Control Break Header Layout panel.

---

## Edit Control Break Header Layout Panel

A control break header is printed above a group of records each time the sort field to which it is assigned, changes value. The Edit Control Break Header Layout panel is used to add a new control break header or to perform maintenance on an existing control break header layout. This panel is accessed by selecting option A, U or C from the Control Break Header Menu.

Figure 6-9 shows the Edit Control Break Header Layout panel. It can be scrolled backward, forward, left and right, to view the complete control break header.

The layout consists of lines containing constant and variable data. Constant data is printed as entered on the panel, after formatting. Variable data is represented by a field name, which will be replaced by data when the report is generated.

```

SOLVPROD----- Report Writer : Edit Control Break Header Layout -----
Command ==>                                         Scroll ==> PAGE

Report Appl ..... $SAIMPB      Type ... PRIVATE.USER01      Name ... $SUMMARY
Sort Field Num ... 001         Desc ... Control Break Header_____

Line Fmt  1-----10-----20-----30-----40-----50-----60-----
**** **** ***** TOP OF DATA *****
0001 B____ Severity&s Problems
0002 B____ -----
0003 _____
**** **** ***** BOTTOM OF DATA *****

F1=Help      F2=Split      F3=File      F4=Save      F5=Fields      F6=View
F7=Backward  F8=Forward      F9=Swap      F10=Left     F11=Right     F12=Cancel

```

**Figure 6-9.** *Edit Control Break Header Layout Panel*

The fields on the Edit Control Break Header Layout panel are as follows:

**Report Appl**

This is the ID of the report application to which the report being processed belongs.

**Type**

This is the type of report being processed—it can be PRIVATE or PUBLIC. If PRIVATE, it will be followed by the user ID of the owner of the report.

**Name**

This is the name of the report being processed.

**Sort Field Num**

This is the number of the sort field assigned to the control break header. The control break header will be printed when the value of this sort field changes.

**Desc**

This field is a brief description of the control break header.

**Line**

This is the sequence number field. This field is also used for the entry of editor line commands. Editor line commands can be used to perform such functions as inserting blank lines, moving and deleting lines. These commands are fully described in Appendix C, *Editor Line Commands*.

## **Fmt**

This field determines how the data in the layout line will be formatted before being printed. The format options available are as follows:

- P** Advance to a new page—this line is not printed and must be blank
- Pnn** Advance to a new page and reset the page number to *n*, where *n* is in the range 0 to 9999—this line is not printed and must be blank
- B** The data on this line will be printed in bold
- O** This line will overlay the previous line—this option is useful for underlining
- X** This line will not be printed if all the fields in the line are blank (that is, all fields being reported are null or blank)
- L** The data in the line will be left aligned
- R** The data in the line will be right aligned
- C** The data in the line will be centred

Except for **P** and **Pnn**, these options can be combined in the **Fmt** field. **B**, **O** and **X** can be combined with either **L** or **R** or **C** (**L**, **R** and **C** being mutually exclusive). For example, the combination **BOR** will bold and right align the data and overlay it on the previous line.

These formatting options apply to the whole line. Formatting can be performed at field level through the Edit Control Break Header Fields panel—the description of this panel begins on page 6-27.

## **Layout**

The layout field is the field in which you enter the variable and constant data which make up the control break header. There are two types of data which can be entered into the layout field:

- ▶ **Constant data**  
This is data which appears on the report exactly as it is entered into the layout field, after being formatted according to any of the formatting options specified in the **Fmt** field.
- ▶ **Variable data**  
When data retrieved from a database or from an exit procedure is to be included in the report, a variable name is entered in the layout field. There are two types of variable fields:

- Data Fields  
Data fields must be read from a database by the service procedure, or set by a report exit, and are prefixed by an ampersand (&). The data field name must be 1 to 12 alphanumeric and/or national characters long and can be terminated by an asterisk (\*) to indicate a repeating field. At any time a data field list can be obtained by entering an ampersand followed by a question mark (&?). A data field list is a list of all valid data fields for the current report application (not including those set by the report exit), from which a selection can be made.
  
- System Fields  
A system field is denoted by the prefix of an exclamation mark (!) and must be defined in the system fields table. Fields in the system fields table are listed in Appendix D, *System Field List*. At any time a system field list can be obtained by entering an exclamation mark followed by a question mark (!?). The system field list is a list of all valid system fields, from which a selection can be made.

If the name of a field is too long to be entered into the report layout, it can be given a shorter name which will be related to the real name of the field on the Edit Control Break Header Fields panel. For example, see Figure 6-9. The Control Break Header Layout panel has a two-character space to show the severity level. So, this is defined by the field name &S, which is related to the real field name \$PBSEVERITY on the fields panel (Figure 6-10).

Variable data is further described to Report Writer using the Edit Control Break Header Fields panel. This panel is accessed by entering the FIELDS command, or by pressing the Fields key, on the Edit Control Break Header Layout panel.

---

## Browse Control Break Header Fields Panel

The Browse Control Break Header Fields panel is presented after entering the FIELDS command (or pressing the Fields key) from the Browse Control Break Header Layout panel. This panel allows you to view the variable fields entered on the layout panel. It is similar to the Edit Control Break Header Fields panel, except that fields cannot be updated. See the section *Edit Control Break Header Fields Panel* for a description of all fields on the Browse Control Break Header Fields panel.

---

## Edit Control Break Header Fields Panel

The Edit Control Break Header Fields panel is presented after entering the FIELDS command (or pressing the Fields key) from the Edit Control Break Header Layout panel. This panel allows you to view the variable fields entered on the layout panel and change the real field names if necessary. Other attributes of the field, can be changed through this panel. Figure 6-10 shows the Edit Control Break Header Fields panel.

```
SOLVPROD----- Report Writer : Edit Control Break Header Fields -----
Command ==>                                         Scroll ==> PAGE

Report Appl ..... $SAIMPB      Type ... PRIVATE.USER01      Name ... $SUMMARY
Sort Field Num ... 001         Desc ... Control Break Header_____

Report Field  Real Field  Func   Format  Align  Leng  Pad  Bold  Ulin  Caps
S             $PBSEVERITY_  VALUE_  _____  RIGHT_  2__ (  )  ___  ___  NO_
**END**

F1=Help      F2=Split     F3=File     F4=Save     F5=Layout   F6=View
F7=Backward  F8=Forward   F9=Swap
```

*Figure 6-10. Edit Control Break Header Fields Panel*

The fields on the Edit Control Break Header Fields panel are as follows:

### Report Appl

This is the ID of the report application to which the report being processed belongs.

### Type

This is the type of report being processed—it can be PUBLIC or PRIVATE. If PRIVATE, it will be followed by the user ID of the owner of the report.

### Name

This is the name of the report being processed.

### Sort Field Num

This is the number of the sort field assigned to the Control Break Header. The control break header will be printed when the value of this sort field changes.

**Desc**

This field is a brief description of the control break header.

**Report Field**

This is the name used to define the field in the layout.

**Real Field**

This is the name of the data or system field that contains the data to be printed. If the field starts with an exclamation mark (!) it is a system field, otherwise it is a data field. System fields are set by the system and are defined in the system fields table (see Appendix D, *System Field List*). Data fields are read from a database by the service procedure, or set by a report exit.

A valid data field name must be 1 to 12 alphanumeric or national characters long. An asterisk (\*) terminating a data field name indicates that it is a repeating field. An asterisk (\*) is displayed to the left of each data field that is not defined in the data fields table for the report application to which the report belongs.

A data field list can be obtained by entering a question mark (?) into this field. A data field list is a list of all valid data fields for the current report application (not including those set by the report exit), from which a selection can be made. A system field list can be obtained by entering an exclamation mark followed by a question mark (!?). The system field list is a list of all valid system fields, from which a selection can be made.

**Func**

This field determines the function of the field. Valid values for the Func field are:

<b>COUNT</b>	The number of non-blank occurrences of the real field will be printed
<b>MAX</b>	The maximum value of the real field will be printed
<b>MEAN</b>	The mean value of the real field will be printed
<b>MIN</b>	The minimum value of the real field will be printed
<b>SUM</b>	The total value of the real field will be printed
<b>VALUE</b>	The value of the real field will be printed—this is the default for the Func field

A list of valid values for this field can be obtained by entering a question mark (?) into this field.

**Format**

This field determines whether the data is to be formatted. Valid values for the Format field are as follows:

<b>F<math>n</math></b>	Indicates that this is a floating point number that is to be rounded to $n$ decimal digits, where $n$ is in the range 1 to 15
<b>D<math>x.y</math></b>	Indicates that this field is a date that is to be converted from DATE $x$ to DATE $y$ format, where $x$ and $y$ are in the range 1 to 9

---

**Note:** The variables  $x$  or  $y$  can be an asterisk (\*) if either is to be replaced by a 4 or 5 at report generation, based on the setting of the system variable &ZUSERLC. If &ZUSERLC is set to 'US' the asterisk is replaced by 5, otherwise it is replaced by 4.

---

### **Align**

This field determines whether the data is to be aligned. Valid values for the Align field are:

- CENTRE** Indicates that the data is to be centred within the length specified in the Leng field
- LEFT** Indicates that the data is to be left justified within the length specified in the Leng field
- RIGHT** Indicates that the data is to be right justified within the length specified in the Leng field

A list of valid values for this field can be obtained by entering a question mark (?) into this field.

### **Leng**

This field indicates the length of the data that will be printed, the length in which the data will be aligned if the Align field is specified, and the length of the data that will be underlined if the Ulin field is set to YES.

If this field is not specified, the length used will be the length from the beginning of the field in the layout to the next non-blank character.

### **Pad**

This field determines the character that will be used to pad the data, if it is aligned, and the length of the data is shorter than the Leng field. Pad may be any character.

**Bold**

This field indicates whether the data will be bolded and may be YES or NO. A list of valid values for this field can be obtained by entering a question mark (?) into this field. Entering NO in this field will override bolding, if specified, in the Fmt field on the Edit Control Break Header Layout panel.

**Ulin**

This field indicates whether or not the field is to be underlined and may be YES or NO. The value in the Leng field specifies the length of the data to be underlined when YES is specified. A list of valid values for this field can be obtained by entering a question mark (?) into this field.

**Caps**

This field determines whether or not the data in the field will be converted to upper case letters before printing, and may be YES or NO. The default is NO. A list of valid values for this field can be obtained by entering a question mark (?) into this field.

---

## Confirm Delete Control Break Header Panel

To delete a control break header, select option D from the Control Break Header Menu and enter the sort field number in the Sort Field Num field. The Confirm Delete Control Break Header panel, as shown in Figure 6-11, will be presented.

```

SOLVPROD---- Report Writer : Confirm Delete Control Break Header -----
Command ==>

                Press Enter to confirm delete or press Cancel

Sort Field Num .... 001
Description ..... Control Break Header

F1=Help      F2=Split      F9=Swap      F12=Cancel

```

*Figure 6-11. Confirm Delete Control Break Header Panel*

You will be prompted to confirm or cancel the delete request. The Control Break Header Menu will be returned with a message:

```
RW0006 DELETE CANCELLED
```

or

```
RW0007 CONTROL BREAK HEADER nnn DELETED
```

where *nnn* is the sort field number for the control break header that was successfully deleted.

---

## Control Break Header List

The Control Break Header List is a selection list of all control break headers defined for the selected report definition. The list, as shown in Figure 6-12, is displayed after selecting option L from the Control Break Header Menu.

```
SOLVPROD----- Report Writer : Control Break Header List -----
Command ==>                                         Scroll ==> PAGE

                                     S/B=Browse U=Update D=Delete C=Copy
Comp Num  Description                               File ID
CH  001   Control Break Header                     MODSUSR
**END**

F1=Help    F2=Split    F3=Exit    F4=Return    F5=Find    F6=Refresh
F7=Backward F8=Forward    F9=Swap
```

*Figure 6-12. Control Break Header List*

All of the control break headers on the list can be browsed, updated, deleted or copied from this panel by entering an option in the field to the left of the Comp field:

**S, B, or /**    Enter S, B, or / to browse a control break header

**U**            Enter U to update a control break header



The Data Format Menu allows you to select the particular function you wish to perform on a data format. The menu, as shown in Figure 6-13, is presented after selecting option DF from the Report Definition Component Menu.

To make a selection from the Data Format Menu, enter one of the following options in the Select Option ==> field.

- A** Enter A to add a new data format
- B** Enter B to browse an existing data format
- U** Enter U to update an existing data format
- D** Enter D to delete an existing data format
- C** Enter C to make a copy of an existing data format
- L** Enter L to list all existing data formats
- X** Enter X to return to the previous panel

Options A, U, D and C are not displayed if the report definition is being browsed.

The fields on the Data Format Menu are:

**Data Format Number**

This is the number of the data format to be processed.

**Report Appl**

This is the ID of the report application to which the report being processed belongs.

**Type.Userid**

This is the type of report being processed, followed by the user ID of the owner of the report, if the Type is PRIVATE.

**Report Name**

This is the name of the report being processed.

**Description**

This is the description for the report being processed.

---

## Browse Data Format Layout Panel

A data format is required to print each record passed to Report Writer by the service procedure. The Browse Data Format Layout panel is used to browse or view the layout of a data format. This panel is presented after selecting option B from the Data Format Menu. It is similar to the Edit Data Format Layout panel except that fields cannot be updated. See the section *Edit Data Format Layout Panel* for a description of all fields on the Browse Data Format Layout panel.

---

## Edit Data Format Layout Panel

A data format is required to print each record passed to Report Writer. The Edit Data Format Layout panel is used to add a new data format or to perform maintenance on an existing data format layout. This panel is accessed by selecting option A, U or C from the Data Format Menu.

Figure 6-14 shows the Edit Data Format Layout panel. It can be scrolled backward, forward, left and right, to view the complete data format. Figure 6-15 shows the same Data Format Layout panel, scrolled right.

```
SOLVPROD----- Report Writer : Edit Data Format Layout -----
Command ==>>>                                         Scroll ==>> PAGE

Report Appl ..... $SAIMPB   Type ... PRIVATE.USER01   Name ... $SUMMARY
Data Format Num .. 001      Desc ... Data Format_____

Line Fmt  1-----10-----20-----30-----40-----50-----60-----
**** ***** ***** TOP OF DATA *****
0001 HB___ Number Fixed? Date           Time Reported By           Phone
0002 HB___ -----
0003 _____ &num  &fix  &dat           &tim  &by           &phone
**** ***** ***** BOTTOM OF DATA *****

F1=Help      F2=Split      F3=File      F4=Save      F5=Fields    F6=View
F7=Backward  F8=Forward    F9=Swap      F10=Left     F11=Right    F12=Cancel
```

*Figure 6-14. Edit Data Format Layout Panel*

```

SOLVPROD----- Report Writer : Edit Data Format Layout -----
Command ==>                                         Scroll ==> PAGE

Report Appl ..... $SAIMPB   Type ... PRIVATE.USER01   Name ... $SUMMARY
Data Format Num .. 001      Desc ... Data Format_____

Line Fmt   +----70-----80----+----90---+----100---+----110---+----120---+----130
**** **** ***** TOP OF DATA *****
0001 HB____ Description
0002 HB____ -----
0003 _____ &desc
**** **** ***** BOTTOM OF DATA *****

F1=Help      F2=Split      F3=File      F4=Save      F5=Fields      F6=View
F7=Backward  F8=Forward     F9=Swap     F10=Left    F11=Right     F12=Cancel

```

*Figure 6-15. Edit Data Format Layout Panel Scrolled Right*

The layout consists of lines containing constant and variable data. Constant data is printed as entered on the panel, after formatting. Variable data is represented by a field name, which will be replaced by data when the report is generated.

The fields on the Edit Data Format Layout panel are as follows:

**Report Appl**

This is the ID of the report application to which the report being processed belongs.

**Type**

This is the type of report being processed—it can be PRIVATE or PUBLIC. If PRIVATE, it will be followed by the user ID of the owner of the report.

**Name**

This is the name of the report being processed.

**Data Format Num**

This is the number of the data format.

**Desc**

This field is a short description of the data format.

**Line**

This is the sequence number field. This field is also used for the entry of editor line commands. Editor line commands can be used to perform such functions as inserting blank lines, moving and deleting lines. These commands are fully described in Appendix C, *Editor Line Commands*.

**Fmt**

This field determines how the data in the layout line will be formatted before being printed. The format options available are as follows:

**P** Advance to a new page—this line is not printed and must be blank

**Pnn** Advance to a new page and reset the page number to *n*, where *n* is in the range 0 to 9999—this line is not printed and must be blank

**H** The H option indicates that this line is a heading line—it can only be specified in a data format definition. A heading line will only be printed if the component previously printed was not this component, for example, a different data format, a control break trailer or a page header.

**B** The data on this line will be printed in bold

**O** This line will overlay the previous line—this option is useful for underlining

**X** This line will not be printed if all the fields in the line are blank (that is, all fields being reported are null or blank)

**L** The data in the line will be left aligned

**R** The data in the line will be right aligned

**C** The data in the line will be centred

Except for P and Pnn, these options can be combined in the Fmt field. H, B, O and X can be combined with either L or R or C (L, R and C being mutually exclusive). For example, the combination BOX will bold the data and overlay it on the previous line, but will exclude the printing of the line if all the fields are blank.

These formatting options apply to the whole line. Formatting can be performed at field level through the Edit Data Format Fields panel which is described in this chapter, beginning on page 6-38.

**Layout**

The layout field is the field in which you enter the variable and constant data which make up the data format. There are two types of data which can be entered into the layout field:

- ▶ Constant data  
This is data which appears on the report exactly as it is entered into the layout field, after being formatted according to any of the formatting options specified in the Fmt field.
  
- ▶ Variable data  
When data retrieved from a database or from an exit procedure is to be included in the report, a variable name is entered in the layout field. There are two types of variable fields:
  - Data Fields  
Data fields must be read from a database by the service procedure, or set by a report exit and are prefixed by an ampersand (&). The data field name must be 1 to 12 alphanumeric and/or national characters long and can be terminated by an asterisk (\*) to indicate a repeating field. At any time a data field list can be obtained by entering an ampersand followed by a question mark (&?). A data field list is a list of all valid data fields for the current report application (not including those set by the report exit), from which a selection can be made.
  
  - System Fields  
A system field is denoted by the prefix of an exclamation mark (!) and must be defined in the system fields table. Fields in the system fields table are listed in Appendix D, *System Field List*. At any time a system field list can be obtained by entering an exclamation mark followed by a question mark (!?). The system field list is a list of all valid system fields, from which a selection can be made.

If the name of a field is too long to be entered into the report layout, it can be given a shorter name which will be related to the real name of the field on the Edit Data Format Fields panel. For example, see Figure 6-14. The Data Format Layout panel has a five-character space to show the time. So, this is defined by the field name &tim, which is related to the real field name \$PBTIME on the fields panel (Figure 6-16).

Variable data is further described to Report Writer using the Edit Data Format Fields panel. This panel is accessed by entering the FIELDS command, or by pressing the Fields key, on the Edit Data Format Layout panel.

---

## Browse Data Format Fields Panel

The Browse Data Format Fields panel is presented after entering the FIELDS command (or pressing the Fields key) from the Browse Data Format Layout panel. This panel allows you to view the variable fields entered on the layout panel. It is similar to the Edit Data Format Fields panel, except that fields cannot be updated. See the section *Edit Data Format Fields Panel* for a description of all fields on the Browse Data Format Fields panel.

---

## Edit Data Format Fields Panel

The Edit Data Format Fields panel is presented after entering the FIELDS command (or pressing the Fields key) from the Edit Data Format Layout panel. This panel allows you to view the variable fields entered on the layout panel and change the real field names if necessary. Other attributes of the field, can be changed through this panel. Figure 6-16 shows the Edit Data Format Fields panel.

```
SOLVPROD----- Report Writer : Edit Data Format Fields -----
Command ==>>>                                         Scroll ==>> PAGE

Report Appl ..... $SAIMPB      Type ... PRIVATE.USER01      Name ... $SUMMARY
Data Format Num .. 001          Desc ... Data Format_____

Report Field  Real Field  Func   Format  Align  Leng  Pad  Bold  Ulin  Caps
NUM           !IMNUM_____ VALUE_  _____  _____  (   )  _____  NO_
FIX           $PBFIXED_____ VALUE_  _____  CENTRE  6_ (   )  _____  YES
DAT           $PBDATE_____ VALUE_  D*.2_____  _____  (   )  _____  NO_
TIM           $PBTIME_____ VALUE_  _____  _____  5_ (   )  _____  NO_
BY            $PBNAME_____ VALUE_  _____  _____  20_ (   )  _____  NO_
PHONE         $PBPHONE_____ VALUE_  _____  _____  15_ (   )  _____  NO_
DESC          $PBPRODUCT_  VALUE_  _____  _____  _____  (   )  _____  NO_
**END**

F1=Help      F2=Split    F3=File     F4=Save     F5=Layout   F6=View
F7=Backward  F8=Forward  F9=Swap     F12=Cancel
```

*Figure 6-16. Edit Data Format Fields Panel*

The fields on the Edit Data Format Fields panel are as follows:

### Report Appl

This is the ID of the report application to which the report being processed belongs.

**Type**

This is the type of report being processed—it can be PUBLIC or PRIVATE. If PRIVATE, it will be followed by the user ID of the owner of the report.

**Name**

This is the name of the report being processed.

**Data Format Num**

This is the number of the data format.

**Desc**

This field is a short description of the data format.

**Report Field**

This is the name used to define the field in the layout.

**Real Field**

This is the name of the data or system field that contains the data to be printed. If the field starts with an exclamation mark (!) it is a system field, otherwise it is a data field. System fields are set by the system and are defined in the system fields table (see Appendix D, *System Field List*). Data fields are read from a database by the service procedure, or set by a report exit.

A valid data field name must be 1 to 12 alphanumeric or national characters long. An asterisk (\*) terminating a data field name indicates that it is a repeating field. An asterisk (\*) is displayed to the left of each data field that is not defined in the data fields table for the report application to which the report belongs.

A data field list can be obtained by entering a question mark (?) into this field. A data field list is a list of all valid data fields for the current report application (not including those set by the report exit), from which a selection can be made. A system field list can be obtained by entering an exclamation mark followed by a question mark (!?). The system field list is a list of all valid system fields, from which a selection can be made.

**Func**

This field determines the function of the field. Valid values for the Func field are:

**COUNT** The number of non-blank occurrences of the real field will be printed

**MAX** The maximum value of the real field will be printed

**MEAN** The mean value of the real field will be printed

**MIN** The minimum value of the real field will be printed

<b>SUM</b>	The total value of the real field will be printed
<b>VALUE</b>	The value of the real field will be printed—this is the default for the Func field

A list of valid values for this field can be obtained by entering a question mark (?) into this field.

### Format

This field determines whether the data is to be formatted. Valid values for the Format field are as follows:

<b>Fn</b>	Indicates that this is a floating point number that is to be rounded to <i>n</i> decimal digits, where <i>n</i> is in the range 1 to 15
<b>Dx.y</b>	Indicates that this field is a date that is to be converted from DATE <sub>x</sub> to DATE <sub>y</sub> format, where <i>x</i> and <i>y</i> are in the range 1 to 9

---

**Note:** The variables *x* or *y* can be an asterisk (\*) if either is to be replaced by a 4 or 5 at report generation, based on the setting of the system variable &ZUSERLC. If &ZUSERLC is set to 'US' the asterisk is replaced by 5, otherwise it is replaced by 4.

---

### Align

This field determines whether the data is to be aligned. Valid values for the Align field are:

<b>CENTRE</b>	Indicates that the data is to be centred within the length specified in the Leng field
<b>LEFT</b>	Indicates that the data is to be left justified within the length specified in the Leng field
<b>RIGHT</b>	Indicates that the data is to be right justified within the length specified in the Leng field

A list of valid values for this field can be obtained by entering a question mark (?) into this field.

### Leng

This field indicates the length of the data that will be printed, the length in which the data will be aligned if the Align field is specified, and the length of the data that will be underlined if the Ulin field is set to YES.

If this field is not specified, the length used will be the length from the beginning of the field in the layout to the next non-blank character.

**Pad**

This field determines the character that will be used to pad the data, if it is aligned, and the length of the data is shorter than the Leng field. Pad may be any character.

**Bold**

This field indicates whether the data will be bolded and may be YES or NO. A list of valid values for this field can be obtained by entering a question mark (?) into this field. Entering NO in this field will override bolding, if specified, in the Fmt field on the Edit Data Format Layout panel.

**Ulin**

This field indicates whether or not the field is to be underlined and may be YES or NO. The value in the Leng field specifies the length of the data to be underlined when YES is specified. A list of valid values for this field can be obtained by entering a question mark (?) into this field.

**Caps**

This field determines whether or not the data in the field will be converted to upper case letters before printing, and may be YES or NO. The default is NO. A list of valid values for this field can be obtained by entering a question mark (?) into this field.

---

## Confirm Delete Data Format Panel

To delete a data format, select option D from the Data Format Menu and enter the data format number in the Data Format Num field. The Confirm Delete Data Format panel, as shown in Figure 6-17, will be presented .

```
SOLVPROD----- Report Writer : Confirm Delete Data Format -----  
Command ==>  
  
          Press Enter to confirm delete or press Cancel  
  
Data Format Num ... 001  
Description ..... Data Format  
  
  
  
  
  
  
  
  
F1=Help      F2=Split      F9=Swap      F12=Cancel
```

*Figure 6-17. Confirm Delete Data Format Panel*

You will be prompted to confirm or cancel the delete request. The Data Format Menu will then be returned with a message:

```
RW0006 DELETE CANCELLED
```

or

```
RW0007 DATA FORMAT nnn DELETED
```

where *nnn* is the data format number for the data format that was successfully deleted.

---

## Data Format List

The Data Format List is a selection list of all data formats defined for the selected report definition. The list, as shown in Figure 6-18, is displayed after selecting option L from the Data Format Menu.

```
SOLVPROD----- Report Writer : Data Format List -----
Command ==>                                         Scroll ==> PAGE

S/B=Browse U=Update D=Delete C=Copy
Comp Num  Description                               File ID
DF   001  Data Format                                MODSUSR
**END**

F1=Help    F2=Split    F3=Exit    F4=Return    F5=Find    F6=Refresh
F7=Backward F8=Forward    F9=Swap
```

*Figure 6-18. Data Format List*

All data formats on the list can be browsed, updated deleted or copied from this panel by entering an option in the field to the left of the Comp field:

- S, B, or /** Enter S, B, or / to browse a data format
- U** Enter U to update a data format
- D** Enter D to delete a data format
- C** Enter C to copy a data format

The fields on the Data Format List are as follows:

**Comp**

This is the component identifier (DF).

**Num**

This is the number of the data format.

**Description**

This is the description of the data format.

---

## Control Break Trailer Menu

A control break trailer is printed below a group of records each time the sort field to which it is assigned, changes value.

The Control Break Trailer Menu allows you to select the particular function you wish to perform on a control break trailer. The menu, as shown in Figure 6-19, is presented after selecting option CT from the Report Definition Component Menu .

```
SOLVPROD----- Report Writer : Control Break Trailer Menu -----SRW024
Select Option ==>

A - Add Control Break Trailer
B - Browse Control Break Trailer
U - Update Control Break Trailer
D - Delete Control Break Trailer
C - Copy Control Break Trailer
L - List Control Break Trailers
X - Exit

Sort Field Number ... ____ ( Required B U D C Optional A )

Report Details
Report Appl ... $SAIMPB
Type.Userid ... PRIVATE.USER01
Report Name ... $SUMMARY
Description ... Sample Problem Record Summary

F1=Help      F2=Split      F3=Exit      F4=Return
              F9=Swap
```

*Figure 6-19. Control Break Trailer Menu*

To make a selection from the Control Break Trailer Menu, enter one of the following options in the Select Option ==> field.

- A** Enter A to add a new control break trailer
- B** Enter B to browse an existing control break trailer
- U** Enter U to update an existing control break trailer
- D** Enter D to delete an existing control break trailer
- C** Enter C to make a copy of an existing control break trailer
- L** Enter L to list all existing control break trailers
- X** Enter X to return to the previous panel

Options A, U, D and C are not displayed if the report definition is being browsed.

The fields on the Control Break Trailer Menu are:

**Sort Field Number**

This is the number of the sort field assigned to the control break trailer which is to be processed.

**Report Appl**

This is the ID of the report application to which the report being processed belongs.

**Type.Userid**

This is the type of report being processed, followed by the user ID of the owner of the report, if the Type is PRIVATE.

**Report Name**

This is the name of the report being processed.

**Description**

This is the description for the report being processed.

---

## Browse Control Break Trailer Layout Panel

A control break trailer is printed below a group of records, each time the sort field to which it is assigned, changes value. The Browse Control Break Trailer Layout panel is used to browse or view the layout of a control break trailer. This panel is presented after selecting option B from the Control Break Trailer Menu. It is similar to the Edit Control Break Trailer Layout panel except that fields cannot be updated. See the section *Edit Control Break Trailer Layout Panel* for a description of all fields on the Browse Control Break Trailer Layout panel.

---

## Edit Control Break Trailer Layout Panel

A control break trailer is printed below a group of records, each time the sort field to which it is assigned, changes value. The Edit Control Break Trailer Layout panel is used to add a new control break trailer or to perform maintenance on an existing control break trailer layout. This panel is accessed by selecting option A, U or C from the Control Break Trailer Menu.

Figure 6-20 shows the Edit Control Break Trailer Layout panel. It can be scrolled backward, forward, left and right, to view the complete control break trailer.

The layout consists of lines containing constant and variable data. Constant data is printed as entered on the panel, after formatting. Variable data is represented by a field name, which will be replaced by data when the report is generated.

```

SOLVPROD----- Report Writer : Edit Control Break Trailer Layout -----
Command ==> Scroll ==> PAGE

Report Appl ..... $SAIMPB   Type ... PRIVATE.USER01   Name ... $SUMMARY
Sort Field Num ... 001      Desc ... Control Break Trailer_____

Line Fmt  1-+-----10-+-----20-+-----30-+-----40-+-----50-+-----60-+-----
**** **** ***** TOP OF DATA *****
0001 _____
0002 B_____ Total Severity&s Problems = &sevcount
0003 P_____
**** **** ***** BOTTOM OF DATA *****

F1=Help      F2=Split      F3=File      F4=Save      F5=Fields    F6=View
F7=Backward  F8=Forward    F9=Swap      F10=Left     F11=Right    F12=Cancel

```

*Figure 6-20. Edit Control Break Trailer Layout*

The fields on the Edit Control Break Trailer Layout panel are as follows:

**Report Appl**

This is the ID of the report application to which the report being processed belongs.

**Type**

This is the type of report being processed—it can be PRIVATE or PUBLIC. If PRIVATE, it will be followed by the user ID of the owner of the report.

**Name**

This is the name of the report being processed.

**Sort Field Num**

This is the number of the sort field assigned to the control break trailer. The control break trailer will be printed when the value of this sort field changes.

**Desc**

This field is a brief description of the control break trailer.

**Line**

This is the sequence number field. This field is also used for the entry of editor line commands. Editor line commands can be used to perform such functions as inserting blank lines, moving and deleting lines. These commands are fully described in Appendix C, *Editor Line Commands*.

**Fmt**

This field determines how the data in the layout line will be formatted before being printed. The format options available are as follows:

- P** Advance to a new page—this line is not printed and must be blank
- Pnn** Advance to a new page and reset the page number to *n*, where *n* is in the range 0 to 9999—this line is not printed and must be blank
- B** The data on this line will be printed in bold
- O** This line will overlay the previous line—this option is useful for underlining
- X** This line will not be printed if all the fields in the line are blank (that is, all fields being reported are null or blank)
- L** The data in the line will be left aligned
- R** The data in the line will be right aligned
- C** The data in the line will be centred

Except for P and Pnn, these options can be combined in the Fmt field. B, O and X can be combined with either L or R or C (L, R and C being mutually exclusive). For example, the combination BOR will bold and right align the data and overlay it on the previous line.

These formatting options apply to the whole line. Formatting can be performed at field level using the Edit Control Break Trailer Fields panel, which is described in this chapter beginning on page 6-49.

**Layout**

The layout field is the field in which you enter the variable and constant data which make up the control break trailer. There are two types of data which can be entered into the layout field:

- ▶ Constant data  
This is data which appears on the report exactly as it is entered

into the layout field, after being formatted according to any of the formatting options specified in the Fmt field.

► Variable data

When data retrieved from a database or from an exit procedure is to be included in the report, a variable name is entered in the layout field. There are two types of variable fields:

– Data Fields

Data fields must be read from a database by the service procedure, or set by a report exit and are prefixed by an ampersand (&). The data field name must be 1 to 12 alphanumeric and/or national characters long and can be terminated by an asterisk (\*) to indicate a repeating field. At any time a data field list can be obtained by entering an ampersand followed by a question mark (&?). A data field list is a list of all valid data fields for the current report application (not including those set by the report exit), from which a selection can be made.

– System Fields

A system field is denoted by the prefix of an exclamation mark (!) and must be defined in the system fields table. Fields in the system fields table are listed in Appendix D, *System Field List*. At any time a system field list can be obtained by entering an exclamation mark followed by a question mark (!?). The system field list is a list of all valid system fields, from which a selection can be made.

If the name of a field is too long to be entered into the report layout, it can be given a shorter name which will be related to the real name of the field on the Edit Control Break Trailer Fields panel. For example, see Figure 6-21. The Control Break Trailer Layout panel has a two-character space to show the severity level. So, this is defined by the field name &S, which is related to the real field name \$PBSEVERITY on the fields panel (Figure 6-22).

Variable data is further described to Report Writer using the Edit Control Break Trailer Fields panel. This panel is accessed by entering the FIELDS command, or by pressing the Fields key, on the Edit Control Break Trailer Layout panel.

---

## Browse Control Break Trailer Fields Panel

The Browse Control Break Trailer Fields panel is presented after entering the FIELDS command (or pressing the Fields key) from the Browse Control Break Trailer Layout panel. This panel allows you to view the variable fields entered on the layout panel. It is similar to the Edit Control Break Trailer Fields panel, except that fields cannot be updated. See the section *Edit Control Break Trailer Fields Panel* for a description of all fields on the Browse Control Break Trailer Fields panel.

---

## Edit Control Break Trailer Fields Panel

The Edit Control Break Trailer Fields panel is presented after entering the FIELDS command (or pressing the Fields key) from the Edit Control Break Trailer Layout panel. This panel allows you to view the variable fields entered on the layout panel and change the real field names if necessary. Other attributes of the field, can be changed through this panel. Figure 6-21 shows the Edit Control Break Trailer Fields panel.

```
SOLVPROD----- Report Writer : Edit Control Break Trailer Fields -----
Command ==>>>                                     Scroll ==>> PAGE

Report Appl ..... $SAIMPB      Type ... PRIVATE.USER01      Name ... $SUMMARY
Sort Field Num ... 001         Desc ... Control Break Trailer_____

Report Field  Real Field  Func   Format  Align  Leng  Pad  Bold  Ulin  Caps
S             $PBSEVERITY_  VALUE_  _____  RIGHT_  2_ (   )   ___  ___  NO_
SEVCOUNT     $PBSEVERITY_  COUNT_  _____  _____  ___ (   )   ___  ___  NO_
**END**

F1=Help      F2=Split     F3=File     F4=Save     F5=Layout   F6=View
F7=Backward  F8=Forward   F9=Swap     F12=Cancel
```

Figure 6-21. Edit Control Break Trailer Fields Panel

The fields on the Edit Control Break Trailer Fields panel are as follows:

### Report Appl

This is the ID of the report application to which the report being processed belongs.

**Type**

This is the type of report being processed—it can be PUBLIC or PRIVATE. If PRIVATE, it will be followed by the user ID of the owner of the report.

**Name**

This is the name of the report being processed.

**Sort Field Num**

This is the number of the sort field assigned to the Control Break Trailer. The control break trailer will be printed when the value of this sort field changes.

**Desc**

This field is a brief description of the control break trailer.

**Report Field**

This is the name used to define the field in the layout.

**Real Field**

This is the name of the data or system field that contains the data to be printed. If the field starts with an exclamation mark (!) it is a system field, otherwise it is a data field. System fields are set by the system and are defined in the system fields table (see Appendix D, *System Field List*). Data fields are read from a database by the service procedure, or set by a report exit.

A valid data field name must be 1 to 12 alphanumeric or national characters long. An asterisk (\*) terminating a data field name indicates that it is a repeating field. An asterisk (\*) is displayed to the left of each data field that is not defined in the data fields table for the report application to which the report belongs.

A data field list can be obtained by entering a question mark (?) into this field. A data field list is a list of all valid data fields for the current report application (not including those set by the report exit), from which a selection can be made. A system field list can be obtained by entering an exclamation mark followed by a question mark (!?). The system field list is a list of all valid system fields, from which a selection can be made.

**Func**

This field determines the function of the field. Valid values for the Func field are:

**COUNT** The number of non-blank occurrences of the real field will be printed

**MAX** The maximum value of the real field will be printed

**MEAN** The mean value of the real field will be printed

<b>MIN</b>	The minimum value of the real field will be printed
<b>SUM</b>	The total value of the real field will be printed
<b>VALUE</b>	The value of the real field will be printed—this is the default for the Func field

A list of valid values for this field can be obtained by entering a question mark (?) into this field.

### **Format**

This field determines whether the data is to be formatted. Valid values for the Format field are as follows:

<b>F<math>n</math></b>	Indicates that this is a floating point number that is to be rounded to $n$ decimal digits, where $n$ is in the range 1 to 15
<b>D<math>x.y</math></b>	Indicates that this field is a date that is to be converted from DATE $x$ to DATE $y$ format, where $x$ and $y$ are in the range 1 to 9

---

**Note:** The variables  $x$  or  $y$  can be an asterisk (\*) if either is to be replaced by a 4 or 5 at report generation, based on the setting of the system variable &ZUSERLC. If &ZUSERLC is set to 'US' the asterisk is replaced by 5, otherwise it is replaced by 4.

---

### **Align**

This field determines whether the data is to be aligned. Valid values for the Align field are:

<b>CENTRE</b>	Indicates that the data is to be centred within the length specified in the Leng field
<b>LEFT</b>	Indicates that the data is to be left justified within the length specified in the Leng field
<b>RIGHT</b>	Indicates that the data is to be right justified within the length specified in the Leng field

A list of valid values for this field can be obtained by entering a question mark (?) into this field.

### **Leng**

This field indicates the length of the data that will be printed, the length in which the data will be aligned if the Align field is specified, and the length of the data that will be underlined if the Ulin field is set to YES.

If this field is not specified, the length used will be the length from the beginning of the field in the layout to the next non-blank character.

**Pad**

This field determines the character that will be used to pad the data, if it is aligned, and the length of the data is shorter than the Leng field. Pad may be any character.

**Bold**

This field indicates whether the data will be bolded and may be YES or NO. A list of valid values for this field can be obtained by entering a question mark (?) into this field. Entering NO in this field will override bolding, if specified, in the Fmt field on the Edit Control Break Trailer Layout panel.

**Ulin**

This field indicates whether or not the field is to be underlined and may be YES or NO. The value in the Leng field specifies the length of the data to be underlined when YES is specified. A list of valid values for this field can be obtained by entering a question mark (?) into this field.

**Caps**

This field determines whether or not the data in the field will be converted to upper case letters before printing, and may be YES or NO. The default is NO. A list of valid values for this field can be obtained by entering a question mark (?) into this field.

---

## Confirm Delete Control Break Trailer Panel

To delete a control break trailer, select option D from the Control Break Trailer Menu and enter the sort field number in the Sort Field Num field. The Confirm Delete Control Break Trailer panel, as shown in Figure 6-22, will be presented.

```
SOLVPROD---- Report Writer : Confirm Delete Control Break Trailer -----  
Command ==>  
  
                Press Enter to confirm delete or press Cancel  
  
Sort Field Num .... 001  
Description ..... Control Break Trailer  
  
  
  
  
  
  
  
  
  
F1=Help      F2=Split      F9=Swap      F12=Cancel
```

*Figure 6-22. Confirm Delete Control Break Trailer Panel*

You will be prompted to confirm or cancel the delete request. The Control Break Trailer Menu will be returned with a message:

```
RW0006 DELETE CANCELLED
```

**or**

```
RW0007 CONTROL BREAK TRAILER nnn DELETED
```

where *nnn* is the sort field number for the control break trailer that was successfully deleted.

---

## Control Break Trailer List

The Control Break Trailer List is a selection list of all control break trailers defined for the selected report definition. The list, as shown in Figure 6-23, is displayed after selecting option L from the Control Break Trailer Menu.

```
SOLVPROD----- Report Writer : Control Break Trailer List -----
Command ==>                                     Scroll ==> PAGE

                                           S/B=Browse U=Update D=Delete C=Copy
Comp Num  Description                               File ID
CT   001  Control Break Trailer                     MODSUSR
**END**

F1=Help      F2=Split      F3=Exit      F4=Return      F5=Find      F6=Refresh
F7=Backward  F8=Forward     F9=Swap
```

*Figure 6-23. Control Break Trailer List*

All control break trailers on the list can be browsed, updated deleted or copied from this panel by entering an option in the field to the left of the Comp field:

- S, B, or /** Enter S, B, or / to browse a control break trailer
- U** Enter U to update a control break trailer
- D** Enter D to delete a control break trailer
- C** Enter C to make a copy of a control break trailer

The fields on the Control Break Trailer List are as follows:

**Comp**

This is the component identifier (CT).

**Num**

This is the number of the sort field assigned to the control break trailer.

**Description**

This is the description of the control break trailer.

---

## Browse Page Trailer Layout Panel

A page trailer is printed at the bottom of each page of a report, including the report header and trailer pages. The Browse Page Trailer Layout panel is used to browse or view the layout of a page trailer. This panel is presented after selecting option PT from the Report Definition Component Menu, when in browse mode. It is similar to the Edit Page Trailer Layout panel except that fields cannot be updated. See the section *Edit Page Trailer Layout Panel* for a description of all fields on the Browse Page Trailer Layout panel.

---

## Edit Page Trailer Layout Panel

A page trailer is printed at the bottom of each page of a report, including the report header and trailer pages. The Edit Page Trailer Layout panel is used to add a new page trailer or to perform maintenance on an existing page trailer layout. This panel is accessed by selecting option PT from the Report Definition Component Menu.

```
SOLVPROD----- Report Writer : Edit Page Trailer Layout -----
Command ==>                                         Scroll ==> PAGE

Report Appl ..... $SAIMPB   Type ... PRIVATE.USER01   Name ... $SUMMARY

Line Fmt  1-----10-----20-----30-----40-----50-----60-----
**** **** ***** TOP OF DATA *****
0001 RB__ Page !P
**** **** ***** BOTTOM OF DATA *****

F1=Help      F2=Split      F3=File      F4=Save      F5=Fields    F6=View
F7=Backward  F8=Forward    F9=Swap     F10=Left    F11=Right   F12=Cancel
```

*Figure 6-24. Edit Page Trailer Layout Panel*

Figure 6-24 shows the Edit Page Trailer Layout panel. It can be scrolled backward, forward, left and right, to view the complete page trailer. The layout consists of lines containing constant and variable data. Constant data is printed as entered on the panel, after formatting. Variable data is represented by a field name, which will be replaced by data when the report is generated.

The fields on the Edit Page Trailer Layout panel are as follows:

**Report Appl**

This is the ID of the report application to which the report being processed belongs.

**Type**

This is the type of report being processed—it can be PRIVATE or PUBLIC. If PRIVATE, it will be followed by the user ID of the owner of the report.

**Name**

This is the name of the report being processed.

**Line**

This is the sequence number field. This field is also used for the entry of editor line commands. Editor line commands can be used to perform such functions as inserting blank lines, moving and deleting lines. These commands are fully described in Appendix C, *Editor Line Commands*.

**Fmt**

This field determines how the data in the layout line will be formatted before being printed. The format options available are as follows:

- P** Advance to a new page—this line is not printed and must be blank
- Pnn** Advance to a new page and reset the page number to *n*, where *n* is in the range 0 to 9999—this line is not printed and must be blank
- B** The data on this line will be printed in bold
- O** This line will overlay the previous line—this option is useful for underlining
- X** This line will not be printed if all the fields in the line are blank (that is, all fields being reported are null or blank)
- L** The data in the line will be left aligned
- R** The data in the line will be right aligned
- C** The data in the line will be centred

Except for P and Pnn, these options can be combined in the Fmt field. B, O and X can be combined with either L or R or C (L, R and C being mutually exclusive). For example, the combination BOR will bold and right align the data and overlay it on the previous line.

These formatting options apply to the whole line. Formatting can be performed at field level through the Edit Page Trailer Fields panel, which is described in this chapter beginning on page 6-58.

## Layout

The layout field is the field in which you enter the variable and constant data which make up the page trailer. There are two types of data which can be entered into the layout field:

- ▶ Constant data  
This is data which appears on the report exactly as it is entered into the layout field, after being formatted according to any of the formatting options specified in the Fmt field.
  
- ▶ Variable data  
When data retrieved from a database or from an exit procedure is to be included in the report, a variable name is entered in the layout field. There are two types of variable fields:
  - Data Fields  
Data fields must be read from a database by the service procedure, or set by a report exit and are prefixed by an ampersand (&). The data field name must be 1 to 12 alphanumeric and/or national characters long and can be terminated by an asterisk (\*) to indicate a repeating field. At any time a data field list can be obtained by entering an ampersand followed by a question mark (&?). A data field list is a list of all valid data fields for the current report application (not including those set by the report exit), from which a selection can be made.
  
  - System Fields  
A system field is denoted by the prefix of an exclamation mark (!) and must be defined in the system fields table. Fields in the system fields table are listed in Appendix D, *System Field List*. At any time a system field list can be obtained by entering an exclamation mark followed by a question mark (!?). The system field list is a list of all valid system fields, from which a selection can be made.

If the name of a field is too long to be entered into the report layout, it can be given a shorter name which will be related to the real name of the field on the Edit Page Trailer Fields panel. For example, see Figure 6-21. The Control Break Trailer Layout panel has a two-character space to show the severity level. So, this is defined by the field name &S, which is related to the real field name \$PBSEVERITY on the fields panel (Figure 6-22).

Variable data is further described to Report Writer using the Edit Page Trailer Fields panel. This panel is accessed by entering the FIELDS command, or by pressing the Fields key, on the Edit Page Trailer Layout panel.

---

## Browse Page Trailer Fields Panel

The Browse Page Trailer Fields panel is presented after entering the FIELDS command (or pressing the Fields key) from the Browse Page Trailer Layout panel. This panel allows you to view the variable fields entered on the layout panel. It is similar to the Edit Page Trailer Fields panel, except that fields cannot be updated. See the section *Edit Page Trailer Fields Panel* for a description of all fields on the Browse Page Trailer Fields panel.

---

## Edit Page Trailer Fields Panel

```

SOLVPROD----- Report Writer : Edit Page Trailer Fields -----
Command ==>                                     Scroll ==> PAGE

Report Appl ..... $SAIMPB   Type ... PRIVATE.USER01   Name ... $SUMMARY

Report Field  Real Field  Func   Format  Align  Leng  Pad  Bold  Ulin  Caps
!P           !P          VALUE  _____  RIGHT_  3__ (   )  ___  ___  NO_
**END**

F1=Help      F2=Split    F3=File     F4=Save     F5=Layout   F6=View
F7=Backward  F8=Forward  F9=Swap
  
```

*Figure 6-25. Edit Page Trailer Fields Panel*

The Edit Page Trailer Fields panel is presented after entering the FIELDS command (or pressing the Fields key) from the Edit Page Trailer Layout panel. This panel allows you to view the variable fields entered on the layout panel and change the real field names if necessary. Other attributes of the field, can be changed through this panel. Figure 6-25 shows the Edit Page Trailer Fields panel.

The fields on the Edit Page Trailer Fields panel are as follows:

**Report Appl**

This is the ID of the report application to which the report being processed belongs.

**Type**

This is the type of report being processed—it can be PUBLIC or PRIVATE. If PRIVATE, it will be followed by the user ID of the owner of the report.

**Name**

This is the name of the report being processed.

**Report Field**

This is the name used to define the field in the layout.

**Real Field**

This is the name of the data or system field that contains the data to be printed. If the field starts with an exclamation mark (!) it is a system field, otherwise it is a data field. System fields are set by the system and are defined in the system fields table (see Appendix D, *System Field List*). Data fields are read from a database by the service procedure, or set by a report exit.

A valid data field name must be 1 to 12 alphanumeric or national characters long. An asterisk (\*) terminating a data field name indicates that it is a repeating field. An asterisk (\*) is displayed to the left of each data field that is not defined in the data fields table for the report application to which the report belongs.

A data field list can be obtained by entering a question mark (?) into this field. A data field list is a list of all valid data fields for the current report application (not including those set by the report exit), from which a selection can be made. A system field list can be obtained by entering an exclamation mark followed by a question mark (!?). The system field list is a list of all valid system fields, from which a selection can be made.

**Func**

This field determines the function of the field.

Valid values for the Func field are:

**COUNT** The number of non-blank occurrences of the real field will be printed

**MAX** The maximum value of the real field will be printed

<b>MEAN</b>	The mean value of the real field will be printed
<b>MIN</b>	The minimum value of the real field will be printed
<b>SUM</b>	The total value of the real field will be printed
<b>VALUE</b>	The value of the real field will be printed—this is the default for the Func field

A list of valid values for this field can be obtained by entering a question mark (?) into this field.

### **Format**

This field determines whether the data is to be formatted. Valid values for the Format field are as follows:

<b><i>Fn</i></b>	Indicates that this is a floating point number that is to be rounded to <i>n</i> decimal digits, where <i>n</i> is in the range 1 to 15
<b><i>Dx.y</i></b>	Indicates that this field is a date that is to be converted from DATE <i>x</i> to DATE <i>y</i> format, where <i>x</i> and <i>y</i> are in the range 1 to 9

---

**Note:** The variables *x* or *y* can be an asterisk (\*) if either is to be replaced by a 4 or 5 at report generation, based on the setting of the system variable &ZUSERLC. If &ZUSERLC is set to 'US' the asterisk is replaced by 5, otherwise it is replaced by 4.

---

### **Align**

This field determines whether the data is to be aligned. Valid values for the Align field are:

<b>CENTRE</b>	Indicates that the data is to be centred within the length specified in the Leng field
<b>LEFT</b>	Indicates that the data is to be left justified within the length specified in the Leng field
<b>RIGHT</b>	Indicates that the data is to be right justified within the length specified in the Leng field

A list of valid values for this field can be obtained by entering a question mark (?) into this field.

**Leng**

This field indicates the length of the data that will be printed, the length in which the data will be aligned if the Align field is specified, and the length of the data that will be underlined if the Ulin field is set to YES.

If this field is not specified, the length used will be the length from the beginning of the field in the layout to the next non-blank character.

**Pad**

This field determines the character that will be used to pad the data, if it is aligned, and the length of the data is shorter than the Leng field. Pad may be any character.

**Bold**

This field indicates whether the data will be bolded and may be YES or NO. A list of valid values for this field can be obtained by entering a question mark (?) into this field. Entering NO in this field will override bolding, if specified, in the Fmt field on the Edit Page Trailer Layout panel.

**Ulin**

This field indicates whether or not the field is to be underlined and may be YES or NO. The value in the Leng field specifies the length of the data to be underlined when YES is specified. A list of valid values for this field can be obtained by entering a question mark (?) into this field.

**Caps**

This field determines whether or not the data in the field will be converted to upper case letters before printing, and may be YES or NO. The default is NO. A list of valid values for this field can be obtained by entering a question mark (?) into this field.

---

## Browse Report Trailer Layout Panel

A report trailer is printed at the end of a report. The Browse Report Trailer Layout panel is used to browse or view the layout of a report trailer. This panel is presented after selecting option RT from the Report Definition Component Menu, when in browse mode. It is similar to the Edit Report Trailer Layout panel except that fields cannot be updated. See the section *Edit Report Trailer Layout Panel* for a description of all fields on the Browse Report Trailer Layout panel.

---

## Edit Report Trailer Layout Panel

The report trailer is printed at the end of the report. The Edit Report Trailer Layout panel is used to add a new report trailer or to perform maintenance on an existing report trailer layout. This panel is accessed by selecting option RT from the Report Definition Component Menu.

Figure 6-26 shows the Edit Report Trailer Layout panel. It can be scrolled backward, forward, left and right, to view the complete report trailer. Figure 6-27 shows the same Report Trailer Layout panel, scrolled right.

The layout consists of lines containing constant and variable data. Constant data is printed as entered on the panel, after formatting. Variable data is represented by a field name, which will be replaced by data when the report is generated.

```
SOLVPROD----- Report Writer : Edit Report Trailer Layout -----
Command ==>                                                    Scroll ==> PAGE

Report Appl ..... $SAIMPB   Type ... PRIVATE.USER01   Name ... $SUMMARY

Line Fmt  1-----10-----20-----30-----40-----50-----60-----
**** **** ***** TOP OF DATA *****
0001 CB___ Summary by Severity
0002 CB___ -----
0003 _____
0004 B___ Sev Count   %  -----10-----20-----30-----40-----50-----
0005 _____
0006 _____ &A  &B   &C  &D
0007 _____
0008 B___ ----- End of Re
**** **** ***** BOTTOM OF DATA *****

F1=Help      F2=Split    F3=File      F4=Save      F5=Fields    F6=View
F7=Backward  F8=Forward   F9=Swap      F10=Left     F11=Right    F12=Cancel
```

Figure 6-26. Edit Report Trailer Layout Panel

```

SOLVPROD----- Report Writer : Edit Report Trailer Layout -----
Command ==>                                         Scroll ==> PAGE

Report Appl ..... $SAIMPB   Type ... PRIVATE.USER01   Name ... $SUMMARY

Line Fmt  +----70----+----80----+----90----+----100--+----110--+----120--+----130
**** ***** ***** TOP OF DATA *****
0001 CB___
0002 CB___
0003 _____
0004 B___ 0---+----60---+----70---+----80---+----90---+----100
0005 _____
0006 _____
0007 _____
0008 B___ f Report -----
**** ***** ***** BOTTOM OF DATA *****

F1=Help      F2=Split      F3=File      F4=Save      F5=Fields      F6=View
F7=Backward  F8=Forward    F9=Swap     F10=Left     F11=Right     F12=Cancel

```

Figure 6-27. Edit Report Trailer Layout Panel Scrolled Right

The fields on the Edit Report Trailer Layout panel are as follows:

**Report Appl**

This is the ID of the report application to which the report being processed belongs.

**Type**

This is the type of report being processed—it can be PRIVATE or PUBLIC. If PRIVATE, it will be followed by the user ID of the owner of the report.

**Name**

This is the name of the report being processed.

**Line**

This is the sequence number field. This field is also used for the entry of editor line commands. Editor line commands can be used to perform such functions as inserting blank lines, moving and deleting lines. These commands are fully described in Appendix C, *Editor Line Commands*.

**Fmt**

This field determines how the data in the layout line will be formatted before being printed. The format options available are as follows:

- P** Advance to a new page—this line is not printed and must be blank

- Pnn** Advance to a new page and reset the page number to *n*, where *n* is in the range 0 to 9999—this line is not printed and must be blank
- B** The data on this line will be printed in bold
- O** This line will overlay the previous line—this option is useful for underlining
- X** This line will not be printed if all the fields in the line are blank (that is, all fields being reported are null or blank)
- L** The data in the line will be left aligned
- R** The data in the line will be right aligned
- C** The data in the line will be centred

Except for P and Pnn, these options can be combined in the Fmt field. B, O and X can be combined with either L or R or C (L, R and C being mutually exclusive). For example, the combination BOR will bold and right align the data and overlay it on the previous line.

These formatting options apply to the whole line. Formatting can be performed at field level through the Edit Report Trailer Fields panel, which is described in this chapter beginning on page 6-65.

### Layout

The layout field is the field in which you enter the variable and constant data which make up the report trailer. There are two types of data which can be entered into the layout field:

- ▶ Constant data
  - This is data which appears on the report exactly as it is entered into the layout field, after being formatted according to any of the formatting options specified in the Fmt field.
- ▶ Variable data
  - When data retrieved from a database or from an exit procedure is to be included in the report, a variable name is entered in the layout field. There are two types of variable fields:
    - Data Fields
      - Data fields must be read from a database by the service procedure, or set by a report exit and are prefixed by an ampersand (&). The data field name must be 1 to 12 alphanumeric and/or national characters long and can be terminated by an asterisk (\*) to indicate a repeating field. At any time a data field list can be obtained by entering an ampersand followed by a question mark (&?). A data field

list is a list of all valid data fields for the current report application (not including those set by the report exit), from which a selection can be made.

- System Fields

A system field is denoted by the prefix of an exclamation mark (!) and must be defined in the system fields table. Fields in the system fields table are listed in Appendix D, *System Field List*. At any time a system field list can be obtained by entering an exclamation mark followed by a question mark (!?). The system field list is a list of all valid system fields, from which a selection can be made.

If the name of a field is too long to be entered into the report layout, it can be given a shorter name which will be related to the real name of the field on the Edit Report Trailer Fields panel. For example, see Figure 6-21. The Control Break Trailer Layout panel has a two-character space to show the severity level. So, this is defined by the field name &S, which is related to the real field name \$PBSEVERITY on the fields panel (Figure 6-22).

Variable data is further described to Report Writer using the Edit Report Trailer Fields panel. This panel is accessed by entering the FIELDS command, or by pressing the Fields key, on the Edit Report Trailer Layout panel.

---

## Browse Report Trailer Fields Panel

The Browse Report Trailer Fields panel is presented after entering the FIELDS command (or pressing the Fields key) from the Browse Report Trailer Layout panel. This panel allows you to view the variable fields entered on the layout panel. It is similar to the Edit Report Trailer Fields panel, except that fields cannot be updated. See the section *Edit Report Trailer Fields Panel* for a description of all fields on the Browse Report Trailer Fields panel.

---

## Edit Report Trailer Fields Panel

The Edit Report Trailer Fields panel is presented after entering the FIELDS command (or pressing the Fields key) from the Edit Report Trailer Layout panel. This panel allows you to view the variable fields entered on the layout panel and change the real field names if necessary.

Other attributes of the field, can be changed through this panel. Figure 6-28 shows the Edit Report Trailer Fields panel.

```

SOLVPROD----- Report Writer : Edit Report Trailer Fields -----
Command ==>                                         Scroll ==> PAGE

Report Appl ..... $SAIMPB   Type ... PRIVATE.USER01   Name ... $SUMMARY

Report Field  Real Field  Func   Format  Align  Leng  Pad  Bold  Ulin  Caps
A             * HBARLBL*_____  VALUE_  _____  RIGHT_  3_ (  )  ___  ___  NO_
B             * HBARCNT*_____  VALUE_  _____  RIGHT_  5_ (  )  ___  ___  NO_
C             * HBARPCT*_____  VALUE_  _____  RIGHT_  3_ (  )  ___  ___  NO_
D             * HBAR*_____  VALUE_  _____  _____  ___ (  )  ___  ___  NO_
**END**

F1=Help      F2=Split    F3=File     F4=Save     F5=Layout   F6=View
F7=Backward  F8=Forward  F9=Swap

```

Figure 6-28. Edit Report Trailer Fields Panel

The fields on the Edit Report Trailer Fields panel are as follows:

**Report Appl**

This is the ID of the report application to which the report being processed belongs.

**Type**

This is the type of report being processed—it can be PUBLIC or PRIVATE. If PRIVATE, it will be followed by the user ID of the owner of the report.

**Name**

This is the name of the report being processed.

**Report Field**

This is the name used to define the field in the layout.

**Real Field**

This is the name of the data or system field that contains the data to be printed. If the field starts with an exclamation mark (!) it is a system field, otherwise it is a data field. System fields are set by the system and are defined in the system fields table (see Appendix D, *System Field List*). Data fields are read from a database by the service procedure, or set by a report exit.

A valid data field name must be 1 to 12 alphanumeric or national characters long. An asterisk (\*) terminating a data field name indicates that it is a repeating field. An asterisk (\*) is displayed to the left of each data field that is not defined in the data fields table for the report application to which the report belongs.

A data field list can be obtained by entering a question mark (?) into this field. A data field list is a list of all valid data fields for the current report application (not including those set by the report exit), from which a selection can be made. A system field list can be obtained by entering an exclamation mark followed by a question mark (!?). The system field list is a list of all valid system fields, from which a selection can be made.

### Func

This field determines the function of the field. Valid values for the Func field are:

<b>COUNT</b>	The number of non-blank occurrences of the real field will be printed
<b>MAX</b>	The maximum value of the real field will be printed
<b>MEAN</b>	The mean value of the real field will be printed
<b>MIN</b>	The minimum value of the real field will be printed
<b>SUM</b>	The total value of the real field will be printed
<b>VALUE</b>	The value of the real field will be printed—this is the default for the Func field

A list of valid values for this field can be obtained by entering a question mark (?) into this field.

### Format

This field determines whether the data is to be formatted. Valid values for the Format field are as follows:

<b><i>Fn</i></b>	Indicates that this is a floating point number that is to be rounded to <i>n</i> decimal digits, where <i>n</i> is in the range 1 to 15
<b><i>Dx.y</i></b>	Indicates that this field is a date that is to be converted from DATE <sub>x</sub> to DATE <sub>y</sub> format, where <i>x</i> and <i>y</i> are in the range 1 to 9

---

**Note:** The variables *x* or *y* can be an asterisk (\*) if either is to be replaced by a 4 or 5 at report generation, based on the setting of the system variable &ZUSERLC. If &ZUSERLC is set to 'US' the asterisk is replaced by 5, otherwise it is replaced by 4.

---

**Align**

This field determines whether the data is to be aligned. Valid values for the Align field are:

**CENTRE** Indicates that the data is to be centred within the length specified in the Leng field

**LEFT** Indicates that the data is to be left justified within the length specified in the Leng field

**RIGHT** Indicates that the data is to be right justified within the length specified in the Leng field

A list of valid values for this field can be obtained by entering a question mark (?) into this field.

**Leng**

This field indicates the length of the data that will be printed, the length in which the data will be aligned if the Align field is specified, and the length of the data that will be underlined if the Ulin field is set to YES.

If this field is not specified, the length used will be the length from the beginning of the field in the layout to the next non-blank character.

**Pad**

This field determines the character that will be used to pad the data, if it is aligned, and the length of the data is shorter than the Leng field. Pad may be any character.

**Bold**

This field indicates whether the data will be bolded and may be YES or NO. A list of valid values for this field can be obtained by entering a question mark (?) into this field. Entering NO in this field will override bolding, if specified, in the Fmt field on the Edit Report Trailer Layout panel.

**Ulin**

This field indicates whether or not the field is to be underlined and may be YES or NO. The value in the Leng field specifies the length of the data to be underlined when YES is specified. A list of valid values for this field can be obtained by entering a question mark (?) into this field.

**Caps**

This field determines whether or not the data in the field will be converted to upper case letters before printing, and may be YES or NO. The default is NO. A list of valid values for this field can be obtained by entering a question mark (?) into this field.

---

## Sort Fields Panel

The Sort Fields panel is used to define to Report Writer the fields on which input data records will be sorted. The panel is accessed by selecting option SF on the Report Definition Component Menu. The current function is displayed in the top right-hand corner of the panel, and will be either Edit or Browse, depending on the function selected to enter the Report Definition Component Menu. Figure 6-29 shows the Sort Fields panel.

```
SOLVPROD----- Report Writer : Sort Fields -----Page 1 of 1
Command ==>                                         Function=Edit

Report Appl ..... $SAIMPB   Type ... PRIVATE.USER01   Name ... $SUMMARY

      #   Field Name   Order   Start Offset   End Offset
      1   $PBSEVERITY_ A___      _____
      2   _____
      3   _____
      4   _____
      5   _____
      6   _____
      7   _____
      8   _____
      9   _____
     10   _____

F1=Help   F2=Split   F3=File   F4=Save
          F9=Swap
                                F12=Cancel
```

*Figure 6-29. Sort Fields Panel*

The fields on the Sort Fields panel are as follows:

### Report Appl

This is the ID of the report application to which the report being processed belongs.

### Type

This is the type of report being processed, followed by the user ID of the owner of the report, if the type is PRIVATE.

### Name

This is the name of the report being processed.

### #

This is the sort field number.

### Field Name

This is the name of the data field which will be used to sort the input data records. When editing, a question mark (?) can be entered in this field to display a list of valid sort fields from which a selection can be made. The question mark can be preceded by a prefix to limit the list to those sort fields beginning with that prefix.

### Order

This field determines the order in which the data records will be sorted. Order can be A, indicating ascending order, or D, indicating descending order.

### Start Offset

This field determines the position of the first character of the sort field that will be used for sorting, if the full value of the field is not to be used. The valid range is 1 to 255.

### End Offset

This field determines the position of the last character of the sort field that will be used for sorting, if the full value of the field is not to be used. The valid range is the start offset to 255. For example, if start offset is set to 2 and end offset if set to 9, the service procedure will sort on characters 2-9 of this field.

---

## Report Definition Component List

```
SOLVPROD----- Report Writer : Report Definition Component List -----
Command ==>>>                                     Scroll ==>> PAGE

                                     S/B=Browse U=Update D=Delete C=Copy

Comp Num  Description                                     File ID
DC        Report Description                             MODSUSR
SF        Sort Fields                                   MODSUSR
RH        Report Header                                 MODSUSR
PH        Page Header                                  MODSUSR
CH 001    Control Break Header                          MODSUSR
DF 001    Data Format                                    MODSUSR
CT 001    Control Break Trailer                         MODSUSR
PT        Page Trailer                                  MODSUSR
RT        Report Trailer                                MODSUSR
**END**

F1=Help      F2=Split      F3=Exit      F4=Return      F5=Find      F6=Refresh
F7=Backward  F8=Forward      F9=Swap
```

Figure 6-30. Report Definition Component List

The Report Definition Component List is a selection list of all the defined components for a report definition. To access this list, select option LC from the Report Definition Component Menu or the Report Definition List. The component list, as shown in Figure 6-30 will be displayed .

Any component can be browsed, updated, deleted or copied by placing the appropriate letter in the field next to the required component.

**S, B or /** Enter S, B or / to browse a component

**U** Enter U to update a component

**D** Enter D to delete a component—you will be prompted to confirm or cancel the delete request

**C** Enter C to make a copy of a component

Options U, D and C are not available if the report definition is being browsed. The copy and delete options are not available for the report description and sort fields components. The copy option is only available for control break header, control break trailer and data format components.

The fields on the Component List are as follows:

#### **Comp**

The letters in this field are the component identifier. The component identifier may be one of the following:

**DC** The Report Description

**SF** Sort Fields

**RH** Report Header

**PH** Page Header

**CH** Control Break Header

**DF** Data Format

**CT** Control Break Trailer

**PT** Page Trailer

**RT** Report Trailer

#### **Num**

This field shows the sort field number associated with the component if it is a control break header or trailer, and the data format number if it is a data format.

#### **Description**

This is the description of the component.

---

## Report Definition List

The Report Definition List is a list of all report definitions defined to Report Writer. The list, as shown in Figure 6-31, is displayed after selecting option L from the Report Definition Menu. The list can be made selective by entering the required Report Appl, Report Type, Userid, Report Name or Group, or a combination of those fields, on the Report Definition Menu.

The Report Definition List continues across four panels each showing further information about the report definitions. These panels are described on the following pages, in Figures 6-32, 6-33, and 6-34.

```
SOLVPROD----- Report Writer : Report Definition List -----
Command ==>>>                                     Scroll ==>> PAGE

                S/B=Browse U=Update D=Delete C=Copy LC=Components V=View
Rep Appl  Typ  Userid   Name           Description      File ID
&IMSYS   PUB           $CATEGORY     INFO/MASTER Category Summary  MODSUSR
$SAIMPB  PRI  USER01   $DETAILS      Sample Problem Record Details  MODSUSR
$SAIMPB  PRI  USER02   LISTING       Sample Problem Record Listing   MODSUSR
$SAIMPB  PUB           $SUMMARY      Sample Problem Record Summary   MODSDIS
**END**

F1=Help      F2=Split      F3=Exit      F4=Return     F5=Find      F6=Refresh
F7=Backward  F8=Forward    F9=Swap      F11=Right
```

*Figure 6-31. Report Definition List*

Reports can be browsed, updated deleted or copied from any Report Definition List panel, by entering the required character in the field to the left of the Rep Appl field.

- S, B or /**    Enter S, B or / to browse a report definition
- U**            Enter U to update a report definition
- D**            Enter D to delete a report definition—you will be prompted to confirm or cancel the delete request
- C**            Enter C to make a copy of a report definition
- LC**          Enter LC to display a list of the components for a report definition

**V** Enter V to display the complete report layout for a report definition

The fields on the Report Definition List are as follows:

**Rep Appl**

This is the ID or the report application to which the report belongs.

**Typ**

This is the report type—it can be PUBLIC or PRIVATE.

**Userid**

This is the user ID of the owner of a private report.

**Name**

This is the name of the report.

**Description**

This is a brief description of the report.

**File ID**

This is the file ID of the MODS file in which the report definition is stored.

For more information about the displayed report definitions, enter the RIGHT command, or press the Right key. The list, as shown in Figure 6-32 will be displayed.

```
SOLVPROD----- Report Writer : Report Definition List -----
Command ==>                                     Scroll ==> PAGE

                S/B=Browse U=Update D=Delete C=Copy LC=Components V=View
Rep Appl Typ Userid Name Status -----Criteria-----
$IMSYS PUB $CATEGORY INACTIVE
$SAIMPB PRI USER01 $DETAILS ACTIVE
$SAIMPB PRI USER02 LISTING ACTIVE
$SAIMPB PUB $SUMMARY ACTIVE
**END**

F1=Help F2=Split F3=Exit F4=Return F5=Find F6=Refresh
F7=Backward F8=Forward F9=Swap F10=Left F11=Right
```

*Figure 6-32. Report Definition List Scrolled Right*

The fields on the Report Definition List, scrolled right, are as follows:

**Rep Appl**

This is the ID or the report application to which the report belongs.

**Typ**

This is the report type—it can be PUBLIC or PRIVATE.

**Userid**

This is the user ID of the owner of a private report.

**Name**

This is the name of the report.

**Status**

This is the status of the report, which can be ACTIVE (meaning the report *can* be generated) or INACTIVE (meaning the report *cannot* be generated).

**Criteria**

This field shows the application ID, type, user ID and name for the criteria definition to be used to determine which records are to be included in a report generated using this definition. If the Criteria panel is to be presented for the user to specify the criteria, the type shows as FREEFORM and the application ID, user ID and name are blank.

For more information about the displayed report definitions, enter the RIGHT command, or press the Right key. The list, as shown in Figure 6-33 will be displayed.

```

SOLVPROD----- Report Writer : Report Definition List -----
Command ==>                                     Scroll ==> PAGE

                S/B=Browse U=Update D=Delete C=Copy LC=Components V=View
Rep Appl  Typ  Userid  Name          Group          Exit Name      Width  SSR?
$IMSYS   PUB                $CATEGORY
$SAIMPB  PRI  USER01  $DETAILS      $PBRWEX1       132   NO
$SAIMPB  PRI  USER02  LISTING       $PBRWEX1       132   YES
$SAIMPB  PUB                $SUMMARY       $PBRWEX1       132   NO
**END**

F1=Help      F2=Split      F3=Exit      F4=Return     F5=Find      F6=Refresh
F7=Backward  F8=Forward    F9=Swap      F10=Left     F11=Right

```

*Figure 6-33. Report Definition List Scrolled Right*

The fields on the Report Definition List, scrolled right, are as follows:

**Rep Appl**

This is the ID of the report application to which the report belongs.

**Typ**

This is the report type—it can be PUBLIC or PRIVATE.

**Userid**

This is the user ID of the owner of a private report.

**Name**

This is the name of the report.

**Group**

This is the group to which the report belongs.

**Exit Name**

This is the name of the report exit NCL procedure.

**Width**

This is the report width, that is, the maximum number of columns that can be printed per page.

**SSR?**

This is the suit single record indicator.

For more information about the displayed report definitions, enter the **RIGHT** command, or press the **Right** key. The list, as shown in Figure 6-34 will be displayed.

```

SOLVPROD----- Report Writer : Report Definition List -----
Command ==>                                     Scroll ==> PAGE

                S/B=Browse U=Update D=Delete C=Copy LC=Components V=View
Rep Appl Typ  Userid  Name          Created      Last Updated
$IMSYS  PUB           $CATEGORY    20-FEB-1993 30-JUN-1993 19.35 USER10
$SAIMPB PRI  USER01  $DETAILS     29-JUL-1993 30-JUL-1993 09.15 USER01
$SAIMPB PRI  USER02  LISTING      20-MAY-1993 20-MAY-1993 11.03 USER02
$SAIMPB PUB           $SUMMARY     20-FEB-1993 20-FEB-1993 00.00 INSTALL
**END**

F1=Help      F2=Split     F3=Exit      F4=Return    F5=Find      F6=Refresh
F7=Backward  F8=Forward   F9=Swap      F10=Left

```

*Figure 6-34. Report Definition List Scrolled Right*

The fields on the Report Definition List, scrolled right, are as follows:

**Rep Appl**

This is the ID of the report application to which the report belongs.

**Typ**

This is the report type—it can be PUBLIC or PRIVATE.

**Userid**

This is the user ID of the owner of a private report.

**Name**

This is the name of the report.

**Created**

This is the date that the report definition was created.

**Last Updated**

This is the date and time that the report was last updated and the user ID of the user who last updated it.



**Num**

This number is the sort field number for control break headers and control break trailers, or the data format number for data formats. Otherwise it is blank.

**Data**

This is the layout of variable and constant data as it will be printed on the report.

---

## The Report Cache

When a report definition is recalled for use, it is loaded into memory for optimum performance. This is referred to as the *report cache*. As other reports are used, the report cache is first searched to see if the definition is already there. If not, it is added to the cache. When you make changes to a report definition, you might need to *reset* the report cache to ensure that you pick up the new version. Reset clears all report definitions from the cache.

### Resetting the Report Cache

If the MODS file is shared, reset the report cache on all systems except the system being used to maintain the report definitions. It also needs to be reset after report definitions have been moved, copied, or deleted on these systems, using the MODS definition utility. Until the reset is performed, the modified report definitions may not take effect on the other systems until the next time SOLVE management services is started up.

---

**Note:** You do not need to reset the report cache on the maintenance system after you delete or update a report definition. Both actions automatically delete the report definition from the report cache on the maintenance system.

---

Select option **R** on the Report Definition Menu to reset the report cache. This option can be used at any time as it has no effect on reports currently being generated.

# Generate a Report

The Generate function of Report Writer is used to generate a copy of a report from a report definition which has been created in Report Writer. This chapter describes how this is done and the panel presented to do this.

---

## Generate a Report Panel

To generate the printing of a report which is already defined to Report Writer, select option G from the Report Writer Primary Menu. The Generate a Report panel, as shown in Figure 7-1 will be presented.

```

SOLVPROD----- Report Writer : Generate a Report -----Page 1 of 1
Command ==>                                         Function=Generate

Report Appl .....+ _____
Report Type ..... _____ (PUBLIC or PRIVATE)
Userid ..... _____ (Userid if PRIVATE)
Report Name .....+ _____

Owner ..... USER01_____

Printer Name .....+ _____
Hold Report? ..... NO_ (YES or NO)
Keep Report? ..... NO_ (YES or NO)
Number of Copies ... 1__ (1 to 255)

F1=Help      F2=Split      F3=Exit      F6=Action
              F9=Swap

```

*Figure 7-1. Generate a Report Panel*

The fields on the Generate a Report panel are as follows:

**Report Appl**

Enter the ID of the report application to which the report belongs. This value is set up by your installation in a \$RWAPPL table.

**Report Type**

Enter PRIVATE for a private report or PUBLIC for a public report (or abbreviate to the first 2 characters). Report access is dependant on the security (UAMS) definition of the logged-on user ID.

**Userid**

The user ID is required to be entered for a private report (if not entered the system will enter the logged-on user ID).

**Report Name**

Enter the name of the report to be produced. (This must be an already defined report.)

**Owner**

Enter the user ID of the owner (or receiver) of the report.

**Printer Name**

Enter the name of the printer where the report is to be sent. Printer names are set up by your installation.

**Hold Report?**

Enter YES to hold the report in the PSM print spool or NO to print the report as soon as the printer becomes available.

**Keep Report?**

Enter YES to retain a copy of the report in the PSM print spool after it has been printed, NO to delete the report from the print spool as soon as it has been printed successfully.

**Number of Copies**

Enter the number of copies of the report you require to be printed. The valid range is 1 to 255.

**Error Processing**

If an error occurs during the generation of the report, an error message is written to the activity log. If the print file was successfully opened before the error occurred, an error message is also written at the end of the report, and the report is placed on the PSM output spool with a status of HELD-ERROR or DIRECT-ERR.

# Schedule a Report

The schedule function of Report Writer is used to automatically generate reports, when required, from a report definition which has been created in Report Writer. A schedule definition must be created for each report which is to be automatically generated. It contains information such as when the report is to be generated (for example, hourly, daily, monthly), the starting date and time, and expiry date.

This chapter describes how to schedule a report and the panels presented to do this.

---

## Schedule Definition Menu

When option S is chosen from the Report Writer Primary Menu, the Schedule Definition Menu panel, as shown in Figure 8-1, is presented.

```

SOLVPROD----- Report Writer : Schedule Definition Menu -----$RW030
Select Option ==>

A - Add Schedule Definition
B - Browse Schedule Definition
U - Update Schedule Definition
D - Delete Schedule Definition
C - Copy Schedule Definition
L - List Schedule Definitions
S - Start Schedule Processing
P - Stop Schedule Processing
X - Exit

Schedule Name .... _____ ( Required B U D C Optional A L )

Schedule Processing is ACTIVE

F1=Help      F2=Split      F3=Exit      F4=Return
              F9=Swap

```

**Figure 8-1. Schedule Definition Menu**

The Schedule Definition Menu lists the scheduling options which are available.

To make a selection from the menu, enter one of the following options in the Select Option ==> field:

- A** Enter A to add a new schedule definition to the system
- B** Enter B to browse an existing schedule definition—this allows you to view a schedule definition, but the information cannot be updated
- U** Enter U to update an existing schedule definition
- D** Enter D to delete an existing schedule definition—you will be prompted to confirm or cancel this request
- C** Enter C to make a copy of an existing schedule definition—the details of the required schedule will be presented and all fields can be updated
- L** Enter L for a list of all existing schedule definitions. You can select part of the list by entering a value in the Schedule Name field. Only those schedules beginning with that value will be listed. Browse, Update, Delete and Copy functions are available from the Schedule Definition List panel.
- S** Enter S to start schedule processing. This option is only available when the Schedule Processing field shows that processing is INACTIVE. (Normally schedule processing will be automatically started when the system is initialised.)

The following message will be displayed beneath the Select Option ==> field when this option is selected :

```
TI0125 TIMER PROCESSING STARTED n TIMERS RESTORED, n DELETED  
DUE TO EXPIRY
```

where *n* is a variable number.

- P** Enter P to stop schedule processing. This will prevent all schedules from running and should be used with caution. To prevent one particular schedule from running, update its definition, changing the Status field to INACTIVE. The following message will be displayed beneath the Select Option ==> field when this option is selected :

```
TI0130 TIMER PROCESSING STOPPED
```

- X** Enter X to return to the Report Writer Primary Menu

The fields on the Schedule Definition Menu are as follows:

#### **Schedule Name**

Enter in this field the name of the schedule you wish to browse, update, delete or copy. You do not need to provide a schedule name for the add function. For the List option, you can enter the generic prefix of the schedules which you want to be listed. For example, if you entered the L option and placed the letters NM next to the Schedule Name, the displayed list would contain only those schedules with names starting with NM.

#### **Schedule Processing**

This field indicates whether or not schedule processing is operational. There are two possible values for this field :

<b>ACTIVE</b>	Indicates that schedules are being processed and reports will be generated at the specified dates and times
<b>INACTIVE</b>	Indicates that no schedule processing is currently being performed

---

## **Schedule Definition Panel**

The Schedule Definition panel, as shown in Figure 8-2, is presented when the Add, Browse, Update, Delete or Copy option is selected from the Schedule Definition Menu. The selected function is shown at the top

right hand corner of the panel. This panel allows you to enter the information required by Report Writer to set up a report schedule.

```

SOLVPROD----- Report Writer : Schedule Definition -----Page 1 of 2
Command ==>                                         Function=Add

Schedule Name ..... _____ Status ... ACTIVE__ (ACTIVE or INACTIVE)
Description ..... _____

Frequency Type ..... _____ (TIME, DAYS or MONTHS)
Frequency ..... _____ (HH.MM, number of DAYS or MONTHS)

Start Date ..... 29-JUL-1993 (Date)
Expiry Date ..... _____ (Date)
Delete Expired ..... _____ (Yes or No)

Start Time ..... _____ (HH.MM)
End Time ..... _____ (HH.MM)
Valid Days ..... _____ (Blank OR MON,TUE ...)
Catchup if missed ... _____ (Yes or No)

Execution Region .... *_____ (* for your own or MON, LOG or SYS)
Keep Region ..... LOG (MON, LOG or SYS)

F1=Help      F2=Split    F3=File      F4=Save
              F8=Forward  F9=Swap
                                                    F12=Cancel
  
```

**Figure 8-2. Schedule Definition Panel**

The fields on the Schedule Definition panel are as follows:

**Schedule Name**

This is the name of the report schedule. It must be unique, 1 to 12 alphanumeric or national characters long and is the name used to access the schedule for maintenance.

**Status**

This field determines whether the schedule is currently in use. When adding or updating a schedule definition, enter ACTIVE for a schedule you wish to be operative, or INACTIVE for a schedule definition which is not currently in use. Only the first character needs to be entered.

**Description**

A short description (up 45 characters) of the schedule definition. This is for information only. The system makes no use of this field.

**Frequency Type**

The Frequency Type and Frequency fields are interrelated. The Frequency Type indicates the units of time at which the schedule will repeat. The possible values are:

**TIME**      The Frequency field will be expressed in hours and minutes

**DAYS** The schedule will repeat in the number of days defined in the Frequency field

**MONTHS** The schedule will repeat in the number of months defined in the Frequency field

### **Frequency**

Enter time in the format HH.MM if the Frequency Type is TIME. Enter a whole number when the Frequency Type is DAYS or MONTHS, to indicate the elapse time between repeated executions of the schedule. For example, if the Frequency Type is TIME, and the Frequency is 12.00, the schedule will be due to run every 12 hours.

### **Start Date**

The first date on which the schedule will execute. When adding a new schedule, this field will default to the current date, but you may enter a date in the past or future.

### **Expiry Date**

The last date on which the schedule will execute. If this field is omitted, the schedule does not expire. If specified, the expiry date must be after the start date.

### **Delete Expired**

If you want the schedule definition to be deleted after the expiry date, enter YES in this field. The schedule definition will be deleted the next time schedule processing starts after the expiry date. The default of NO means that the schedule will not be deleted.

### **Start Time**

This is the start time in HH.MM format. For frequency types of DAYS or MONTHS, this is the time when the schedule will be executed. If the frequency type is TIME, this is the first time that the schedule will execute on the start date. The schedule is then executed at the specified interval until the end time (if specified) or the end of the expiry date. The default is midnight.

### **End Time**

This is the end time in HH.MM format. This is only used if frequency type is TIME. It specifies the last time that the schedule will execute each day. If omitted, the schedule will execute every frequency interval until the end of the day defined as the Expiry Date.

### **Valid Days**

When scheduling a report, the next time and day a schedule is due is determined from the Frequency Type and Frequency values. The list of valid days is then checked to ensure that the day is allowed for the schedule.

You may specify a list of days when the schedule is allowed to execute. The default (blank) allows the schedule to execute on any day of the week (as determined by the Frequency and Frequency Type). If you only want the schedule to execute on certain days of the week, enter the names of the days in this field. The day names must be abbreviated to the first three characters of the day name. If you specify more than one day, separate the days with commas. Valid day names are MON TUE WED THU FRI SAT and SUN. For example, a schedule that will execute only on Mondays, Wednesdays and Fridays would be entered as MON,WED,FRI.

### **Catchup if missed**

If it is important that a schedule executes, even if the system is not operative at its normal due time, specify YES in this field. This will force the schedule to be executed when the system next starts up after the due time. The schedule will be executed once only, regardless of the number of times it normally would have executed if the system was running. The default is NO.

### **Execution Region**

This is the name of the region (user ID) where the schedule is to be executed. This may contain an asterisk (\*) to indicate your own user ID, MON to indicate the background monitor user ID, LOG for the background logger or SYS for the background system user ID. Only the first letter of your choice needs to be entered. The default is an asterisk.

### **Keep Region**

If you are not logged on when the schedule is due to execute, and you specified an asterisk (\*) in the Execution Region field, this will define the user ID which will generate the report. Valid entries are:

**MON**      The background monitor user ID

**LOG**      The background logger user ID

**SYS**      The background system user ID

Only the first letter of your choice needs to be entered. The default is LOG.

## **Examples of Schedule Definitions**

To generate a report at 10am each day, specify the following fields:

Frequency Type	DAYS
Frequency	1
Start Time	10.00

To generate a report every Monday, Wednesday and Friday at 2.15pm, specify the following fields:

Frequency Type	DAYS
Frequency	1
Start Time	14.15
Valid Days	MON,WED,FRI

To generate a report every month at 8am, specify the following fields:

Frequency Type	MONTHS
Frequency	1
Start Time	08.00

To generate a report every hour between 9am and 5pm inclusive on weekdays, specify the following fields:

Frequency Type	TIME
Frequency	01.00
Start Time	09.00
End Time	17.00
Valid Days	MON,TUE,WED,THU,FRI

To generate a report every second Wednesday, specify the following fields:

Frequency Type	DAYS
Frequency	14
Start Date	06-MAR-1991 (This is a Wednesday.)

When the FORWARD command is entered (or the Forward key is pressed) on the Schedule Definition panel, the Generate a Report panel, as shown in Figure 8-3 will be presented.

---

## Generate a Report Panel

When scheduling a report, information needs to be passed to the report generator to generate the report from the Report Definition. The Generate a Report panel, as shown in Figure 8-3, is used to enter this information and is presented as part of the schedule definition function. All fields entered will be validated and an error message presented if invalid.

```

SOLVPROD----- Report Writer : Generate a Report -----Page 2 of 2
Command ==>                                         Function=Add

Report Appl .....+ _____
Report Type ..... _____ (PUBLIC or PRIVATE)
Userid ..... _____ (Userid if PRIVATE)
Report Name .....+ _____

Owner ..... USER01_____

Printer Name .....+ _____
Hold Report? ..... NO_ (YES or NO)
Keep Report? ..... NO_ (YES or NO)
Number of Copies ... 1__ (1 to 255)

F1=Help      F2=Split      F3=File      F4=Save
F7=Backward  F9=Swap

F12=Cancel

```

**Figure 8-3. Generate a Report**

The fields on the Generate a Report panel are:

**Report Appl**

Enter the ID of the report application to which the report belongs.

**Report Type**

Enter PRIVATE for a private report or PUBLIC for a public report (or abbreviate to the first 2 characters). Report access is dependant on the security (UAMS) definition of the user ID under which the report is generated.

**Userid**

The user ID is required to be entered for a private report (if not entered the system will enter the logged-on user ID).

**Report Name**

Enter the name of the report to be produced. (This must be an already defined report.)

**Owner**

Enter the user ID of the owner (or receiver) of the report.

**Printer Name**

Enter the name of the printer where the report is to be sent. Printer names are set up by your installation.

**Hold Report?**

Enter YES to hold the report in the PSM print spool or NO to print the report as soon as the printer becomes available.

**Keep Report?**

Enter YES to retain a copy of the report in the PSM print spool after it has been printed, NO to delete the report from the print spool as soon as it has been printed successfully.

**Number of Copies**

Enter the number of copies of the report you require to be printed. The valid range is 1 to 255.

**Report Generation Error Processing**

If an error occurs during the generation of the report, an error message is written to the activity log. If the print file was successfully opened before the error occurred, an error message is also written at the end of the report, and the report is placed on the PSM output spool with a status of HELD-ERROR or DIRECT-ERR.

---

**Schedule Definition List**

When option L is selected from the Schedule Definition Menu, the Schedule Definition List, as shown in Figure 8-4, is presented. This is a selection list of all existing schedule definitions. You can select part of the list by entering a value in the Schedule Name field on the Schedule Definition Menu. For example, if you enter the letters ABC in this field, only those schedules with names beginning with the letters ABC will be listed .

```

SOLVPROD----- Report Writer : Schedule Definition List -----
Command ==>                                     Scroll ==> PAGE

                                           S/B=Browse U=Update D=Delete C=Copy
Name          Report      Description
MYSCHED       SUMMARY     DAILY PROBLEM SUMMARY REPORT
MYSCHED2      SUMMARY7    WEEKLY SUMMARY REPORT
**END**

F1=Help      F2=Split      F3=Exit      F4=Return    F5=Find      F6=Refresh
F7=Backward  F8=Forward    F9=Swap      F11=Right

```

*Figure 8-4. Schedule Definition List*

To make a selection from the Schedule Definition List, enter one of the following options in the field to the left of the required schedule name:

- S, B or /**    Select this option to Browse the schedule definition—fields cannot be updated
- U**            Select this option to update the schedule definition
- D**            Select this option to delete an existing schedule definition—you will be prompted to confirm or cancel the delete request
- C**            Select this option to copy a schedule definition—all fields can be updated

The fields displayed for each entry on the Schedule Definition List are as follows:

**Name**  
The name of the schedule definition.

**Report**  
The name of the report to be generated by this schedule.

**Description**  
The description of the schedule definition.

You can obtain more information about the listed schedule definitions by entering the RIGHT command, or pressing the Right key. The Schedule Definition List, as shown in Figure 8-5, will be presented.

```

SOLVPROD----- Report Writer : Schedule Definition List -----
Command ==>>>                                     Scroll ==>> PAGE

                                     S/B=Browse U=Update D=Delete C=Copy
Name           Next-Due           Created      Modified     User
MYSCHED        05-AUG-1993      26-MAR-1991  30-MAR-1992  11.42  USER01
MYSCHED7       *INACTIVE*       23-JAN-1991  30-MAR-1992  11.42  USER01
**END**

F1=Help      F2=Split      F3=Exit      F4=Return    F5=Find      F6=Refresh
F7=Backward  F8=Forward    F9=Swap      F10=Left

```

*Figure 8-5. Schedule Definition List Paged Right*

The fields displayed for each entry on the Schedule Definition List are as follows:

**Name**

The name of the schedule definition.

**Next-Due**

The date and time that the schedule is next due to run. If the schedule is not active, the \*INACTIVE\* message will appear in this field. If the schedule is past its expiry date, this field will be blank.

**Created**

This is the date that the schedule was added to the system.

**Modified**

This is the date and time that the schedule was last modified.

**User**

This is the user ID of the user who last updated the schedule definition.

---

# Reports in Progress

The reports in progress function of Report Writer allows you to view a list of all reports currently in progress in the system. The list may be restricted to show only the reports for a chosen user ID. This chapter describes the Reports in Progress panel and how to access it.

---

## Reports in Progress Panel

```
SOLVPROD----- Report Writer : Reports in Progress -----11.57.38
Command ==>                                         Scroll ==> PAGE

                S/B=Browse C=Cancel P=Purge
Rep Appl Typ Userid  Name      Owner   Region  Recs  Pages  Lines
$UASYS  PUB          $SUMMARY  USER01  USER01   10     5    309
**END**

F1=Help      F2=Split    F3=Exit     F4=Return   F5=Find     F6=Refresh
F7=Backward  F8=Forward  F9=Swap     F11=Right
```

Figure 9-1. Reports in Progress Panel

To view a list of all reports currently in progress in the system, select option P from the Report Writer Primary Menu. The Reports in Progress panel, as shown in Figure 9-1, will be presented.

To restrict the Reports in Progress list to show only those reports you are interested in, specify a user ID (or partial user ID) in the Userid field on the Primary Menu. For example, entering ABC will list all the reports currently in progress for all user IDs beginning with ABC.

To make a selection from the list, enter one of the following options in the field to the left of the required report:

- S, B or /** Select this option to view the PSM Browse Output panel for the selected report
- C** Select this option to cancel the generation of the report without deleting it from the PSM spool
- P** Select this option to cancel the generation of the report and delete it from the PSM spool

The information displayed for each entry in the Reports in Progress list is as follows:

**Rep Appl**

The ID of the report application to which the report belongs.

**Typ**

The type of report. Valid report types are:

**PUB** The report is a public report

**PRI** The report is a private report

**Userid**

The user ID of the user who owns the report.

**Name**

The name of the report.

**Owner**

The user ID for which the report is being generated.

**Region**

The user region where the report generation is processing.

**Recs**

The number of input records processed by the report generator.

**Pages**

The number of pages of output from the report generator.

## Lines

The number of lines of output from the report generator.

The report generator updates the Recs, Pages and Lines values during processing. Enter the REFRESH command to update the list with the latest figures recorded by the report generator.

To obtain more information about the reports listed on the Reports in Progress list, enter the RIGHT command. The Reports in Progress list, as shown in Figure 9-2, is presented.

```
SOLVPROD----- Report Writer : Reports in Progress -----11.57.38
Command ==>> Scroll ==> PAGE

                               S/B=Browse C=Cancel P=Purge
Rep Appl Typ Userid  Name      Started      PSM
$UASYS  PUB           $SUMMARY  12-AUG-1993 17.00.27  0794
**END**

F1=Help      F2=Split    F3=Exit     F4=Return   F5=Find     F6=Refresh
F7=Backward  F8=Forward  F9=Swap     F10=Left
```

Figure 9-2. Reports in Progress List Paged Right

The fields displayed on the Reports in Progress list (paged right) are as follows:

### Rep Appl

The ID of the report application to which the report belongs.

### Typ

The type of report. Valid report types are:

**PUB** The report is a public report

**PRI** The report is a private report

### Userid

The user ID of the user who owns the report.

### Name

The name of the report.

**Started**

The date and time that the report generation started.

**PSM**

The PSM print request number.

# Customer Support Services

Sterling Software provides a variety of customer support services to ensure that you get the most out of your Sterling Software products. The sections that follow provide you with information to make it easier for you to communicate with our Customer Services staff. The sections include our telephone hotline and fax numbers, Support Centre addresses, and outline basic information you should have on hand when calling your local Support Centre for assistance. If you have questions other than product support, our Technical Support Representatives can also help you get the information you need.

If you have questions about billing, new product orders, or the Product Support and Enhancement Agreement, contact your local Sterling Software representative.

---

## Technical Support

If you encounter a problem with one of our products that you cannot resolve by reading and following the online help or the documentation, call your local Sterling Software Support Centre. Our Technical Support Representatives are available to answer your questions about Sterling Software systems and network management software.

To receive prompt service, use the following hotline numbers for the countries and products listed. If you are outside these countries, contact your local Sterling Software representative for help.

In most regions, you can call the hotline number outside of prime support hours if your problem is critical and cannot wait until the next business day. We have a Technical Support Representative on call 24 hours a day, 365 days a year for such emergencies.

If the Technical Support Representative asks you to send information or documentation regarding your problem to the Support Centre, use your local Support Centre's fax number or mailing address.

You can help the Technical Support Representative solve your problem more quickly if you have the following information at hand before you call:

- ▶ Your system model, make, and serial number
- ▶ Your problem tracking number and customer number, as these apply
- ▶ Your operating system, release level, and maintenance level
- ▶ Release and maintenance level of the product or component causing the problem
- ▶ Final error messages, especially the message numbers, that the problem caused
- ▶ All product manuals for easy reference

If all Technical Support Representatives are busy and you have to leave a message, remember to provide your name, your company name, phone number, call incident or problem number if you have one, and a brief description of the problem. You can also leave other relevant information such as how to reach you if you are not available at the stated phone number. A representative will return your call as soon as possible.

---

## Local Support Centres

Sterling Software Support Centres are listed alphabetically by region below. When calling for technical assistance, please use the Support Centre in your region. If you are outside these countries, contact your local Sterling Software representative for help.

## Europe

### **France**

Direct Support Hotline: 33 1 47 67 40 40  
Prime Support Hours: Normal business hours  
Monday through Friday

Fax: 33 1 47 67 40 41

Mailing Address: Paris Customer Support Centre  
Sterling Software  
70 Avenue du President Wilson  
92800 – Puteaux

### **Germany**

Direct Support Hotline: 49 6102 709 0  
Support Hours: Normal business hours  
Monday through Friday

Fax: 49 6102 709 111

Mailing Address: Technischer Kunden–Service (TKS)  
Sterling Software GmbH  
Schleussnerstrasse 54  
D–63263 Neu–Isenburg

### **Italy**

Direct Support Hotline: 39 11 771 4095  
Support Hours: Normal business hours  
Monday through Friday

Fax: 39 11 743 878

Mailing Address: Sterling Software Srl  
Corso Svizzera 185  
10149 Torino

### **Norway**

Direct Support Hotline: 47 22 65 10 52  
Prime Support Hours: Normal business hours  
Monday through Friday

Fax: 47 22 64 66 79

Mailing Address: Sterling Software  
Brynsveien 13  
Postboks 6392 Etterstad  
N–0604 Oslo

**Sweden**

Direct Support Hotline: 46 (0)8 752 7900  
Prime Support Hours: Normal business hours  
Monday through Friday

Fax: 46 (0)8 752 7337

Mailing Address: Sterling Software  
Borgarfjordsgatan 16  
S-164 40 Kista

**United Kingdom**

Direct Support Hotline: 44 734 605609  
Prime Support Hours: Normal business hours  
Monday through Friday

Fax: 44 734 605540

Mailing Address: Reading Customer Support Centre  
Sterling Software  
75 London Road  
Reading  
Berkshire RG1 5BS

**North America****Canada**

Contact US Support Centre

**United States**

Direct Support Hotline:  
Metro Washington 703 264 8334  
Continental US 1 800 663 6529

Prime Support Hours: 8:30 a.m. to 5:30 p.m. EST  
Monday through Friday

Fax: 703 264 0751

Mailing Address: Reston Customer Support Centre  
Systems Management Division  
Sterling Software  
1800 Alexander Bell Drive  
Reston, VA 22091

## Pacific Rim

### **Australia or New Zealand**

Direct Support Hotline: 02 975 8469  
Prime Support Hours: 8:30 a.m. to 5:00 p.m. EST  
Monday through Friday

Fax: 02 975 5245

Mailing Address: Sydney Customer Support Centre  
Sterling Software  
Forest Corporate Park  
28 Rodborough Road  
Frenchs Forest NSW 2086

### **Japan**

Direct Support Hotline: 03 5472 5531  
Prime Support Hours: 9:00 a.m. to 5:30 p.m.  
Monday through Friday

Fax: 03 5472 5530

Mailing Address: Sterling Software  
Shibakoen Takahashi Building  
8 – 12 Shibakoen 1 – Chome,  
Minato-ku, Tokyo 105

### **Singapore**

Direct Support Hotline: 65 732 9996  
Prime Support Hours: Normal business hours  
Monday through Friday

Fax: 65 733 4358

Mailing Address: Sterling Software  
501 Orchard Road  
#15–03 Lane Crawford Place  
Singapore 0923

---

## **User Conferences**

Sterling Software holds annual user conferences at locations throughout Europe, North America, and the Pacific Rim. These conferences give you an opportunity to learn from the experiences and expertise of other Sterling Software customers and to share some of your product knowledge with them. Each conference includes technical sessions, user presentations, roundtable discussions, and time for informal exchanges between customers and Sterling Software employees.

For more information about our user conferences, contact your local Sterling Software representative.

# Commands and Function Key Usage

This appendix describes Report Writer commands and function key assignments.

---

## Commands

Commands are executed by entering the command in the Command ===> or Select Option ===> input field at the top of the panel. Some commands are relevant for all panels, while others are only relevant for particular panels.

### General Commands

**EXIT**

Exit from the current function and return to the previous panel.

**HELP**

Display on-line help for the current function. When viewing the Help facility, access is provided to related help information by pressing the HelpHelp or Index key.

**RETURN**

Exit from the current function and return to the previous major function (for example, a primary menu).

**SPLIT**

Split the screen into two windows at the current cursor position. The screen is split vertically if the cursor is placed on the bottom row of the screen. If the cursor is placed on any other row, the screen is split horizontally.

**SWAP**

Swap to the other management services window. If a Split command was not previously executed a new window is opened.

**PSKIP**

Use the operands as a panel skip value and reinvoke the Primary Menu. This is equivalent to using the = panel skip command.

**DISC(ONN)**

Disconnect the terminal from the current management services session.

**LOCK**

Lock the current management services session.

**CMD**

Invoke the Command Entry facility. The initial command to be executed may be specified as operands. This function is restricted to authorised users.

**EX(EC)**

Execute an NCL procedure. The name of the procedure and parameters to be passed to the procedure must be specified as operands. This function is restricted to authorised users.

**START**

Start an NCL process. The name of the procedure and parameters to be passed to the procedure must be specified as operands. This function is restricted to authorised users.

**PQ(UEUE)**

Display the PSM print queue. The scope of the queue may be specified as an operand. If no operand is specified then all requests *owned* by your userid are displayed. The valid operands are as follows.

\*

Displays all print requests.

**User ID**

Displays all print requests *owned* by the specified userid.

***prefix*\***

Displays all print requests *owned* by userids starting with the specified prefix.

**PASSWORD**

Change your password/user details (name, phone, location).

**RET(RIEVE)**

Restore to the Command field the value that was last entered. The last twelve commands entered into a Command field are always kept for later reuse. Successive Retrieve commands will return the next command in the stack. Prompt support is provided by specifying a question mark (?) or a prefix followed by a question mark with no imbedded blanks.

**KEYS**

Toggle the function key display area between a display of the primary function keys (F1 to F12), the alternate function keys (F13 to F24) or do not display the function key area. This command will accept one of the following operands:

**PRI(MARY)**

Switches the display to the primary function keys.

**ALT(ERNATE)**

Switches the display to the alternate function keys.

**OFF**

Switches off the function key display at the bottom of the screen.

**ON**

Displays the function keys or switches the function keys displayed if already shown.

**SET**

Allows users to specify their own alternate function key settings.

**Selection List and Scrollable Data Panel Commands****BACKWARD**

Scroll towards the top of the data.

**FORWARD**

Scroll towards the bottom of the data.

**LEFT**

Scroll towards the left of the data.

**RIGHT**

Scroll towards the right of the data.

**FIND**

To search for a string of characters in the data, enter FIND or F, followed by the character string, followed optionally, by one of the operands listed below. An asterisk (\*) can be specified to indicate the string specified on the previous Find command. To repeat the search press the Find key or enter the FIND command with no operands. The following operands may be used with the FIND command:

- FIRST** Find the first occurrence of the string, starting from the top of the data
- LAST** Find the last occurrence of the string, starting from the bottom of the data
- NEXT** Find the next occurrence of the string after the current cursor position—this is the default
- PREV** Find the previous occurrence of the string before the current cursor position

**REFRESH**

Rebuilds the display. Any changes to the data (made by you or another user) will be reflected in the new display.

**Data Entry Panel Commands****ACTION**

Execute the action requested and remain on the current panel.

**CANCEL**

Exit from the data entry panel without saving the changes or creating a new record.

**FIELDS**

Swap from the Layout panel to the Fields panel.

**FILE**

Execute the Save command and then exit. This command will update the file with screen input, after verification of fields. An error message is displayed if fields are missing or format is incorrect.

**LAYOUT**

Swap from the Fields panel to the Layout panel.

**NULLS**

Pads layout lines with nulls or blanks. To pad layout lines with blanks, enter NULLS OFF. To pad layout lines with nulls, enter NULLS ON or NULLS.

**RESET**

Clear all pending line commands.

**SAVE**

If the function is add, a new record is added. If the function is update, any changes made to the record are saved.

**VIEW**

Presents the View Report Layout panel.

---

## Function Keys

Some commonly used commands are allocated to function keys. The valid function keys for a panel are always displayed on the bottom lines of the panel. Only the keys that are active for the panel are displayed.

For terminals with 24 function keys, F13 to F24 have the same assignments as F1 to F12 if they are not allocated other commands by the user, using the KEYS SET command.

The F1 to F12 keys are standard across most panels. The commands assigned to some keys will depend on the type of panel. The standard function key assignments are described on the following pages.

### General Function Key Assignments

**F1=Help**

Display help for the current function.

**F2=Split**

Split the screen into two windows.

**F3=Exit**

Exit from the current function.

**F4=Return**

Return to the application Primary Menu.

**F7=Forward**

Scroll forward.

**F8=Backward**

Scroll backward.

**F9=Swap**

Swap display to the other window.

**F10=Left**  
Scroll left.

**F11=Right**  
Scroll right.

### **Data Entry Panel Function Keys**

**F3=File**  
Save data and exit.

**F4=Save**  
Save data.

**F5=Fields**  
Swap to the Fields panel from the Layout panel.

**F5=Layout**  
Swap to the Layout panel from the Fields panel.

**F6=View**  
Present the View Report Layout panel.

**F6=Action**  
Execute the action required.

**F12=Cancel**  
Cancel any changes made since the last save command, and exit.

### **Scrollable Selection Lists/Displays**

**F5=Find**  
Find a specified text string.

**F6=Refresh**  
Refresh the display.

# Editor Line Commands

On the left of each layout line on an Edit Layout panel is a sequence number field. When editing the layout, commands can be entered into this field to perform edit functions. These commands are called line commands.

The line on which the line command is entered is referred to as the current line in the following text.

The following line commands are supported:

### ***Inn***

Insert *nn* blank lines after the current line. If *nn* is omitted then one blank line is inserted.

### ***Cnn***

Copy *nn* lines starting from the current line. Enter A or B beside the line of text to which the lines are to be copied after or before. If *nn* is omitted then only the current line is copied.

### **CC**

Copy a sequence of lines. Enter CC beside the first line and the last line to be copied. Enter A (after) or B (before) beside the line to which the lines are to be copied after or before.

### ***Mnn***

Move *nn* lines starting from the current line. Enter A or B beside the line of text to which the lines are to be moved after or before. If *nn* is omitted then only the current line is moved.

### **MM**

Move a sequence of lines. Enter MM beside the first line and the last line to be moved. Enter A (after) or B (before) beside the line of text to which the lines are to be moved after or before.

**Rnn** Repeat the current line *nn* times. If *nn* is omitted then the current line is repeated once.

**RR** Repeat a sequence of lines. Enter RR beside the first line and the last line to be repeated.

**Dnn** Delete *nn* lines starting from the current line. If *nn* is omitted then only the current line is deleted.

**DD** Delete a sequence of lines. Enter DD beside the first line and the last line to be deleted.

**Qnn** Queue *nn* lines starting from the current line. If *nn* is omitted then only the current line is queued. Any previously queued lines are deleted from the queue.

**QQ** Queue a sequence of lines. Enter QQ beside the first line and the last line to be queued. Any previously queued lines are deleted from the queue.

**Q+nn** Queue *nn* lines starting from the current line. If *nn* is omitted then only the current line is queued. The lines are added to the end of the queue, meaning any previously queued lines are not deleted.

**QQ+** Queue a sequence of lines. Enter QQ+ beside the first line and the last line to be queued. The lines are added to the end of the queue, meaning any previously queued lines are not deleted.

**QA** Insert queued lines after the current line.

**QB** Insert queued lines before the current line.

**A** Copy or move after the current line.

**B** Copy or move before the current line.

---

# System Field List

The system field list is a list of all system fields available to Report Writer and which are stored in the system fields table.

System fields are indicated in the layout of a report definition by prefixing the field name with an exclamation mark (!).

<b>Field Name</b>	<b>Description</b>
APPL	Report Application ID
CAT	Report Record Category Name
DATE1	Current System Date (YY.DDD)
DATE10	Current System Date (YYYYMMDDHHMMSS+/-HHMM)
DATE11	Current System Date (YYYYMMDDHHMMSS.FFFFFFF+/-HHMM)
DATE2	Current System Date (DAY DD-MON-YEAR)
DATE3	Current System Date (DD-MON-YEAR)
DATE4	Current System Date (DD/MM/YY)
DATE5	Current System Date (MM/DD/YY)
DATE6	Current System Date (YY/MM/DD)
DATE7	Current System Date (YMMDD)
DATE8	Current System Date (YYYYMMDD)
DATE9	Current System Date (DDDDDD)
DAY	Current Day of the Week (DDD)
DESC	Report Description
IMCATDESC	INFO/MASTER Category Description

IMKEY	INFO/MASTER Record Key
IMNUM	INFO/MASTER Record Number
IMSYDESC	INFO/MASTER System Description
IMTEXT*	INFO/MASTER Record Free Form Text
IMTF	INFO/MASTER Record Text Flag (YES/NO)
NAME	Report Name
NMDID	SOLVE system Domain ID
NMID	SOLVE system ID
NMLVL	SOLVE system Version and Release (Vx.y)
NMUSER	SOLVE system User ID
OWNER	Report Owner
P	Report Page Number <b>Note:</b> This system field can only be used in page headers and trailers
R	Report Record Number
SYSTEM	Report System Name
TIME	Current System Time (HH.MM.SS)
TYPE	Report Type (Public/Private)
USER	Report User ID (Private reports only)
VLVL	VTAM Version and Release (Vx.y.z)
VNET	VTAM Network ID
VSSCP	VTAM SSCP Name

The asterisk terminating the IMTEXT field name indicates that it is a repeating field.

# The Report Writer NCL Interface

This appendix describes the NCL interface for Report Writer.

There are four functions performed by the Report Writer interface. They are:

- ▶ \$RWCALL OPT=GENERATE – generate a report
- ▶ \$RWCALL OPT=INFO – return report definition information, optionally presenting a Report List
- ▶ \$RWCALL OPT=MENU – present a Report Writer menu
- ▶ \$RWCALL OPT=STATUS – present Reports in Progress

---

## Notational Conventions

Each NCL call is described on a separate page under the following section headings, where applicable:

**Function:**

Purpose of interface

**Use:**

General description of interface use

**Operands:**

Description of operands

**Variables:**

Fields used to pass variable data to the service procedure or report exit procedure

**Return Codes:**

Return code options set on completion of interface function, with an explanation

**Examples:**

Examples of interface syntax

**Notes:**

Any further information or special aspects

**Interface Syntax**

The precise syntax for each interface is defined in a box towards the top of each page. For example:

```

&CONTROL NOSHRVARS

-EXEC $RWCALL  OPT=STATUS
                [ USERID=userid ]
```

On the left is the interface name (\$RWCALL), and to the right are the permissible operands. The syntax used observes the following guidelines:

- ▶ **UPPERCASE characters**  
Interface names or operands consisting of uppercase characters must be entered as shown, but can be entered in upper or lower case.
- ▶ ***Italic* characters**  
These are variables that show the kind of information, rather than the exact information that must be supplied. The actual entry replaces the italic description. Valid types of data are described for each interface within the operands section.
- ▶ **Underscored values**  
Indicates the defaulted value that is assumed for an operand if one is not specified in the interface.
- ▶ **{Braces}**  
These indicate the available options for an operand. One of the alternatives described must be selected. Do not include braces when entering a specification.
- ▶ **[Square brackets]**  
Indicate optional specifications. Do not include square brackets when entering a specification.
- ▶ **The Or Sign |**  
This separates options for an optional or mandatory specification. If a group of options is enclosed by square brackets, and each is

separated by an Or sign, none of the options have to be chosen. If none are coded, the default value (underscored) is used.

► **Commas and Equals signs**

Commas and equal signs must be entered as shown. If commas or equal signs appear within brackets, they are optional and used only if the accompanying optional operand is used.

---

## \$RWCALL OPT=GENERATE

### Function:

Generates a report. Optionally, presents the Generate a Report panel on which the report details can be entered, or the Report List.

```
&CONTROL SHRVAR=($RW)

-EXEC $RWCALL  OPT=GENERATE
                [ MODE= { DEFGEN | GENERATE | PRTGEN } ]
                [ APPL= repapplid ]
                [ TYPE= { PUBLIC | PRIVATE } ]
                [ USERID=userid ]
                [ NAME=name ]
                [ PRINTER=printer ]
                [ OWNER=userid ]
                [ HOLD= { NO | YES } ]
                [ KEEP= { NO | YES } ]
                [ COPIES=n ]
                [ WAIT= { NO | YES } ]
                [ SYSTEM=system ]
                [ RECCAT=record category ]

-EXEC $RWCALL  OPT=GENERATE
                MODE=LIST
                APPL=repapplid
                [ GROUP=group ]
```

### Use:

To generate a report, present the Generate a Report panel or present the Report List.

### Operands:

#### **OPT=GENERATE**

Specifies that a report is to be generated.

#### **MODE= { DEFGEN | GENERATE | PRTGEN | LIST }**

Specifies the mode of operation.

#### **DEFGEN**

Specifies that the Generate a Report panel is to be presented.

#### **GENERATE**

Specifies that a report is to be generated.

**PRTGEN**

Specifies that a report is to be generated and that the PSM Confirm Printer panel is to be presented for the specification of printer details.

**LIST**

Specifies that a Report List is to be presented in the form of an action list. The list will contain all public and private reports for the current user which belong to the report application set in the APPL operand. Only those reports with a status of ACTIVE will be listed.

**APPL=*repapplid***

Specifies the ID of the report application to which the report belongs.

**TYPE={ PUBLIC | PRIVATE }**

Specifies the type of report.

**PUBLIC**

Specifies that the report is a public report.

**PRIVATE**

Specifies that the report is a private report.

**USERID=*userid***

Specifies the user ID of the user who owns the report if it is a private report. The default is the value of &USERID if TYPE is set to PRIVATE.

---

**Note:** If MODE is set to GENERATE or PRTGEN, and TYPE and USERID are not specified, the system will first look for a PRIVATE report owned by the invoking user ID (that is, the value of &USERID) with the name specified. If not found, the system will then look for a PUBLIC report with the name specified.

---

**NAME=*name***

Specifies the name of the report.

**PRINTER=*printer***

Specifies the name of the printer at which the report is to be printed. The printer must have previously been defined to PSM. The default is the printer assigned to the owner of the report as their default printer.

**OWNER=*userid***

Specifies the user ID of the user who is to own the report. This user ID is passed to PSM as the owning user ID for the report. The default is the value of &USERID.

**HOLD={ NO | YES }**

Specifies whether the report is to be assigned a status of HELD by PSM when added to the Print Spool File.

**KEEP={ NO | YES }**

Specifies whether the report is to be left on the Print Spool File by PSM after being printed.

**COPIES=*n***

Specifies the number of copies of the report that will be printed. The range is 1 to 255. The default is 1.

**WAIT={ NO | YES }**

Specifies whether control will be returned to the requestor immediately the report is started or on completion of the report.

**SYSTEM=*system***

Specifies the system name which is to be used instead of that defined in the table entry for the specified report application.

**RECCAT=*record category***

Specifies the record category which is to be used instead of that defined in the table entry for the specified report application.

**GROUP=*group***

Specifies the name of the group to which reports belong, to be included in the Report List when the MODE operand is set to LIST.

**Variables:**

**&\$RWCRIT*n***

These variables can be set to the data criteria that is to be used by the service procedure and/or report exit procedure in determining the data to be included in the report when the MODE operand is not set to LIST. The valid value for *n* is in the range 1 to 99999. The first blank variable indicates the end of the data criteria.

### **&\$RWUSRDC**

These user data variables can be set to user data that is to be used by the service procedure and/or the report exit procedure when the MODE operand is not set to LIST. The variable *c* is between 0 and 5 alphanumeric and/or national characters. These variables are not set or cleared by the system, therefore must be completely managed by your installation-defined NCL procedures.

### **Return Codes:**

#### **&RETCODE = 0**

\$RWCALL completed successfully. \$RWFDBK is set as follows:

- 1** RETURN command entered or function key pressed

#### **&RETCODE = 4**

\$RWCALL completed successfully. Request denied. &SYSMSG is set to an error message and &\$RWFDBK is set to one of the following values:

- 1** User not authorised for the request
- 8** Report not defined
- 10** No report defined within the specified range

#### **&RETCODE = 8**

An error occurred. &SYSMSG is set to an error message.

### **Examples:**

```
&CONTROL SHRVAR=( $RW )
-EXEC $RWCALL OPT=GENERATE MODE=DEFGEN
```

```
&CONTROL SHRVAR=( $RW )
-EXEC $RWCALL OPT=GENERATE MODE=DEFGEN APPL=$SAIMPB TYPE=PUBLIC
```

```
&CONTROL SHRVAR=( $RW )
&$RWCRT1 = &STR $PBSEVERITY=1
&$RWCRT2 = &STR AND
&$RWCRT3 = &STR $PBFIXED=NO
-EXEC $RWCALL OPT=GENERATE MODE=GENERATE APPL=$SAIMPB +
      TYPE=PUBLIC NAME=OPENPROBLEMS
```

```
&CONTROL SHRVAR=( $RW )
-EXEC $RWCALL OPT=GENERATE MODE=GENERATE APPL=$SAIMPB +
      TYPE=PRIVATE USER=USER01 NAME=TEST1
```

```
&CONTROL NOSHRVAR
-EXEC $RWCALL OPT=GENERATE MODE=LIST APPL=ZPRPROB
```

**Notes:**

When MODE is set to DEFGEN, the APPL, TYPE, USERID, NAME, PRINTER, OWNER, HOLD, KEEP and COPIES operands are used to initialise fields on the Generate a Report panel.

When MODE is set to LIST, the variables &SRWCRT*n* and &SRWUSR*Dn* are ignored.

When MODE is set to PRTGEN, the PRINTER, HOLD, KEEP and COPIES operands are ignored. Instead, the values entered on the Confirm Printer panel are used to generate the report.

---

## Syntax Boxes \$RWCALL OPT=INFO

### Function:

Returns report definition information. Optionally, presents a list of reports from which a selection can be made.

```
&CONTROL SHRVAR=($RW)

-EXEC $RWCALL  OPT=INFO
                [ INFO= REPORT ]
                [ APPL={ repapplid | prefix? | ? } ]
                [ TYPE={ PUBLIC | PRIVATE } ]
                [ USERID={ userid | prefix? | ? } ]
                [ NAME={ name | prefix? | ? } ]
                [ GROUP={ group | prefix? | ? } ]
                [ SINGLE={ YES | NO } ]
                [ ORDER={ ID | DESC } ]
                [ STATUS={ ACTIVE | INACTIVE } ]
                [ AUTOSEL={ YES | NO } ]
```

### Use:

To validate report details entered by a user on a panel defined by your installation and provide help on a panel defined by your installation by presenting a Report List from which a selection can be made.

### Operands:

#### **OPT=INFO**

Specifies definition information is to be returned.

#### **INFO=REPORT**

Specifies report definition information is to be returned.

#### **APPL={ *repapplid* | *prefix?* | ? }**

Specifies the ID of the report application to which the report belongs. If a prefix followed by a question mark (?) is specified, a Report List is presented from which a selection can be made. The list will contain all reports that belong to report applications with IDs starting with the prefix specified, and which match the other criteria specified. If a question mark is specified without a prefix, all reports which match the other criteria specified are listed on the Report List.

**TYPE={ PUBLIC | PRIVATE }**

Specifies the type of report. PUBLIC indicates that the report is a public report and PRIVATE indicates that the report is a private report.

**USERID={ *userid* | *prefix?* | ? }**

Specifies the user ID of the user who owns the report if it is a private report. If a prefix followed by a question mark (?) is specified, a Report List is presented from which a selection can be made. The list will contain all private reports owned by users whose user ID starts with the prefix specified, and which match the other criteria specified. If a question mark is specified without a prefix, all reports that match the other criteria specified are listed on the Report List.

**NAME={ *name* | *prefix?* | ? }**

Specifies the name of the report. If a prefix followed by a question mark (?) is specified, a Report List is presented from which a selection can be made. The list will contain all reports with names starting with the prefix specified, and which match the other criteria specified. If a question mark is specified without a prefix, all reports that match the other criteria specified are listed on the Report List.

**GROUP={ *group* | *prefix?* | ? }**

Specifies the group to which the reports belong that are to be presented in the Report List. A Report List is presented from which a selection can be made. If a prefix followed by a question mark (?) is specified, the list will contain all reports that belong to groups with names starting with the prefix specified. If a question mark is specified without a prefix, all reports that match the other criteria specified are listed on the Report List.

**SINGLE={ YES | NO }**

Specifies the setting of the Suit Single Record field for reports that are to be included in the Report List. If not specified, reports with a Suit Single Record setting of YES or NO are included in the list.

**ORDER={ ID | DESC }**

Specifies the order in which the Report List will be presented.

**ID**

Reports will be listed in user ID order.

**DESC**

Reports will be listed in description order.

**STATUS={ ACTIVE | INACTIVE }**

Specifies the status of reports to be included on the Report List. If not specified, both active and inactive reports are included in the list.

**AUTOSEL={ YES | NO }**

Allows the automatic selection of a report, when set to YES, instead of displaying a selection list containing only one report.

**Return Codes:****&RETCODE = 0**

\$RWCALL completed successfully. The variables returned are as follows:

<b>&amp;\$RWREPAPPL</b>	Report Application
<b>&amp;\$RWREPTYPE</b>	Report type, PUBLIC or PRIVATE
<b>&amp;\$RWREPUSERID</b>	User ID of owner if it is a private report
<b>\$RWREPNAME</b>	Report name
<b>&amp;\$RWREPDESC</b>	Brief description of report
<b>&amp;\$RWREPGROUP</b>	Group

**&RETCODE = 4**

Request denied. &SYSMSG is set to an error message and &\$RWFDBK is set to one of the following:

- 1** User not authorised for the request
- 8** Report not defined
- 10** No reports defined within the specified range
- 11** Report not selected from Report List

**&RETCODE = 8**

An error occurred. &SYSMSG is set to an error message.

**Examples:**

```
&CONTROL SHRVAR=( $RW )
-EXEC $RWCALL OPT=INFO INFO=REPORT NAME=?
```

```
&CONTROL SHRVAR=( $RW )
-EXEC $RWCALL OPT=INFO INFO=REPORT TYPE=PUBLIC +
NAME=SUMMARY?
```

```
&CONTROL SHRVAR=( $RW )
-EXEC $RWCALL OPT=INFO INFO=REPORT APPL=$SAIMPB +
TYPE=PUBLIC NAME=OPENPROBLEMS
```

**Notes:**

Either the APPL, USERID, NAME, GROUP, SINGLE or STATUS operand must be specified.

---

## Syntax Boxes \$RWCALL OPT=MENU

### Function:

Presents a Report Writer menu.

```
&CONTROL NOSHRVARS  
  
-EXEC $RWCALL  OPT=MENU  
                [ MENU= { PRIMARY | REPORT | SCHEDULE } ]
```

### Use:

To present a Report Writer menu when a user selects an option from a menu defined by your installation or enters a command written by your installation.

### Operands:

#### **OPT=MENU**

Specifies that a Report Writer menu is to be presented.

#### **MENU={ PRIMARY | **REPORT** | **SCHEDULE** }**

Specifies which Report Writer menu is to be presented.

#### **PRIMARY**

Presents the Report Writer Primary Menu.

#### **REPORT**

Presents the Report Definition Menu.

#### **SCHEDULE**

Presents the Schedule Definition Menu.

### Return Codes:

#### **&RETCODE = 0**

\$RWCALL completed successfully. &\$RWFDBK can be set to the following:

**1** RETURN command entered or function key pressed

#### **&RETCODE = 4**

\$RWCALL completed successfully. Request denied. &SYSMSG is set to an error message and &\$RWFDBK is set to the following:

## 1 User not authorised for the request

### **&RETCODE = 8**

An error occurred. &SYMSG is set to an error message.

### **Examples:**

```
&CONTROL NOSHRVARS  
-EXEC $RWCALL OPT=MENU
```

```
&CONTROL NOSHRVARS  
-EXEC $RWCALL OPT=MENU MENU=PRIMARY
```

```
&CONTROL NOSHRVARS  
-EXEC $RWCALL OPT=MENU MENU=REPORT
```

---

## Syntax Boxes \$RWCALL OPT=STATUS

### Function:

Presents the Reports in Progress list.

```
&CONTROL NOSHRVARS  
  
-EXEC $RWCALL  OPT=STATUS  
                [ USERID= userid ]
```

### Use:

To present Reports in Progress when a user selects an option from a menu defined by your installation or enters a command written by your installation.

### Operands:

#### **OPT=STATUS**

Specifies the Reports in Progress panel is to be presented.

#### **USERID=*userid***

Specifies the user ID of the user whose reports are to be displayed in the Reports in Progress list.

### Return Codes:

#### **&RETCODE = 0**

\$RWCALL completed successfully. &\$RWFDBK can be set to the following:

- 1 RETURN command entered or function key pressed

#### **&RETCODE = 4**

\$RWCALL completed successfully. Request denied. &\$SYSMSG is set to an error message and &\$RWFDBK is set to the following:

- 1 User not authorised for the request

#### **&RETCODE = 8**

An error occurred. &\$SYSMSG is set to an error message.

## Examples:

```
&CONTROL NOSHRVARS  
-EXEC $RWCALL OPT=STATUS
```

```
&CONTROL NOSHRVARS  
-EXEC $RWCALL OPT=STATUS USERID=USER01
```

# Report Exit Procedure

This appendix describes the variables that are passed to the report exit procedure and the return codes and variables it can set.

---

## Function

The purpose of the report exit procedure is to allow the user to do specialised processing, based on installation requirements, while a report is being generated. For example, data can be conditionally suppressed from being processed or printed.

The report exit procedure must know the format of the data, that is, the name of the variables that contain the data and the format of that data. The name of the report exit procedure is defined in the report definition and is executed by the generator.

Functions performed by report exit procedures are:

- ▶ Initialisation processing, for example, open files or define variables.
- ▶ Item processing, where an item is a report header or trailer, page header or trailer, control break header or trailer or record (that is, data format or sequence of data formats). For example, retrieve additional data from another source, and set it in variables that are defined in the report or are to be used in later processing.
- ▶ Termination processing, for example, close files or delete variables.

The order in which the generator calls the service procedure and report exit procedure when generating a report that consists of all component types is shown in Appendix H, *Generator Logic Flow*.

---

## Variables

The share variables facility of NCL is used to pass data to the report exit procedure and to allow it to pass data back to the generator. The report exit procedure is executed with `&CONTROL NOSHRVARS=(#RW)` specified. All variables not starting with the characters `#RW` can be accessed and set by the report exit procedure and variables containing data (data fields) can be modified. The variables set by the generator indicating the status of the current environment are as follows:

### **&SRWOPT**

This variable is set to indicate the processing that is to be performed by the report exit. This variable can be set to one of the following variables:

**INIT**      Initialisation processing is to be performed

**TERM**      Termination processing is to be performed

**ITEM**      Item processing is to be performed

### **&SRWAPPL**

This variable is set to the ID of the report application to which the report being generated belongs.

### **&SRWTYPE**

This variable is set to the type of report being generated. Type can be one of the following:

**PUBLIC**      The report is a public report

**PRIVATE**    The report is a private report

### **&SRWUSERID**

This variable is set to the user ID of the user who owns the report if it is a private report.

### **&SRWNAME**

This variable is set to the name of the report being generated.

### **&SRWDESC**

This variable is set to the brief description of the report being generated.

### **&SRWITEM**

This variable is set to indicate the item that is being processed when `&SRWOPT` is set to `ITEM`. Item can be set to one of the following values:

**RH**    Report header

**PH**    Page header

- CH** Control break header
- DF** Data format or sequence of data formats
- CT** Control break trailer
- PT** Page trailer
- RT** Report trailer

**&SRWITEMKEY**

This variable is set to the sort field number of the control break header or trailer when &SRWITEM is set to CH or CT.

**&SRWFMTSEQ**

This variable is set to a list of all the data format numbers separated by commas when &SRWITEM is set to DF. This variable can be modified to contain a list of data format numbers that are to be printed, in the order they are to be printed, separated by commas. To process but not print the record (that is, to perform totalling) set this variable to null.

**&SRWSYSTEM**

This variable is set to the system name that is defined in the table entry for the report application to which the report belongs. The system name can be overridden on the GENERATE call to SRWCALL.

**&SRWRECCAT**

This variable is set to the record category that is defined in the table entry for the report application to which the report belongs. Record category can be overridden on the GENERATE call to SRWCALL.

**&SRWOWNER**

This variable is set to the user ID of the user who is to own the report. This user ID is passed to PSM as the owning user ID for the report.

**&SRWPAGES**

This variable is set to the number of pages that have been printed.

**&SRWLINES**

This variable is set to the number of lines that have been printed.

**&SRWRECS**

This variable is set to the number of records that have been processed.

**&SRWCRITTOTAL**

This variable is set to the number of &SRWCRI $n$  variables that contain data criteria. The value of this variable is in the range 0 to 99999.

**&SRWCRI $n$** 

These variables are set to data criteria if the &SRWCRITTOTAL variable is greater than zero. The variable  $n$  is a number in the range 1 to the value of &SRWCRITTOTAL. The data criteria is used by the service procedure to determine which data is to be included in the report. The format of these variables is dependent on the service procedure.

**&SRWUSRDC**

This is user data and is as set by the caller of \$RWCALL or the service procedure. The variable  $c$  is between 0 and 5 alphanumeric and/or national characters. These variables can be used to pass user data through the generator to the report exit procedure. They can also be accessed by the service procedure. These variables can also be modified by the report exit procedure. The variables are never set or cleared by the system and must be completely managed by your installation-defined NCL procedures.

**Return Codes****&RETCODE = 0**

Indicates successful completion, continue processing. The system variable &SRWFMTSEQ may be set to a list of data format numbers that are to be printed, in the order they are to be printed, separated by commas. To process but not print the record (that is, to perform totalling) set this variable to null.

**&RETCODE = 2**

Indicates that the item is not to be printed. When &SRWITEM is set to DF also, do not process the record, get the next record.

**&RETCODE = 8**

Indicates that an error occurred, terminate processing. &SYSMSG may be set to an error message.

**Notes**

The generator executes the report exit procedure to perform item processing immediately before the item is to be printed.

If there is more than one data format, the report exit procedure is executed once, before all the data formats are printed for a record.

# Service Procedure

This appendix describes the variables that are passed to the service procedure and the return codes and variables it can set.

---

## Function

The purpose of the service procedure is to provide the generator with data to be used to generate a report. The service procedure must know the database from which the data is to be retrieved and the format of the data. The name of the service procedure is defined in the table entry for the report application to which the report belongs and is executed by the generator.

Functions of the Service Procedure are:

- ▶ Initialisation processing, for example, open files, search database (&NDBSCAN)
- ▶ To get the next record to be processed (that is, set the data fields)
- ▶ To get the value of the sort fields for the next record to be processed
- ▶ Termination processing, for example, close files

The order in which the generator calls the service procedure and report exit procedure when generating a report that consists of all component types is as shown in Appendix H, *Generator Logic Flow*.

---

## Variables

The share variables facility of NCL is used to pass data to the service procedure and to allow it to pass data back to the generator. The service procedure is executed with `&CONTROL NOSHRVARS=(#RW)` specified. All variables not starting with the characters `#RW` can be accessed and set by the service procedure. The variables set by the generator are as follows:

### **&SRWOPT**

This variable is set to indicate the processing that is to be performed by the service procedure. This variable is set to one of the following values:

- INIT**      Initialisation processing is to be performed
- TERM**     Termination processing is to be performed
- GET**        Get the next record to be processed by the generator
- GETSF**     Get the value of the sort fields for the next record to be processed by the generator. The values must be returned in the variables `&SRWSFVALn` and the data fields for the previous record must not be modified. The service procedure is called to do GETSF processing before each GET call only if control break headers or trailers are defined in the report definition.

### **&SRWAPPL**

This variable is set to the ID of the report application to which the report being generated belongs.

### **&SRWTYPE**

This variable is set to the type of report being generated. Type can be:

- PUBLIC**     The report is a public report
- PRIVATE**   The report is a private report

### **&SRWUSERID**

This variable is set to the user ID of the user who owns the report if it is a private report.

### **&SRWNAME**

This variable is set to the name of the report that is being generated.

### **&SRWDESC**

This variable is set to the brief description of the report being generated.

**&SRWSYSTEM**

This variable is set to the system name that is defined in the table entry for the report application to which the report belongs. System name can be overridden on the GENERATE call to \$RWCALL.

**&SRWRECCAT**

This variable is set to the record category that is defined in the table entry for the report application to which the report belongs. Record category can be overridden on the GENERATE call to \$RWCALL.

**&SRWOWNER**

This variable is set to the user ID of the user who is to own the report. This user ID is passed to PSM as the owning user ID for the report.

**&SRWPAGES**

This variable is set to the number of pages that have been printed.

**&SRWLINES**

This variable is set to the number of lines that have been printed.

**&SRWRECS**

This variable is set to the number of records that have been processed.

**&SRWCRITTOTAL**

This variable is set to the number of &SRWCRIT $n$  variables that contain data criteria. The value of this variable is in the range 0 to 99999.

**&SRWCRIT $n$** 

These variables are set to data criteria if &SRWCRITTOTAL is greater than zero. The variable  $n$  is a number in the range 1 to the value of &SRWCRITTOTAL. These variables are to be used by the service procedure in determining the data to be included in the report. The format of these variables is dependent on the service procedure.

**&SRWUSRDC**

This is user data and is as set by the caller of \$RWCALL or the report exit procedure. The variable  $c$  is between 0 and 5 alphanumeric and/or national characters. These variables are used to pass user data through the generator to the service procedure and can also be modified by the service procedure. They can also be modified by the report exit procedure. These variables are never set or cleared by the system and must be completely managed by your installation defined NCL procedures.

**&SRWSFFLD $n$** 

This variable is set to the name of the data field defined as a sort field in the report. The variable  $n$  is a number in the range 1 to 10, corresponding to the sort field number assigned to the sort field.

**&SRWSFDIR $n$** 

This variable is set to the order defined in the report for the corresponding sort field. The variable  $n$  is a number in the range 1 to 10. This variable may be:

- A Ascending order
- D Descending order

**&SRWSFSTART $n$** 

This variable is set to the start offset defined in the report for the corresponding sort field, if the records are not to be sorted using the full value of the field. The range is 1 to 255. The variable  $n$  is a number in the range 1 to 10.

**&SRWSFEND $n$** 

This variable is set to the end offset defined in the report for the corresponding sort field, if the records are not to be sorted using the full value of the field. The range is the start offset to 255. The variable  $n$  is a number in the range 1 to 10.

**Return Codes****&RETCODE = 0**

Indicates successful completion, continue processing. When &SRWOPT is set to GETSF the following variable must be set: &SRWSFVAL $n$  must be set to the value of the sort field(s) for the next record that will be retrieved for processing. Where  $n$  is the sort field number.

**&RETCODE = 4**

Indicates the end of data if &SRWOPT is set to INIT or GET.

**&RETCODE = 8**

Indicates that an error occurred, terminate processing. &SYSMSG may be set to an error message.

# Generator Logic Flow

The diagrams in this appendix illustrate the flow of logic as the generator passes control to the the service procedure and the report exit procedure during generation of a report that consists of all component types.

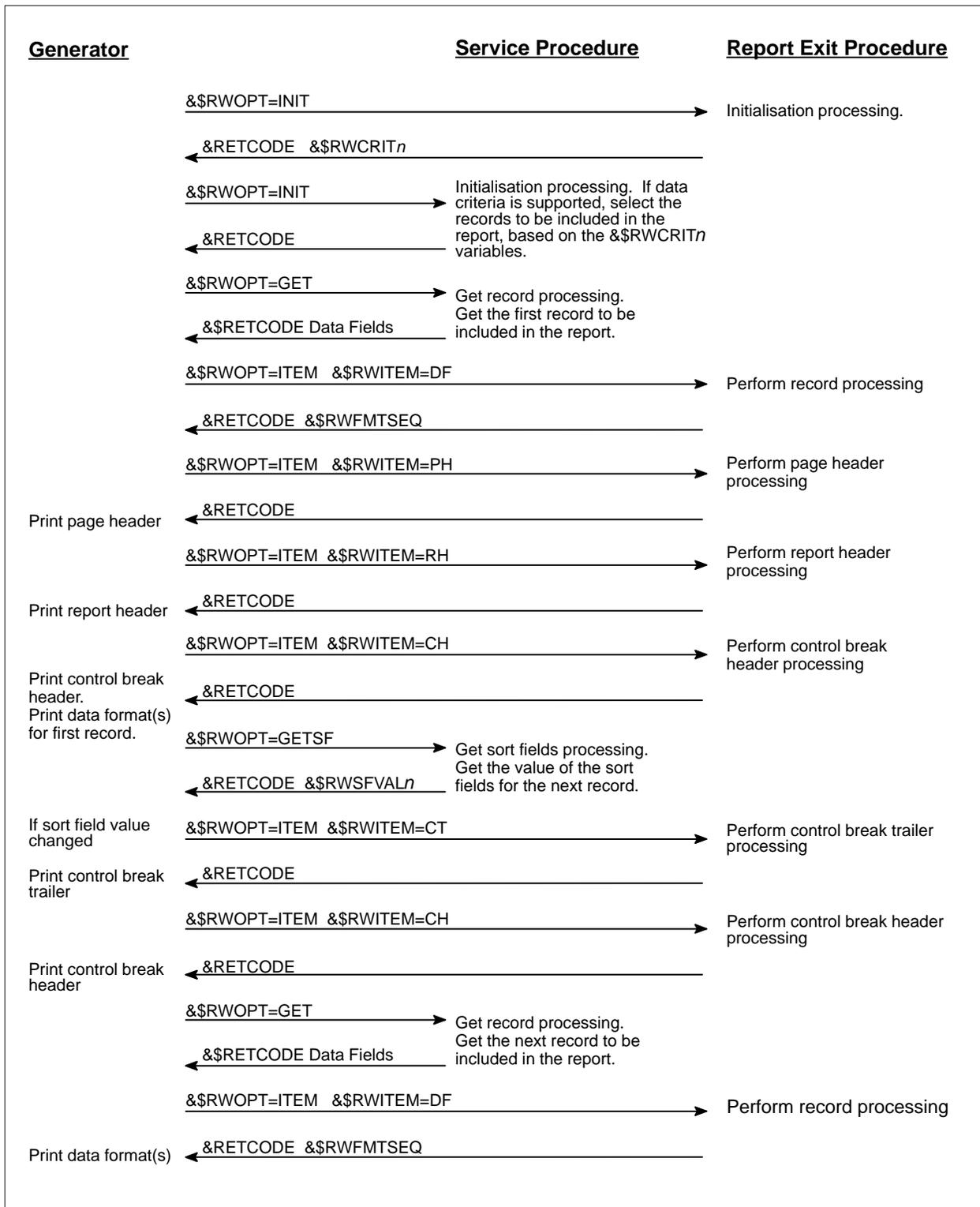


Figure H-1. Generator Logic Flow – Part 1

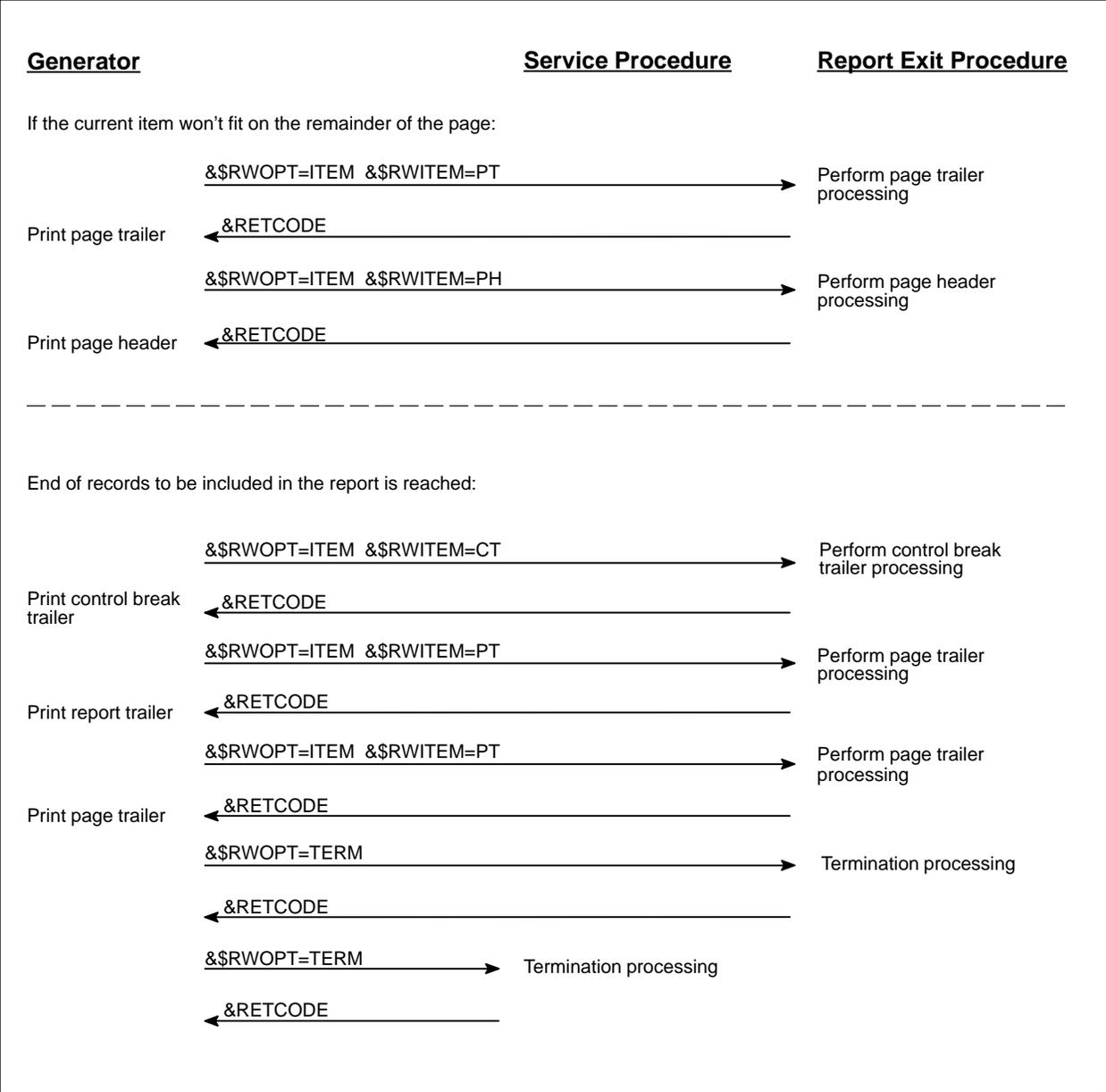


Figure H-2. Generator Logic Flow – Part 2

# Distributed Service Procedures

A Report Writer report application consists of several attributes, one of these being the name of a service procedure. The purpose of the service procedure is to provide the generator with the data that is to be used to generate a report.

Some components of management services provide a Report Writer service procedure that can be used to generate reports for that feature. This appendix describes the service procedures that are distributed with management services.

---

**Note:** These service procedures must not be modified.

---

Refer to Appendix G, *Service Procedure*, for details on defining your own service procedures.

---

## Distributed Service Procedures

The names of the distributed service procedures are as follows:

<b>Procedure</b>	<b>Use</b>
\$ADRW50Z	MODS Reports
\$NDRW01Z	NDB Reports
\$NWRW01Z	NEWS Reports
\$IMRW27Z	INFO/MASTER Application Reports
\$IMRW29Z	INFO/MASTER System Reports
\$OSRW85Z	Object Services Application Reports
\$UARW01Z	UAMS Reports

Report applications, stored as entries in \$RWAPPL tables, are also distributed with management services. These report applications have one of the procedures listed above, as their service procedure. Each distributed service procedure has particular values that must be specified for each field in a report application when the procedure is specified as the service procedure.

Following is a section on each procedure describing the values that must be specified in the report application.

---

## MODS Reports

The service procedure for MODS reports is \$ADRW50Z. When defining a report application using this service procedure, the text fields must be set as follows:

I/M Application?	set to NO
System Name	null
Record Category	set to the application ID followed by the category of the MODS records on which the reports are to be based
Maximum Sort Fields	set to 0
Sort Order Support	set to A
Sort Offset Support	set to NO

The IDs of the distributed report applications that use this service procedure, all begin with the characters \$AD.

This service procedure supports data criteria. The data criteria must be in the form of a boolean expression. For details on the syntax of a boolean expression, see the description of the &BOOLEXPB verb in the *Network Control Language Reference*.

---

## NDB Reports

The service procedure for NDB reports is \$NDRW01Z. When defining a report application using this service procedure, the text fields must be set as follows:

I/M Application?	set to NO
System Name	set to the file identifier of the NDB on which the reports are to be based
Record Category	null
Maximum Sort Fields	set to 0
Sort Order Support	set to A
Sort Offset Support	set to NO

The ID of the distributed report application that uses this service procedure is \$NDSYS.

This service procedure does not support data criteria, meaning it ignores the &\$RWCRITn variables.

---

## NEWS Reports

The service procedure for NEWS reports is \$NWRW01Z. When defining a report application using this service procedure, the text fields must be set as follows:

I/M Application?	set to NO
System Name	set to the file identifier of the NEWS file on which the reports are to be based
Record Category	set to ATTN for attention records, EVENT for event records, RTM for response time monitor statistics and TRAFFIC for traffic or error statistics
Maximum Sort Fields	set to 1
Sort Order Support	set to A
Sort Offset Support	set to NO

The IDs of the distributed report applications that use this service procedure are \$NWATTN, \$NWEVENT, \$NWRM and \$NWTRAF.

This service procedure does not support data criteria, meaning it ignores the &\$RWCRITn variables.

---

## INFO/MASTER Application Reports

The service procedure for INFO/MASTER application reports is \$IMRW27Z. When defining a report application using this service procedure, the text fields must be set as follows:

I/M Application?	set to YES
System Name	set to the name of the INFO/MASTER system identifier on which the reports are to be based
Record Category	set to the name of the category on which the reports are to be based
Maximum Sort Fields	set to 7
Sort Order Support	set to MIXED
Sort Offset Support	set to YES

The IDs of the distributed report applications that use this service procedure are \$SAIMCF, \$SAIMCH and \$SAIMPB.

This service procedure supports data criteria. The data criteria must be in the format of an &NDBSCAN scan-expression. For an explanation of the &NDBSCAN scan-expression see the *Network Control Language Reference*. If data criteria is not specified, all the records defined in the category specified in the Record Category field are read from the database.

---

## INFO/MASTER System Reports

The service procedure for INFO/MASTER system reports is \$IMRW29Z. When defining a report application using this service procedure, the text fields must be set as follows:

I/M Application?	set to NO
System Name	null
Record Category	null
Maximum Sort Fields	set to 0
Sort Order Support	set to A
Sort Offset Support	set to NO

The ID of the distributed report application that uses this service procedure is \$SIMSYS.

This service procedure does not support data criteria, meaning it ignores the &SRWCRTn variables.

---

## Object Services Application Reports

The service procedure for object services application reports is \$OSRW85Z. When defining a report application using this service procedure, the text fields must be set as follows:

I/M Application?	set to NO
System Name	null
Record Category	set to the ID of the class on which the reports are to be based
Maximum Sort Fields	set to 7
Sort Order Support	set to MIXED
Sort Offset Support	set to YES

The IDs of the distributed report applications that use this service procedure all begin with the character Z or \$OS.

This service procedure supports data criteria. The data criteria must be in the format of an &NDBSCAN scan-expression. For an explanation of the &NDBSCAN scan-expression see the *Network Control Language Reference*. If data criteria is not specified, all the records defined in the class specified in the Record Category field are read from the database.

For more information about this service procedure, see the *SOLVE for Systems Administration Customisation Guide*.

---

## UAMS Reports

The service procedure for UAMS reports is \$UARW01Z. When defining a report application using this service procedure, the text fields must be set as follows:

I/M Application?	set to NO
System Name	null
Record Category	null
Maximum Sort Fields	set to 0

Sort Order Support    set to A  
Sort Offset Support    set to NO

The ID of the distributed report application that uses this service procedure is \$UASYS.

This service procedure does not support data criteria, meaning it ignores the &SRWCRTn variables.

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\$IMRW27Z, distributed service procedure, I-4  
\$IMRW29Z, distributed service procedure, I-4  
\$NDRW01Z, distributed service procedure, I-3  
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