

CONTROL-D[®] Implementation Guide



Supporting

CONTROL-D[®] version 6.2.18

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- sequence of events leading to the problem
- commands and options that you used
- messages received (and the time and date that you received them)
 - product error messages
 - messages from the operating system, such as file system full
 - messages from related software

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About This Guide

This book is designed to be a practical guide for planning the implementation of CONTROL-D and is intended for the person who will be managing its implementation.

CONTROL-D can provide any or all of the following benefits for your data center:

- Collate user reports into one printed bundle.
- Automatically control printer workload balancing.
- Deliver Online Viewing services to end users.
- Download packaged reports to the PC environment.
- Archive report output.
- Handle MSGCLASS output.
- Produce user report bundles on remote printers.
- Reduce volume of printed output.
- Reduce size of the spool volumes.
- Eliminate report reruns.
- Eliminate redundant reports.
- Implement report security.

This book will help you decide your implementation objectives, and plan and perform the actual implementation of CONTROL-D.

Thanks to all CONTROL-D users who helped by offering implementation ideas for this guide.

Before You Begin

This book is designed to assist you with the implementation of CONTROL-D at your site. You can use the sample implementation plan as a basis for your project. The contents of this guide detail the requirements for implementing CONTROL-D in your production environment at a level that suits your needs. Before continuing with the Implementation Guide, it is highly recommended that you read the following material to get a feel for the CONTROL-D product:

- The *CONTROL-D Getting Started Guide*
- The introductory chapter, Chapter 1, of the *CONTROL-D User Guide*

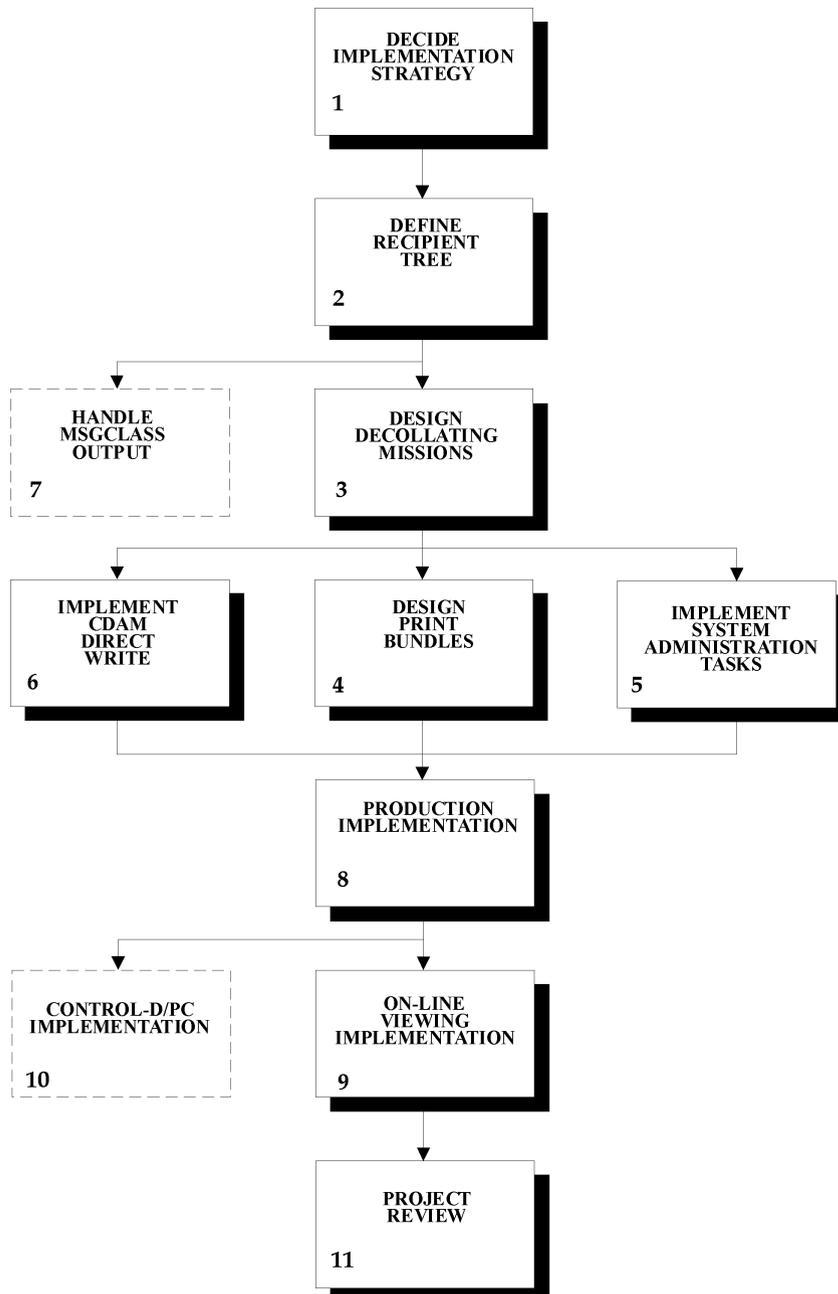
To help you understand the powerful capabilities of the User Reports (Online Viewing) facility, we also recommend that you read the *CONTROL-D Online Viewing Guide*.

Format of this Guide

The format of this guide is based on the Project Flowchart provided (see Figure 1). The flowchart divides the implementation of CONTROL-D into eleven phases, and each phase is documented as a chapter in this guide. Each chapter identifies the components that constitute the phase, the inputs required before you start the phase, and the outputs expected on completion of the phase. Each component in the phase is discussed in detail, accompanied by ideas, options and recommendations for implementation. Examples, varying from basic implementation examples to advanced examples, are provided. You can choose whatever level of implementation you feel is relevant for your site based on your objectives, resources and time scales for the project. The phases of the plan are as follows:

- Deciding the implementation strategy.
- Defining the recipient tree.
- Designing the report decollating missions.
- Designing the print bundles.
- Implementing system administration tasks.
- Implementing CDAM Direct Write facility.
- Handling the MSGCLASS output.
- Production implementation.
- Online Viewing implementation.
- CONTROL-D/WebAccess Server implementation.
- Project review.

We recommend that the phases be completed in the order indicated in the flowchart. Most phases are aligned vertically from top to bottom, and a higher phase should be completed before continuing on to the next lower phase. Phases that can be worked on concurrently are horizontally aligned, and enable you to multi-task the project.



Conventions Used in This Guide

Notational conventions that may be used in this guide are explained below.

Standard Keyboard Keys

Keys that appear on the standard keyboard are identified in boldface, for example, **Enter**, **Shift**, **Ctrl+S** (a key combination), or **Ctrl S** (a key sequence).

WARNING



The commands, instructions, procedures, and syntax illustrated in this guide presume that the keyboards at your site are mapped in accordance with the EBCDIC character set. Certain special characters are referred to in this documentation, and you must ensure that your keyboard enables you to generate accurate EBCDIC hex codes. This is particularly true on keyboards that have been adapted to show local or national symbols. You should verify that

\$ is mapped to x'5B'
is mapped to x'7B'
@ is mapped to x'7C'

If you have any questions about whether your keyboard is properly mapped, contact your system administrator.

Preconfigured PFKeys

Many commands are preconfigured to specific keys or key combinations. This is particularly true with regard to numbered PF keys, or pairs of numbered PFKeys. For example, the END command is preconfigured to, and indicated as, **PF03/PF15**. To execute the END command, press either the **PF03** key or the **PF15** key.

Instructions to enter commands may include

- only the name of the command, such as, enter the END command
- only the PF keys, such as, press **PF03/PF15**
- or both, such as, press **PF03/PF15**, or enter the END command

Command Lines and Option Fields

Most screens contain a command line, which is primarily used to identify a single field where commands, or options, or both, are to be entered. These fields are usually designated **COMMAND**, but they are occasionally identified as **COMMAND/OPT** or **COMMAND/OPTION**.

Option field headings appear in many screens. These headings sometimes appear in the screen examples as **OPTION**, or **OPT**, or **O**.

Names of Commands, Fields, Files, Functions, Jobs, Libraries, Members, Missions, Options, Parameters, Reports, Subparameters, and Users

The names of commands, fields, functions, jobs, libraries, members, missions, options, parameters, reports, subparameters, users, and most files, are shown in standard UPPERCASE font.

User Entries

In situations where you are instructed to enter characters using the keyboard, the specific characters to be entered are shown in this **UPPERCASE BOLD** text, for example, type **EXITNAME**.

Syntax statements

In syntax, the following additional conventions apply:

- A vertical bar (|) separating items indicates that you must choose one item. In the following example, you would choose *a*, *b*, or *c*:

a | b | c

- An ellipsis (. . .) indicates that you can repeat the preceding item or items as many times as necessary.
- Square brackets ([]) around an item indicate that the item is optional. If square brackets ([]) are around a group of items, this indicates that the item is optional, and you may choose to implement any single item in the group. Square brackets can open ([) and close (]) on the same line of text, or may begin on one line of text and end, with the choices being stacked, one or more lines later.
- Braces ({ }) around a group of items indicates that the item is mandatory, and you must choose to implement a single item in the group. Braces can open ({) and close (}) on the same line of text, or may begin on one line of text and end, with the choices being stacked, one or more lines later.

Screen Characters

All syntax, operating system terms, and literal examples are presented in this typeface. This includes JCL calls, code examples, control statements, and system messages. Examples of this are:

- calls, such as

```
CALL 'CBLTDLI'
```

- code examples, such as

```
FOR TABLE owner.name USE option, . . . . ;
```

- control statements, such as

```
//PRDSYSIN DD * USERLOAD PRD(2) PRINT
```

- system messages, both stand-alone, such as You are not logged on to database database_name, and those embedded in text, such as the message You are not logged on to database database_name, are displayed on the screen.

Variables

Variables are identified with *italic* text. Examples of this are:

- In syntax or message text, such as
Specify database *database_name*
- In regular text, such as
replace database *database_name1* with database *database_name2* for the current session
- In a version number, such as
EXTENDED BUFFER MANAGER for IMS 4.1.xx

Special elements

This book includes special elements called *notes* and *warnings*:

NOTE

Notes provide additional information about the current subject.



WARNING

Warnings alert you to situations that can cause problems, such as loss of data, if you do not follow instructions carefully.



Information New to This Version

Where substantive additions and modifications to the content of this guide occur, revision bars have been inserted in the margin.

Related Publications

CONTROL-D Getting Started Guide

Explanation of CONTROL-D facilities. Online, step-by-step instructions are provided.

CONTROL-D and CONTROL-V Online Viewing Guide

Tutorial guide that demonstrates the features of the Online Viewing facility.

Implementing AFP in the CONTROL-D Environment

Guide to the efficient utilization of the built-in AFP support features of CONTROL-D.

INCONTROL for z/OS Administrator Guide

Information for system administrators about customizing and maintaining INCONTROL™ products.

INCONTROL for z/OS Installation Guide

Step-by-step guide to installing INCONTROL products using the INCONTROL™ Installation and Customization Engine (ICE) application.

INCONTROL for z/OS Messages Manual

Comprehensive listing and explanation of all INCONTROL and IOA messages and codes.

INCONTROL for z/OS Security Guide

Step-by-step guide to implementing security in INCONTROL products.

INCONTROL for z/OS Utilities Guide

Describes utilities designed to perform specific administrative tasks that are available to INCONTROL products.

Phase 1: Decide Implementation Strategy

The implementation of CONTROL-D at your site will have a major impact on your current distribution system. You have the potential to revolutionize the distribution methods currently used. Few projects that you undertake will have such a direct impact on the end user environment.

Only in the past few years have computer departments adapted themselves into a true service industry. Previously, the services supplied to users were controlled by the computer department. Now that many end users have become more computer literate, they are pushing the computer department to supply the services that they require for their business needs. To measure the level of services supplied, many computer departments have introduced Service Level Agreements that contract them to supply defined levels of service.

Data input methods have come a long way since the days of punched cards and paper tape. The end users now have user friendly online facilities for the input of data to the computer systems. However, the output service supplied to them has changed very little, if at all. One of the few enhancements was the introduction of laser printing, allowing users to receive slightly less bulky reports in a nicer format.

With CONTROL-D, you have the power to bring the end users' output service up to the same standard that they expect from their current input facilities. (If you asked users to revert to filling in forms and inputting data in punch card format, they would be extremely unhappy.) The same level of enhancement, and more, will be achieved when you implement CONTROL-D in your production environment. The output management service you supply will provide the users with a new dimension of productivity.

Because the output service has changed very little over the last twenty years or so, some users may be apprehensive about the introduction of new facilities. This guide takes into consideration such end user apprehensions in its approach to implementation. After all, it is to the end user that we provide service. It is our responsibility not to scare the end user with the thought of change, but to show them the benefits that they will gain.

Some of the questions we will be answering in this phase are:

- How do I measure the success of the project?
- What do I want to achieve from the implementation?
- What are my priorities for implementation?
- What should I do first?
- What resources do I need, and in what quantity?

Inputs

None

Outputs

At the end of this phase you will have:

- Performed a distribution system review.
- Decided your project objectives.
- Decided your implementation strategy.
- Selected a pilot application.
- Selected the super users.
- Assigned resources to the project.

Review the Current System

To help you set your priorities for CONTROL-D implementation, and to enable you to measure the success of your CONTROL-D implementation, you must first know the status of your current system. Only by analyzing and measuring your current system will you be able to gauge how successful your implementation has been.

In this section, we will outline what information you should gather before you start the implementation.

How Much Output Do You Currently Produce?

One of the most common objectives of implementing CONTROL-D is to reduce the amount of printed output. To help you assess the savings you can achieve by implementing CONTROL-D, you need to find out how much output you currently print. You should produce figures that reflect all the printing you do. Perhaps at specific periods you create large volumes of output. If you do, then ensure that these figures are included in your statistics. You can use SMF Printer Statistics to gain precise values.

Suggestion

The most obvious way to reduce printed output is to move reports to an Online Viewing environment (described in Phase 9) and to prevent unwanted data from being printed (see “How Much Unwanted Information Is Sent to Users” later in this phase). Once the implementation has started, one of your tangible goals might be to reduce the number of pages printed. Be aware that the introduction of new applications or natural increase in growth will distort your figures.

Information Required

Table 1 Output You Currently Produce

Item	Estimate
Daily average number of pages printed:	
Weekly average number of pages printed:	
Monthly average number of pages printed:	
Quarterly average number of pages printed:	
Yearly average number of pages printed:	

How Big is the Spool and How is it Used?

The spool was intended to be a transient area for report printing and this is exactly how CONTROL-D uses it. Implementing the CDAM Direct Write feature (described in Phase 6) will mean that you no longer overload the spool at peak periods. Typically, you will be able to reduce the size of the spool to about one third of its original size, giving you back some valuable DASD space. Another hidden benefit of the CDAM Direct Write feature is that you will see a decrease of about ten percent in the execution time of batch jobs creating large report outputs.

Example

The spool size for Site X is three single density 3380s (2655 cylinders). The utilization of spool normally averages between forty and fifty percent. However, at end of month, large volumes of output are created and spool utilization reaches around ninety percent. Once the monthly reports are printed, the spool returns to its average utilization. The size is set to cope with the peak period so that the spool utilization does not reach 100% and JES stops processing.

Suggestion

In the above example, using the CDAM Direct Write feature, the user would retrieve two of the 3380s: one to be used for the CDAM datasets, and one for any other purpose. We achieve the reduction in spool size by writing output directly into a compressed format on DASD. The compression rate is between 30% to 70% depending on the type of data being compressed. Therefore, in the above example, we would have one volume allocated for spool, one for the CDAM datasets, and one returned for other purposes.

If one of your objectives is to reduce the size of the spool area and to retrieve some DASD space, you should implement CDAM Direct Write to your batch jobs. For now, find out what the minimum, average and peak utilizations are, and how much space is allocated to the spool area.

Information Required

Table 2 Spool Size and Usage

Item	Estimate
Size of spool area (cylinder):	
Minimum % utilization:	
Average % utilization:	
Maximum % utilization:	

How Much Unwanted Information is Sent to Users?

Redundant data is inherent in most distribution systems. Many reports sent to users contain irrelevant or useless information. Likely candidates for redundant information are duplicated reports.

Example

Ten full copies of a Sales Analysis report are printed each day using the JCL COPIES parameter. The report contains details of sales by region followed by a summary of sales by region. Each region is only interested in detail figures from its own area and summary information for all areas. In this environment, there is no way to exclude the unwanted detail data, so each region receives a full copy of the report on a daily basis.

We may also want to exclude data depending on the day of the week. Perhaps a specific user receives a General Ledger report on a daily basis (Monday – Friday), but the only day the user actually wants the full report is Friday; on the other days, the summary section would suffice.

Suggestion

You can reduce the amount of printed output by eliminating any redundant data dispatched to users. We call this “report pruning” and we use the CONTROL-D decollating missions (described in Phase 3) to distribute exactly the parts of a report that each user requires. We will be asking the users to identify redundant data that we can exclude when we undertake a user survey in Phase 8.

In What Quantities Are Resources Required for Report Backups?

One of your objectives may be to implement a secure archiving facility for your reports (described in Phase 5) so that you can restore them easily if they are lost or destroyed. If you currently back up reports, find out in what quantities resources are required. This information will be useful for comparison after you implement CONTROL-D in production.

Example

Site X creates reports to production print files from batch JCL steps. They then use IEBGENER to backup and print the production files. For example:

- 1 Create PROD print files from the application program.
- 2 Use IEBGENER to create BKUP version of report files.
- 3 Use IEBGENER to print PROD print file to spool.

In this example, the user may have two versions of the same report file on DASD at any one time.

Suggestion

Using CONTROL-D, you need only create the file directly to spool and CONTROL-D will automatically create a compressed version of the file when CONTROL-D processes it. (You can, of course, use the CDAM Direct Write option to bypass the write to spool step altogether.) The compressed datasets will give you between 30% to 70% reduction of allocated space. We recommend that all reports be backed up using CONTROL-D's archive facility (described in Phase 5), so that you can easily restore reports if required. CONTROL-D will use your current backup product to perform archive and restore functions. The supported products are:

- FDR/ABR
- DF/DSS
- DF/HSM
- DMS/OS
- ASM2
- ARCS
- In-House Application

Information Required

Table 3 Quantities of Resources Required for Backup

Item	Estimate
DASD space for report files:	
Tape and/or cartridge pool size:	

What is the Current Level of Report Reruns?

Some of the savings you will achieve after CONTROL-D has been implemented may not be immediately apparent. Recreation of a lost or destroyed report may seldom be required, but when it is performed, it consumes a large number of resources.

Example

The user receives a 1000 page report of which two important pages are unreadable. The user contacts the Help Desk or Support Section requesting the reproduction of the two pages. Once the specific report is identified, which may take some time, the Help Desk opens a problem report, and issues a report rerun request. They either

have to regenerate the report at program level or recreate the report from a backup file, both of which are resource intensive. They cannot reproduce just the two unusable pages, so they recreate the entire 1000 page report. Sometimes the print operators try to forward space to the required pages; more often the entire report is reprinted and distributed. The personnel resources taken up are difficult to quantify, and so is the impact on the business itself. The resources used are as follows:

- Problem and/or change management resources.
- Personnel resources to set up rerun.
- Computer resources for reprocessing.
- Reprinting costs.
- Printer resource.
- Additional paper costs.
- Distribution resources to handle output.
- Distribution and/or courier costs to deliver output.
- Business degradation due to user wait.

Suggestion

With CONTROL-D, the end users will be able to control their own output. The implementation of online viewing (described in Phase 9) or CONTROL-D/WebAccess Server (described in Phase 10), would eliminate the resource drain described above. The user could simply view the report online, or if required, simply reprint the two unusable pages to the remote printer.

Information Required

Table 4 Current Level of Report Reruns

Item	Estimate
Number of report rerun requests raised:	
Number of calls to help desk (re. reports):	
Man hours each week for reruns:	

What are the Average Report Delivery Times?

Many sites have now introduced Service Level Agreements (SLA) for report delivery. If you have such agreements, you will be aware of any exceptions to the specified report delivery times at your site. The objective for most sites is to have report output delivered to the user by the start of the working day. On some occasions, if processing problems occur or if printing volume is high, targets and SLAs will be missed. Report delivery may also be delayed if the user is located a considerable distance from the distribution center.

It is difficult to calculate what impact delayed reports have on the business. It depends on the report contents, and the need the user has for the report.

Example

Let's take the example of a bank. There is a particularly heavy printing load in the distribution center at end of month. Many users will not receive their output at the normal delivery times. One of the reports that has missed its dispatch deadline is the Lost/Stolen Check Book report. The bank manager for a certain branch has unwittingly cashed a stolen check because the updated report for that day was not received on time. If the report had been dispatched on time, the fraud could have been averted.

Suggestion

The implementation of online viewing (described in Phase 9) or CONTROL-D/WebAccess Server (described in Phase 10) would allow the users access to their reports as soon as they are created, enabling them to meet their business deadlines.

Information Required

Table 5 Average Report Delivery Times

Item	Estimate
How often are report deadlines missed (%)?	
What percentage of reports are delivered by 0830?	
Number of inquiries about undelivered reports each week:	

How Many Report Recipients Have Access to a Terminal or PC?

Many, but not all, users have access to some type of online facility. If you want to convert to online viewing under CONTROL-D, you must find out if your current report recipients have access to online facilities or a PC.

Example

Users in a remote branch use PCs extensively. You currently dispatch to them about three boxes of output per day. They do not want to use any of the available mainframe online applications to view report output, but they would like to view their reports on their PCs.

Suggestion

Using CONTROL-D/WebAccess Server (described in Phase 10) you can automatically download reports to a PC or file server so that the information is available for the users when they arrive at work.

Users without PCs can access reports under their preferred environment. The following environments are supported:

- TSO
- TSO/ISPF
- ROSCOE/ETSO
- CICS
- VTAM
- IMS/DC
- IDMS/DC
- COM-LETE
- VM/CMS PC

Information Required

Table 6 Recipient Access of Reports

Item	Estimate
Number of report recipients without online access:	
Number of recipients with PC only:	
Online environments used (CICS/TSO, and so on.):	
List of reports currently viewed online	

What Happens to the Report Once Received by the User?

Often, once a report has been dispatched, we have no idea what the user does with it. It may be that the report is forwarded from a distribution point at the user's location. Several users may reference the same report. Sections of the report may be split off and distributed within the user's environment. The report may be used immediately, or it can be shelved for reference. The users may look for specific exceptions in a report or they may copy report details into a PC application.

Example

A report is dispatched from the distribution center and delivered to a user department. The same report is accessed by five users, each looking for different exception values. One of the users then retypes figures from the report into a PC Spreadsheet application.

Suggestion

Using CONTROL-D online viewing services (described in Phase 9), users can access the same report concurrently and easily apply their individual exception criteria, eliminating a time-consuming and error-prone manual process. If reports are downloaded to their PCs using CONTROL-D/WebAccess Server (described in Phase 10), users can automatically copy report details into another PC application (such as spreadsheet applications).

You will need to know the user's procedures to ensure that you deliver exactly their requirements using CONTROL-D. These procedures will be revealed when you begin the user consultation process (described in Phase 8).

NOTE

You should by now have completed the distribution system review.



Decide Project Objectives

Now that you have completed the review of your current distribution system, you will start to make decisions about your implementation. To begin with, you must decide your project objectives. When deciding your project objectives, you should be realistic about your time frames and resources. For example, it is not realistic to target all suggested objectives, assign only one person for two hours per day, and then expect that the project will be completed within two weeks. All these factors must be taken into account when planning your implementation.

Use the following list to indicate your objectives for the project. After each objective, the corresponding phase of the implementation plan is listed.

- Define recipient tree (Phase 2).
- Design decollating missions (Phase 3).
- Collate user reports into one printed bundle (Phase 4).
- Produce user report bundles on remote printers (Phase 4).
- Archive report output (Phase 5).
- Automatically control printer workload balancing (Phase 5).
- Eliminate report reruns (Phase 5).
- Reduce size of spool volumes (Phase 6).
- Handle MSGCLASS output (Phase 7).
- Reduce volume of printed output (Phase 8).
- Eliminate redundant reports (Phase 8).
- Deliver online viewing services to end users (Phase 9).
- Implement report security (Phase 6 and 9).
- Download packaged reports to the PC environment (Phase 10).
- Review project (Phase 11).

You can target any or all of the above objectives. To achieve all of the above objectives, follow the supplied implementation plan in its entirety.

You can omit from your implementation plan any objectives you want. However, achievement of objectives requires implementation of the corresponding phases. When deciding which objectives to implement or omit, be aware that we strongly recommend that certain phases be implemented by all users, while we consider other phases to be optional.

NOTE



Phases 1, 2, 3, 5, 6, 8 and 11 are strongly recommended for all users. You should be able to achieve most or all of their corresponding objectives as part of initial implementation.

The following are the optional phases of the supplied plan:

Table 7 Optional Phases (Part 1 of 2)

Phase	Objective	Detail
Phase 4	Design Print Bundles	Can be skipped if implementing online viewing only.
Phase 7	Handling MSGCLASS	Can be skipped if you do not want to handle JCL output.

Table 7 Optional Phases (Part 2 of 2)

Phase	Objective	Detail
Phase 9	Online Viewing Implementation	Can be skipped if you only want to bundle and print user output.
Phase 10	CONTROL-D/ WebAccess Server Implementation	Can be skipped if you do not want to download reports to a PC.

Targeted objectives do not necessarily have to be achieved during initial implementation. You may be limited by time constraints or resources. If so, omit any of the optional phases from your initial implementation and tackle them later.

You may also have additional objectives that you want to add to the plan, and you should feel free to do so.

Recommendation

BMC Software recommend that you implement the plan in its entirety. If you are restricted by time constraints and resources, then we recommend that the only phases you skip for the initial implementation are Phases 7 and 10. These are the optional phases indicated on the project flowchart diagram (Figure 1). Although Phases 4 and 9 are considered optional, BMC Software strongly recommend that you do not skip them unless you are absolutely sure of the implications of doing so.

NOTE



You should by now have decided your project objectives.

Choose a Pilot Application

Now that you have determined project objectives and selected the phases that you will implement, it is time to plan your strategy. Begin by trying to select an application that would benefit most from automation. Use the following list to identify the most suitable application for the pilot implementation:

- An application that has around 40 batch jobs.
- An application that produces around 100 specific reports (preferably with reports for multiple users).
- An application department with around 30 report recipients.

- An application with non-critical reports.
- An application whose users are dissatisfied with current distribution service.
- An application whose users are asking for online viewing capabilities.
- An application whose users are asking for program amendments to report formats.
- An application with moderately-sized reports.
- An application with uncomplicated decollating and bundling requirements.
- An application with delivery locations that are far from the distribution center and would benefit from online viewing facilities.
- An application whose users receive many reports from different jobs within the application.
- An application whose users require a checklist of distributed reports.
- An application department interested in function automation.
- An application department with online access to mainframe systems.
- An application department with remote printer facility.
- An application department aiming for a “paperless office” approach.

Recommendation

We recommend that you select a pilot application that best fits the above criteria, and take it through all the recommended phases of the implementation plan. Of course you can follow any strategy you choose. It may be that you prefer to implement bundling and printing across all applications before you deliver any online viewing services.



NOTE

You should by now have selected your pilot application.

Select Super Users

You have selected your pilot application. Now you should select your super users.

What is a Super User?

We use the term super users as a metaphor for the end users who will be your link to the application departments. They are a strategic resource for the project. The implementation of CONTROL-D ultimately affects the report recipients. The super users will enable you to get feedback during the implementation and will drive the project in the end user environment.

Super User Characteristics

A super user should be in a position of authority in the end user environment.

Super users must be sold on the benefits that CONTROL-D will provide to their organization. They must feel enthusiastic that their department has been selected for the pilot implementation, and that they will be the first users to receive the benefits of such an implementation. Their enthusiasm is critical in gaining the cooperation from the end users in the department. If you cannot sell the benefits of CONTROL-D to the super user, then you have little chance of success in reaching your implementation objectives.

The Super User's Role

The super users will sell the benefits of the implementation downwards through their organization. A super user who is sufficiently high up in the organization will probably deputize staff whom you can contact and with whom you can coordinate the project. These, in effect, will become your super users. Having super users appointed by their managers will provide a good basis for the recognition of the project and its subsequent implementation. Throughout the project you will be dealing with these users; they are strategic to your implementation and should ensure that your requests are met.

Suggestion

You might begin by approaching the application support team for information regarding the department organization, and for the names of potential super users. To get high-level management commitment, you may need your own managers to assist you in selling to the managers of the target application.

NOTE

You should by now have selected your super users.



Assign Resources

Once you have decided upon your implementation strategy, you should then assign resources for the project. We will be looking at two main areas of resources:

- Human resources
- System resources

What Human Resources Do I Need?

Having identified your objectives for the project, and considered any time frames that you must meet, examine what human resources are required for the implementation. It would be ideal if you had unlimited human resources available to assign to the project, but in reality this seldom occurs. It may be that you are solely responsible for the implementation, or that someone has been assigned as a resource without regard to your objectives. If so, this will obviously impact your time frames.

Different people have different qualities and experience. If you have a junior member of staff assigned, it may take that person twice as long to do certain tasks as a more experienced person. You should factor this into your estimations.

What Skills are Required?

Certain skills are required for certain phases. In the list that follows, you are the project management resource and, as you can see, you are involved in all phases. The operations resource will be someone with knowledge of JCL, MVS, JES, and so on. This may be a production control or operations support person. The distribution

resource may be any dispatch staff that you think may be able to learn and use new technologies (if this is not applicable then you can assign more operations resources). The end user resource will normally be your super users. The list below shows what skills may be involved in each phase:

Table 8 Skill Requirements

Action	Human Resources Involved
1. Deciding implementation strategy	Project Management
2. Defining the recipient tree	Project Management Operations Distribution End User
3. Designing the decollating missions	Project Management Operations Distribution
4. Designing print bundles	Project Management Operations Distribution
5. Implementing system administration tasks	Project Management Operations
6. Implementing CDAM Direct Write facility	Project Management Operations
7. Handling MSGCLASS output	Project Management Operations
8. Production implementation	Project Management Operations End User
9. Online Viewing implementation	Project Management Operations End User
10. CONTROL-D/WebAccess Server implementation	Project Management PC Support End User
11. Project review	Project Management

Recommendation

BMC Software recommend that you involve as many staff members as possible in the project. This will help expand the knowledge base of CONTROL-D at your site, and will mean that the project is not dependent on one or two individuals, which minimizes the impact if your CONTROL-D resource leaves, or is sick or on holiday.

If you have decided to use the distribution staff as part of the implementation team, ensure that they have the motivation and ability to learn and use new technologies. If you can provide some basic training and set down standards, there is no reason why the distribution staff should not be a productive asset for the implementation. It will also provide you with an opportunity to introduce the distribution section to CONTROL-D, and provide them with a feeling of involvement in the automation of their current functions.

The quality of the implementation team, and its motivation, can make the difference between success and failure of the project.

How Long will the Project Take?

If you selected a pilot application conforming to the suggested sizes, we recommend the following estimated time frames for each phase of the implementation plan. (Time frames are assigned in working days.)

Table 9 Estimated Time Frame For Each Phase

Action	Man Days Required	% of Project
1. Deciding implementation strategy	2 Days	11%
2. Defining the recipient tree	1 Day	6%
3. Designing the Decollating Missions	4 Days	21%
4. Designing print bundles	1 Day	6%
5. Implementing system administration tasks	1 Day	6%
6. Implementing CDAM Direct Write facility	1 Day	6%
7. Handling MSGCLASS output	1/2 Day	3%
8. Production implementation	1 & 1/2 Days	9%
9. Online Viewing implementation	3 Days	15%
10. CONTROL-D/WebAccess Server implementation	2 Days	11%
11. Project review	1 Day	6%
TOTAL NUMBER OF DAYS	18 Days	

These are estimates of the actual amount of man days required. It is not a total for the actual elapsed time of the project as there are periods when the users will be adjusting to their latest changes before we provide them with another benefit. It also does not take into account weekends, holidays and any unscheduled interruptions to normal activities.

You can use the percentage breakdowns if you want to vary the scope of the project according to size of application or experience level of staff involved.

Do not use the initial implementation time frames as a forecast for the entire implementation of CONTROL-D. These time frames apply only to the initial pilot application. It is important to understand that any subsequent applications will be implemented in a fraction of the time. The initial implementation is an educating phase where you will be setting foundations for all other applications. Also, some phases will not have to be carried out for future applications, further reducing the implementation time.

The time frames supplied are estimates. You may find that the pilot implementation takes more or less time, depending on the specific requirements and complexity of your site.

Assign Project Tasks

You now have an idea of what skills are required, how long each phase will take, and what resources you have for the project. Now you should assign tasks to the relevant individuals. You will see from the project flowchart that some phases can be worked on at the same time. If you have enough resources, you can assign them to the various phases, and multi-task the project.

Example

Assume that you have been assigned one operations person, and two people from the distribution staff. After Phase 2, “Designing the Recipient Tree,” you could assign the operations person to “Handling MSGCLASS Output” (Phase 7) while the distribution staff set up the Decollating Missions (Phase 3).

Recommendation

BMC Software recommend that you be aware of what is involved in each phase of the project so that you can direct operations. It is your responsibility to set up standards for implementation, and to ensure that these standards are followed. You will constantly review all work carried out on the project to ensure that each phase is being implemented according to your directions.

What System Resources Do I Need?

During the installation process, sizes are allocated for the CONTROL-D repository files according to calculations provided in the *INCONTROL for z/OS Installation Guide*. These will probably be sufficient for your pilot application, but it is recommended that you review them. Another important parameter that is set during installation is the volumes to be used for CDAM files. All reports handled by CONTROL-D will be stored in this compressed format. Ensure that there is enough space to handle all the reports of your pilot application. In Phase 5 we will discuss how we back these files up and how long they should stay on DASD.



NOTE

You should by now have assigned resources for your implementation.

Review

During this phase you have studied your current distribution environment to see how it operates. You have also examined the potential project objectives and implementation strategies, and reviewed the resources and time frames for the project.

Before you continue, you should have:

- Performed a distribution system review.
- Decided your project objectives.
- Selected your pilot application.
- Selected your super users.
- Assigned resources to the project.

Phase 2: Define Recipient Tree

In this phase, we will be discussing and defining one of the most important components of CONTROL-D. We call it the “Recipient Tree.” It is the component that contains the information about which users can receive reports from CONTROL-D.

Some of the questions we will be answering in this phase are:

- What is the recipient tree?
- Why do I need a tree?
- For what is the tree used?
- What information do I put in the tree?
- Where is the tree kept?
- How do I access the tree?
- What is the design of the tree?
- How do I insert information into the tree?
- How do I maintain the tree?

Inputs

Before you start this phase you should have:

- Selected a pilot application (Phase 1).
- Assigned resources to the project (Phase 1).

Outputs

At the end of this phase you will have:

- Set standards for recipient names.
- Inserted basic recipient information.

General Information About the Recipient Tree

In this section, we will discuss some general information about the recipient tree. It is important that you understand how the tree is used, before you define your recipient information.

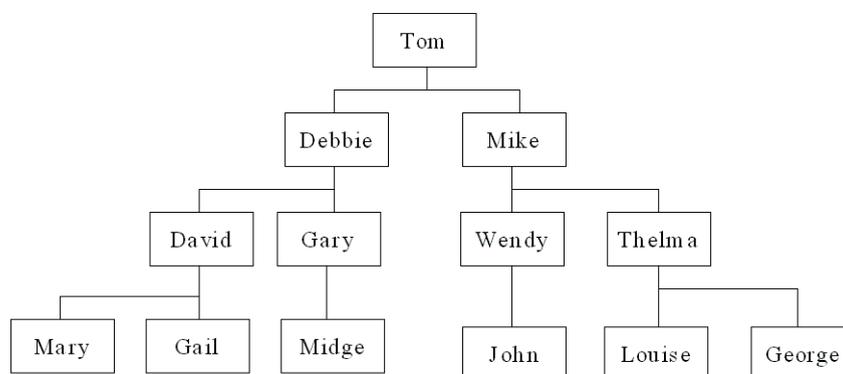
What is the Recipient Tree?

The recipient tree contains a list of all possible report recipients of CONTROL-D managed output.

Why is it Called a Tree?

It is called the recipient tree because most users define their recipients in a hierarchical format. After inserting the information, the definition you create may have a tree-like look, as in the following example:

Figure 1 Sample Recipient Hierarchy



Of course, the recipient tree can have any format that suits your environment. Many sites work with a “Flat Tree” in which all users are defined on the same level.

For What is the Tree Used?

The tree acts as a repository of potential report recipients for CONTROL-D managed output. Before output can be assigned to a user, the user must be defined as a recipient in the tree.

The tree is used extensively by CONTROL-D for decollating purposes (described in Phase 3). In your report decollating missions, you determine the users to which CONTROL-D should direct the report output. The recipients that you specify must exist in the tree.

The tree also provides a simplified method of grouping users' reports together into printed bundles. You can specify delivery address information and select options that control the format of the recipient's printed bundles. The printing missions you define (described in Phase 4) will use the tree to bundle up the report output for the users.

If you are supplying the Online Viewing facility to users, the tree is used to determine which users can see which reports. Users cannot view report output unless they are so authorized in the tree.

Where is the Tree Kept?

The recipient tree is stored as a member of a partitioned dataset (PDS). By default, the tree is stored in member CTDTREE in the CONTROL-D PARM library.

How do I Access the Tree?

You will use the CONTROL-D Online facility to browse, edit and change recipient information defined in the tree (Option T in the IOA Primary Option menu).

What Information do I Put in the Tree?

The type of information you will define in the tree includes:

- Security information specifying who is authorized to view a recipient's reports online. (This can be controlled by an external security package such as RACF, ACF2 or TOP-SECRET.)

- Address information specifying where the user's printed bundle of reports should be delivered.
- Information about the format of the bundles for each user.
- Default destination information, if bundles are being directed to remote printers.
- Information for CONTROL-D/WebAccess Server specifying the PC path, size of packet, and retention information for reports being downloaded to PCs.

Fields of the Recipient Tree

During this phase, we will only review the basic tree fields. The other fields will be covered in later phases (as detailed below).

To insert information about your recipients, use the Online facility. This section discusses some of the information that you will specify. You will be inserting recipients on defined levels (supplied or user-defined) of the tree. Use the CONTROL-D Recipient Definition screen to define your information.

Figure 2 Recipient Definition Screen

```

----- CONTROL-D RECIPIENT DEFINITION----- (T. S)
COMMAND ==>                                SCROLL==> CRSR
+-----+
RECIPIENT          RECIPIENT LEVEL      PARENT          PARENT LEVEL
DESC
=====
SYNONYM
AUTHORIZE          $SYSDATA
ADDRESS
=====
INDEX              USER BANNER Y          REPORT BANNER Y
DEF DEST
=====
PC PARAMETERS
AUTHORIZED N
===== >>>>>>>>>> END OF RECIPIENT DEFINITION PARAMETERS <<<<<<<<<<<< ==

```

FILL IN RECIPIENT DEFINITION. 17. 27. 46

Basic Tree Fields

The fields we will review during this phase are as follows:

Table 10 Basic Tree Fields of the Recipient Tree Definition Screen

Field	Description
RECIPIENT	Name of recipient. You can specify up to 8 characters. Each recipient name must be unique in the tree.
RECIPIENT LEVEL	Level of the recipient. This corresponds to the level codes defined for the tree. The smaller the level, the higher the level is in the tree.
PARENT	Name of the recipient's parent. Every recipient in the tree (except the top recipient) should have a parent. We use this to form links between recipients.
PARENT LEVEL	Level code of the recipient's parent.
DESC	Description of the recipient.
ADDRESS	Address to be printed on the recipient's bundle of reports. You can specify up to ten lines of address information.

Advanced Tree Fields

The more advanced tree fields are discussed in later phases, as indicated below:

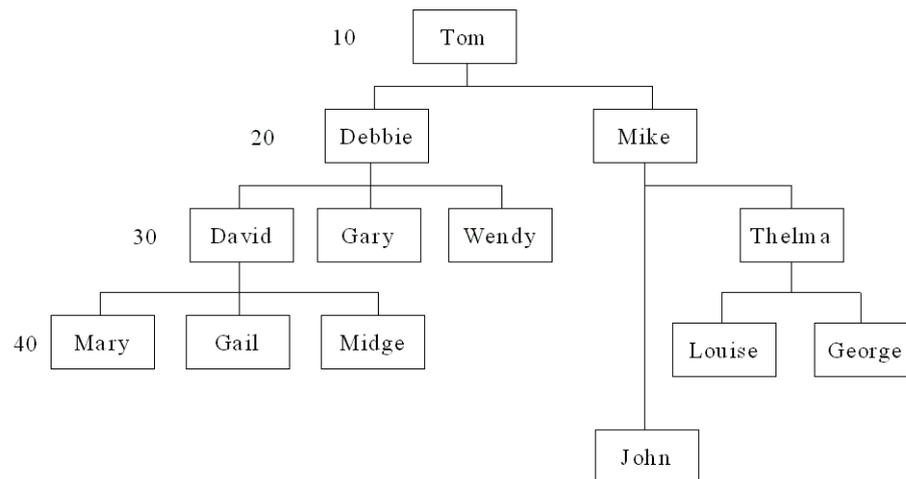
Table 11 Advanced Tree Fields of the Recipient Tree Definition Screen

Field	Phase in Which Discussed
SYNONYM	(Design Decollating Missions – Phase 3)
AUTHORIZE	(Online Viewing Implementation – Phase 9)
INDEX, USER & REPORT BANNER, DEF DEST	(Design Print Bundles – Phase 4)
PC PARAMETERS	(CONTROL-D/WebAccess Server Implementation – Phase 10)

Parent-Child Relationship

All recipients that you define should have a parent. The only exception is the user in the top level of the tree (normally an administrative user).

Each recipient has only one parent. However, a parent may have an unlimited number of children. The parent must exist on a higher level of the tree than the recipient being defined. By using this mechanism, we can create branches within the tree. For example:

Figure 3 Sample Parent/Child Branching

Who Should Maintain the Tree?

You should restrict update access to the recipient tree and appoint staff to be responsible for its administration. You do not want unauthorized people accessing, or making changes to the tree. End users will probably have no access to the tree and might not even know of its existence. This should be a tightly-controlled function, as any incorrect changes will have an impact on your ability to deliver report access or output to your users.

Build the Recipient Tree

We will describe two methods for building the Recipient Tree: Basic and Advanced. We recommend that for the pilot application, you implement the Basic method, since this is the quicker method for initial implementation. Once you become more familiar with CONTROL-D, you may want to build a more advanced recipient tree. At that stage, you can then review the section “Advanced Method of Building the Tree.” You can, of course, select whichever method you prefer.

- Basic Method

This method allows you to quickly insert recipient information for your selected pilot application into a supplied recipient tree structure.

- Advanced Method

This method details what is required to build an advanced recipient tree, giving recommendations on identifying the organizational structure and defining tree levels.

The only difference between the two methods is that with the Basic method you will be using a supplied tree structure into which you will insert your recipient information. Using the Advanced method, you will be instructed on how to build a recipient tree while taking advantage of the advanced capabilities that the CONTROL-D recipient tree can provide. Apart from this, both methods cover the same topics.

Basic Method

Using the Basic method for building the recipient tree, you can quickly insert information about your users into a supplied recipient tree structure. In this section, we will review the supplied tree and the parameters that we suggest you define during this phase.

We will use a four-step guide to explain how to define users into the recipient tree:

- 1 Review the levels of the recipient tree.
- 2 Identify the report recipients.
- 3 Set standards for recipient names.
- 4 Insert basic recipient information.

Step 1 Review the Levels of the Recipient Tree

Use the Online facility to access the recipient tree. Select Option T in the IOA Primary Option menu. The Recipient Tree entry panel is displayed (see below):

Recipient Tree Entry Panel

```

----- IOA RECIPIENT TREE - ENTRY PANEL -----(T)
COMMAND ==>
SPECIFY LIBRARY NAME AND MEMBER (TREE) NAME
LIBRARY ==> CTD.P. PROD. PARM
MEMBER ==> CTDTREE                                BROWSE Y (Y/N)
LEVEL 10      OPERATIONS                          ==>
        15      PRESIDENT                          ==>
        20      REGNL-MGMT                          ==>
        25      REG                                  ==>
        30      BRANCH-DEPT                          ==>
        40      BRANCH-DEPT                          ==>
        50      DIVISION                             ==>
        55      DEPARTMENT                           ==>
        60      SECTION                              ==>
        80      WORKERS                              ==>
        90      CD-CONTROL                           ==>
        95      OP-USER                              ==>

FOR DIRECT ACCESS FILL IN RECIPIENT NAME IN APPROPRIATE LEVEL
11.03.10

```

Supplied Tree Structure

Displayed above is the supplied tree structure that you will use for defining information about your recipients. It is created as part of the normal installation procedures of CONTROL-D.

On the screen, you see a two-digit level code and a description of the level. It is into these levels that you will insert your recipient details.

Normally, the higher up in the tree you insert a recipient, the greater the authority of the recipient will be, especially for online viewing purposes. Please note that an unlimited number of recipients may share a level.

There are eleven possible levels into which you can insert information about your recipients. You will probably not want to use all the defined levels. You can decide what levels are appropriate during Step 2, when you identify the report recipients of your pilot application.

Administration Levels

Three of the levels have been defined specifically for administration purposes, as follows:

Table 12 Administration Levels in Recipient Tree Entry Panel

Level Code	Level Title
10	OPERATIONS
90	CD-CONTROL
95	OP-USER

You should insert administration users into these levels (as detailed in Step 4).

Step 2 Identify the Report Recipients

You should now identify the recipients of your pilot application. You may be able to do this from your current distribution instructions. It is important to note that each recipient you insert in the tree is not necessarily a single user. Often, a recipient name will be shared by a group of users or it may be a specific delivery location such as an area or building in which several users are located. One method you can use to identify the recipients of the application is to list the names and addresses that are currently written or printed on the reports and boxes dispatched to the users.

Example

Take the example of a bank structure. The accounts application has been selected for the pilot implementation. This user is using the supplied (default) tree, but will not be using all the levels. Their organization splits down into two distinct structures. The head office, located in Chicago, is where all the divisions and departments of the company are located. They also have regional branches throughout the USA. The accounts application output is distributed mainly within the head office but some reports are also sent to the accounting and administration departments at the regional branches. They have created a list of the report recipients for their pilot application as follows:

- Accounts Department, Washington
- Administration Department, Branch 12, Dallas
- Branch Manager, Branch 11, Miami
- Accounts Supervisor, Branch 12, Dallas
- Mrs. Robinson, Miami
- Department Manager, Accounts Receivable, Chicago
- Special Accounts Manager, Las Vegas
- Accounts Clerk, Accounts Receivable (Domestic), Chicago
- Accounts Payable (Domestic), Chicago
- Tom Farmer, Chief Accountant, Accounts Division, Chicago

Summary

Normally, each recipient name in the tree would represent one end user, but further flexibility is possible, as explained below.

In each of the dispatched boxes or envelopes there may be several reports for different users. For example, the box for the Accounts Payable (Domestic), Section 1, Miami contains reports for four different users at that location. When the box arrives, the users distribute the reports amongst themselves. This could be an example of a shared recipient name for four users.

There may be reports that are addressed differently but are for the same recipient. For example, Mrs. Robinson is the branch manager in Miami, but she currently receives two envelopes because the programs print the address differently. In this case, you would create only one recipient to eliminate the double mailing.

Match the Recipients With the Levels of the Tree

From the list of recipients that we have created, we can try to identify at which level of the recipient tree each recipient should be placed. In the following example, we have listed the levels of the tree and assigned the recipients to their appropriate levels:

Table 13 Sample Recipient Tree Level Assignments (Part 1 of 2)

Level	Assignment
10	OPERATIONS
	Operations (CONTROL-D) Administration User
15	PRESIDENT
20	REGNL-MGMT
25	BRANCH
	Branch Manager, Branch 11, Miami (same recipient)
	Mrs. Robinson, Miami (same recipient)
30	BRANCH-DEPT
	Accounts Department, Washington
	Administration Department, Branch 12, Dallas
	Accounts Supervisor, Branch 12, Dallas
	Special Accounts Manager, Las Vegas
50	DIVISION
	Tom Farmer, Chief Accountant, Accounts Division, Chicago
55	DEPARTMENT
	Department Manager, Accounts Receivable, Chicago
60	SECTION
	Accounts Payable (Domestic), Chicago

Table 13 Sample Recipient Tree Level Assignments (Part 2 of 2)

Level	Assignment
80	WORKERS
	Accounts Clerk, Accounts Receivable (Domestic), Chicago
90	CD-CONTROL
95	OP-USER

Summary

It may be more suitable for you to insert all your recipients on one level (for example, insert all report recipients on the WORKERS level).

In theory all recipients are “workers” of one form or another. However, when you are deciding on which level to place a recipient, there are other considerations that you should take into account. There are two basic categories of considerations: Bundling and Online Viewing.

■ Bundling Considerations

When defining the recipients in the tree, you should consider how the recipients’ reports will be printed (for example, perhaps they will be bundled together with the reports of other recipients at the same geographical location). This will be examined further when we discuss Printing Considerations in Phase 4.

■ Online Viewing Considerations

When defining recipients in the tree, you should consider which reports each recipient may potentially need to access. It may be that there are users who do not receive reports on a regular basis, but who require access to a wide range of reports periodically. An end user’s responsibilities may affect where the recipient is placed in the tree. This will be examined further when we discuss Online Viewing in Phase 9.

Step 3 Set Standards for Recipient Names

Conceivably, you can end up with thousands of recipients in the tree. It is recommended, therefore, that you set standards for recipient naming conventions. Remember that you have up to eight characters for defining the recipient name. It will benefit the implementation if you set easy-to-follow standards. It will also help in any post-implementation work that may be required (such as adding new recipients and applications to the tree).

Develop a Standard

In our example, the user has created a standard based on the organization of the company. There are two distinct structures: the head office and the branches. They have developed a standard for both:

Branch Naming Conventions

The naming standard for the branches is built in the format:

BRxxaann

where

- **BR** identifies the recipient as belonging to a branch.
- **xx** Identifies the Branch Number. The branches are known as the following numbers already, so we will continue with this standard.
 - 10 is Washington
 - 11 is Miami
 - 12 is Dallas
- **aa** Identifies the department within the branch. We have defined:
 - AC is Accounts
 - AD is Administration
 - SP is Special Accounts
- **nn** is a two-digit value identifying a section number, group or individual within the branch department.

Head Office Naming Conventions

The naming standard for the head office is built in the following format:

DVaaxsnn

where

- DV identifies the recipient as belonging to a head office division.
- aa identifies the application at division level. We have defined AC as Accounts Application
- x identifies which accounts department. We have defined:
 - P as Accounts Payable
 - R as Accounts Receivable
- s identifies which section is concerned. We have defined:
 - D as Domestic Accounts
 - O as Overseas Accounts
- nn is a two-digit value identifying a sub-section, group or individual within the particular section.

Assign the Standard

In the following example, we will assign standards to the users of our sample application. The recipient name is built according to the location of the recipient, using our sample standards:

Table 14 Sample Assignment Standards to Users (Part 1 of 2)

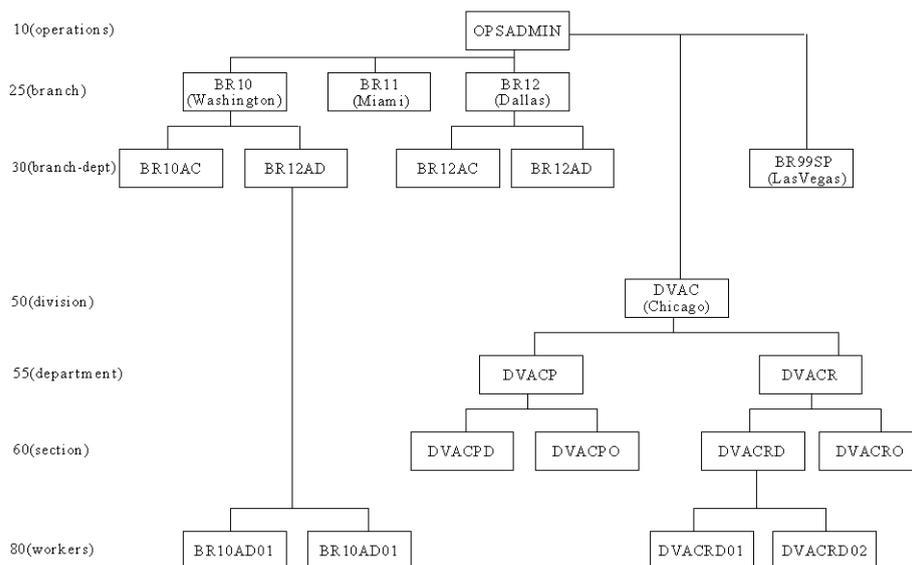
Level	Assignment
10	OPERATIONS
	Operations (CONTROL-D) Administration User (OPSADMIN)
15	PRESIDENT
20	REGNL-MGMT
25	BRANCH
	Mrs. Robinson, Branch Manager, Branch 11, Miami (BR11)
30	BRANCH-DEPT
	Accounts Department, Washington (BR10AC)
	Administration Department, Branch 12, Dallas (BR12AD)
	Accounts Supervisor, Branch 12, Dallas (BR12AC)
	Special Accounts Manager, Las Vegas (BR99SP)
50	DIVISION
	Tom Farmer, Chief Accountant, Accounts Division, Chicago (DVAC)
55	DEPARTMENT
	Department Manager, Accounts Receivable, Chicago (DVACR)
60	SECTION
	Accounts Payable (Domestic), Chicago (DVACPD)
80	WORKERS
	Accounts Clerk, Accounts Receivable (Domestic), Chicago (DVACRD01)

Table 14 Sample Assignment Standards to Users (Part 2 of 2)

Level	Assignment
90	CD-CONTROL
95	OP-USER

The format of the whole application in the recipient tree would look like this:

Figure 4 Sample Full Recipient Tree



Benefits of Standards

Having set these standards, a recipient’s name tells us where in our structure the recipient is placed and also provides us with other information about the recipient (for example, by looking at a recipient named BR10AD01, we can tell that this recipient is in Branch 10 (Washington) in the Administration Department).

When you come to implement future applications, you can use the same standards and assign new application ids, department codes, and so on.

Summary

Another alternative for recipient naming is the use of userids. You can use one of the supplied utilities (see Step 4) to automatically create a recipient tree using userids as recipient names. This can be a good method if most of the recipients are on the same level (such as might be the case with the data center programmers).

Normally each recipient will be a specific user. However, CONTROL-D allows a recipient name to be shared by a group of users, such as a branch or section.

You can, of course, assign any standards that you feel are relevant for your site. Ensure that whatever standards you do set are known and followed by all members of your implementation team.

NOTE

You should by now have set standards for your recipient names.

Step 4 Insert Basic Recipient Information

We strongly recommend that you do not define every report recipient in the organization at this point. If you have chosen a pilot application according to the recommendations supplied, then you should have about thirty recipients to define in the tree. As you progress to other applications, the tree will grow naturally.

Utilities for Automatically Creating Recipient Information

There are supplied utilities that can assist you in automating the definition process. The utilities selected for use will depend on which format you prefer for the tree and the recipient names. You can use any of the supplied utilities to automatically create recipient information in the tree. The supplied utilities are found in the IOA SAMPEXIT library. They are described below:

Utility CTDBLDJB

This utility is designed to either build the user tree from scratch, or to add users to an existing tree. The input to this utility is a file containing information about the recipients you want to insert in the tree. The utility can extract details from the file and insert recipient information such as Recipient Name, Parent, Synonyms, and Address into any defined levels of the recipient tree. The input to this utility could be a security report, such as an RACF report, that contains user IDs and group information that you want to define in the recipient tree.

NOTE

The DOCBLDTR member in the IOA DOC library contains a JCL sample for building a CONTROL-D user tree.

Utility UADSTREE

This utility can be used to create a recipient tree from scratch. The input to this utility is dataset SYS1.UADS. This dataset contains the information about all TSO users. Each user ID is inserted as a recipient name into one specific level of the tree, and all recipients have the same parent.



NOTE

The CTDUADST member in the IOA SAMPEXIT library contains a program and job skeleton used by ICE to create the job for building a default CONTROL-D user tree. You can customize the CTDUAST member using ICE, the same way as you would when customizing a sample exit from the IOA SAMPEXIT library.

During this phase, you will insert the basic recipient information for each of your identified recipients. It is recommended that, if possible, you use job titles rather than specific user names when supplying the address information in the tree definition. This will minimize the maintenance required if a user changes jobs, and so on.

If users currently have their names on reports, you should continue this practice under CONTROL-D by specifying the user name in the address information. Do not try to force changes on the users. For each identified recipient of your pilot application, you should now define the following information in the appropriate levels of the recipient tree:

- RECIPIENT NAME
- RECIPIENT LEVEL
- PARENT
- PARENT LEVEL
- DESCRIPTION
- ADDRESS

Below is an example of a definition in the Recipient Tree Definition screen:

Figure 5 Recipient Tree Definition Screen

```

----- CONTROL-D RECIPIENT DEFINITION -----(T. S)
COMMAND ===>                                SCROLL===> CRSR
+-----+
RECIPIENT BR11          RECIPIENT LEVEL 25    PARENT OPSADMIN    PARENT LEVEL 10
DESC THIS IS THE BRANCH MANAGER IN MIAMI
DESC
=====
SYNONYM
AUTHORIZE          $SYSDATA
ADDRESS MRS. ROBINSON
ADDRESS BRANCH MANAGER
ADDRESS BRANCH 11
ADDRESS 110 GLENDALE DRIVE
ADDRESS MIAMI
ADDRESS MI 40 4PP
ADDRESS
=====
INDEX              USER BANNER Y              REPORT BANNER Y
DEF DEST
=====
                                P C P A R A M E T E R S
AUTHORIZED N
===== >>>>>>>>>> END OF RECIPIENT DEFINITION PARAMETERS <<<<<<<<<< ==
FILL IN RECIPIENT DEFINITION.                                14. 23. 26
    
```

Insert the Administration Recipients

We recommend that you define the following administration recipients at the appropriate levels in the recipient tree:

Table 15 Recommended Administration Recipients

Lvl	Title	Instruction
10	OPERATIONS	Insert recipient OPSADMIN. You should insert only one recipient on the highest level of the tree. By default, this recipient will have authorization to see all reports handled by CONTROL-D. (This can be limited, if required.)
90	CD-CONTROL	Insert recipient CDADMIN. This may be a recipient who needs access to certain distribution reports.
95	OP-USER	<p>Insert recipient NULL. This recipient can be used as a destination for reports and/or pages that should be identified but never printed (such as application separator pages that are no longer required).</p> <p>Insert recipient PRODCNTL. This recipient can be made the recipient of all MSGCLASS output, so that it can be viewed online and archived if required.</p> <p>Insert recipient UNIDENT. This recipient will receive every page in a report that was not specifically identified according to the user-defined report decollating instructions.</p>

You can insert other administration-type recipients to suit your particular company's operating methods. Whenever any changes are made to the tree, it should be reloaded to make the changes effective. The implementation hints chapter of the *CONTROL-D User Guide* includes a discussion about defining the levels of the organization, providing guidance to assist you when changes are made.

For information about reloading the recipient tree, see the

NOTE

You should by now have inserted your basic recipient information in the tree.



Please go to the summary at the end of this phase.

Advanced Method

In this section, we will explain how to determine the best structure of the recipient tree for your company, and how you should define the levels of the tree, using the Advanced method. You will follow the steps listed below to build your recipient tree:

Table 16 Advanced Method Steps

Step	Task
Step 1A	Decide levels of the organization.
Step 1B	Define level codes and descriptions.
Step 2	Identify the report recipients (see Basic Method Step 2).
Step 3	Set standards for recipient names (see Basic Method Step 3).
Step 4	Insert basic recipient information (see Basic Method Step 4).

Recommendation

We recommend that you read through the “Basic Method” section that precedes this section before you start defining a new recipient tree. If you then want to use the Advanced method to build your tree, you should read through this section before creating your new tree structure.

After digesting the information, we suggest that you hold a brain-storming session regarding the structure, standards and information to be contained in the recipient tree.

The meeting should be attended by your implementation team, and any other relevant staff. Representatives from Operations and Distribution should attend. The presence of your super users at the meeting will give you valuable insight into the workings and organization of their application, and how they process their output.

The meeting will also get all parties connected to the project involved at an early stage.

Step 1A Decide the Levels of the Organization

The structure of the tree can take many shapes, depending on the organization of your company. In this step you will analyze how your company is structured and into what levels the company splits. Recipients are inserted into the tree at the levels that you determine. We recommend that you create the tree in a hierarchical format. This will provide many benefits that will be explained as you progress with your implementation.

It may be that a hierarchical structure does not suit your organization, and that it makes sense for you to have all recipients on one level. This type of structure may suit sites whose recipients are application programmers working individually or in groups.

Example 1 - Flat Tree (2 Levels)

- ADMIN LEVEL
- GROUP LEVEL

Example 2 - Hierarchical Tree (7 Levels)

- ADMIN LEVEL
- BOARD OF DIRECTORS
- DIVISIONS
- DEPT.
- BRANCHES
- SECTIONS
- SUB-SECT.
- WORKERS

Identify the Levels of the Company

You should now analyze the structure of your company and outline the levels of your organization. Perhaps there are organizational charts that can assist you. You can define up to 15 levels for the tree. On average, most companies define around 6 levels. Please use the form below (use a top down approach that is, level 1 is the top level):

Table 17 Identifying Company Levels

Level	Your Entry
Level 1	Reserved for Administration
Level 2	
Level 3	
Level 4	
Level 5	
Level 6	
Level 7	
Level 8	
Level 9	
Level 10	Reserved for Administration
Level 11	Reserved for Administration
Level 12	Reserved for Administration

Advantages of Hierarchical Structure

Some of the advantages associated with a hierarchical tree structure are as follows:

Table 18 Advantages of Hierarchical Structure

Operation	Advantage
Decollating Advantages	In our report decollating missions, we can use the hierarchical structure to employ some advanced decollating techniques for distribution. These will be explained in Phase 3.
Printing Advantages	Using the hierarchical structure, we can simplify the specifications in our printing missions. For example, by specifying an INCLUDE for a single recipient at a high level of the tree, all reports for the recipients underneath the high-level recipient (that is, connected by the PARENT relationship) are included (by default) in one print bundle. This is useful for recipients located at the same physical delivery point.
Online Viewing Advantages	Using the hierarchical structure, if we authorize a user at a particular level in the tree, the user can then view (by default) the reports of all recipients connected by the relationship in which the recipient is the PARENT). For example, a department manager may be allowed to view all the reports of the entire department, but users lower down in the tree can only view reports directed specifically to them or their children.

Step 1B Define Level Codes and Descriptions

Once you have decided the levels of the organization, you need to define them to CONTROL-D. This is done in the CTDPARM member of the IOA PARM library. You assign a level code and level description for each level. For example:

```
40 DEPARTMENTS
```

where 40 is the level code and DEPARTMENTS is the level description.

Level codes are two-character, alphanumeric values that must be defined in ascending sequence (where 9 > 1 > Z > A). Normally the sequence is set as 10, 20, 30, 40, and so on.

The level description can be up to 20 characters long.

Define Level Information

Edit the CTDPARM member and define your level codes and descriptions under parameter TREE. Below is an example of level code and description definitions:

```

BROWSE -- IOAP. PROD. PARM(CTDPARM) - 01.12 ----- LINE 00000055 COL 001 080
COMMAND ===>                                SCROLL ===> CSR
      TREE=(10, OPERATIONS,                    *00370003
            20, DIRECTORS,                      *00380009
            30, DIVISIONS,                      *00390009
            40, DEPARTMENTS,                   *00400003
            50, BRANCHES,                      *00410003
            60, SECTIONS,                      *00420003
            65, SUB-SECTIONS,                  *00430003
            70, WORKERS,                       *00440003
            90, CD-CONTROL,                     *00450003
            95, OP-USER)                        00460003
***** BOTTOM OF DATA *****

F1=HELP      F2=SPLIT  F3=END      F4=RETURN   F5=RFIND    F6=RCHANGE  F7=UP
F8=DOWN      F9=SWAP   F10=LEFT   F11=RIGHT  F12=RETRIVE

```

Make Changes to the Levels of the Tree

You can modify the definition of the tree at any time. New levels can be added without affecting the CONTROL-D operation. However, changing a level code is a complex procedure that requires a global change to the current recipient tree and to the decollating missions. Therefore, we highly recommend that you maintain an interval between two successive levels, so that there will be a place to insert additional levels if required.

When a change is made to the level definition (for example, a new level is defined), the CONTROL-D monitor should be shut down and brought back up again. We also recommend that users in the Online facility exit and re-enter.

Define Administration Levels

We reserved three levels for administration in the previous example. We have defined these levels as:

Table 19 Administration Levels

Level Code	Level Title
10	OPERATIONS
90	CD-CONTROL
95	OP-USER

We use these levels to administer the tree and to receive specific output. It is on these levels that we will insert administration recipients. You should add similar administration levels to your tree.

Access the Defined Tree

Whatever you define in the TREE parameter in member CTDPARM is what will be displayed on the Recipient Tree entry panel (see below) when you enter the Online facility and select Option T.

Recipient Tree Entry Panel

```

----- IOA RECIPIENT TREE - ENTRY PANEL -----(T)
COMMAND ==>

SPECIFY LIBRARY NAME AND MEMBER (TREE) NAME
LIBRARY ==> CTDP. PROD. PARM
MEMBER ==> CDTREE                                BROWSE Y (Y/N)

LEVEL 10      OPERATIONS      ==>
      20      DIRECTORS       ==>
      30      DIVISIONS       ==>
      40      DEPARTMENTS     ==>
      50      BRANCHES        ==>
      60      SECTIONS         ==>
      70      WORKERS         ==>
      90      CD-CONTROL      ==>
      95      OP-USER         ==>

FOR DIRECT ACCESS FILL IN RECIPIENT NAME IN APPROPRIATE LEVEL
11.03.10
    
```

Summary

It is into these levels that you will insert your recipient details. Normally, the higher up in the tree you insert a recipient, the greater the recipient's authority will be, especially for Online Viewing purposes. Please note that an unlimited number of recipients may share a level.



NOTE

You should by now have defined the levels of your tree. Continue with Steps 2 to 4 in the basic method section.

Review

During this phase you have learned the purpose of the recipient tree; examined the structure of your organization to determine the best format of the tree for your company; reviewed the basic parameters of the tree; and reviewed standards for assigning recipient names.

Before you continue, you should have:

- Set standards for recipient naming.
- Defined the basic recipient information for the recipients of your pilot application and for your administration users.

Phase 3: Design Decollating Missions

In this phase we will be discussing and defining the report decollating missions of CONTROL-D. We will discuss the purpose of decollating missions, and how they work. We will review what is required to define decollating mission parameters, and what options are available.

Some of the questions we will be answering in this phase are:

- What are decollating missions?
- What do decollating missions do?
- How many decollating missions do I need?
- Who should set up the decollating missions?
- Where are decollating missions defined?
- How do I schedule a decollating mission?
- What makes a decollating mission start?
- What are the parameters of the decollating missions?
- What is the link between decollating missions and the recipient tree?
- What is the link between decollating missions and backup missions?
- What is the link between decollating missions and printing missions?
- What are the results of a decollation?
- How do I test the decollating mission?

Inputs

Before you start this phase you should have inserted basic recipient information into the recipient tree (Phase 2).

Outputs

At the end of this phase you will have:

- Defined decollating missions for the selected pilot application.
- Decided your scheduling method for the decollating missions.
- Tested the decollating missions.
- Inserted synonyms into the recipient tree.

General Information About Decollating Missions

What Are Decollating Missions?

Decollating missions are used to tell CONTROL-D which recipients should receive which report output. Normally you will define one report decollating mission for each batch job producing standard reports.

One batch job may create ten different reports. Using CONTROL-D, you would define one report decollating mission for the batch job to handle all of the reports. If you have chosen a pilot application according to the recommendations supplied in Phase 1, then you will have around forty report decollating missions to set up during this phase.

As soon as report output has been processed by a report decollating mission, the output can be viewed online, printed and archived using CONTROL-D.

What Information Can I Put in a Decollating Mission?

In your report decollating mission definitions, you define parameters that tell CONTROL-D how to process specified reports. The information you can specify is as follows:

- Which reports or report pages should be given to which recipients.
- How many copies of the report should be printed (by default).
- The destination to which the report output will be directed.

- Which printing characteristics will be assigned to the report (if different from the original).
- What name should be assigned to the processed reports.
- How reports will be printed (what printing mission will print the reports).
- How compressed datasets will be archived (what backup mission will backup the reports).

Where Are Decollating Missions Defined?

Report decollating missions are defined using the Online facility (Option R in the IOA Primary Option menu). The definitions are stored as members of a partitioned dataset (PDS) in the CONTROL-D decollating missions library. You use the formatted Report Decollating Mission Definition screen to define your decollating parameters (see below):

Figure 6 Report Decollating Mission Definition Screen

```

----- CONTROL-D/V CATEGORY PROD                                JOB  JOB6  -----(R. S)
COMMAND ===>                                                    SCROLL===> CRSR
+-----+
CATEGORY PROD                                JOBNAME JOB6    GENERI C  MONI TOR
=====
DEF COPIES  LVL  USER                                DEST      MAX COPIES
=====
ON
PRT COPIES  LVL  USER                                DEST      MAX COPIES
PRINT/CDAM PARMS =
WHEN LINE  -      COL  -      PRINT  REF NXT  CT      AND/OR
STRING =
DO
===== >>>>>>>> END OF JOB/REPORT PARAMETERS FOR THIS CATEGORY <<<<<< =====
FILL IN REPORT DEFINITION. CMDS: EDIT, SCHED, SHPF, PATH                                10.51.22

```

Who Should Set Up the Decollating Missions?

You should assign members of your implementation team to define the report decollating missions for your pilot application. You should ensure that they are aware of standards that have been established, and that they have gone through the *CONTROL-D Getting Started Guide*. It is also recommended that they receive some basic training in CONTROL-D.

It is important that the assigned team members read this phase of the Implementation Guide, which provides recommendations for the definition and testing of the decollating missions. They should also have access to the *CONTROL-D User Guide* that contains definitions and examples of all possible report decollating mission parameters.

When Should I Schedule a Report Decollating Mission?

Normally you would want to decollate report output as soon as it is created. To handle the output produced by the batch jobs, a report decollating mission for the job must be placed on the Active Missions file. Your decision on how to schedule a report decollating mission to the Active Missions file will depend on your current production control system (if you have one) and your preferences for scheduling.

NOTE



CONTROL-M for z/OS has full integration with CONTROL-D and can schedule the report decollating mission as soon as the job ends.

The Basic Scheduling parameters of a report decollating mission specify on which days and/or dates you want to schedule the report decollating mission to the Active Missions file for potential execution. report decollating missions must be scheduled to the Active Missions file before they can execute and process the relevant report output. A copy of the report decollating mission is placed on the Active Missions file by a special scheduling program called by the New Day procedure (CTDNDAY). Temporary changes can be made to the report decollating mission without affecting the master definition in the report decollating missions library.

The options and methods available for scheduling the report decollating missions are detailed in “Scheduling Parameters” later in this phase.

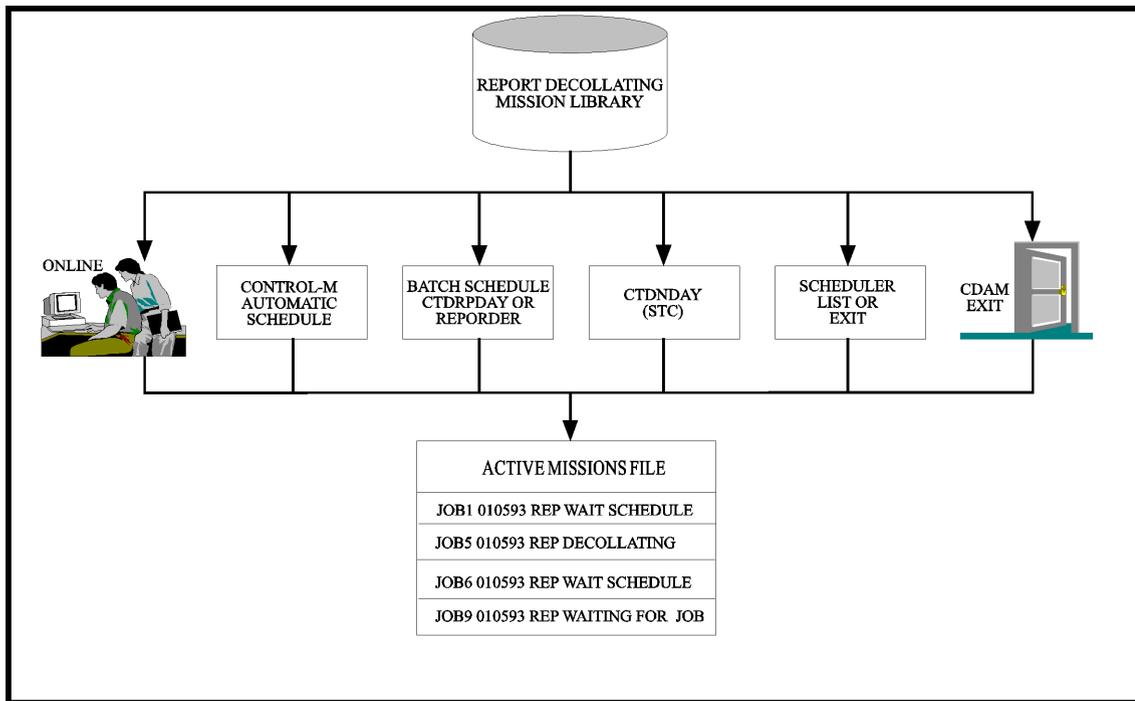
Decollating Mission Workflow

The workflow of a report decollating mission is shown in the figure that follows the table below. It details the stages involved from initial scheduling of the report decollating mission through to the decollation results. The performance of certain phases of the workflow at your site is determined by you. The phases are detailed below:

Table 20 Decollating Mission Workflow Phases

Phase	Description
Create Report Output	You decide what the decollating source for each report decollating mission will be. During the pilot implementation you will probably use the same method as you do currently, that is, you will be creating the report output to spool. If implementing the CDAM Direct Write facility, you will be creating reports directly to CDAM datasets.
Schedule Report Decollating Missions to Active Missions File	You decide how report decollating missions will be scheduled to the Active Missions file. In this example, the New Day procedure calls a scheduling program that places a copy of the report decollating mission definition on the Active Missions file.
Select Report Decollating Mission for Execution	The CONTROL-D monitor analyzes the Active Missions file every few seconds, and selects decollating missions for execution once all runtime dependencies have been met.
Execute Report Decollating Mission Instructions	The CONTROL-D monitor executes the report decollating mission instructions, assigning report pages as specified in the report decollating mission definition.
Create CDAM File	The ultimate storage format for all reports processed by CONTROL-D is as a compressed dataset (CDAM). If you have implemented the CDAM Direct Write facility, the report is already in this compressed format and this phase is bypassed.
Create Entries in Active User Report List File	The result of the decollation process is that entries are created in the Active User Report List file. These entries detail which parts of the CDAM file are assigned to each user. Each entry describes which pages of a report should be printed, or can be viewed for each specific recipient. As soon as a decollation has been performed, the entries are available for online viewing, printing and archiving.

Figure 7 Graphic Overview of Decollating Mission Workflow



Determine Distribution Instructions for Reports

Create Test Report Output

The first thing you should do before defining the report decollating missions is to examine the format of the reports you want to decollate. Normally, the best way to do this is to produce a copy of the report to spool, preferably to a Held output class. You will then be able to view the report and determine where any identifying strings appear. You will also be able to run, test and revise your report decollating missions against the sample Held outputs, until the decollating missions are working as desired. You can produce a copy of the reports to spool by:

- Using a test job to create the output.
- Using the JCL OUTPUT statement to produce a duplicate copy of a report. (See the example in the section “Testing Decollating Missions” in this phase.)

- Using the JES OFFLOAD facility to create a duplicate copy.

Obtain Current Distribution Instructions

Once you have created your test output to spool, you can then gather the information you will require to define your report decollating missions. You must find out how the reports are currently distributed before you can define your report decollating missions. When you create a report decollating mission, you are actually using CONTROL-D parameters to duplicate exactly what you would do manually (that is, you are defining how the report is distributed). At this stage, it is recommended that you do not change what the users currently receive. During Phase 8, we will perform “Report Pruning” according to user requirements.

You may have up-to-date, accurate, online distribution instructions for the reports you want to handle, or you may have old hand-written distribution instructions that are out-of-date and have pages missing. You must determine exactly how reports are currently handled. A good way to find out how reports are handled is to ask the dispatch staff how they identify who receives which reports.

Example

The output for job PAC2030 contains two identical copies of a report. One full copy goes to the Accounts Department. The other copy is then split further according to the branch number on each page. Each branch gets its relevant pages. This is a good example of the information you will need to define in your report decollating missions. It tells you who the recipients of the reports are, and how to identify who receives which reports.

Identify Who Receives Which Reports

Reports that are to be distributed in their entirety to one or more users do not require any further information. For reports that are to be decollated into parts, you must identify a character string that is unique to the specific recipient or recipients (for example, a report header or title). Take note of the line and column ranges of the identifying strings; you will need this information for your report decollating mission definitions.

The identifying string may be a value that you can define as a recipient synonym (see “Using Synonyms” later in this phase). Synonyms can help make report decollating mission definition much easier.

Please note that you can determine the exact position of a string by viewing the report online using SDSF and the COLS command, or a similar application. This should make the task of identifying string locations simpler than doing so from a printed report page.

Example

Figure 8 Sample Output Report

```

SDSF OUTPUT DISPLAY JOB6          JOB 9381 DSID- 101 LINE          0 COLUMNS 02- 81
COMMAND INPUT ==>                SCROLL ==> CSR
-----1-----2-----3-----4-----5-----6-----7-----8-
***** TOP OF DATA *****
DATE: 05.05.00
UPDATE: 05.05.00
INVENTORY REPORT
-----

WAREHOUSE NO: 1001          DEPARTMENT: 100 - FINAL ASSEMBLY SHOP
-----

ITEM NO.      DESCRIPTION          SHELF  QNTY  QNTY  QNTY  QNTY IN
-----      -----          -----  ---  ---  ---  ---
1233-781-21   RIVET D. 0.1 ACR          NONE   KG    100.00  250.00
1233-781-25   RIVET D. 0.5 ACR          NONE   KG    500.00  500.00
1233-781-27   RIVET D. 0.7 ACR          NONE   KG    100.00  100.00
1234-781-21   RIVET D. 0.1 ACP          NONE   KG    100.00
1233-781-25   RIVET D. 0.5 ACR          NONE   KG    500.00  500.00
    
```

In this example of the original report (as displayed in SDSF before decollation), the dispatch staff examine every page of the Inventory Report to determine to which branches pages of the report should be sent. They do this by checking the Warehouse Number in line 6, column range 16 through 19.

Define Decollating Missions

After you have produced your sample output and have gathered the distribution information about your reports, you can define the information in CONTROL-D.

You define one report decollating mission per batch job. If a batch job produces four reports, then you will define the instructions for handling the four reports in one report decollating mission.

You will define the required report decollating mission parameters using the screens of the CONTROL-D Online facility. The definitions that you create will be saved in the CONTROL-D decollating missions library. Note that because definitions are saved in a partitioned dataset, you should ensure that the PDS is backed up regularly. This protects against the loss of definitions due to some type of system error.

This section contains recommendations on specific parameters that you will define in your report decollating mission definitions. Below is a summary of the information that you will specify:

- Report Decollating Parameters
- Basic Scheduling Parameters

Each section in our overview corresponds to a relevant section of the report decollating mission parameters. Each section of parameters on the screen is separated with a double-dash line (=) as follows:

Report Decollating Mission Parameters

Parameters that are mainly used to specify decollating operations are described below. For a full explanation of all report decollating mission parameters see the *CONTROL-D User Guide*.

The General and Decollating parameters explain the basic information you need to identify and split report output. These are the parameters that are displayed when you enter the Report Decollating Mission Definition screen (Option R in the IOA Primary Option menu) with parameter SHOW SCHEDULING CRITERIA set to N (that is, do not show scheduling parameters), which is the default.

General Parameters

The first set of parameters you fill in are the General parameters. You use these parameters to define general information about the decollating mission, much of which can be used for tracking and control purposes.

Figure 9 General Mission Parameters

CATEGORY	PROD	JOBNAME	JOB6	GENERIC	MONITOR
OWNER	M90	TASKTYPE	REP	GROUP	ACCOUNTS-PAYABLE
DESC	JOB6	PRODUCES	THREE	ACCOUNTS	PAYABLE
DESC				REPORTS	
					JOBI D

CATEGORY Recommendations

You can use the CATEGORY parameter to create multiple decollating mission definitions for the same job (name). You may want to do this if the batch job creates different reports on different days with different decollating parameters. For example:

Table 21 Using Multiple Decollating Mission Definitions - Example

Mission Definition	Purpose
JOB6 DAILY RUN	PRODUCES 3 DAILY REPORTS
JOB6 WEEKLY RUN	PRODUCES 4 WEEKLY REPORTS
JOB6 MONTHLY RUN	PRODUCES 8 MONTHLY REPORTS

In the above example, set up three different decollating mission definitions to handle the various reports produced by the batch job named JOB6. This can be done by using the CATEGORY parameter, and by defining an appropriate report decollating mission for each category:

Table 22 Using CATEGORY Parameter - Example

Jobname	Category	Report Handling
JOB6	DAILY	(Handles daily reports)
	WEEKLY	(Handles weekly reports)
	MONTHLY	(Handles monthly reports)

Many sites have standard naming conventions for their batch jobs and do not encounter the above problem (for example, the weekly and monthly runs of the batch job have a different name than the daily run). It may be more applicable for you to define only one category per batch job, such as DAILY. Another option may be to set up two categories per batch job: one called PROD for all tested report decollating missions, and one called TEST for all report decollating missions being updated, changed or tested. This would help prevent incorrect changes to a current production definition, and would provide a safe fallback. For example:

Table 23 Using CATEGORY Parameter - TEST and PROD Example

Jobname	Category	Decollating Mission Version
JOB6	PROD	(Production version of report decollating mission)
	TEST	(Testing version of report decollating mission)

Using Decollating Parameters to Split Report Output

The second set of parameters you specify are the Decollating parameters. Information about how to split the report output to the relevant recipients is provided below.

Figure 10 Decollating Parameters

```

=====
DEF COPIES   LVL   USER                               DEST           MAX COPIES
=====
ON
PRT COPIES   LVL   USER                               DEST           MAX COPIES
PRINT/CDAM PARS =
WHEN LINE    -     COL    -     PRINT  REF NXT  CT     AND/OR
STRING =
DO

```

The parameters you define in this section will depend on how you currently split report output. There are many potential parameters you can use that will enable you to deal with any format of output that may be produced.

A simple definition would be one in which an entire report is assigned to one or more recipients. A more complex definition would be one in which many pages within a report are identified by different selection criteria and are distributed to recipients based on various values or strings within the report.

Overview

We will now discuss some general recommendations for decollating report output. The first step is to break down the information that we need to specify:

Table 24 General Decollation Recommendations (Part 1 of 2)

	Task	Details
1.	Assign Defaults	Default information that specifies to CONTROL-D who should receive unidentified pages from the job, and so on. There are two types of default information: Job Defaults (specifying global default information for all the reports produced by the batch job) and Report Defaults (specifying defaults for a specific report – these values override the specified Job Defaults).
2.	Identify Report Output	Where CONTROL-D can find report output, for example, if written to compressed datasets, which datasets should be decollated. If written to spool, which class or classes should be searched for the reports is specified.
3.	Assign Pages to Recipients	Which recipients should receive which pages of a report. You specify how to identify the pages and to whom to send them.

Table 24 General Decollation Recommendations (Part 2 of 2)

	Task	Details
4.	Assign Report Names	What report name will be assigned to the identified report pages for a recipient. The report name can be seen online and is printed in the recipient's bundle.
5.	Assign Other Administration Parameters	Other administration parameters that will tell CONTROL-D how to back up and print identified reports.

These steps are described in depth on the following pages.

Assign Defaults

First define the default parameters for the job. The job defaults apply to all the reports that you are handling from the batch job. If you want different default values for specific reports within the job, you can override job defaults with report defaults.

Figure 11 Default Parameter Lines

```

DEF COPIES    LVL    USER                                DEST          MAX COPIES
=====
ON
PRT COPIES    LVL    USER                                MAX COPIES
  PRINT/CDAM PARS =
WHEN LINE    -      COL    -      PRINT  REF NXT  CT    AND/OR
  STRING =
DO
=====
ON
PRT COPIES    LVL    USER                                MAX COPIES
  PRINT/CDAM PARS =
WHEN LINE    -      COL    -      PRINT  REF NXT  CT    AND/OR
  STRING =
DO
    
```

If there are any unidentified pages, you can assign them to recipient UNIDENT (defined during Phase 2). The UNIDENT recipient can act as a central collection point for all unassigned pages. If you do not specify a default recipient name for unidentified pages (here or in the report defaults), then your decollating mission will be flagged as ended NOTOK in the Active Missions file (although it may have decollated the output successfully), and any unidentified pages will be assigned to the user in the top level of the tree.

Figure 12 Job Default Parameters

```

DEF COPIES 01 LVL 95 USER UNIDENT DEST MAX COPIES 03
=====
ON
PRT COPIES LVL USER DEST MAX COPIES
PRINT/CDAM PARMS =
WHEN LINE - COL - PRINT REF NXT CT AND/OR
STRING =
DO

```

Identify Report Output

Either create reports directly to compressed datasets using the CDAM Direct Write facility, or create report output on spool as you do currently. You have to specify to CONTROL-D exactly where to find the report output that you want to decollate.

Jobs That Write Directly to CDAM Datasets

When decollating from CDAM datasets, you use special parameters that tell CONTROL-D which CDAM datasets you want to decollate. These parameters are called the CDAM retrieval parameters. Any retrieval parameters entered in the DSN field are merged with the parameters specified in the ON DSN field. We will examine these parameters in greater detail in Phase 6.

Figure 13 CDAM Parameter Requirements

```

WHEN IN QUEUE N TIME FROM UNTIL INTERVAL PRIORITY
DSN LAST=YES
=====
OUT
SHOUT WHEN TO URG
MSG
=====
DEF COPIES 01 LVL 95 USER UNIDENT DEST MAX COPIES
=====
ON DSN = PGMSTEP=STEP1, DDNAME=SYSUT2
PRT COPIES LVL USER DEST MAX COPIES
PRINT/CDAM PARMS =
WHEN LINE - COL - PRINT REF NXT CT AND/OR
STRING =
DO

```

Jobs That Write Output to Spool

If you specify a class(es), CONTROL-D will search the specified class(es) for the output that matches the JOBNAME defined in your report decollating mission. Any output from the job in other classes is not processed by CONTROL-D.

Figure 14 Spool Parameter Requirements

DEF COPIES 01 LVL 95 USER UNIDENT	DEST	MAX COPIES
=====		
ON CLASS = PJ EXTWTR	DEST	FORM
PRT COPIES LVL USER	DEST	MAX COPIES
PRINT/CDAM PARMS =		
WHEN LINE - COL -	PRINT REF NXT	CT AND/OR
STRING =		
DO		

Assign Pages to Recipients

Once you have identified the output to process, you must tell CONTROL-D how you want to distribute the output. This is where distribution information you previously collected is defined in CONTROL-D.

Example 1

If the entire report output is to be assigned to one or more recipients, you need only specify the relevant recipients, as in the example below.

Figure 15 Assigning Entire Report Output to Recipients

DEF COPIES 01 LVL 95 USER UNIDENT	DEST	MAX COPIES
=====		
ON CLASS = PJ EXTWTR	DEST	FORM
PRT COPIES LVL USER	DEST	MAX COPIES
PRINT/CDAM PARMS =		
WHEN LINE - COL -	PRINT REF NXT	CT AND/OR
STRING =		
DO USER = DVACP	LVL LINE COL -	S T
	SYNONYM =	CONCAT =
DO USER = BR10AD	LVL LINE COL -	S T
	SYNONYM =	CONCAT =
DO		

In the above example, a copy of all output for this batch job, written to classes P and J is assigned to recipients DVACP (Accounts Payable Department) and BR10AD (Washington Branch, Administration Department). No other identification is required.

Specifying String Identification

If reports are to be split according to an identifying strings appearing on the report pages, you must specify which recipients should receive which pages. You can specify AND/OR logic when identifying strings. You can also specify that CONTROL-D should search a specified “window” on the page for a string. We recommend that you try to identify as accurately as possible the location of the string on the page. This will increase the performance and efficiency of your report decollating mission definitions.

Example 2

Figure 16 Identifying Two Strings on a Report Page

ON CLASS	= P	EXTWTR		DEST		FORM	
PRT COPIES	LVL	USER		DEST		MAX COPIES	
PRINT/CDAM PARMS =							
WHEN LINE	00003 - 00003	COL	00020 - 00045	PRINT	REF NXT	CT	AND/OR A
STRING = ACCOUNTS SUMMARY REPORT							
WHEN LINE	00004 - 00005	COL	00001 - 00016	PRINT	REF NXT	CT	AND/OR
STRING = DALLAS OFFICE							
DO USER	= BR12			LVL	LINE	COL	- S T
				SYNONYM =		CONCAT =	
DO							
WHEN LINE	-	COL	-	PRINT	REF NXT	CT	AND/OR
WHEN LINE	-	COL	-	PRINT	REF NXT	CT	AND/OR
STRING =							
DO							

In this example, reports produced by the specified job in Output Class P will be retrieved. Only when the string ACCOUNTS SUMMARY REPORT is found on line 3 in the Column range 20 - 45 and the string DALLAS OFFICE is found in line 4 or 5 in column range 1 - 16, will the page be assigned to recipient BR12.

Note that the second WHEN identification searches over two lines because the identifying string can be produced on line 4 or 5.

Example 3

Figure 17 Identifying Specific Pages for Recipients

DEF COPIES	01	LVL	95	USER	UNI DENT	DEST	MAX COPIES

ON CLASS	= T	EXTWTR		DEST		FORM	
PRT COPIES	LVL	USER		DEST		MAX COPIES	
PRINT/CDAM PARMS =							
WHEN LINE	00006 - 00006	COL	00016 - 00019	PRINT	REF NXT	CT	AND/OR
STRING = 1001							
DO USER	= BR11			LVL	LINE	COL	- S T
				SYNONYM =		CONCAT =	
DO							
WHEN LINE	00006 - 00006	COL	00016 - 00019	PRINT	REF NXT	CT	AND/OR
STRING = 1002							
DO USER	= BR12			LVL	LINE	COL	- S T
				SYNONYM =		CONCAT =	
DO							

In this example, we identify output that is directed to different recipients depending on a location code appearing on the report page.

In the above example, all pages identified with string 1001 are allocated to recipient BR11, and all pages with string 1002 are allocated to recipient BR12.

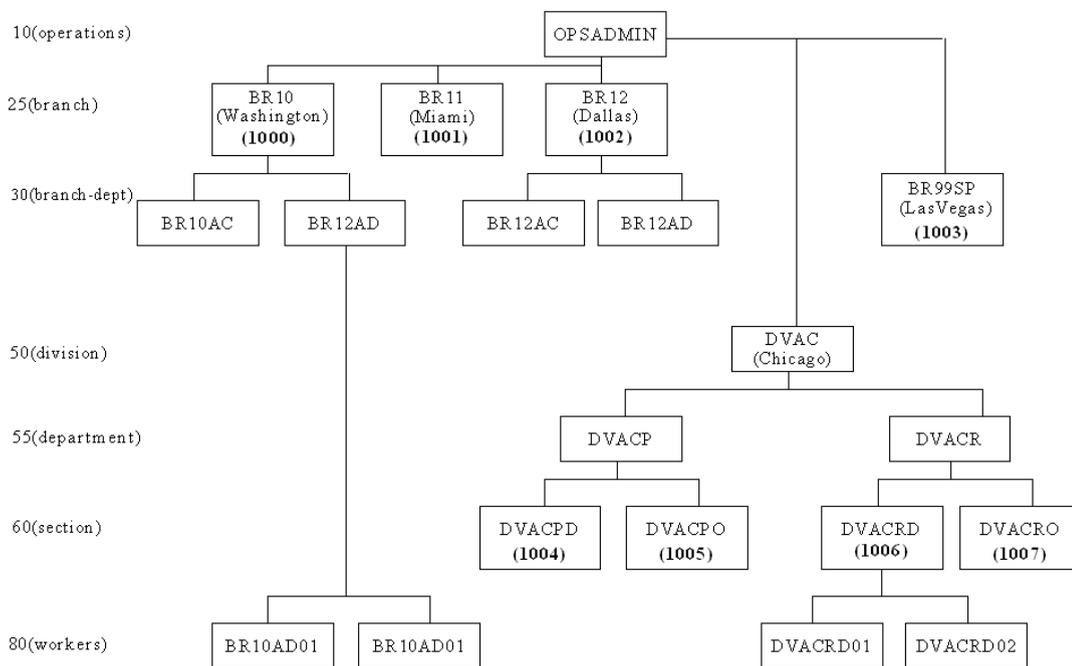
Synonyms Overview

Assume that every time these particular location codes appear on a report, the pages should be allocated to the specific recipients. If this is so, we can define these location codes as synonyms in the recipient tree.

Synonyms are nicknames or aliases for recipients. If we know that a particular string that appears in our reports is associated with a particular recipient, we can define the string as a synonym in the recipient tree.

Let's associate some aliases with our recipients in the sample recipient tree diagram:

Figure 18 Synonyms in a Recipient Tree



Defining Synonyms in the Recipient Tree

Once you have identified strings as being recipient synonyms, you should define them in the recipient tree. You simply select your previously-defined recipient, and insert the associated alias. You can define an unlimited number of synonyms for each recipient, since the same recipient may be identified differently in different reports and/or applications.

Figure 19 Recipient Definition Screen for Recipient BR11

```

----- CONTROL-D RECIPIENT DEFINITION -----(T.S)
COMMAND ==>>> SCROLL==>>> CRSR
+-----+
RECIPIENT BR11 RECIPIENT LEVEL 25 PARENT OPSADMIN PARENT LEVEL 10
DESC THIS IS THE BRANCH MANAGER IN MIAMI
DESC
=====
SYNONYM 1001
SYNONYM BRANCH-11-MIAMI
SYNONYM BRNCH 11
SYNONYM BRAN11MI
SYNONYM ACCMIAMI
SYNONYM
AUTHORIZE $SYSDATA
ADDRESS MRS. ROBINSON
ADDRESS BRANCH MANAGER
ADDRESS BRANCH 11
ADDRESS 110 GLENDALE DRIVE
ADDRESS MIAMI
ADDRESS MI 40 4PP
ADDRESS
=====
INDEX USER BANNER Y REPORT BANNER Y
DEF DEST
=====
P C P A R A M E T E R S
AUTHORIZED N
===== >>>>>>>>>> END OF RECIPIENT DEFINITION PARAMETERS <<<<<<<<<<<< ==
FILL IN RECIPIENT DEFINITION. 12.04.48

```

In this example, five synonyms were defined for recipient BR11. Synonyms can be up to twenty characters in length, and do not have to be unique.

Decollating Missions and Synonyms

If we defined a report decollating mission to handle the output from our report without using synonyms, then our definition would look like the next example.

Example 4

Figure 20 DO USER (Primitive Method)

ON CLASS	= T	EXTWTR	DEST	FORM
PRT COPIES	LVL	USER	DEST	MAX COPIES
PRINT/CDAM PARMS =				
WHEN LINE	00006 - 00006	COL 00016 - 00019	PRINT	REF NXT CT AND/OR
STRING = 1000				
DO USER	= BR10	LVL	LINE	COL - S T
SYNONYM = CONCAT =				
DO				
WHEN LINE	00006 - 00006	COL 00016 - 00019	PRINT	REF NXT CT AND/OR
STRING = 1001				
DO USER	= BR11	LVL	LINE	COL - S T
SYNONYM = CONCAT =				
DO				
WHEN LINE	00006 - 00006	COL 00016 - 00019	PRINT	REF NXT CT AND/OR
STRING = 1002				
DO USER	= BR12	LVL	LINE	COL - S T
SYNONYM = CONCAT =				
DO				
WHEN LINE	00006 - 00006	COL 00016 - 00019	PRINT	REF NXT CT AND/OR
STRING = 1003				
DO USER	= BR99SP	LVL	LINE	COL - S T
SYNONYM = CONCAT =				
DO				

Using this method, if we have hundreds of codes for hundreds of recipients, our report decollating mission definition will be very long. If we had defined synonyms in the recipient tree, we could pick the recipient identification from the page itself. Although the recipient name does not appear on the page, the recipient's synonym (alias) does.

If at any time a new branch opens, then using this method, all the report decollating mission definitions that handle reports for the new branch would have to be updated with the new branch name, and so on. Also, if a branch closes, the report decollating mission definitions would have to be updated to reflect this. This would generate a lot of work in maintaining the report decollating mission definitions.

The recommended way to handle this situation is detailed in the following example.

Example 5

Using defined synonyms, our definition would look like this:

Figure 21 DO USER=* (Recommended Method)

ON CLASS	= T	EXTWTR	DEST	FORM
PRT COPIES	LVL	USER	DEST	MAX COPIES
PRINT/CDAM	PARMS =			
WHEN LINE	-	COL	-	PRINT REF NXT CT AND/OR
STRING =				
DO USER	= *	LVL	LINE 006	COL 016 - 019 S T
		SYNONYM =	CONCAT =	
DO				

The use of the statement `DO USER=*` allows us to pick the recipient name or synonym from the actual report page, rather than defining clumsy and lengthy report decollating mission definitions.

The combined use of the `DO USER=*` statement along with our recipient synonyms, provides a powerful tool that greatly simplifies not only our report decollating mission definitions, but maintenance as well. Adding or changing a recipient synonym (once `DO USER=*` statements are specified in the decollating mission definitions) is much easier than changing all report decollating missions where a recipient name is defined, because the synonym changes can be done in one place (that is, in the recipient tree).

If a new branch opens, all that is required is that the branch be defined in the recipient tree. No modifications are required to the report decollating mission definitions; likewise, if a branch closes, all that is required is that the recipient tree entry be deleted.

NOTE



You should use the `DO USER=*` statement and synonyms whenever possible.

You should now have inserted any relevant synonym information into the recipient tree.

Parameter SEARCH

At this stage, we would like you to set the `SEARCH` parameter (of the `DO USER` statement) to blank for all the report decollating mission definitions you create. We will discuss this parameter in detail during Phase 5 and give recommendations for its use.

ON CLASS	= T	EXTWTR	DEST	FORM
PRT COPIES	LVL	USER	DEST	MAX COPIES
PRINT/CDAM PARMS =				
WHEN LINE	-	COL	-	PRINT REF NXE CT AND/OR
STRING =				
DO USER	= *	LVL	LINE 006	COL 016 - 019 S T
DO		SYNONYM =	CONCAT =	

Pages Without an Identifying String

In the examples we have looked at so far, an identifying string has appeared on each page. The default value for the CONTID parameter tells CONTROL-D to check every page for an identifying string. Normally, if a report page is not identified by the report decollating mission (for example, the string is either not where we specified, or is different from what we coded), it is assigned to the default recipient. Sometimes you may have to process report output that does not have an identifying string on every page, as in the following example:

Sample Report

Table 25 Identifying Strings Found Only On Certain Report Pages

Page	Page Information
Page 1	Header Page – Report for Branch 10
Page 2	Data
Page 3	Data
Page 4	Data
Page 6	Header Page – Report for Branch 12
Page 7	Data
Page 8	Data
Page 9	Header Page – Report for Branch 13
Page 10	Data
Page 11	Data
Page 12	Data

In this example, if we used the default identification (CONTID set to N), all the data pages would be assigned to the default user because they could not be identified. To help handle this situation, we would use the following report decollating mission definition:

Figure 22 Parameter CONTID

ON CLASS	= T	EXTWTR	DEST	FORM
PRT COPIES	LVL	USER	DEST	MAX COPIES
PRINT/CDAM PARMS =				
WHEN LINE	-	COL	-	PRINT REF NXT N CT Y AND/OR
STRING =				
DO USER	= *	LVL	LINE 012	COL 010 - 020 S T
DO		SYNONYM =	CONCAT =	

In this example, we are assuming that we have defined the branch numbers as synonyms in the recipient tree. When CONTROL-D finds an identifying string (such as Branch 10), this page and all following pages are assigned to this recipient, until CONTROL-D identifies a new string (such as Branch 12). When it finds the new identifying string, this page and all following pages are assigned to the new recipient, and so on.

Assign Report Names

The pages of a report that you assign to recipients in your report decollating mission definitions should be assigned report names. The report name that you assign can be printed on the user's bundle, and viewed when using the CONTROL-D Online Viewing facility. The report name can be up to twenty characters in length, and is assigned in a DO NAME statement.

When you assign report names during the initial implementation, we recommend using either the names that appear on the report output you are handling, or the names by which the reports are commonly known to the end user. Below is an example of DO NAME specifications:

Figure 23 Parameter DO NAME

ON CLASS	= T	EXTWTR	DEST	FORM
PRT COPIES	LVL	USER	DEST	MAX COPIES
PRINT/CDAM PARMS =				
WHEN LINE	006 - 006	COL 016 - 019	PRINT	REF NXT CT AND/OR
STRING = 1001				
DO USER	= BR11	LVL	LINE	COL - S T
DO NAME		= INVENTORY-FOR-1001	LINE	COL
DO				
WHEN LINE	006 - 006	COL 016 - 019	PRINT	REF NXT CT AND/OR
STRING = 1002				
DO USER	= BR12	LVL	LINE	COL - S T
DO NAME		= INVENTORY-FOR-1002	LINE	COL
DO				

Extracting the Report Name From the Report Page

To simplify a report decollating mission definition, you can extract the report name from the report page itself. You can also build report names from different fields on the report page (and add your own text). Let's look again at our original sample report page again (as displayed in SDSF before decollation):

```

SDSF OUTPUT DISPLAY JOB6      JOB  9381 DSID- 101 LINE      0 COLUMNS 02- 81
COMMAND INPUT ==>           SCROLL ==> CSR
-----1-----2-----3-----4-----5-----6-----7-----8-
***** TOP OF DATA *****
DATE:   05.05.00
UPDATE: 05.05.00

                                I N V E N T O R Y   R E P O R T
                                -----

WAREHOUSE NO: 1001      DEPARTMENT: 100 - FINAL ASSEMBLY SHOP
-----

ITEM NO.      DESCRIPTION      SHELF  QNTY  QNTY  QNTY  QNTY
-----      -----      ----  ---  ---  ---  ---
              LIFE  UNIT  AVAIL  ORDER  IN
              ----  ---  -----  -----  -----
1233-781-21  RIVET D. 0.1 ACR  NONE  KG    100.00  250.00
1233-781-25  RIVET D. 0.5 ACR  NONE  KG    500.00  500.00
1233-781-27  RIVET D. 0.7 ACR  NONE  KG    100.00  100.00
1234-781-21  RIVET D. 0.1 ACP  NONE  KG    100.00
1233-781-25  RIVET D. 0.5 ACR  NONE  KG    500.00  500.00
    
```

Example

In this example, we want to build the report name based on values appearing in two different locations on the page, and we want to add some text of our own. The report decollating mission definition would look like this:

```

ON CLASS      = T      EXTWTR      DEST      FORM
PRT COPIES   LVL     USER      DEST      MAX COPIES
PRINT/CDAM PARS =
WHEN LINE    -      COL      -      PRINT  REF NXT  CT      AND/OR
STRING =
DO USER      = *      LVL     LINE 006 COL 016 - 019 S T
SYNONYM =      CONCAT =
DO NAME      = *-FOR-  LINE 003 COL 035 - 043
DO NAME      = *P+*    LINE 006 COL 016 - 019
DO
    
```


Printing Mission Specification

The subject of printing missions is covered in detail in Phase 4, and it is during that phase that you will learn how to design your printing missions. One topic included in Phase 4, however, is important to us now. In Phase 4, we give recommendations for printing mission naming standards. For now, we recommend that you read about printing mission naming standards in Phase 4, and decide on your printing mission names, so that they can be specified in your report decollating mission definitions.

NOTE



Printing mission naming standards are discussed in Phase 4.

Printing mission names are specified in the report decollating mission definition in the DO PRINT statement, as indicated in the example below:

ON CLASS	= T	EXTWTR	DEST	FORM
PRT COPIES	LVL	USER	DEST	MAX COPIES
PRINT/CDAM	PARMS =			
WHEN LINE	-	COL	-	PRINT REF NXT CT AND/OR
STRING =				
DO USER	= *	LVL	LINE 006 COL 016 - 019	S T
		SYNONYM =	CONCAT =	
DO NAME	= *-FOR-		LINE 003 COL 035 - 043	
DO NAME	= *P+*		LINE 006 COL 016 - 019	
DO PRINT	= STD		MUST =	
DO				

In the above example, when the printing mission STD is run (if bundling for these users), the report will be selected for printing. The report will not be printed twice. If you only want to view reports online, no DO PRINT statement is required.

Backup Mission Specification

The subject of backup missions is covered in detail in Phase 5, and during that phase that you will learn how to design your backup missions. One topic included in Phase 5, however, is important to us now. In Phase 5, we give recommendations for backup mission naming standards.

NOTE



You should now read the section “What Are Backup Missions?” in Phase 5, and decide on your backup mission names, so that they can be specified in your report decollating mission definitions.

Backup Mission names are specified in the report decollating mission definition in the DO BACKUP statement, as indicated in the following example.

ON CLASS	= T	EXTWTR	DEST	FORM
PRT COPIES	LVL	USER	DEST	MAX COPIES
PRINT/CDAM PARMS =				
WHEN LINE	-	COL	-	PRINT REF NXT CT AND/OR
STRING =				
DO USER	= *	LVL	LINE 006	COL 016 - 019 S T
SYNONYM = CONCAT =				
DO NAME	= *-FOR-	LINE	003	COL 035 - 043
DO NAME	= *P+*	LINE	006	COL 016 - 019
DO PRINT	= STD	MUST =		
DO BACKUP	= BKP0031D			
DO				

In this example, we have specified that backup mission BKP0031D (when run) should backup the compressed dataset in which this report resides. (It is the backup mission definition that contains the information about how long to keep the report backed up.) Only after the backup mission has run, will a copy of the compressed dataset be archived.

If you do not specify a DO BACKUP statement, your report will not be backed up by CONTROL-D, and the report will not be available for restoring.

Exception Handling

You can use report decollating mission parameters to perform powerful exception handling routines based on the appearance of specified report strings within the report. There are three main actions you can perform:

- You can flag the mission as ended NOTOK under CONTROL-D.
- You can issue a message to a user or group of users.
- You can assign a remark to the report.

These actions are discussed on the following pages.

End the Report Decollating Mission With NOTOK Status

Based on the appearance of a particular string in a report, you can force the mission to end NOTOK. This would mean that the mission would be flagged as NOTOK on the Active Missions file, and that none of the job's reports would be printed by CONTROL-D. The mission is flagged using parameter DO NOTOK.

```

ON CLASS      = T          EXTWTR          DEST          FORM
PRT COPIES   LVL   USER          DEST          MAX COPIES
PRINT/CDAM PARS =
WHEN LINE 00002 - 00002 COL 00012 - 00038 PRINT  REF NXT  CT    AND/OR
STRING = GENERAL LEDGER REPORT
DO USER      = DVAC          LVL   LINE    COL    -    S    T
SYNONYM =          CONCAT =
DO NAME      = GEN LEDGER REP          LINE    COL
DO
WHEN LINE 00012 - 00012 COL 00026 - 00040 PRINT  REF NXT  CT    AND/OR
STRING = LEDGER UNBALANCED
DO NOTOK
DO
    
```

If any pages of the above report contain the string LEDGER UNBALANCED in the specified page location, the mission will be flagged as ended NOTOK and the reports will not be printed. This provides us with a good method of preventing the printing of reports that may contain erroneous information.

The reports can still be viewed online, which may help you determine the cause of the problem. From the User Report (Online Viewing) facility, you can issue a request to print the reports.

Issue a Message Based on Exception Data

Based on the appearance of a particular string in a report, you can issue a message to a user, a group of users, or an MVS Console. You use the DO SHOUT parameter to issue the message.

```

ON CLASS      = T          EXTWTR          DEST          FORM
PRT COPIES   LVL   USER          DEST          MAX COPIES
PRINT/CDAM PARS =
WHEN LINE 00002 - 00002 COL 00012 - 00038 PRINT  REF NXT  CT    AND/OR
STRING = GENERAL LEDGER REPORT
DO USER      = DVAC          LVL   LINE    COL    -    S    T
SYNONYM =          CONCAT =
DO NAME      = GEN LEDGER REP          LINE    COL
DO
WHEN LINE 00018 - 00020 COL 00040 - 00060 PRINT  REF NXT  CT    AND/OR
STRING = LEDGER CORRUPTION
DO SHOUT     TO OPER2          URGENCY R
            = A LEDGER CORRUPTION HAS OCCURRED IN %%JOBNAME %%DATE %%TIME
DO
    
```

In the above example, if any pages of the report contain the string LEDGER CORRUPTION in the specified page location, a Highlighted, unrollable message is displayed on the Master console (that is, the location indicated by the OPER2 specification).

Advanced Handling

In many instances, a job will produce exception messages inside a report, indicating that there are processing errors, but will not actually fail the job. Normally, these exceptions will not be noticed until the following day, when users receive reports or try to use online systems. This often means that the previous night's work must be redone, and that online systems are unavailable for users while corrective measures are being taken.

If other INCONTROL products are operational at your site, you can take advantage of their integrated architecture to perform some of the following actions, based on exception messages appearing in reports:

- Automatically execute a CONTROL-M/Analyzer rule (DO CTBRULE) to perform quality assurance checking procedures, for example, comparing totals, and so on.
- Automatically set prerequisite conditions (DO COND) that impact the processing of jobs under CONTROL-M, for example, to cause or prevent job submission.
- Automatically execute a CONTROL-O rule, for example, to suspend processing and ask the operators if they want to continue.
- Automatically execute a CONTROL-M/Links for Windows NT rule, for example, to issue a pager notification to the relevant support person indicating the nature of the problem.

Assign a Remark to a Report

You can assign a remark to a report based on the appearance of a particular string, using parameter DO REMARK. The remark can be up to sixteen characters in length, and can be displayed in the Online Viewing facility and printed on the user's report.

ON CLASS	= T	EXTWTR	DEST	FORM
PRT COPIES	LVL	USER	DEST	MAX COPIES
PRINT/CDAM	PARMS =			
WHEN LINE	00003 - 00003	COL 00010 - 00032	PRINT	REF NXT CT AND/OR
STRING	= GENERAL LEDGER REPORT			
DO USER	= DVACP	LVL	LINE	COL - S T
		SYNONYM =	CONCAT =	
DO NAME	= GEN LEDGE REP	LINE	COL	
DO				
WHEN LINE	00040 - 00040	COL 00032 - 00042	PRINT	REF NXT CT AND/OR
STRING	= UNBALANCED			
DO USER	= DVAC	LVL	LINE	COL - S T
		SYNONYM =	CONCAT =	
DO NAME	= GEN LEDGE REP			
DO REMARK	= UNBAL			
DO				

Report Decollating Mission Parameter Definition Screen (SCHED=Y)

```

----- CONTROL-D/V CATEGORY PROD JOB JOB6 -----(R. S)
COMMAND ==> SCROLL==> CRSR
+-----+
CATEGORY PROD JOBNAME JOB6 GENERI C MONI TOR
OWNER M43 TASKTYPE REP GROUP JOBI D
DESC
=====
DAYS DCAL
AND/OR
WDAYS WCAL
MONTHS 1- Y 2- Y 3- Y 4- Y 5- Y 6- Y 7- Y 8- Y 9- Y 10- Y 11- Y 12- Y
DATES
CONF CAL SHI FT RETRO N MAXWAI T OO
MI NI MUM PDS
=====
I N
WHEN I N QUEUE TIME FROM UNTI L I NTERVAL PRI ORI TY
DSN
=====
OUT
SHOUT WHEN TO URG
MSG
=====
DEF COPI ES LVL USER DEST MAX COPI ES
=====
ON
PRT COPI ES LVL USER DEST MAX COPI ES
PRINT/CDAM PARMS =
WHEN LI NE - COL - PRINT REF NXT CT AND/OR
STRING =
DO
===== >>>>>>>> END OF JOB/REPORT PARAMETERS FOR THIS CATEGORY <<<<<<< =====
FILL I N REPORT DEFINITION. CMDS: EDIT, SCHED, SHPF, PATH 11.42.50

```

Using Basic Scheduling Parameters to Determine When to Schedule the Mission

Having already filled in the General Parameters and Decollating parameters, the third set of parameters you fill in are the Basic Scheduling parameters. With these parameters, you define when the report decollating mission should be scheduled to the Active Missions file (please note that different categories of the report decollating mission can have different scheduling criteria):

Report Decollating Mission Basic Scheduling Parameters

DAYS		DCAL
WDAYS		AND/OR
MONTHS	1- Y 2- Y 3- Y 4- Y 5- Y 6- Y 7- Y 8- Y 9- Y 10- Y 11- Y 12- Y	WCAL
DATES		
CONF CAL	SHI FT	RETRO N MAXWAI T OO
MI NI MUM	PDS	

What Places the Report Decollating Mission into the Active Missions File?

A report decollating mission must be placed in the Active Missions file in order to execute. The mechanism used to place a copy of the report decollating mission definitions in the Active Missions file is the New Day procedure (CTDNDAY).

The New Day procedure calls a special scheduling program that runs independently of the CONTROL-D monitor (STC). The program can run at any time, even if the CONTROL-D monitor is not active.

The scheduling program scans and analyzes your report decollating mission library, and determines which report decollating missions should be scheduled to the Active Missions file depending on the defined Basic Scheduling Parameters. You can also specify special parameters in the list of missions to be scheduled, which can override any specified scheduling criteria. For example, the FORCE parameter ignores Basic Scheduling parameters, and always places the report decollating mission in the Active Missions file.

Methods of Scheduling Report Decollating Missions

You can invoke the scheduling program under a variety of environments (see Figure 6). Below is a list of the possible invocation environments and a description of how they work. Some of the methods detailed do not require that any Basic Scheduling parameters be coded.

- Online From the Report Decollating Mission Library

All users should use this method when testing report decollating mission definitions, or for any ad hoc type scheduling. You simply use the Online options ORDER or FORCE to specify which report decollating missions you want to place on the Active Missions file.

- CONTROL-M Automatic Scheduling

If the CONTROL-M Production Control System is active at your site, you can (and should) use it to automatically schedule your report decollating missions. Use the CATEGORY field of the CONTROL-M job scheduling definition to specify which report decollating mission Category should be scheduled. Then, when the relevant

batch job is scheduled by CONTROL-M, the CONTROL-D report decollating mission will automatically be scheduled to the Active Missions file. (Using this method, you would not need to define any Basic Scheduling parameters in the report decollating mission.)

■ Batch Execution of the Scheduling Program

You can run the scheduling program as a batch job, using procedure CTDRPDAY. The batch job will analyze the Basic Scheduling parameters of the specified report decollating missions, and schedule the relevant missions to the Active Missions file. (This method normally requires definition of Basic Scheduling parameters for each report decollating mission.) Using this method, you can invoke the scheduling program from an application batch job. This would normally be defined as the last step in the job that would schedule the report decollating mission for this job into the Active Missions file. (Using this method, you can use the FORCE parameter, and you would therefore not need to define any Basic Scheduling parameters.)

■ Using CTDNDAY

During the run of New Day procedure CTDNDAY, described in the CONTROL-D and CONTROL-V chapter of the *INCONTROL for z/OS Administrator Guide*, one of its phases is the execution of the scheduling program. During this phase, it analyzes a supplied list of report decollating missions, and determines which of them should be scheduled to the Active Missions file. (Using this method, you would normally define Basic Scheduling parameters for each report decollating mission, and would keep the report decollating mission list for CTDNDAY up-to-date.)

■ Using Scheduler Information

If you have a scheduling package, you probably want to avoid duplicating scheduling information in CONTROL-D. You can use the scheduler to control the scheduling and execution of the report decollating missions. This can be accomplished using either of two main methods:

The first method is to pass a list of scheduled jobs for a specific day from the scheduling program to the CONTROL-D New Day procedure. This would place the relevant report decollating missions into the Active Missions file. You want the report decollating mission to execute after the relevant batch jobs have created their report output, so you need to establish a trigger from the scheduler, on completion of the batch job. You can do this by adding a condition to CONTROL-D that would trigger the report decollating mission. You would specify in the report decollating mission (through the IN parameter) that the report decollating mission should wait for the condition before executing. The conditions can be added to the report decollating missions by utility IOACND, which can be executed under various environments.

The second method is to use a user exit in the scheduler software to invoke an execution of the CONTROL-D scheduling program whenever an appropriate job completes in the scheduler application. Since the scheduler knows the job has ended successfully, the report decollating mission is automatically placed in the Active Missions file and can start to execute immediately.

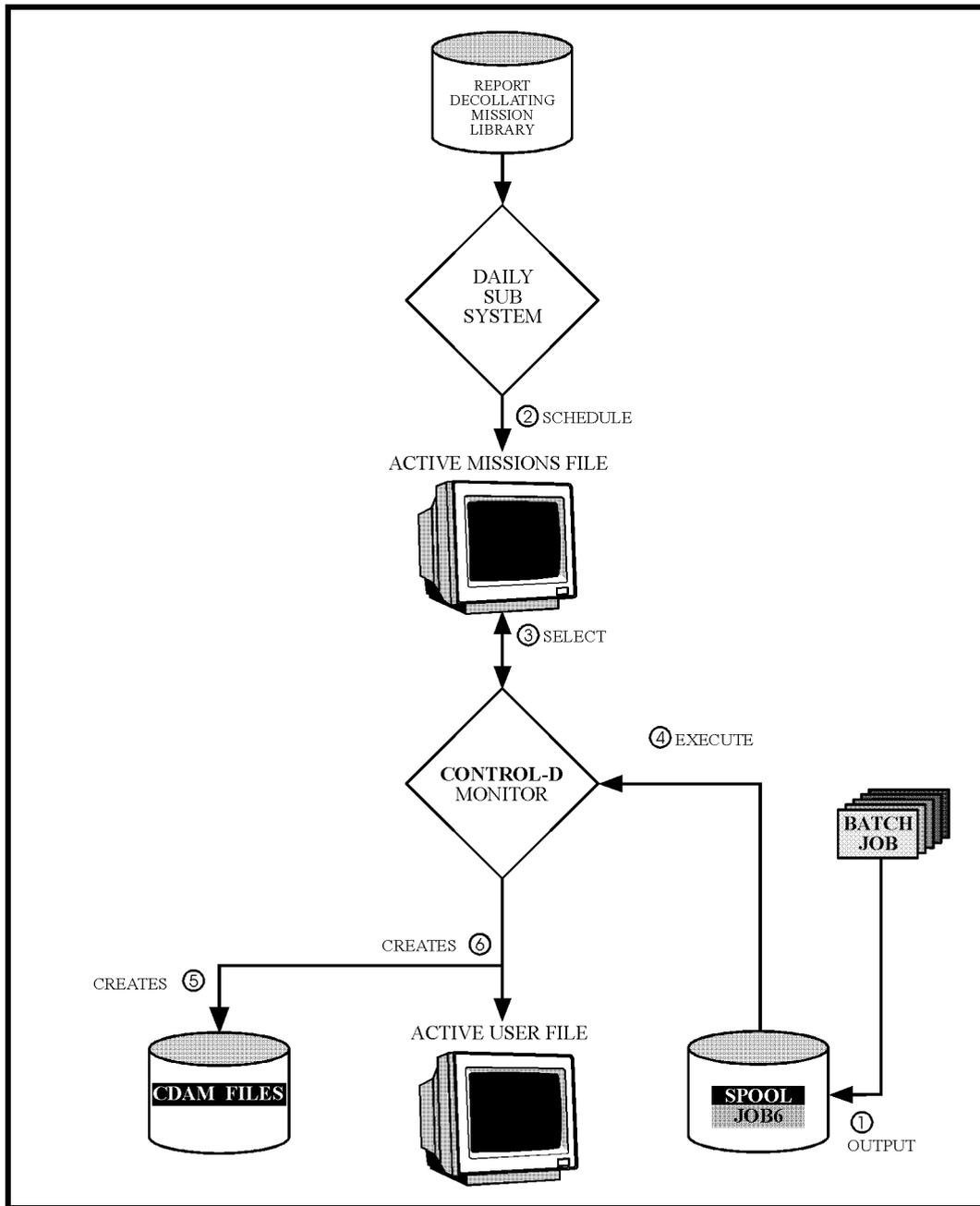
Using these methods, you do not need to define any Basic Scheduling parameters in the report decollating mission.

For users of the CA-7 scheduling software, a CONTROL-D Interface is supplied. Documentation concerning the implementation of the interface can be found in member CA7DOC in the IOA SAMPLE library.

- **CDAM Scheduling Exit (CTDX0180)**

If you implement the CDAM Direct Write feature, you can schedule report decollating missions to the Active Missions file based on the creation of a CDAM file. Using this method, you must set EXIT to YES in the CDAM parameters of the batch job's JCL. We will discuss this technique further in Phase 6. Using this method, you do not need to define any Basic Scheduling parameters.

Figure 24 Graphic Overview of Scheduling Methods



NOTE

DAILY SUBSYSTEM in the above figure refers to the New Day procedure and the programs it calls.



Scheduling Recommendations

So far, we have detailed the methods that can be used to schedule report decollating missions. Now we will list our recommendations for the use of these methods depending on the production control system that you use.

■ Sites With CONTROL-M

We recommend that sites with CONTROL-M utilize the integrated IOA capabilities to automatically schedule report decollating missions whenever the relevant jobs are scheduled by CONTROL-M. You can use a condition to trigger the execution of a scheduled report decollating mission whenever a job ends in CONTROL-M. You should run CONTROL-M and CONTROL-D in “Shared Data Base” mode to use this facility. For further details, see “Interfaces to Production Control Systems” in the CONTROL-D and CONTROL-V chapter of the *INCONTROL for z/OS Administrator Guide*.

■ Sites With Another Production Control System

■ If you have a production control system other than CONTROL-M, you probably do not want to maintain two sets of scheduling criteria (that is, scheduling criteria for the jobs in the scheduling package, and scheduling criteria in CONTROL-D for the report decollating mission definitions). If this is so, we recommend that you implement one of the following options:

- Batch Execution of the scheduling program using the FORCE option (such as a last step in the JCL procedure).
- Using Scheduler Information (for example, passing the required information to CONTROL-D).
- The CDAM Scheduling Exit.

■ Sites Without Any Production Control System

If you have no production control software, we recommend that you use one of the following methods of scheduling:

- Batch Execution of the scheduling program using the FORCE option (for example, as a last step in the JCL procedure).
- The CDAM Scheduling Exit.
- Using CTDNDAY to schedule a predefined list of report decollating missions (using basic scheduling criteria or the FORCE option; for further details see the CONTROL-D and CONTROL-V chapter of the *INCONTROL for z/OS Administrator Guide*).
- You can, of course, use any combination of scheduling techniques that particularly suit your environment.

NOTE



You should now decide your report decollating mission scheduling method.

Using Runtime Scheduling Parameters to Determine When to Execute the Mission

The fourth set of parameters you fill in are the Runtime Scheduling parameters. With these parameters, you define when (and under what conditions) the mission should execute after it has been placed in the Active Missions file.

Report Decollating Mission Runtime Scheduling Parameters

IN					
WHEN	IN QUEUE	TIME FROM	UNTIL	INTERVAL	PRIORITY
DSN					

Once all runtime criteria are fulfilled concurrently, the report decollating mission starts executing. The CONTROL-D monitor checks the Active Missions file at specified intervals (defined in member CTDPARM) to see if the specified criteria have been met.

There are two environments from which decollating may proceed – from jobs that have output written directly to CDAM datasets, and from jobs that have output written to pool. We will summarize both methods.

Jobs That Write Directly to CDAM Datasets

CDAM Parameter Requirements

IN	JOB6-CDAM-CREATED	ODAT				
WHEN IN	QUEUE N	TIME FROM	UNTIL	INTERVAL	PRIORITY	
DSN	LAST=YES					

If you use the CDAM Direct Write facility, your report decollating missions will decollate directly from the CDAM datasets. We therefore must tell the report decollating mission which compressed dataset you want to decollate.

You specify retrieval information in the DSN field so that CONTROL-D can identify which CDAM dataset you want to decollate. You do not specify the JES dataset name in this field. You use the special CDAM retrieval parameters. It is unnecessary to specify the JOBNAME retrieval parameter because, by default, CONTROL-D will look for CDAMs that match the job name of your specific report decollating mission.

BMC Software recommends that you use the retrieval statement LAST=YES when decollating from CDAM datasets. This means that you will decollate only the last CDAM datasets created by the job. If you do not use this parameter, you will be decollating all CDAM datasets that exist for the job, including those from previous runs, which for some implementations may be very useful.

You should also note that if you do not specify any other Runtime parameters, the report decollating mission will run as soon as it is placed in the Active Missions file. To avoid this, you should either define the report decollating mission so that it waits for a condition before it can execute (using the IN parameter), or schedule the report decollating mission after the CDAM dataset has been created.

Jobs That Write Output to Spool

Spool Parameter Requirements

IN						
WHEN IN	QUEUE Y	TIME FROM	UNTIL	INTERVAL	PRIORITY	
DSN						

If you are decollating output directly from spool, your report decollating missions will automatically wait for the output to appear before they start to execute (WHEN IN QUEUE parameter defaults to Y). If two or more jobs with the same job name, as specified in the report decollating mission, are found in the queue when the report decollating mission starts to execute, it will select the job that finished executing last.

Test Decollating Missions

Initial Test

Once you have defined your report decollating missions, you should test them to ensure that they decollate the report output as you expected. The best way to initially test your report decollating missions is as follows:

- Produce the report output into a Held Output Class.
- Create report decollating mission parameters.
- Schedule the report decollating mission to the Active Mission file (using the Online options).
- Execute the mission.
- Analyze the results of execution in the Active User Report List file (check the IOA log for any errors).

If any further modifications are necessary, you can simply repeat this process, working on the same Held report output until the mission is working as desired.

You should check that your decollating instructions are working correctly before adding administrative parameters such as DO BACKUP and DO PRINT. Once you are satisfied with the results of the mission, add these parameters.

Parallel Test

Once the initial test is working as desired, you can set up a parallel test of the report decollating mission against your production output. Report content often varies from day to day, and you need to ensure that your report decollating mission definitions can process the output consistently. When parallel testing your report decollating missions, you certainly do not want to interfere with any of the production reports. We therefore recommend that you create a duplicate copy of the report for CONTROL-D testing purposes.

There are several methods of doing this. We recommend that you produce a duplicate copy of the targeted reports using the JCL OUTPUT statement. This will create a duplicate copy of the reports onto a different spool class.

Using the JCL OUTPUT Statement (Recommended Method)

You can automatically create a duplicate copy of the reports as they are created.

Below is the original JCL producing one copy of the report to class X:

```
//JOB6 JOB , IOAP, CLASS=A, MSGCLASS=D
//*
//STEP1 EXEC PGM=IEBGENER
//SYSUT1 DD DI SP=SHR, DSN=IOAP. PROD. SMPREPS(REPORT1)
//SYSUT2 DD SYSOUT=X
//SYSIN DD DUMMY
//SYSPRINT DD SYSOUT=*
//
```

Below is the amended JCL, producing one copy of the report to class X for production use, and one copy to class T for CONTROL-D parallel testing purposes:

```
//JOB6 JOB , IOAP, CLASS=A, MSGCLASS=D
//*
//OUT1 OUTPUT CLASS=X
//OUT2 OUTPUT CLASS=T
//*
//STEP1 EXEC PGM=IEBGENER
//SYSUT1 DD DI SP=SHR, DSN=IOAP. PROD. SMPREPS(REPORT1)
//SYSUT2 DD SYSOUT=(, ), OUTPUT=(*.OUT1, *.OUT2)
//SYSIN DD DUMMY
//SYSPRINT DD SYSOUT=*
//
```

Creating Copies of Reports From Report Files

You can create duplicate copies of report output for testing purposes from report files by reprocessing the file and creating a copy for CONTROL-D, using utilities such as IEBGENER.

Manually Duplicating Reports

You can manually duplicate report output for testing purpose, by using JES operator commands or facilities such as SDSF.

Summary

Whatever method you choose, you should analyze the results of the decollation in the Active User Report List file to ensure that the report has been processed as required. Make sure that you check the default recipient names specified in your report decollating mission definitions (normally UNIDENT) to see if and why any report output has not been identified from your decollating instructions.

You can test the results of your report decollating missions in parallel until you get to Phase 8, when it will be time to implement them in production. At this stage, it is recommended to view all results online. When you get to Phase 4, you will start parallel testing the printed output sent to the recipients. The results of your parallel decollation will be the input for your parallel printing phase.

NOTE



You should now test your report decollating missions in parallel until you reach Phase 8.

Review

During this phase, you have learned the purpose of the decollating missions; examined the methods of scheduling a report decollating mission; reviewed the parameters of the decollating missions; and reviewed the procedures for creating and testing your report decollating mission definitions.

Before you continue, you should have:

- Decided your report decollating mission scheduling method.
- Defined report decollating missions for your selected pilot application.
- Inserted relevant synonyms in the recipient tree.
- Performed initial testing on your report decollating mission definitions.
- Set up a parallel test for your report decollating mission definitions.

Phase 4: Design Print Bundles

In this phase, we will be discussing and defining the printing missions of CONTROL-D. We will discuss the purpose of printing missions and how they work. We will review what's required to define the printing mission parameters and what options are available for designing the printed bundles produced by CONTROL-D.

If you want to implement only CONTROL-D Online Viewing services, and do not want to create printed bundles of report output on the mainframe printers, you can skip this phase. The topic of printing using the Online Viewing facility is discussed in Phase 9.

During this phase, we will summarize the printing workflow, and provide recommendations and options for the organization of your print bundles.

Some of the questions we will be answering in this phase are:

- What are printing missions?
- What do printing missions do?
- How many printing missions do I need?
- Where are printing missions defined?
- When should I print the users' reports?
- What are the parameters of the printing missions?
- What is the link between printing missions and the recipient tree?
- What is the link between printing missions and decollating missions?
- How do I control the printing process?
- How do I design the format of report bundles?
- How do I test printing missions?

Inputs

Before you start this phase you should have completed testing your report decollating missions (Phase 3).

Outputs

At the end of this phase you will have:

- Defined printing missions for the recipients of the pilot application.
- Set printing mission naming standards.
- Designed the basic format of the printed bundles.
- Initially tested your printing mission definitions.

General Information About Printing Missions

Your main task in this phase is to decide how and when report output for your users should be printed. CONTROL-D uses printing missions to create printed bundles of report output. A printing mission can bundle reports for one or more recipients.

A main objective of using CONTROL-D to control printing is to deliver all reports for a user together in one formatted printed bundle.

What Are Printing Missions?

Printing missions are the basic mechanism used by CONTROL-D for collating user reports into one print bundle, for example, if a user receives twenty reports (or parts of reports) from fifteen different batch jobs, all report output for the user is collated together and printed in one bundle. A printing mission can print reports for one or more recipients in a bundle. Parameter INCLUDE of the printing mission is used to specify which recipients' reports should be included in the bundle. By default, all reports of the recipient's children are included in the bundle, unless they are specifically excluded using parameter EXCLUDE. If no recipient names are specified, the entire recipient tree is included in the bundle. The recipient names specified are the names defined in the CONTROL-D recipient tree.

What Do Printing Missions Do?

By defining parameters in your printing mission definitions, you will supply CONTROL-D with the following information:

- Which recipients reports should be produced in a bundle.
- How the reports within the bundle should be organized.
- When the printing mission should be scheduled.
- When the printing mission should be executed.
- On which printers the bundle can be printed.

Printing Methodologies

If you are changing from a manual printing environment to CONTROL-D, it is important that you understand the difference between the methodologies of each system. Implementing CONTROL-D will improve and optimize the sequence of the printing flow. New considerations are introduced for planning the printing workload.

Manual Printing Method

A manual printing system more than likely operates on a first-come-first-serve basis, that is, reports are printed in the sequence they are produced by batch jobs. Some sites use output print priorities to override this printing order but normally only a few critical reports, if any, are targeted. The report output is produced to spool where it waits until an appropriate printer becomes available. The reports are then printed. The operator splits the printed bundle at the job level (this may be done automatically depending on printer technology).

The reports are then passed to the person responsible for distribution. The distribution phase consists of splitting and assigning reports to the relevant recipients based on documented distribution instructions. Each recipient is allocated a holding area (“pigeon hole”) where the manually processed reports are stacked as they are handled. At a predetermined time, the contents of the pigeon hole are prepared for dispatch. The packaged reports are then delivered by couriers or post to the recipients.

CONTROL-D Printing Method

Using CONTROL-D, this methodology is revolutionized. Reports are decollated automatically as they are created, eliminating the manual splitting and assignment process. The spool is no longer used as a holding area for reports that are in queue for printers. Reports for recipients are automatically bundled together by the printing missions and output is optionally “chunked” to spool for printing (avoiding spool overload). The recipient bundles are then printed and are ready for dispatch.

Comparison

The splitting and assignment of reports in a manual environment is equivalent to the CONTROL-D decollation process. Placing reports in physical pigeon holes is equivalent to the automatic bundling process of CONTROL-D. Below is a comparison of the two methods:

Table 26 Comparison of Manual Report Breakdown to CONTROL-D Decollation

Manual Method	CONTROL-D Method
Batch job produces reports to spool.	Batch job produces reports.
Reports are printed as they are created.	Reports are automatically decollated.
Reports are manually split and assigned to recipients.	Recipient bundles are printed.
Reports are stacked awaiting dispatch.	Recipient bundles are dispatched.
Reports are packaged and dispatched.	

This change in printing methodology means that you may now have to reexamine the timing of printing in your environment to ensure that print bundles meet required dispatch deadlines. Towards this goal, you must time the printing of user output, carefully considering the entire printing workload.

When Should I Create the Print Bundles?

This is one of the most important decisions you will have to make during this phase. The decision depends on two main factors:

- Number of volumes of printed output you produce in relation to your printer resources.
- Time frames involved between the creation of reports and their dispatch deadlines.

Using printing mission parameters, you can specify time and event dependency information for creating print bundles. These parameters can be used to control the exact point at which a printing mission should be executed.

Occasions may arise (due to resource constraints) where you cannot meet a dispatch deadline if you wait until all of a recipient's reports are created before you start to print them. This may be caused by large print volumes or batch jobs executing close to report dispatch times. In these cases, you may have to perform two bundling runs for the same recipient in order to meet the dispatch deadline, for example, one that prints the bulk of reports that have been created for a user so far, and one that creates a second bundle for the user's reports that are produced later.

Link the Report Decollating Mission With Printing Missions

Using report decollating mission parameters, you specify the name of the printing mission (DO PRINT = mission_name), which should print each assigned report. You can also override the original printing characteristics of each assigned report using the PRINT/CDAM parameter.

Report Decollating Mission Example

```

ON CLASS      = T          EXTWTR          DEST          FORM
PRT COPIES   LVL   USER          DEST          MAX COPIES
PRINT/CDAM   PARS = SYSOUT=P, CHARS=SP12
PRINT/CDAM   PARS =
WHEN LINE    -          COL          -          PRINT   REF NXT   CT          AND/OR
STRING =
DO USER      = *          LVL   LINE 006 COL 016 - 019 S A T
DO NAME      = ACCOUNTS SUMMARY          LINE 003 COL 035 - 043
DO PRINT     = STD          COL          -
DO
=====
    
```

Link the Recipient Tree With Printing Missions

The recipient tree supplies the following information to CONTROL-D:

- What address information should be printed for each recipient in the bundle.
- If an index of reports should be printed for a recipient.
- Which banner pages should be printed (at the recipient level).
- What is the default destination for the report bundle (if not a local main printer).
- Recipient bundle default sorting capability.

Definition Screen for Recipient BR11

```

----- CONTROL-D RECIPIENT DEFINITION -----(T. S)
COMMAND ===>                                SCROLL===> CRSR
+-----+
RECIPIENT BR11          RECIPIENT LEVEL 25    PARENT OPSADMIN    PARENT LEVEL 10
DESC THIS IS THE BRANCH MANAGER IN MIAMI
DESC
=====
SYNONYM 1001
SYNONYM BRANCH-11-MIAMI
SYNONYM BRNCH 11
SYNONYM BRAN11MI
SYNONYM ACCMIAMI
SYNONYM
AUTHORIZE                $SYSDATA
ADDRESS MRS. ROBINSON
ADDRESS BRANCH MANAGER
ADDRESS BRANCH 11
ADDRESS 110 GLENDALE DRIVE
ADDRESS MIAMI
ADDRESS MI 40 4PP
ADDRESS
=====
INDEX Y                USER BANNER Y                REPORT BANNER Y
DEF DEST
=====
                                P C P A R A M E T E R S
AUTHORIZED N
===== >>>>>>>>>> END OF RECIPIENT DEFINITION PARAMETERS <<<<<<<<<<<< =====
FILL IN RECIPIENT DEFINITION.                                17.45.40

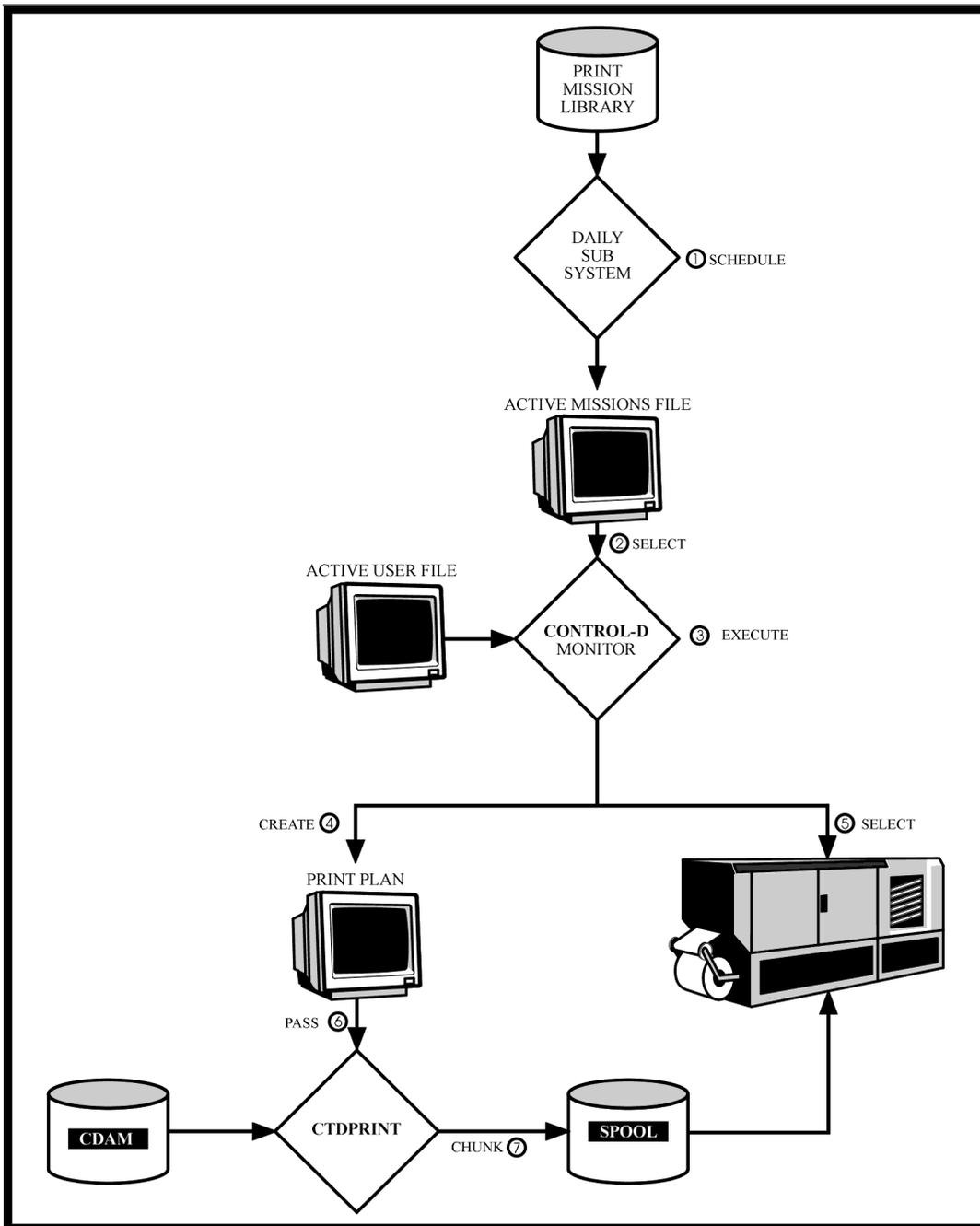
```

You have already defined address information for the recipients during Phase 2. In this phase we will examine how that information can be used by a printing mission and how the other tree parameters affect the users' printed bundle.

Where Are Printing Missions Defined?

You define printing missions using the Online facility (Option M in the IOA Primary Option menu). The definitions are stored as members of a partitioned dataset (PDS) in the CONTROL-D printing missions library. Use the formatted Printing Mission Definition screen to define your parameters:

Figure 25 Printing Mission Workflow



NOTE

DAILY SUBSYSTEM in this figure refers to the New Day procedure and the programs it calls.



Schedule Printing Missions to the Active Missions File

A printing mission must be placed in the Active Missions file in order to execute. The mechanism used to place a copy of printing mission definitions in the Active Missions file is a special scheduling program called by the New Day procedure (CTDNDAY).

The scheduling program scans your printing mission library and determines which printing missions should be scheduled to the Active Missions file, based on the defined Basic Scheduling parameters.

Select Printing Missions for Execution

The CONTROL-D monitor analyzes the Active Missions file at the interval specified in installation parameter INTERVALD in member CTDPARM, and selects missions for execution once all runtime dependencies have been met.

The CONTROL-D monitor analyzes the Runtime Scheduling parameters of the printing mission to determine when the mission should be executed. You can specify dependency information and time specifications to control exactly when the printing mission should execute.

Execute Printing Mission Instructions

The CONTROL-D monitor executes printing mission instructions. These instructions specify which recipients' reports should be included in the print bundle for this mission. Once a report has been decollated by CONTROL-D, the report is available for printing. The decollating mission creates entries in the Active User Report List file.

Use report decollating mission parameter DO PRINT to specify which printing mission should print the user's report. The created entries in the Active User Report List file have a Wait Print status and are marked with the name of the assigned printing mission, as shown in the following screen.

ACTIVE LIST	<A> JOB M90	REP	USR	CHILD (U)
COMMAND ===>				SCROLL===> CRSR
0 USER	REPORT NAME	JOB	JOB-NUM	CATEGORY
BR11	ALL 100 ACCTS	M90TEST	JOB 9381	TEST1
Ordered:	06/04/00	Run:	00:00 To: 00:00	Decollated: 06/04/00 11:10
Status :	Wait print	Remark :		View: V
Copies :	000 Form : STD	Class: D	P-	9 L- 427
Dest:		WTR:	Note:	
Record ID	: 3AC09709	RBA:	UPDT:	
Print Missions :	LAS132			
Restore Mission :				
Pagedef:	Formdef:	Output:	Chars:	
Additional Users :				
----- end of record -----				
BR12AD	HIGH ACCTS REP	M90TEST	JOB 9381	TEST1
Ordered:	06/04/00	Run:	00:00 To: 00:00	Decollated: 06/04/00 11:10
Status :	Wait print	Remark :	UNBAL	View:
Copies :	000 Form : STD	Class: D	P-	3 L- 181
Dest:		WTR:	Note:	
Record ID	: 3AC09707	RBA:	UPDT:	
Print Missions :	STDRUN1 STDRUN2			
Restore Mission :				
Pagedef:	Formdef:	Output:	Chars:	
Additional Users :				
----- end of record -----				

Bundle Selection Criteria

Two main checks are performed by CONTROL-D when deciding which reports to include in a print bundle.

- Only reports for the specified recipient or recipients will be analyzed for inclusion in the print bundle. The specifications in parameter INCLUDE/EXCLUDE of the printing mission tell CONTROL-D which recipients to include in the bundle.
- Only reports with a matching printing mission name will be selected. CONTROL-D scans the Active User Report List file and analyzes the reports of the specified recipients. All reports for these recipients that have a printing mission name that matches the executing mission will be selected for this bundle (that is, all reports assigned by parameter DO PRINT in the report decollating mission definition).

Pass Information to CTDPRINT

The selected printer and print plan information are then passed to the CONTROL-D Printers Control monitor (CTDPRINT). The Printers Control monitor runs as a started task (STC) and actually controls the physical printing phase.

Print Output

There are two methods of printing output that can be used by CONTROL-D:

Multi-Chunk Method

If you choose the Multi-Chunk Method, you must allocate the printer solely for CONTROL-D use. This is achieved by specifying a unique destination id for each mainframe printer. When you want to print CONTROL-D bundles using the chunking mechanism, assign the printer for CONTROL-D use. You issue a JES operator command specifying the CONTROL-D destination code.

One-Chunk Method

If you select the One-Chunk Method, do not assign the printer specifically for CONTROL-D use. Instead, the entire print bundle will be sent to spool and will wait along with your other output to be printed as usual.

Define Printing Missions

The number of printing missions you define is dependent on the number of print bundles you want to create (as detailed in [“Printing Mission Naming Standards” on page 139](#)). For each printing mission, multiple categories can be defined.

You define the required printing mission parameters using the formatted screens of the CONTROL-D Online facility. The definitions that you create are saved in the CONTROL-D printing missions library. Note that because the definitions are saved in a partitioned dataset, you should ensure that the partitioned dataset is backed up regularly. This protects against the loss of your definitions due to some type of system error.

This section contains recommendations regarding specific parameters that you will define in your printing mission definitions. Following is a summary of the information that you will specify:

- General Parameters
- Information (Bundling Parameters)
- Printing Parameters
- Scheduling Parameters
- Post-Processing Parameters

Printing Mission Definition Screen

```

---- CONTROL-D CATEGORY          PRT MISSION          ----- (M. S)
COMMAND ==>                      SCROLL==>  CRSR
+-----+-----+-----+-----+
CATEGORY                          MISSION              MONITOR
OWNER                             GROUP
BATCH                             FREE                 TIMEOUT
OVERRIDE CLASS                   DEST                 EXTWTR              FORM
WRITER OPTION
DESC
=====
INCLUDE USER
EXCLUDE USER
SORT PARAMETERS: 1-USER 2-JOB 3-REPORT NAME 4-CATEGORY 5-LEVEL 6-TREE
                  7-FORMS 8-CHARS 9-MODIFY T-TIME/DATE E-USER DEFINED
ENTER SORT SEQ :
=====
DAYS                                DCAL
                                      AND/OR
WDAYS                                WCAL
MONTHS 1- Y 2- Y 3- Y 4- Y 5- Y 6- Y 7- Y 8- Y 9- Y 10- Y 11- Y 12- Y
DATES
CONFCAL                            SHI FT  RETRO  MAXWAIT
MINIMUM                             PDS
=====
IN
TIME FROM          TO          NOT LATER THAN          PRIORITY
ON PAGE#          ON LINE#          INTERVAL
=====
OUT
SHOUT WHEN          TO          URGN
MSG
PRINTER            DEST            CHUNKSI ZE
ON FORM
REQUEST
=====
STORE              BACKUP              MI GRATE
===== >>>>>> END OF PRINTING MISSION PARAMETERS OF THIS CATEGORY <<<<<< =====
PLEASE FILL IN MISSION PARAMETERS. USE "SHPF" TO SEE PFK DEFINITION 12.31.32
    
```

Printing Mission Parameters

Parameters that are mainly used to specify printing operations are described below. A detailed explanation is provided in the printing, backup and restore mission parameters chapter of the *CONTROL-D User Guide*.

General Parameters

The first set of parameters you specify are the General parameters. You use these parameters to define general information about the mission, much of which can be used for tracking and control purposes.

General Parameters

CATEGORY		MISSION	MONITOR
OWNER	TASKTYPE	GROUP	
BATCH	SKELETON	FREE	TIMEOUT
OVERRIDE CLASS	DEST	EXTWTR	FORM
STARTED	ODATE	MAXWAIT	
WRITER OPTION			
DESC			

MISSION Recommendations

We recommend that you develop a standard for your printing mission names, as detailed later in “Printing Mission Naming Standards.” The printing mission name usually reflects the physical attributes of the print bundle.

CATEGORY Recommendations

We recommend that you develop a standard for your category names, as detailed in “Printing Mission Naming Standards.” The category name usually reflects the contents of the bundle. You can use parameter `CATEGORY` to create multiple definitions for the same printing mission name.

Bundling Parameters

The next set of parameters you specify are the Bundling Parameters. You use these parameters to define information about which recipients' reports will be included in the bundle and how the reports should be organized.

Bundling Parameters

```

I INCLUDE USER
EXCLUDE USER
SORT PARAMETERS: 1-USER 2-JOB 3-REPORT NAME 4-CATEGORY 5-LEVEL 6-TREE
                  7-FORMS 8-CHARS 9-MODIFY T-DECOL TIME E-USER DEFINED
ENTER SORT SEQ :
```

Parameters INCLUDE and EXCLUDE

These parameters specify which recipients' reports should be included in the bundle. If you specify a recipient name in the INCLUDE parameter, by default all reports for this user and any of the user's children (linked by the PARENT field in the recipient tree) will also be included in the bundle (unless you specify an EXCLUDE).

You can include or exclude as many recipients as you want. In most cases, the hierarchical format of the recipient tree reflects the physical destination and grouping of users. This assists in defining printing missions where we can specify the "top" group user and by default include all related users.

Example 1

To include reports for a specific recipient (and by default all their children) the following definition could be used:

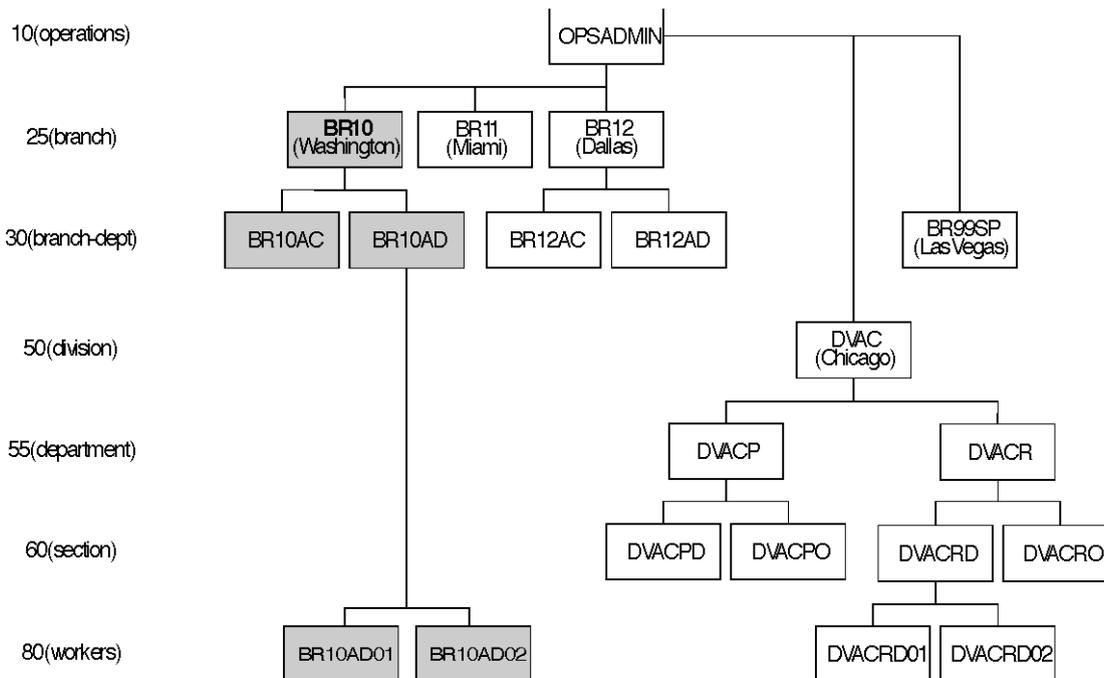
Sample Bundling Definition

```

I INCLUDE USER BR10
I INCLUDE USER
EXCLUDE USER
SORT PARAMETERS: 1-USER 2-JOB 3-REPORT NAME 4-CATEGORY 5-LEVEL 6-TREE
                  7-FORMS 8-CHARS 9-MODIFY T-DECOL TIME E-USER DEFINED
ENTER SORT SEQ :
=====
```

The following users' reports (indicated as shaded) would be bundled from our sample recipient tree for the above definition:

Figure 26 Users Whose Reports Are Bundled - Example 1



Example 2

If you want to exclude a specific recipient from the bundle, use parameter EXCLUDE. Any reports for the excluded user and the user's children (that is, users linked by the PARENT field) will, by default, be excluded from the bundle (unless you specify an INCLUDE).

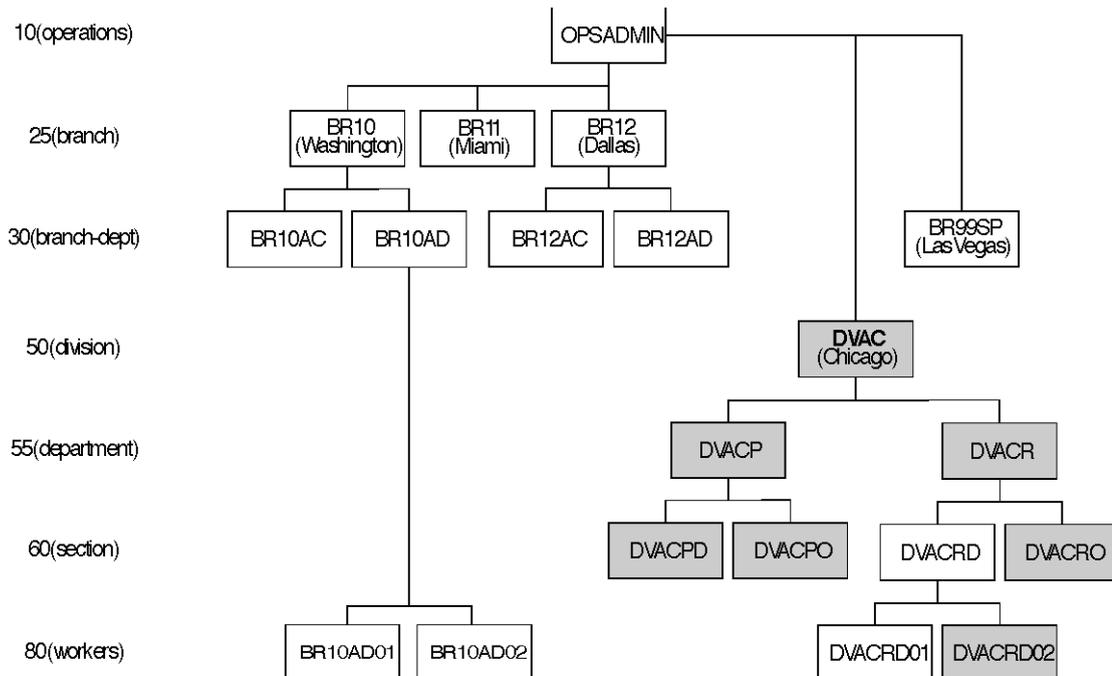
Sample Bundling Definition

```

INCLUDE USER DVAC
INCLUDE USER DVACRD02
INCLUDE USER
EXCLUDE USER DVACRD
EXCLUDE USER
SORT PARAMETERS: 1-USER 2-JOB 3-REPORT NAME 4-CATEGORY 5-LEVEL 6-TREE
                  7-FORMS 8-CHARS 9-MODIFY T-DECOL TIME E-USER DEFINED
ENTER SORT SEQ :
```

The following users' reports (indicated as shaded) would be bundled from our sample recipient tree for the above definition:

Figure 27 Users Whose Reports Are Bundled - Example 2



Parameter SORT

Parameter SORT instructs CONTROL-D how the reports for the recipients in this bundle should be organized for example, sorted by user name (recipient tree order – Option 6), sorted by user name (alphabetically – Option 1), sorted by report name, and so on.

The default is to sort by tree and then by report name.

Sample Definition

```

INCLUDE USER BR10
INCLUDE USER
EXCLUDE USER
SORT PARAMETERS: 1-USER 2-JOB 3-REPORT NAME 4-CATEGORY 5-LEVEL 6-TREE
                  7-FORMS 8-CHARS 9-MODIFY T-DECOL TIME E-USER DEFINED
ENTER SORT SEQ : 1, 3
    
```

The above example will sort the bundle primarily by recipient name and then, within each recipient bundle, by report name.

Printing Parameters

The next set of parameters you specify are the Printing Parameters. You use these parameters to define information about where and how to print the bundle.

Printing Parameters

PRI NTER ON FORM REQUEST	DEST	CHUNKSI ZE

STORE	BACKUP	MI GRATE

Parameter PRINTER

Once the print plan has been created, CONTROL-D searches for a “free” printer in order to print the bundle. You specify potential printers using the PRINTER field of the printing mission parameters.

Sample Definition

PRI NTER PRT4	DEST	CHUNKSI ZE
PRI NTER PRT5	DEST	CHUNKSI ZE
PRI NTER	DEST	CHUNKSI ZE
ON FORM REQUEST		

STORE	BACKUP	MI GRATE

The printer names specified in this parameter must be defined in the PRINTER parameter in member CTDPARM in the IOA PARM library. For details, see the *INCONTROL for z/OS Installation Guide*. Using this parameter, you specify the default values for each printer, such as a destination code, relative printer speed, printer disposition (OPEN or CLOSED), and default chunk size.

Note that you should only define the mainframe printers (not remote printers) in this member.

If you do not specify any printer name in the printing mission parameters, CONTROL-D will select (from the list of defined printers) the fastest printer (determined by the Relative Printing Speed parameter) that is OPEN (set by the default Printer Disposition parameter or overridden by an operator command) and currently available to CONTROL-D (that is, not in use). We recommend that you define your printers as OPEN during the installation process. This will save you from specifying operator commands to CONTROL-D to logically open and close printers when you want to print.

Parameter CHUNKSIZE

Parameter CHUNKSIZE of the printing mission can be used to override the default CHUNKSIZE specified in member CTDPARM (as detailed previously).

There are two methods of printing output that can be used by CONTROL-D:

- Multi-Chunk
- One Chunk

The Multi-Chunk Method

If one of your objectives for the implementation was to reduce the size of the spool area, you will want to use the Chunking mechanism.

This means that CONTROL-D does not send the entire print bundle to spool to await printing, but rather sends a chunk of the bundle to spool to print – when the first chunk has printed, it sends another chunk, and so on. This way we can avoid using the spool as a pre-print holding area and only send output as it is required to print.

Let's say we have a print bundle that consists of 200,000 lines of output. If we sent this output to spool for printing in its entirety, it would take up a large area of spool space. It would be preferable to send the output in chunks of 10,000 lines, as required by the printer, thus avoiding using the spool as a report repository.

You can specify a default CHUNKSIZE to be used for each printer in the member CTDPARM. You can override this default for each specific printing mission using the CHUNKSIZE parameter.

When using the Multi-Chunk Method, the printing characteristics of the reports to be printed can be mixed. Each time the printing characteristics change, CONTROL-D automatically creates a new chunk.

One-Chunk Method

If you do not want to use the Multi-Chunk Method, you can specify a CHUNKSIZE of zero in member CTDPARM for the printer, or override the default for each printing mission using the CHUNKSIZE parameter. You do this by specifying 0 for CHUNKSIZE.

When using the One-Chunk Method, CONTROL-D sends all the output to be printed in one chunk to the spool, regardless of its size.

If the bundle contains reports with different printing characteristics, the characteristics of the first report are used as a default for all reports in the bundle. If you want to print bundles containing mixed printing characteristics, you must use the Multi-Chunk Method.

Parameter DEST

Parameter DEST can be used to specify a remote printer destination. For further details, see the discussion about specifying report destinations in the implementation hints chapter of the *CONTROL-D User Guide*.

Printer Assignment

If you use the Multi-Chunk Method, allocate the printer solely for CONTROL-D use. This is achieved by specifying a unique destination id for each mainframe printer. When you want to print CONTROL-D bundles using the chunking mechanism, you must assign the printer for CONTROL-D use. This is achieved by issuing a JES operator command specifying the CONTROL-D destination code.

Sample JES2 Command

```
$TPRT2, S=N, R=U1002, Q=ABCD, SEPDS=N
```

Sample JES3 Command

```
*X WTR OUT=U1002, H=N, B=N, WC=Q
*S U1002
```

Using the One-Chunk Method, you do not have to assign the printer specifically for CONTROL-D use. Instead, the entire print bundle will be sent to spool and will wait along with your other output to be printed as usual.

Scheduling Parameters

Recommended scheduling parameters are explained below. For a detailed explanation, see the printing, backup, and restore mission parameters chapter in the *CONTROL-D User Guide*.

Scheduling parameters fall into two groups, each group referring to a particular section of printing mission parameters (sections are separated by a double dash (=) line):

- Basic Scheduling parameters - When to scheduling the mission.
- Runtime Scheduling parameters - When to execute the mission.

The following topics discuss these two groups of Scheduling parameters.

Using Basic Scheduling Parameters to Determine When to Schedule the Mission

The next set of parameters you specify are the Basic Scheduling parameters. Now you define information about when to schedule the mission to the Active Missions file.

Different categories of the printing mission can be set up, and can have different scheduling criteria (for example, the printing priorities or dependencies for the mission may change for the month's end run).

Basic Scheduling Parameters

DAYS		DCAL
		AND/OR
WDAYS		WCAL
MONTHS	1- Y 2- Y 3- Y 4- Y 5- Y 6- Y 7- Y 8- Y 9- Y 10- Y 11- Y 12- Y	
DATES		
CONF CAL	SHI FT	RETRO N MAXWAI T OO
MI NI MUM	PDS	

What Places the Printing Mission in the Active Missions File?

A printing mission must be placed in the Active Missions file in order to execute. The mechanism used to place a copy of the printing mission definitions in the Active Missions file is the New Day procedure (CTDNDAY).

The New Day procedure calls a special scheduling program that runs independently of the CONTROL-D monitor (STC). The program can run at any time, even if the CONTROL-D monitor is not active.

The scheduling program scans and analyzes your printing mission library and determines which printing missions should be scheduled to the Active Missions file depending on the defined Basic Scheduling parameters. You can also specify special parameters in the list of missions to be scheduled, which can override any specified scheduling criteria. For example, parameter FORCE ignores the Basic Scheduling parameters and always places the printing mission in the Active Missions file.

Methods of Scheduling Printing Missions

You can invoke the scheduling program under a variety of environments. Below is a list of the possible invocation environments and a description of how they work.

- Online From the Printing Mission Library

All users will use this method for “ad hoc” scheduling or testing. You simply specify, using the online options, which printing missions you want placed in the Active Missions file.

■ Batch Execution of the Scheduling Program

You can run the scheduling program as a batch job, using procedure CTDPRDAY. The batch job will analyze the Basic Scheduling Parameters of the specified printing missions and schedule the relevant missions in the Active Missions file.

■ Using Procedure CTDNDAY (Recommended Method)

During the run of the New Day procedure CTDNDAY, as explained in the CONTROL-D and CONTROL-V chapter of the *INCONTROL for z/OS Administrator Guide*, one of its phases is an execution of the scheduling program. During this phase, a supplied list of printing missions is analyzed and which missions should be scheduled to the Active Missions file is determined.

We recommend that initially you schedule your printing missions on an “ad hoc” basis to compare your print bundles in parallel. You will implement your chosen scheduling method during Phase 8.

NOTE

You should now decide your printing mission scheduling method.



Using Runtime Scheduling Parameters to Determine When to Execute the Mission

The next set of parameters you specify are the Runtime Scheduling parameters. You now define information about when the mission should execute after it has been placed in the Active Missions file.

Runtime Scheduling Parameters

IN TIME FROM ON PAGE#	TO	NOT LATER THAN ON LINE#	PRI OR I T Y I N T E R V A L	N E X T T I M E
-----------------------------	----	----------------------------	---------------------------------	-----------------

When all Runtime parameters are fulfilled concurrently, the printing mission starts executing. The CONTROL-D monitor checks the Active Missions file at specified intervals (defined in member CTDPARM) to see if the specified criteria have been met. You can specify dependency information to the printing mission using parameter IN.

Example 1

The following definition specifies that the printing mission for the Accounts recipients should not run until all of the Accounts application's decollating missions have run. This ensures that all of the account application's reports are included in the recipients' bundles.

IN	PAC102-DEC-OK	ODAT	PAC106-DEC-OK	ODAT
IN	PAC107-DEC-OK	ODAT	PAC108-DEC-OK	ODAT
IN	PAC109-DEC-OK	ODAT		
TIME FROM	TO	NOT LATER THAN	PRI OR I TY	
ON PAGE#		ON LI NE#	I N T E R V A L	N E X T T I M E

Example 2

In the next definition, we use parameter NOT LATER THAN to specify a cutoff time when the mission should no longer wait for conditions. The Account's application is only halfway through its schedule when you need to start printing reports to meet your dispatch deadlines. Therefore, you specify a NOT LATER THAN time of 0500. Even if the relevant conditions have not been added by the decollating missions, the printing mission will start executing to print the reports produced so far.

IN	PAC102-DEC-OK	ODAT	PAC106-DEC-OK	ODAT
IN	PAC107-DEC-OK	ODAT	PAC108-DEC-OK	ODAT
IN	PAC109-DEC-OK	ODAT		
TIME FROM	TO	NOT LATER THAN 0500	PRI OR I TY	
ON PAGE#		ON LI NE#	I N T E R V A L	N E X T T I M E

Using Post-Processing Parameters to Determine What to Do Upon Termination of the Mission

The next set of parameters you specify are the Post-Processing parameters.

Post-Processing Parameters

OUT				
SHOUT WHEN LATE	2100		TO TS0-TS016	URGN V
MSG LAS132 FOR DALLAS-BRANCH IS LATE FOR PRINTING - PLEASE CHECK				

You now define information about what to do when the mission finishes executing.

SHOUT Recommendations

We recommend that you use the Shout facility for exception handling (that is, when a mission fails or is late for execution). You should try to avoid sending “comforting” messages indicating that all your printing missions have worked successfully as these may obscure any real exceptions that might occur in CONTROL-D.

You can use parameter SHOUT WHEN LATE as a check pointing mechanism. You can specify times by which a printing mission should finish executing. If the mission does not finish executing by the specified time, you can alert someone to this fact. If printing does not start by a specific time, you may end up with too much printing to do to meet your dispatch deadlines. Using this facility you can start to be proactive (that is, solve a problem before it occurs using early warning indicators) rather than reactive (as when you try to solve the problem after it has occurred) in problem solving.

Cyclic Printing Missions

The printing missions we have discussed so far are standard printing missions that are scheduled to the Active Missions file and are executed once (unless manually rerun).

You can define a printing mission as being cyclic by defining the task type as CPR. This means that the mission can have multiple executions rather than one. The flow of a cyclic mission is that the mission is scheduled to the Active Missions file and executes at a specific point based on time and dependency parameters (specified in the Runtime Scheduling Parameters). When the mission completes, it is rescheduled for another potential execution. Using this method, a printing mission can have multiple executions.

Example 1

In the definition below we specify that the printing mission should print all reports created for the Development Department at a two-hour interval between 0900 and 18:45 (that is, between 9:00 AM and 6:45 PM). Please note that the interval specified starts from the time that the printing mission last finished, that is, if the first cyclic run ended at 0905 then the next run starts at 1105.

```

----- CONTROL-D CATEGORY NORTH-COURIER          PRT MISSION STD          -----(M. S)
COMMAND ==>                                     SCROLL==> CRSR
+-----+
CATEGORY DEVELOPMENT-DEPT                      MISSION LAS132          MONITOR
OWNER      M90                                TASKTYPE CPR           GROUP   DEV
BATCH                                           SKELETON              FREE
OVERRIDE CLASS                               DEST                   EXTWTR          TIMEOUT
STARTED                                         ODATE                 MAXWAIT        FORM
WRITER OPTION
DESC      PRINTS ALL REPORTS FOR DEVELOPMENT DEPARTMENT EVERY TWO HOURS
DESC
=====
INCLUDE USER DVDV
INCLUDE USER
EXCLUDE USER
SORT PARAMETERS: 1-USER 2-JOB 3-REPORT NAME 4-CATEGORY 5-LEVEL 6-TREE
                  7-FORMS 8-CHARS 9-MODIFY T-DECOL TIME E-USER EXIT
ENTER SORT SEQ :
=====
DAYS      ALL                                  DCAL
                                                AND/OR
WDAYS                                           WCAL
MONTHS    1- Y 2- Y 3- Y 4- Y 5- Y 6- Y 7- Y 8- Y 9- Y 10- Y 11- Y 12- Y
DATES
CONFCAL          SHIFT  RETRO N MAXWAIT 00
MINIMUM          PDS
=====
IN
TIME FROM 0900 TO 1845 NOT LATER THAN          PRIORITY
ON PAGE#              ON LINE#              INTERVAL 120          NEXT TIME
=====
OUT
SHOUT WHEN                TO                URGN
MSG
PRINTER                    DEST                CHUNKSI ZE
ON FORM
REQUEST
=====
STORE          BACKUP          MI GRATE
===== >>>>>> END OF PRINTING MISSION PARAMETERS OF THIS CATEGORY <<<<<< =====
PLEASE FILL IN MISSION PARAMETERS. USE "SHPF" TO SEE PFK DEFINITION    12.31.32

```

Example 2

In this example, we specify that the printing mission should run every time a Director's report is created. The condition is added by the decollating missions that handle the Directors' reports. Using a condition to trigger a cyclic printing mission is a powerful way of linking "ad hoc" report creation events to printing events.

```

----- CONTROL-D CATEGORY DEVELOPMENT-DEPT      PRT MISSION LAS132      -----(M. S)
COMMAND ==>                                     SCROLL==> CRSR
+-----+
CATEGORY DEVELOPMENT-DEPT                      MISSION LAS132      MONI TOR
OWNER      M90                TASKTYPE CPR          GROUP   DEV
BATCH      SKELETON
OVERRIDE CLASS          DEST          EXTWTR          TIMEOUT
STARTED          ODATE          MAXWAIT
WRITER OPTION
DESC        PRINTS REPORTS FOR DIRECTORS AS SOON AS THEY ARE CREATED
DESC
=====
I INCLUDE USER DI RBR
I INCLUDE USER
EXCLUDE USER
SORT PARAMETERS: 1-USER 2-JOB 3-REPORT NAME 4-CATEGORY 5-LEVEL 6-TREE
                  7-FORMS 8-CHARS 9-MODIFY T-DECOL TIME E-USER EXIT
ENTER SORT SEQ :
=====
DAYS      ALL                                DCAL
                                                AND/OR
WDAYS                                WCAL
MONTHS    1- Y 2- Y 3- Y 4- Y 5- Y 6- Y 7- Y 8- Y 9- Y 10- Y 11- Y 12- Y
DATES
CONF CAL          SHI FT      RETRO N MAXWAIT 00
MI NI MUM        PDS
=====
IN          DI RECTOR-REP-DEC-OK  ODAT
TIME FROM    TO      NOT LATER THAN      PRI ORI TY
ON PAGE#     ON LI NE#          I NTERVAL          NEXT TIME
=====
OUT          DI RECTOR-REP-DEC-OK  ODAT -
SHOUT WHEN          TO          URGN
MSG
PRI NTER          DEST          CHUNKSI ZE
ON FORM
REQUEST
=====
STORE          BACKUP          MI GRATE
===== >>>>>> END OF PRINTING MISSION PARAMETERS OF THIS CATEGORY <<<<<< =====
PLEASE FILL IN MISSION PARAMETERS. USE "SHPF" TO SEE PFK DEFINITION      12.31.32

```

If you use a condition to trigger a cyclic mission, make sure that you delete the condition (using parameter OUT) at the completion of the mission. Otherwise, your mission will try to execute continuously.

Special Printing Missions

You can use the printing mission specification in the report decollating mission parameters to specify multiple printing mission names. One use of this facility is to set up “special” printing missions.

Example

Let's say that the printing workload is behind schedule. You know that by running your normal printing missions, not all the high priority or critical reports for various recipients will be printed in time.

The solution to this problem would be to define a special printing mission that will print all the critical reports. All critical reports would have the following Report Decollating Mission DO PRINT parameters defined:

Sample Report Decollating Mission

ON CLASS	= T	EXTWTR		DEST	FORM
PRT COPIES	LVL USER			DEST	MAX COPIES
PRI NT/CDAM	PARMS =				
WHEN LINE	006 - 006	COL 016 - 019	PRI NT	REF NXT	CT AND/OR
STRING	= 1001				
DO USER	= BR11		LVL LINE	COL -	S T
			SYNONYM =	CONCAT =	
DO NAME	= I NVENTORY-FOR-1001		LINE	COL	
DO PRI NT	= STD SPECIAL			MUST =	
DO					
WHEN LINE	006 - 006	COL 016 - 019	PRI NT	REF NXT	CT AND/OR
STRING	= 1002				
DO USER	= BR12		LVL LINE	COL -	S T
			SYNONYM =	CONCAT =	
DO NAME	= I NVENTORY-FOR-1002		LINE	COL	
DO PRI NT	= STD			MUST =	
DO					

Normally an STD (Started Task) printing mission will be run to print these reports. In times when the printing workload affects critical printing you can run the special printing mission to select only the critical reports. The STD mission can be run later to bundle and print the other reports that are noncritical and still waiting to be printed.

Printing Mission Naming Standards

When deciding how to organize the structure of the printing missions, we use two key parameters to help us identify and control the print bundles. They are the Printing Mission Name and Category Name parameters.

When deciding how the printing missions should be organized, the following main topics should be taken into consideration:

- Physical printing constraints
- Bundle contents constraints
- Workload constraints

Establishing printing mission naming standards will assist you in dealing with these constraints. We will analyze the impact of each constraint and suggest a standard that will enable us to deal effectively with each problem.

Physical Printing Constraints

First, we will analyze the physical attributes of each bundle. The contents of each bundle may be affected by the type of printer required, the type of stationery used, or the type of physical intervention needed (for example, Insert Forms Flash) to print specific reports. You should list all physical printing restraints that exist at your site. These restraints determine at the highest level, which reports for a recipient can be realistically printed together, for example, the first split may be that some reports for a user must be printed on an impact printer and some on a laser printer. It is also impractical to mix stationery types within the same bundle because, for example, of the amount of manual intervention involved, and so on.

These physical attributes will form the basis for our first level naming standards. Let's assume that our sample site has four laser printers and two impact printers and the following stationery types:

Stationery Types

- 132 REPORTS
- 80 REPORTS
- BLUE PAPER
- FLASH 101 (BILLS FORM FLASH)
- FLASH 102 (REMINDERS FORM FLASH)
- CUSTOMER INVOICE
- CUSTOMER CREDIT NOTE

Assign Printing Mission Names

We can use a mix between the printer requirements and stationery requirements of a printed bundle to create a naming standard that groups output at a level to meet the bundles' physical requirements.

In this example, we will use the printing mission name to identify the physical constraints of the bundle. The first identification we will use identifies the printer required for the bundle. The second identification we will use identifies the stationery required for the bundle. For our example, let's say we define the following printing mission names that identify the physical contents of each bundle:

Printing Mission Names

- LAS132
- IMP132
- LAS80
- IMP80
- LASBLUE
- IMPBLUE
- IMPINV5
- LASF101

Bundle Contents Constraints

Our next consideration concerns which users' reports should be printed together (that is, what the contents of each bundle will be). You may want to create one bundle per user, or you may want to include reports for several recipients in one bundle (the default).

This will probably be determined by how you currently dispatch your reports. For example, if you send all output to a particular branch in a box then you may want to include reports for all users at that location in one bundle.

Some sites that mail reports to recipients produce one bundle per recipient. These bundles are automatically addressed by CONTROL-D. The printers print, split and shrink-wrap the recipient's bundle so that it can be mailed immediately.

In theory, you could print all the reports in one "Super Bundle," but one of the drawbacks of this method is that it is not as flexible as producing smaller bundles (for example, assigning printing priorities, scheduling the print workflow and specifying print dependencies). In other words, printing in the best sequence to meet business objectives by printing the most important or distant user bundles first is recommended.

Assign Category Names

These bundling attributes will form the basis for our second level naming standards in CONTROL-D. We will use printing mission parameter CATEGORY for this purpose. Let's use our sample recipients as an example to show how they will be bundled together and assigned a category name. In this example, the category name reflects the physical delivery location of the recipients.

Table 27 Category Name Assignment Based On Bundle - Example

Recipients	Category (Bundle Name)
(BR10,BR10AC,BR10AD, BR10AD01,BR10AD02)	WASHINGTON-BRANCH
(BR11)	MIAMI-BRANCH
(BR12,BR12AC,BR12AD)	DALLAS-BRANCH
(BR99SP)	LAS-VEGAS-BRANCH
(DVAC)	HO-BLDG1-2ND-FLOOR
(DVACP,DVACPD,DVACPO)	HO-BLDG3
(DVACR,DVACRD, DVACRD01,DVACRD02)	HO-BLDG2
(DVACRO)	HO-BLDG1-1ST-FLOOR

Workload Constraints

We have discussed previously under “Printing Methodology,” that CONTROL-D prints output differently from the first-come-first-serve basis that occurs in a manual system. With CONTROL-D, ideally we want to print all reports for a user in one printed bundle.

However, this means that you have to wait until all reports for the user have been created before you start printing. This may be impractical if you have a series of lengthy batch jobs producing high volume reports. It may be that by the time the last reports for a user are created, there is not enough time to print all the users reports to meet the dispatch deadlines.

In this case, it may be necessary to set up multiple bundling runs at different times, for example, bundle up all reports for Branch 11 at 2200 and again at 0300. This way, you can be sure you have enough time to print all the created output. The hours set for bundling runs depend on the workload and practices of your site.

We will modify the category names of our sample printing missions to cope with this situation where required:

Table 28 Splitting Bundles into Multiple Runs - Example

New Category Names	Processing Description
MIAMI-BRANCH-RUN1	First bundle for Miami at 2200
MIAMI-BRANCH-RUN2	Second bundle for Miami at 0300
DALLAS-BRANCH-RUN1	First bundle for Dallas at 2300
DALLAS-BRANCH-RUN2	Second bundle for Dallas at 0430

Summary

The example above results in a list that takes into consideration physical printing constraints, bundle contents constraints, and workload constraints.

The printing missions can be further controlled by specifying dependency information using parameters COND and NOT LATER THAN. For example, you can specify that a printing mission should not be run until a specific report decollating mission or a different printing mission has been run. Parameter PRIORITY can be specified to give printing missions printing priorities that are relative to the execution of other missions.

Below is a list of some of the missions and categories that could be set up for the example:

Table 29 Printing Missions and Categories - Example (Part 1 of 2)

Printing Mission Name	Category Name
LAS132	MIAMI-BRANCH-RUN1
	MIAMI-BRANCH-RUN2
	DALLAS-BRANCH-RUN1
	DALLAS-BRANCH-RUN2
	HO-BLDG2
	HO-BLDG3-RUN1
	HO-BLDG3-RUN2
IMP132	HO-BLDG2
	HO-BLDG3
LAS80	HO-BLDG2

Bundle Format Options

Once you have decided how to bundle your output, developed a standard for printing mission names, and defined your printing missions, you should start to think about the presentation and format of the print bundles you will be creating.

CONTROL-D generates banner pages that describe the contents of the printed bundles. These banner pages are inserted in various positions in the bundle. You can define the format of these banner pages and control which banners should be produced at a global level and which banners should be produced at the recipient level.

CONTROL-D also generates index pages that provide information about the contents of the printed bundles. You can define the format of the indexes and control which indexes are generated at a global level and which indexes are generated at the recipient level.

Default Bundle Format

The default structure of a CONTROL-D bundle is shown below. The following banners will be automatically generated by CONTROL-D:

Table 30 Resulting Banner and Index Pages

Banner or Index	Description
Bundle Start Banner	Indicates the start of a CONTROL-D bundle. This banner can contain any information you want to communicate to the users (for example, contact information for any problems).
Bundle Index	Contains a list of all reports included in the bundle for all users (for example, user names, report names, number of pages).
User Start Banner	Indicates the start of a user's report bundle. This banner contains the user's name and can also include address information (extracted from the recipient tree), general and/or specific information for users, and information such as the date and time of printing.
User Index	Contains a list of all reports for this user (such as report names or number of pages).
Report Start Banner	Indicates the start of a new report. This banner contains the report name of the following report. You can also supply information such as which job name or job ID produced the report.
Report Pages	Specifies the actual pages of the report.
Report End Banner	Indicates the end of the current report.
User End Banner	Indicates the end of reports for the current user.
Bundle End Banner	Indicates the end of the CONTROL-D bundle.

Banner Members

Each banner is defined as a member in the IOA BANNERS library as follows:

Table 31 Banner Members

Member	Type of Banner
\$\$BNDLST	Bundle Start Banner
\$\$UINDXH	Bundle User Index (Header)
\$\$UINDXV	Bundle User Index (Variables)
\$\$USERST	User Start Banner
\$\$UINDXH	User Index (Header)
\$\$UINDXV	User Index (Variables)
\$\$REPSTA	Report Start Banner
\$\$REPEND	Report End Banner
\$\$USEREN	User End Banner
\$\$BNDLEN	Bundle End Banner

Control Bundle Format

Two methods exist for controlling which banners and indexes are produced in a print bundle. The banners and indexes can either be controlled on a global level (which affects all bundles produced), or at the recipient level (affecting only a particular user).

Global Control

Banners

Each banner is defined as a member in the IOA BANNERS library. If you do not want a particular banner to be produced by CONTROL-D, simply rename the appropriate banner member in the library (for example, rename the report end banner member so that no such banner will be produced for all recipients).

Indexes

If you want to control which indexes are produced at a global level, you should make a change to member CTDX003 in the IOA SAMPEXIT library. Parameter GINDEX of this member specifies if a bundle index for the whole bundle should be produced. Parameter INDEX of this member specifies if a user index for each recipient should be produced.

Recipient Control

Banners

The recipient tree can be used to control the format of a bundle at the user level. For each recipient, you can specify if you want user and report banners printed. If you renamed the banner member (global control), you will not be able to print the banners with these options.

Recipient Definition Screen

```

----- CONTROL-D RECIPIENT DEFINITION -----(T. S)
COMMAND ==>                                     SCROLL==> CRSR
+-----+
RECIPIENT BR11          RECIPIENT LEVEL 25   PARENT OPSADMIN   PARENT LEVEL 10
DESC THIS IS THE BRANCH MANAGER IN MIAMI
DESC
=====
SYNONYM
AUTHORIZE                $SYSDATA
ADDRESS MRS. ROBINSON
ADDRESS BRANCH MANAGER
ADDRESS BRANCH 11
ADDRESS 110 GLENDALE DRIVE
ADDRESS MIAMI
ADDRESS MI 40 4PP
ADDRESS
=====
INDEX                     USER BANNER Y          REPORT BANNER Y
DEF DEST
=====
                                P C P A R A M E T E R S
AUTHORIZED N
===== >>>>>>>>>> END OF RECIPIENT DEFINITION PARAMETERS <<<<<<<<<<< ==
FILL IN RECIPIENT DEFINITION.                                     14. 23. 26

```

Indexes

For each recipient, you can specify if a user index should be printed. Anything you specify here will override the value set at the global level. The default value is Y.

Banners

Format of Banner Pages

You can control the format and contents of each banner page. You can specify what information is to be printed on each page, where the information should be positioned, and the size of the information. You can also access and/or specify special CONTROL-D variables that will be replaced with appropriate values. For a complete list of all variables and control parameters, see the Exits chapter in the *INCONTROL for z/OS Administrator Guide*.

This information is defined in the banner members. The example below shows the definition for the report start banner (\$\$REPSTA) in the IOA BANNERS library.

Example Definition (Report Start Banner)

```

***** TOP OF DATA *****
C AN EXAMPLE OF A BANNER DEFINITION FOR A BANNER THAT IS
C PRINTED AT THE BEGINNING OF A REPORT.
1
M%USER%
  R E P O R T :
+R E P O R T :
  -----
+-----
S%REPORT%
  -----
| PAGES           : %PAGES% |
| L I N E S       : %L I N E S% |
|
| JOBNAME         : %JOBNAME% |
| J O B   I D    : %J O B I D% |
| O R I G I N A L   D A T E : %O D A T E% |
|
| DATE           : %DATE% |
| T I M E        : %T I M E% |
|-----|
M%USER%
E
----- BOTTOM OF DATA -----

```

Translation of the Banner Member Contents

The contents of each banner page are determined by the text defined in the banner member. The following rules are applied when translating the banner member:

The first character of each line can be:

- Any valid ASA code (for example, + to over type a line to create a bold line).
- X'5A' – for AFP remains unchanged.
- A line descriptor, where:
 - <blank> means Regular size letters
 - B means Big (large) letters
 - M means Medium size letters
 - S means Small size letters
 - H means Header line (of index)
 - V means Format of an index line
 - E means End of banner page
 - C means Comment line

Any variables specified are replaced with the appropriate values. The values are presented according to the definitions in the first character of each line.

Resulting Banner Page

The resulting page shows the banner page with all special variables automatically replaced by CONTROL-D.

```

DDDDDDDD      AAAAAAAAAA VV      VV
DDDDDDDDDD    AAAAAAAAAAAA VV      VV
DD      DDD AA      AA VV      VV
DD      DDD AA      AA VV      VV
DD      DDD AAAAAAAAAA VV      VV
DD      DDD AAAAAAAAAA VV      VV
DD      DDD AA      AA VV      VV
DDDDDDDDDD    AA      AA VV VV
DDDDDDDD      AA      AA VVV

R E P O R T :
-----
*****  *****  *****  *****  *****  *****
*   *   *   *   *   *   *   *   *   *   *   *   *
***** *   *   *   *   *   *   *   *   *   *   *
*   *   *   *   *   *   *   *   *   *   *   *
*   *   *****  *****  *   *   *   *   *   *

*****
*  PAGES      :      8      *
*  LINES      :     328     *
*
*  JOBNAME     :    PAC1020   *
*  JOB ID     :    16956     *
*  ORIGINAL DATE : 04/04/00  *
*
*  DATE       :    04/04/00  *
*  TIME      :    16: 22: 54  *
*****
DDDDDDDD      AAAAAAAAAA VV      VV
    
```

DDDDDDDD	AAAAAAAAAA	VV	VV
DD	DDD AA	AA VV	VV
DD	DDD AA	AA VV	VV
DD	DDD AAAAAAAAAA	VV	VV
DD	DDD AAAAAAAAAA	VV	VV
DD	DDD AA	AA VV	VV
DDDDDDDD	AA	AA VV	VV
DDDDDDDD	AA	AA	VVV

Address Print Bundles

Some print bundles may contain reports for several recipients at a specific location. In such cases, it is desirable to have a specific delivery address for the bundle printed on the bundle start banner. To achieve this you should do the following:

- In parameter **GROUP** of the printing mission definition, specify the recipient name of the user whose address you want printed on the bundle start banner.
- In the bundle start banner member (**\$\$BNDLST**), specify variable **%ADDRn%** to retrieve the address information of the specified recipient from the recipient tree.

The specified user's address will then be printed as required in the bundle start banner. Using this method, you can set up “dummy” recipients in the tree whose sole purpose is to provide address information for specific groups of users (for example, the address of a building).

Customize Print Bundles

You can customize **CONTROL-D** banners to produce various company or user-specific information to be printed on the banner pages, such as:

- Company logos
- Company mission statements
- Company and/or computer department news
- Company messages
- Contact information about report problems

You can use the banner members and special variables **%GLOBALn%** and **%DATAn%** to produce the required information on the banner pages.

Summary

The supplied format of banners should meet most of your requirements for initial testing purposes. We suggest that you try a few variations and produce a few samples. You want to achieve a banner that is acceptable to the operators, dispatchers, and most importantly, the end users. When we get to Phase 8, we will ask the users how they would like their banners formatted. Then you can present the banner samples to them to see what their preferences are. You should not spend too much time at this stage trying to perfect the “ultimate” banner.

Printer Support

CONTROL-D supports various printing technologies. For information on specific printing methods and recommendations, see the following documentation:

- Advanced Function Printing (AFP)

The CONTROL-D guide, *Implementing AFP in the CONTROL-D Environment*, provides thorough instructions, including various recommendations, examples, and options, for implementing CONTROL-D in an AFP environment.

- XEROX (Using DJDE Parameters)

See “Printing Using XEROX LCDS (DJDE) Parameters” in the CONTROL-D and CONTROL-V chapter of the *INCONTROL for z/OS Administrator Guide*.

Parallel Test Print Bundles

We recommend that you periodically produce a few print bundles to compare to the normal report output being distributed to end users. The input for your print bundles will be the output generated by your parallel test decollating missions.

You should ensure that only the appropriate night's reports are picked up by the printing mission. You can achieve this by moving all entries more than a day old to the History file. This will be explained in Phase 5 when we set up utility CTDDELRP.

— **NOTE** —

You should now test your report decollating missions in parallel until you reach Phase 8.



Review

During this phase, you have learned what the purposes of the printing missions are, examined the methods of scheduling a printing mission, examined the naming standards for printing missions, reviewed the parameters of the printing missions, and reviewed the options for bundle formatting.

Before you continue, you should have:

- Set standards for printing mission naming.
- Defined printing missions for the recipients of your selected pilot application.
- Set basic formatting options for bundles and produced sample banner pages.
- Performed initial testing on your printing mission definitions.
- Set up periodic parallel tests for your printing missions.

Phase 5: Implementation of System Administration Tasks

In this phase, we will be discussing and defining the tasks that are required to maintain and administer the CONTROL-D system. We will examine which administrative procedures should be set up, so that they can be set up and run automatically on a daily basis.

We will detail the options for setting up the backup and restore missions of CONTROL-D, which are responsible for report archive and retrieval. The CONTROL-D utilities, which are responsible for managing the User Report files, are also described.

Some of the questions we will be answering in this phase are:

- What are User Report List files?
- What is stored in the User Report List files?
- How long am I allowed access to reports for viewing?
- What utilities manage the User Report List files?
- What are backup missions?
- How many backup missions do I need?
- Where are backup missions defined?
- For how long should I back up reports?
- What are the parameters of the backup missions?
- What are restore missions?
- Where are restore missions defined?
- How often should I restore reports?
- What are the parameters of the restore missions?

Inputs

Before you start this phase you should have tested your report decollating missions (Phase 3).

Outputs

At the end of this phase you will have:

- Implemented the CONTROL-D “housekeeping” utilities.
- Set the SEARCH default using optional CONTROL-D Wish WD0933.
- Defined, tested and implemented backup procedures.
- Defined, tested and implemented restore procedures.

File Management Overview

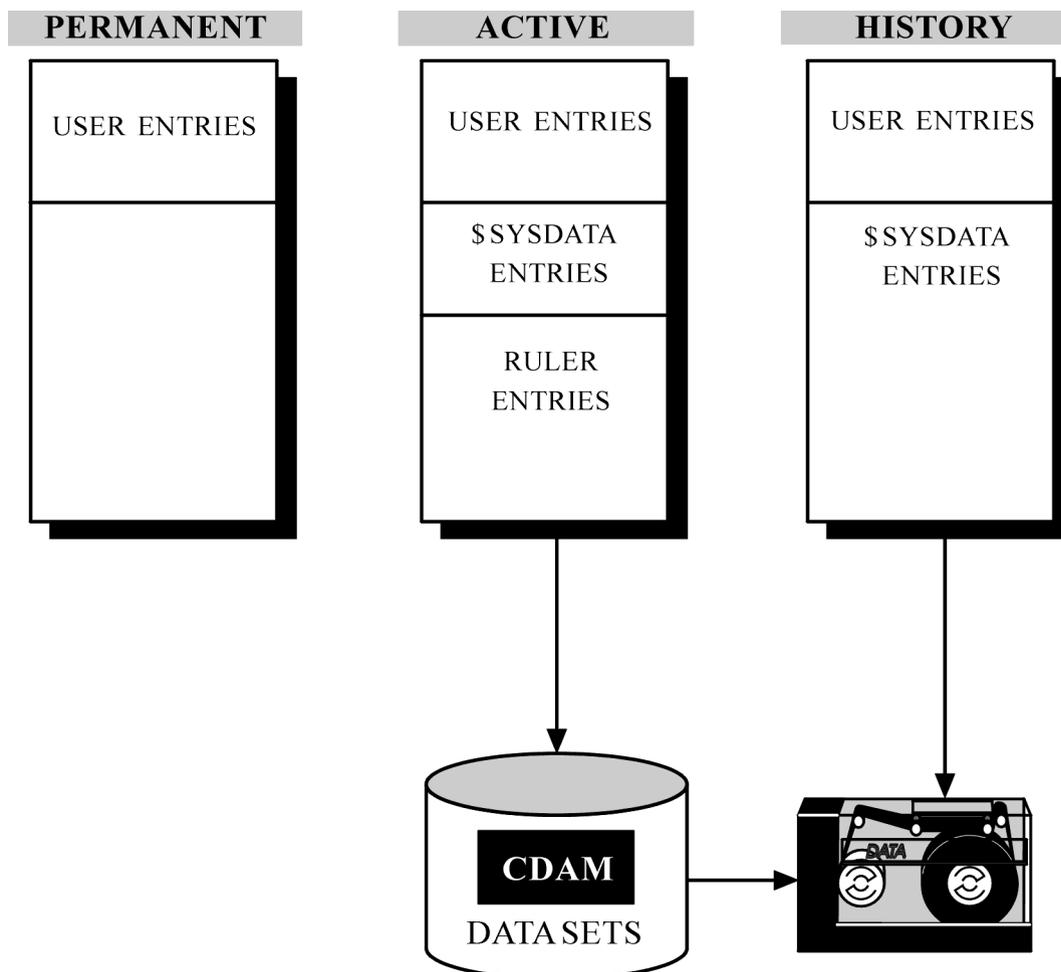
The first step of this phase is to describe which components are involved in the file management of CONTROL-D. If you understand the structure and purpose of the CONTROL-D files, you will be better able to control the files.

There are three files that constitute the CONTROL-D User Report List files. We will give recommendations and options on the control and usage of the files, examine what information they hold, and how the information is used by CONTROL-D.

We will also examine the links between the User Report List files and the compressed datasets (CDAMs) that CONTROL-D creates. The four topics in this section are:

- CDAM files
- Active User Report List file
- History User Report List file
- Permanent User Report List file

Figure 28 CONTROL-D User Report List Files



CDAM Files

CDAM files are the main storage mechanism for all reports handled by CONTROL-D.

CONTROL-D automatically creates compressed versions of reports into CDAM files as CONTROL-D decollates the output from the spool (you can of course use the CDAM direct-write option to bypass the spool altogether). These compressed datasets allow for a reduction of between 30% to 70% of the space allocated for the report.

Normally, a CDAM file is created for every JES dataset that CONTROL-D handles. This can be overridden using the CDAM allocation options that we will discuss in Phase 7. At this stage, let us assume that one CDAM dataset is created per JES dataset.

We recommend that CDAM files be kept on DASD for a minimal amount of time. This is normally determined by the length of time that the report output needs to be viewed online by the users. CONTROL-D archives CDAM datasets to tape using backup missions. However, the backup missions only copy the CDAM files to tape, they do not delete them from disk. This method provides the great advantage of having a backup of reports while they are still on DASD for online viewing purposes (in case of a DASD crash).

A special utility called CTDELRP is available to delete CDAM datasets from disk.

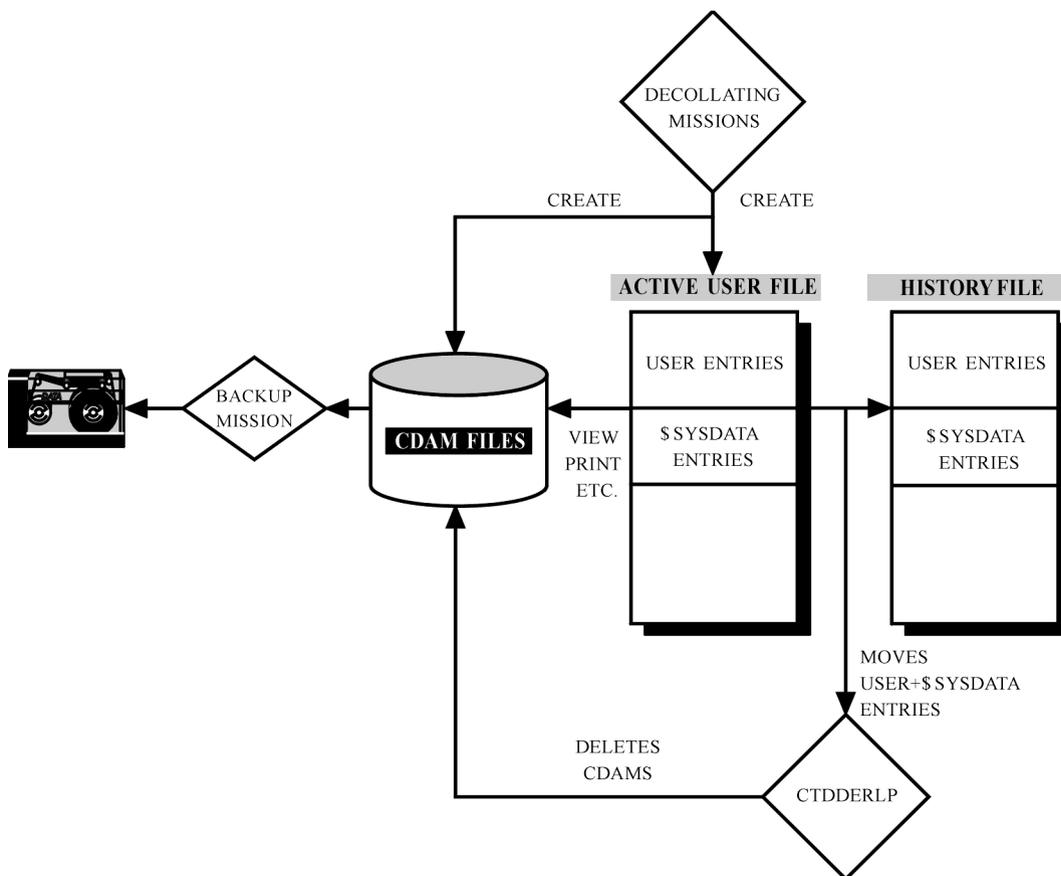
Active User Report List File

The Active User Report List file is where entries are created and stored based on your report decollating missions. These entries enable users to access their assigned report output. It is from this file that a user can view report output and request selective print functions. There are three types of entries that exist in this file:

- User Entries
- \$SYSDATA Entries
- Ruler Entries

These entries contain no physical report output. They are only “pointers” that describe locations in the CDAM files.

Figure 29 Active User Report List File



User Entries

A user entry describes which specific parts of a CDAM file a user can view or print. The user entry is created by the report decollating missions using the separation criteria you define. In the following example, we have specified that three users should receive pages marked with specific strings:

\$SYSDATA Entries

Special entries are created in the Active User Report List file that describe every CDAM file created. These are called the \$SYSDATA entries and provide the ability to access the entire contents of a CDAM file.

The \$SYSDATA entries allow us to see all the output contained in a CDAM file (that is, the whole report before decollation), rather than sections of the report allocated to a user entry. This is important from an administration point of view to allow you to access the entire report as it was originally created.

Defining \$SYSDATA Authorization

To view reports online you must authorize the user in the recipient tree. You can use the AUTHORIZE parameter to specify which user IDs can access report output (user entries). We also use the AUTHORIZE parameter to specify which user IDs can access \$SYSDATA entries.

The following definition shows that three userids are authorized to access the user entries (reports) allocated to the recipient name BR11 (and, by default, the children of BR11). However, they are not authorized to access the \$SYSDATA entries.

Recipient Definition Screen for Recipient BR11

```

----- CONTROL-D RECIPIENT DEFINITION ----- (T. S)
COMMAND ==>                                     SCROLL==> CRSR
+-----+
  RECIPIENT BR11          RECIPIENT LEVEL 25   PARENT OPSADMIN   PARENT LEVEL 10
  DESC THIS IS THE MIAMI BRANCH
  DESC
-----
  SYNONYM 1001
  SYNONYM
  AUTHORIZE TS0032      $SYSDATA N
  AUTHORIZE TS0004      $SYSDATA N
  AUTHORIZE TS0015      $SYSDATA N
  AUTHORIZE              $SYSDATA
  ADDRESS BRANCH 11
  ADDRESS 110 GLENDALE DRIVE
  ADDRESS MIAMI
  ADDRESS MI 40 4PP
  ADDRESS
-----
  INDEX                USER BANNER Y          REPORT BANNER Y
  DEF DEST
-----
                                P C   P A R A M E T E R S
  AUTHORIZED N
  =====>>>>>>>>>> END OF RECIPIENT DEFINITION PARAMETERS <<<<<<<<<<<< =====
  FILL IN RECIPIENT DEFINITION.                                     12. 04. 48

```


Ruler Entries

Users can define different views of the reports allocated to them in the user entries. The different views that they create are called Rulers. This is a very powerful end user tool for manipulating data for productive online viewing and selective printing. We will discuss the ruler entries in further detail in Phase 9.

Utility CTDDELRP

The main reason we keep user entries in the Active User Report List file is to enable users to view report output. When a user views a report online, what is actually being viewed are assigned locations in a CDAM dataset. The longer you keep user entries in the Active User Report List file the longer the CDAM files exist on DASD.

To avoid consuming too much of the DASD resource, we use utility CTDDELRP to delete CDAM datasets from DASD. CTDDELRP also moves entries in the Active User Report List file to the History User Report List file. This provides the user with a list of archived reports that can be selected for restoration if required.

CTDDELRP Actions

Using utility CTDDELRP, you can specify how long user entries should remain in the Active User Report List file (this also determines the length of time a report can be viewed online). When a report has been online for its specified duration, it is deleted. The utility is composed of three steps, as listed below:

- 1 Deletes selected user and \$\$SYSDATA records from the Active User Report List file.
- 2 Adds the deleted records from the Active file to the History User Report List file.
- 3 Deletes the associated CDAM datasets (connected to the deleted user and \$\$SYSDATA entries) from disk.

The selection criteria for deleting entries from the Active User Report List file (input for STEP1) can be different for each user, report name, job name, class, and so on. For a full list of selection criteria parameters, see the CTDDELRP utility in the CONTROL-D and CONTROL-V chapter of the *INCONTROL for z/OS Utilities Guide*.

At this stage of the implementation, we recommend that you set up utility CTDDELRP with the following selection parameters:

DAYS 1

This means that all entries in the Active User Report List file older than one day will be deleted. Entries that have not been backed up will not be deleted. We recommend that you run this utility on a daily basis. There is a sample job in member CTDDLRP in the CONTROL-D JCL library. We will define the CTDDLRP parameters further when we reach Phase 9.

Table 32 Entry Deletion Rules

Entry Type	How Deletions Are Handled
User entries	Are optionally moved to the History User Report List file if archive was requested in the Report decollating mission (depending on the supplied selection parameters in CTDDLRP) and deleted.
\$\$SYSDATA entries	Are deleted, and then moved to the History User Report List file (if archived) when all related user entries (that is, all user entries pointing to the \$\$SYSDATA) have been deleted and moved to the History User Report List file.
CDAM datasets	Are deleted from DASD when the associated \$\$SYSDATA entry describing them has been deleted and moved to the History User Report List file.

History User Report List File

The History User Report List file is the location to which all user and \$\$SYSDATA entries are moved, if archived. The CTDDLRP utility moves the entries to this file. The entries in this file contain information about where their reports reside, that is, the name of the CDAM file and to which volume it has been archived, depending on the backup utility used.

Entries remain in this file for the amount of time specified in the backup mission. When that time has passed, the entries are deleted by the CTDCCLHIS utility, which also releases the tapes or cartridges back into the system (that is, it makes the tapes and cartridges available again).

Users can request that a particular report be restored from the History User Report List file. The users can either specify the name of the restore mission that will perform this process, or use the default. The restore mission restores CDAM files to disk and moves a copy of the user and \$\$SYSDATA entries.

There are two types of entries that exist in this file:

- User entries
- \$\$SYSDATA entries

CTDCLHIS Utility

CTDCLHIS, the “Clear History” utility, is responsible for deleting from the History User Report List file those user and \$SYSDATA entries that have passed their retention period. The utility also deletes the catalog entries for the associated CDAM files and produces a list of tapes and/or cartridges that have been released.

The utility has two steps:

- 1 Deletes expired user and \$SYSDATA entries and produces a list of released tapes and/or cartridges.
- 2 Releases tapes and/or cartridges back into the system. The method used varies according to the backup utility used.

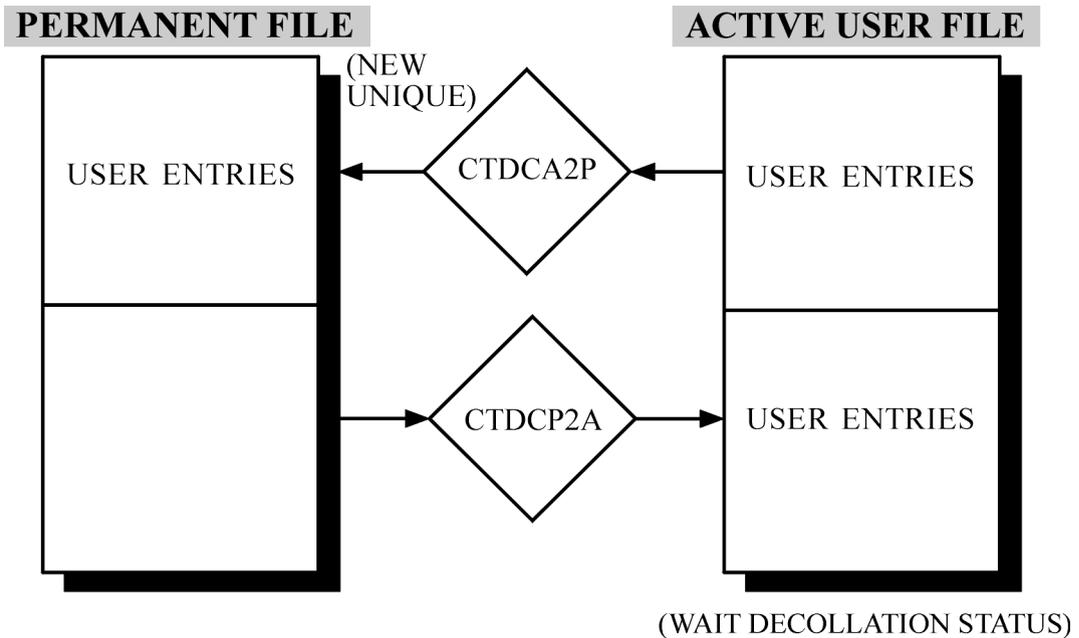
Permanent User Report List File

The Permanent User file contains a list of all reports that each user has received. The list includes details of report attributes, such as copy count, destination information, and so on. The list can be used by end users to make permanent modifications to the attributes of the reports they receive.

The file is built and updated by copying user entries from the Active file to the Permanent User Report List file using utility CTDCA2P (Copy Active To Permanent). One unique entry per user and/or report name and/or job name and/or category is stored in the Permanent User Report List file. For example, if the same report for the same user of the same job name and category is created on a daily basis, only one entry will exist for that user and/or report and/or jobname in the Permanent User Report List file.

The file contains a user entry for each unique report name a user receives.

Figure 31 The Permanent User Report List File



Using the Permanent User Report List File as a Reference Index

For many sites it is important to keep an index of all the unique reports a user has received. For example, an end user calls the computer department to advise that a report that is normally sent was not received. You may have suspicions that they have never received this report before. By checking the Permanent User Report List file, you can check if this report has ever been allocated to this recipient.

In effect, the Permanent User Report List file becomes a catalogue of all unique reports a recipient has received. To create and maintain the information in this file we use the **CTDCA2P** utility (Copy Active To Permanent).

There are two types of changes that can be made to the attributes of the reports, Permanent changes or Temporary changes.

Permanent Changes

You can use the Permanent User Report List file to make permanent changes to the attributes of specific reports.

Temporary Changes

You can copy the permanent entries on a daily basis to the Active User Report List file. To do this we use utility CTDCP2A (Copy Permanent To Active). The status of the copied entries in the Active User Report list will be Wait Decollation (that is, the physical reports have not been produced yet). You can access these Wait Decollation entries in the Active User Report List file and make a temporary change to the attributes of the report for the coming night's decollation. When the decollating mission runs, rather than creating a new entry in the Active User Report List file, it will use the Wait Decollation entry. Thus, the created report uses the attributes set in the Active User Report List file.

The CTDCP2A utility has selection criteria that can be used to avoid unnecessary overhead (for example, only copy specified entries from the Permanent User Report List file to the Active User Report List file, not all entries).

The modification of the entry in the Active User Report List file does not affect the entry in the Permanent User Report List file. We instruct CONTROL-D where to look for its attribute information using parameter SEARCH of the report decollating mission.

This is potentially a very powerful end user facility for those end users who need to modify the attributes of their reports.

SEARCH Parameter

There is a parameter that we can use in the report decollating mission definition that instructs CONTROL-D where to check for the attributes of a report for a specific user, that is, either in the Active User Report List file, the Permanent User Report List file, or not at all.

SEARCH Parameter

ON CLASS	= T	EXTWTR	DEST	FORM
PRT COPIES	LVL	USER	DEST	MAX COPIES
PRINT/CDAM PARMS =				
WHEN LINE	006 - 006	COL 016 - 019	PRINT REF NXT	CT AND/OR
STRING = 1001				
DO USER	= BR11	LVL	LINE COL	- S A T
DO NAME	= INVENTORY-FOR-1001	LINE COL		
DO				
WHEN LINE	006 - 006	COL 016 - 019	PRINT REF NXT	CT AND/OR
STRING = 1002				
DO USER	= BR12	LVL	LINE COL	- S P T
DO NAME	= INVENTORY-FOR-1002	LINE COL		
DO				
WHEN LINE	006 - 006	COL 016 - 019	PRINT REF NXT	CT AND/OR
STRING = 1003				
DO USER	= BR13	LVL	LINE COL	- S N T
DO NAME	= INVENTORY-FOR-1003	LINE COL		
DO				

There are three values that can be set for this parameter in the report decollating mission definitions. The value you set will depend on the way you want the parameter to function. The values are assigned at the DO USER statement level. The permitted values for parameter SEARCH are:

Table 33 Valid SEARCH Parameter Values

Value	Description
N	The decollating mission will not search for any attribute information for this user's report (it will use the report decollating mission specifications). This option enhances the decollating speed of CONTROL-D and should be used by sites that do not require users to set attribute information of reports.
P	The decollating mission will search the Permanent User Report List file for attribute information of the matching user and report name. It will use the attribute information defined in the Permanent User Report List file to create the entry in the Active User Report List file. We recommend that sites using this option run utility CTDCA2P once a day at the end of production processing.
A	The Decollating Mission will search the Active file for an entry matching this user and report name in Wait Decollation status. It will then take the attribute information of that entry. This option should be used by sites whose users need to be able to make temporary changes to entries copied to the Active User Report List file. We recommend that sites using this option run utility CTDCP2A once a day at the beginning of the production process.

Setting the Search Default

The default value to be used for parameter SEARCH can be set using optional CONTROL-D Wish WD0933. This default value will then be assigned to all new Decollating Missions created, and to all existing decollating missions whose SEARCH parameter is currently blank.

**NOTE**

You should now decide what default option you will use for parameter SEARCH and set it using Wish WD0933.

General Information About Backup Missions

In this section, we will discuss in detail all of the automatic phases and processes which occur during the backup workflow. We will analyze what a Backup Mission does and how, as well as how backup missions are defined.

Overview

CONTROL-D uses backup missions to create copies of compressed datasets onto tape or cartridge for report archiving purposes.

CONTROL-D uses your current backup product to perform the backup of the CDAM datasets. For example, if you use backup product DF/HSM, CONTROL-D will build and submit a DF/HSM batch job to perform the backup process.

Supported backup products are:

- FDR
- DF/DSS
- DF/HSM
- DMS/OS
- ASM2
- ARCS

In-House Application

You determine which reports should be backed up by which backup mission, using report decollating mission definitions. The backup mission defines for how long a report will be archived. We recommend that all reports be backed up by CONTROL-D backup missions so that they can be easily restored if required.

What Are Backup Missions?

Backup missions are the basic mechanism used by CONTROL-D for backing up CDAM datasets to tape or cartridge. A backup mission makes a copy of the CDAM datasets onto tape. It does not delete the CDAM dataset from the disk.

Each backup mission archives the CDAM datasets for a specific period of time. You tell CONTROL-D which backup mission should back up which reports. You do this in the report decollating mission definitions using DO BACKUP parameter. The backup mission name supplied is the mission that will back up all entries in the Active User Report List file marked with its name.

Report Decollating Mission Parameters Example

ON CLASS	= T	EXTWTR	DEST	FORM
PRT COPIES	LVL	USER	DEST	MAX COPIES
PRINT/CDAM PARS =				
WHEN LINE	-	COL	-	PRINT REF NXT CT AND/OR
STRING =				
DO USER	= *	LVL	LINE 006	COL 016 - 019 S A T
		SYNONYM =	CONCAT =	
DO NAME	= PURCHASE ORD REPORT	LINE	COL	-
DO BACKUP	= BKP0031D			
DO				

You can define multiple backup missions that will back up reports for different lengths of time. For example, back up all the Accounts reports for a year, back up the JCL MSGCLASS output for a month, and back up all the Audit reports for seven years.

Each backup mission uses a separate tape, so if you run three backup missions every day, a minimum of three tapes will be used every day.

Example

Table 34 Backup Mission Purpose - Examples

Backup Mission Name	Purpose
BKP0031D	Backs up JCL MSGCLASS output for a month.
BKP0365D	Backs up Accounting reports for a year.
BKP0007Y	Backs up Audit reports for seven years.

Backup Mission Methodology

In this section, we will explain the logic behind CONTROL-D backup methodology. We recommend that when using CONTROL-D, you back up all reports (CDAM datasets) of the same retention period together, and that datasets with different retention periods are not mixed. To explain why we make this recommendation, we will review the following subjects:

- Archiving Datasets – Mixed Retention Periods
- Archiving Datasets – Unmixed Retention Periods

Archiving Datasets – Mixed Retention Periods

Let us examine an example of a site that requires four backup durations to archive their reports for 7 days, 1 month, 3 months and 1 year.

If we back up all datasets created with various durations on the same tapes, as time passes “holes” start to appear in our tapes as certain archived datasets pass their expiration dates. Some of the backup products that CONTROL-D supports, such as DMS/OS, have a Merge option. However, merge processing is both time and resource consuming, tying up multiple tape and cartridge devices as it processes, and has to be run frequently to avoid the forming of “holes.”

So the mixing of various retention periods during archiving prevents us from releasing tapes into the system, and continual merge processing incurs too much overhead.

Archiving Datasets – Unmixed Retention Periods (Recommended Option)

If we examine the previous example but do not mix reports of different retention periods, all reports stored on a tape expire at the same time. At that time, the tape will automatically be released back into the system.

Identify Backup Durations

The first decision you should make is how many different backup durations you require for your reports. To determine for how long a report should be backed up you need to know for how long it is currently backed up. You may have audit requirements that detail for how long reports should be archived. Specific users may have different backup requirements. You should consider that the fewer categories of durations, the less tape or cartridge consumption will be.

In the backup mission parameters you can specify time and event dependency information for the execution of the backup mission. Normally, for a backup that runs on a daily basis, you will want it to execute after all the CDAM files for that day have been created. You can use these parameters to control the precise point at which a backup mission should execute.

Where Are Backup Missions Defined?

You define backup missions online using the CONTROL-D Mission Definition facility (Option M in the IOA Primary Option menu). The definitions are stored as members of a partitioned dataset (PDS) in the CONTROL-D backup missions library. You use the Backup Mission Definition screen to define your parameters (see below):

Backup Mission Definition Screen

```

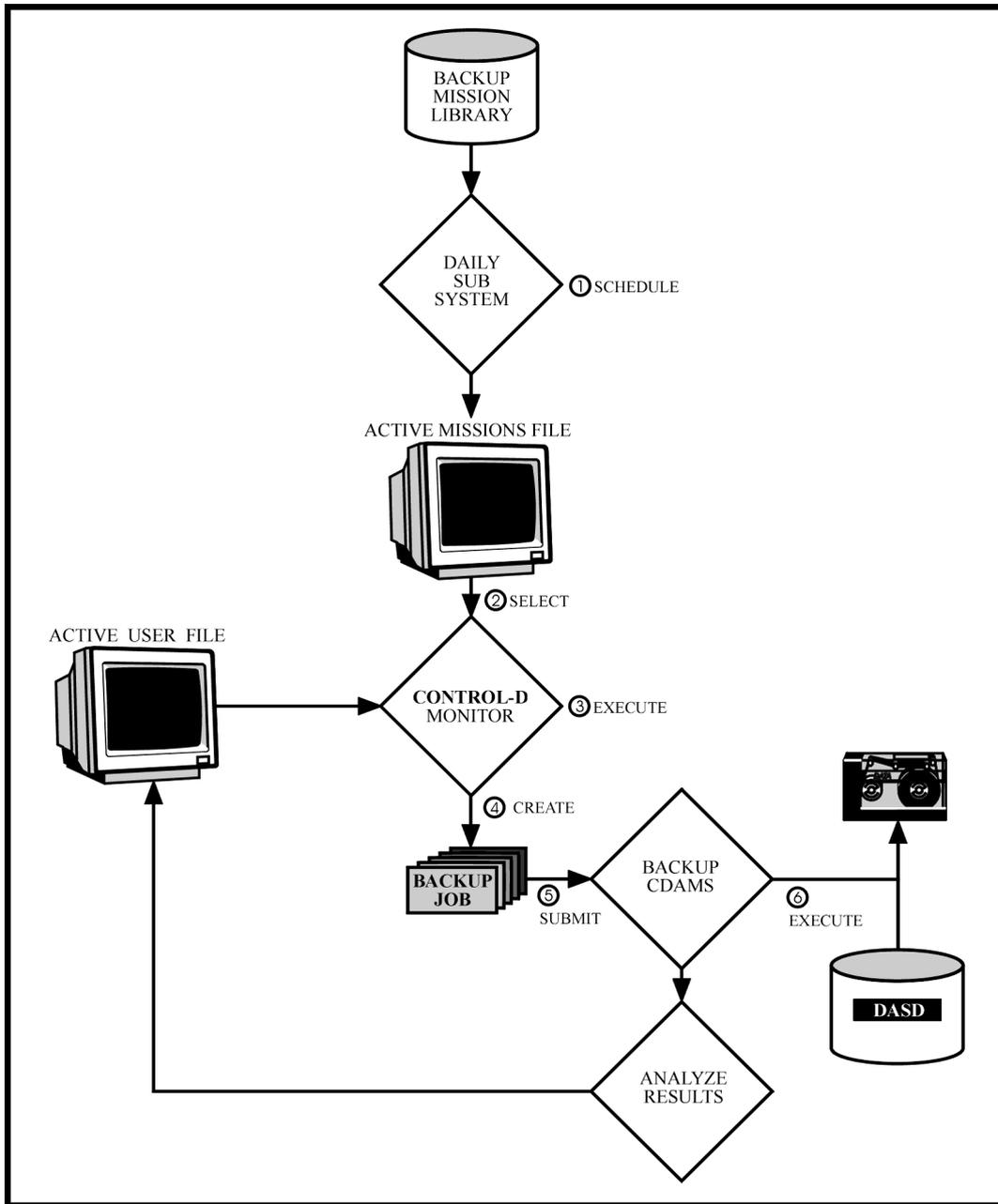
---- CONTROL-D CATEGORY                                BKP MISSION BKP0031D -----(M. S)
COMMAND ==>>>>                                       SCROLL==>>> CRSR
-----
CATEGORY PROD                                MISSION BKP0031D
OWNER    M90                                TASKTYPE BKP    GROUP
DESC
=====
DAYS                                           DCAL
                                           AND/OR
WDAYS                                           WCAL
MONTHS  1- Y 2- Y 3- Y 4- Y 5- Y 6- Y 7- Y 8- Y 9- Y 10- Y 11- Y 12- Y
DATES
CONF CAL          SHI FT    RETRO N MAXWAIT 00
MI NI MUM        PDS
=====
IN
TIME FROM        TO        NOT LATER THAN    PRI ORI TY
=====
# OF DAYS TO KEEP 0031                                # OF GENERATIONS TO KEEP 0000
=====
OUT
SHOUT WHEN                                           TO        URGN
===== >>>>>> END OF BACKUP MISSION PARAMETERS OF THIS CATEGORY <<<<<< =====
PLEASE FILL IN MISSION PARAMETERS. USE "SHPF" TO SEE PFK DEFINITION          15.15.36
    
```

You define parameters in your backup mission definitions that supply CONTROL-D with the following information:

- When the backup mission should be scheduled.
- When the backup mission should be executed.
- For how long the reports should be archived.

6. Execute backup job and analyze results.

Figure 32 Graphic Overview of Backup Mission Workflow



NOTE

DAILY SUBSYSTEM in the above figure refers to the New Day procedure and the programs it calls.



Schedule Backup Mission to the Active Missions File

A backup mission must be placed in the Active Missions file to execute. The mechanism used to place a copy of the backup mission definitions in the Active Missions file is the New Day procedure (CTDNDAY).

The New Day procedure calls a special scheduling program that runs independently of the CONTROL-D monitor, which is a started task – STC. The program can run at any time, even if the CONTROL-D monitor is not active.

The scheduling program scans your backup mission library and analyzes which backup missions should be scheduled to the Active Missions file, depending on the Basic Scheduling parameters you have defined. You can also specify special parameters to the list of missions to be scheduled that can override any specified scheduling criteria. For example, parameter FORCE ignores Basic Scheduling parameters and always places the backup mission in the Active Missions file.

Methods of Scheduling Backup Missions

You can invoke the scheduling program under a variety of environments. Below is a list of the possible invocation environments and a description of how they work.

- Online From the Backup Mission Library

All users will use this method for ad hoc scheduling or testing. You simply specify, using online options ORDER or FORCE, which Backup Missions you want to place in the Active Missions file.

- Batch Execution of the Scheduling Program

You can run the scheduling program as a batch job, using procedure CTDBKDAY. The batch job will analyze the Basic Scheduling parameters of the specified backup missions, and schedule the relevant missions to the Active Missions file.

- Using Procedure CTDNDAY (Recommended Method)

During the run of the New Day procedure CTDNDAY, as explained in the CONTROL-D and CONTROL-V chapter of the *INCONTROL for z/OS Administrator Guide*, one of its phases is an execution of the scheduling program. During this phase the procedure will analyze a supplied list of backup missions to determine which ones should be scheduled to the Active Missions file.

Select Backup Mission for Execution

The CONTROL-D monitor analyzes the Active Missions file at the interval specified in installation parameter INTERVALD in member CTDPARM, and selects missions for execution once all runtime dependencies have been met.

The CONTROL-D monitor analyzes the Runtime Scheduling parameters of the backup mission to determine when to execute it. You can specify dependency information and time specifications to control exactly when the backup mission should be executed.

Execute Backup Mission Instructions

The CONTROL-D monitor executes the backup mission. The mission selects which CDAM files will be backed up by the backup mission.

Once a report has been decollated by CONTROL-D, it is available for backup. The decollating mission creates entries in the Active User Report List file.

With the report decollating mission parameters, you can use parameter DO BACKUP to specify which backup mission should back up the user's report. The \$SYSDATA entries created in the Active User Report List file are marked with the name of the assigned backup mission.

Sample Report Decollating Mission Definition

ON CLASS	= T	EXTWTR	DEST	FORM
PRT COPIES	LVL	USER	DEST	MAX COPIES
PRINT/CDAM PARMS =				
WHEN LINE	006 - 006	COL 016 - 019	PRINT REF NXT	CT AND/OR
STRING = 1001				
DO USER	= BR11	LVL LINE	COL -	S A T
SYNONYM = CONCAT =				
DO NAME	= I NVENTORY-FOR-1001	LINE	COL	
DO BACKUP	= BKP0007D BKP0031D			
DO				

On a daily basis, the site normally schedules mission BKP007D to process the daily reports and archive them for a week. However, at month-end, they schedule mission BKP0031D to run before the normal BKP007D. This way, the reports produced by this job at month-end are archived for thirty-one days.

Create Backup Job

During execution, the backup mission scans the Active User Report List file to see which reports should be backed up by this mission. The result of the execution is a backup job that will make a copy of the selected CDAM files to tape or cartridge.

This job is defined in the format of the backup product you want to use to perform the archive. Which backup product to use at your site is specified at time of installation in member CTDPARM in the IOA PARM library.

Access Backup Job Skeleton

There must be a skeleton member in the CONTROL-D SKL library (the CONTROL-D skeleton library) that matches the name of the backup mission. This member is used as a basis for building the backup job. Sample members exist for all supported backup products in the CONTROL-D SKL library.

Backup Job Skeleton JCL

```

BROWSE -- CTDP. PROD. SKL(BKPO031D) - 01.03 ----- LINE 0000000 COL 001 080
COMMAND ==> SCROLL ==> CSR
***** TOP OF DATA *****
//M90BKP JOB , IOA, CLASS=A, MSGCLASS=X
//*
//*****
//* CONTROL-D BACKUP STEP *
//*****
//BACKUP EXEC PGM=FDRDSF, REGION=OM
//SYSPRINT DD DSN=CTDP. PROD. %MISNAME%. BKPLIST,
// DI SP=(MOD, PASS), SPACE=(CYL, (1, 1)), UNIT=SYSALLDA
//DISK1 DD UNIT=SYSALLDA, DISP=SHR, VOL=SER=FDSYM3
//TAPE1 DD DSN=CTDP. BKP. %ODATE%. %TIME%. LABEL1,
// LABEL=(1, SL, RETPD=%RETPD%), UNIT=TAPE, DISP=(, PASS)
//SYSIN DD *
DUMP TYPE=DSF, MAXCARDS=9999
%DSNS%
//*****
//* CONTROL-D ANALYZE STEP *
//*****
//ANALYZE EXEC PGM=CTDBKC, COND=EVEN, REGION=OM,
// PARM=' %TIMESTMP%, %MISNAME%'
//STEPLIB DD DSN=IOAP. PROD. LOAD, DISP=SHR
//TAPE1 DD DSN=*. BACKUP. TAPE1, DISP=(OLD, CATLG), UNIT=(, DEFER)
//SYSIN DD DSN=CTDP. PROD. %MISNAME%. BKPLIST,
// DI SP=(OLD, DELETE)
//DAAMF DD DISP=SHR, DSN=CTDP. PROD. Active Missions File
//DAAMF1 DD DISP=SHR, DSN=CTDP. PROD. Active Missions File
//DALOG DD DISP=SHR, DSN=IOAP. PROD. LOG
//DAVACT DD DSN=CTDP. PROD. ACTUSR, DISP=SHR,
// AMP=(' BUFSP=500000' )
//SYSPRINT DD SYSOUT=*, HOLD=YES
//SYSABEND DD SYSOUT=*, HOLD=YES
//PRTDBG DD SYSOUT=*, HOLD=YES
//
***** BOTTOM OF DATA *****

```

Create Backup Job JCL

The Backup Mission uses the skeleton member to create a backup job in the CONTROL-D JOB library (the backup job library). All variable values from the skeleton member are substituted. This job contains a list of all the CDAM datasets that will be backed up.

Backup Job JCL

```

BROWSE -- CTD.P. PROD. JOB(BKPO031D) - 01.00 ----- LINE 0000000 COL 001 080
COMMAND ==>                                SCROLL ==> CSR
***** TOP OF DATA *****
//M90BKP JOB , IOA, CLASS=A, MSGCLASS=X
//*
//*****
//* CONTROL-D BACKUP STEP *
//*****
//BACKUP EXEC PGM=FDRDSF, REGION=OM
//SYSPRINT DD DSN=CTDP. PROD. BKPM90. BKPLIST,
//          DI SP=(MOD, PASS), SPACE=(CYL, (1, 1)), UNIT=SYSALLDA
//DISK1 DD UNIT=SYSALLDA, DI SP=SHR, VOL=SER=FDSYM3
//TAPE1 DD DSN=CTDP. BKP. D000428. T175218. LABEL1,
//        LABEL=(1, SL, RETPD=0031), UNIT=TAPE, DI SP=(, PASS)
//SYSIN DD *
        DUMP TYPE=DSF, MAXCARDS=9999
        SELECT DSN=CTDP. R3. P01000D. J17840. D1181409. S91. N002300
        SELECT DSN=CTDP. R3. JAC3056. J17841. D1181419. S91. N004400
        SELECT DSN=CTDP. R3. BL1140F. J17852. D1181452. S91. N006400
//*****
//* CONTROL-D ANALYZE STEP *
//*****
//ANALYZE EXEC PGM=CTDBKC, COND=EVEN, REGION=OM,
//          PARM='17521805, BKPM90'
//STEPLIB DD DSN=IOAP. PROD. LOAD, DI SP=SHR
//TAPE1 DD DSN=*. BACKUP. TAPE1, DI SP=(OLD, CATLG), UNIT=(, DEFER)
//SYSIN DD DSN=CTDP. PROD. BKPM90. BKPLIST,
//        DI SP=(OLD, DELETE)
//DAAMF DD DI SP=SHR, DSN=CTDP. PROD. Active Missions File
//DAAMF1 DD DI SP=SHR, DSN=CTDP. PROD. Active Missions File
//DALOG DD DI SP=SHR, DSN=IOAP. PROD. LOG
//DAVACT DD DSN=CTDP. PROD. ACTUSR, DI SP=SHR,
//        AMP=('BUFSP=500000')
//SYSPRINT DD SYSOUT=*, HOLD=YES
//SYSABEND DD SYSOUT=*, HOLD=YES
//PRTDBG DD SYSOUT=*, HOLD=YES
***** BOTTOM OF DATA *****

```

Once the JCL for the backup job has been written to the JOB library it is then ready for submission. Note that because this library is used to create a new member (or replace an existing one), the library should be compressed on a regular basis to avoid any space problems.

Submit Backup Job

Once the JCL created for the backup job has been written to the JOB library, CONTROL-D provides two methods for submitting the job to the system:

- The CONTROL-D monitor will submit the job (default).
- CONTROL-M or another automated scheduling package will submit the job.

These methods are described below.

- **Submit using CONTROL-D monitor**

CONTROL-D will automatically submit the job to the system.

- **Submit using CONTROL-M**

If you have CONTROL-M installed in Shared Database mode, you can add a condition to trigger the submission of the JCL by CONTROL-M. This is the preferred method for CONTROL-M users, because the execution of the backup job can be monitored by CONTROL-M.

- **Submit using Production Control System**

You can pass control to another production control system to submit the job. Using this method, the execution of the job can be monitored by the production control system. This method is implemented using CONTROL-D Exit CTDX010.

Execute Backup Job

Once the backup job has started executing, two JCL steps are performed. The first JCL step backs up the selected CDAM datasets to tape or cartridge. The second JCL step analyzes the results of the execution and updates the status of the entries in the Active User Report List file to indicate that the datasets have been backed up successfully.

If a backup mission fails while executing, you may have to run a BKPRESET job from the CONTROL-D JCL library.

Define Backup Missions

The number of backup missions you define will depend on the various categories of durations for which you need to keep archived reports.

A number of supplied backup mission definitions exist which may meet most of your requirements. We recommend that when you are creating new backup mission definitions, you always use the CLIST CTDCRMIS. This CLIST will automatically create a backup mission definition and a backup skeleton job for you according to the parameters you supply. If specific changes are then required, you can access the backup mission definition using the Online facility.

You can also define the backup mission parameters using the screens of the CONTROL-D Online facility. The definitions that you create are saved in the CONTROL-D backup missions library. Note that because the definitions are saved in a partitioned dataset (PDS), you should ensure that the PDS is backed up regularly in case you lose your definitions due to a DASD error.

In this section, we will offer recommendations on specific parameters that you will define in your backup mission definitions. Shown below is a summary of the information that you will specify. We have split the information into five distinct steps. For a detailed explanation, see the printing, backup, and restore mission parameters chapter of the *CONTROL-D User Guide*.

We will use the following five-step guide to explain how to define backup missions. Each step corresponds to a particular category of the backup mission parameters:

- 1 General mission information (General Parameters).
- 2 When to schedule the mission (Basic Scheduling parameters).
- 3 When to execute the mission (Runtime Scheduling parameters).
- 4 Archive information (Archive parameters).
- 5 What to do upon termination of the mission (Post-Processing parameters).

Backup Mission Parameters Definition Screen

```

---- CONTROL-D CATEGORY                                BKP MISSION BKP0031D ----- (M. S)
COMMAND ==>>>>                                       SCROLL==>>> CRSR
-----
CATEGORY PROD                                MISSION BKP0031D
OWNER      M90                                TASKTYPE BKP      GROUP
DESC
=====
DAYS                                             DCAL
                                             AND/OR
WDAYS                                             WCAL
MONTHS  1- Y 2- Y 3- Y 4- Y 5- Y 6- Y 7- Y 8- Y 9- Y 10- Y 11- Y 12- Y
DATES
CONFCAL          SHI FT      RETRO N MAXWAIT OO
MI NI MUM        PDS
=====
IN
TIME FROM      TO      NOT LATER THAN      PRI OR I TY
=====
# OF DAYS TO KEEP 0031                                # OF GENERATIONS TO KEEP 0000
=====
OUT
SHOUT WHEN          TO          URGN
MSG
=====
>>>>>>> END OF BACKUP MISSION PARAMETERS OF THIS CATEGORY <<<<<<< =====
PLEASE FILL IN MISSION PARAMETERS. USE "SHPF" TO SEE PFK DEFINITION      15.15.36
    
```

Step 1: General Mission Information

The first set of parameters you can fill in are the General Mission parameters. In this section, you define general information about the mission, much of which can be used for tracking and control purposes:

CATEGORY		MISSION
OWNER	TASKTYPE BKP	GROUP
DESC		

We recommend that the mission names reflect the backup duration. This should make it easy to identify report archive durations when working with the user files.

Step 2: When to Schedule the Mission

The second set of parameters you can fill in are the Basic Scheduling parameters. In this section, you define information about when to schedule the mission to the Active Missions file:

Backup Mission Basic Scheduling Parameters

DAYS		DCAL
WDAYS		AND/OR
MONTHS	1- Y 2- Y 3- Y 4- Y 5- Y 6- Y 7- Y 8- Y 9- Y 10- Y 11- Y 12- Y	WCAL
DATES		
CONFCAL	SHIFT	RETRO N MAXWAIT OO
MINIMUM	PDS	

A scheduling program called by the New Day procedure analyzes these parameters to determine if the mission should be placed in the Active Missions file. The various options for scheduling were detailed in “Schedule Backup Missions to the Active Missions File” under “Backup Mission Workflow” earlier in this chapter.

We recommend that you select a method for scheduling of the backup missions and implement it at this stage. This will mean that backup procedures will be in place before the implementation of CONTROL-D into production (which will occur in Phase 8).

Step 3: When to Execute the Mission

The third set of parameters you can fill in are the Runtime Scheduling parameters. In this section, you define information about when the mission should execute after it has been placed in the Active Missions file.

Backup Mission Runtime Scheduling Parameters

IN TIME FROM	TO	NOT LATER THAN	PRI OR I TY
-----------------	----	----------------	-------------

When all runtime parameters are fulfilled concurrently, the backup mission will start executing. The CONTROL-D monitor checks the Active Missions file at specified intervals (defined in CTDPARM) to see if the specified criteria have been met. You can specify dependency information to the backup mission using parameter IN.

If you have to manually load tapes or cartridges, you should ensure that backup missions are run when there is someone there to respond to the mount requests. You can achieve this by scheduling only on working days, and by specifying time windows for the execution of backup missions.

Step 4: Archive Information

The fourth set of parameters you can fill in are the Archive parameters. In this section you define information about the period for which a report should be backed up.

Backup Mission Archive Parameters

# OF DAYS TO KEEP 0031	# OF GENERATIONS TO KEEP 0000
------------------------	-------------------------------

You can specify the duration time as either number of days or number of generations. When using number of generations, each run of the backup mission is a generation. Once the number of days or generations has passed, the entries are deleted from the History User Report List file by utility CTDCLHIS.

Step 5: What to Do Upon Termination of the Mission

The fifth set of parameters you can fill in are the Post-Processing parameters. In this section, you define information about what to do when the mission finishes executing.

Backup Mission Post Processing Parameters

```

OUT
SHOUT WHEN NOTOK                                TO TSO-TS016    URG V
MSG BKPO007D HAS ENDED NOTOK - PLEASE INVESTIGATE

```

We recommend that you use the Shout facility for exception handling (such as when a mission fails). You should try to avoid sending “comforting” messages indicating that all your backup missions have worked successfully, as these may obscure any real exceptions that occur in CONTROL-D.

NOTE

You should by now have defined and implemented the backup procedures.



General Information About Restore Missions

In this section we will be describing in detail all of the automatic phases and processes that occur during the restore workflow. We will analyze what a Restore Mission does and how, as well as how they are defined.

Overview

CONTROL-D uses restore missions to bring back copies of archived datasets from tape or cartridge to disk for online viewing or printing purposes.

CONTROL-D uses your current backup product to perform the restore of the CDAM datasets. For example, if you use the DF/HSM backup product, CONTROL-D will build and submit an DF/HSM batch job to perform the restore process.

When you restore a report, you are actually restoring the CDAM dataset in which the report is stored. Restore operations are performed in response to user requests issued from the History User Report List file. Restore missions analyze these requests when they are executed. In this phase, you will decide how and when the restore requests should be processed.

What Is A Restore Mission?

A restore mission is the basic mechanism used by CONTROL-D for restoring archived datasets back to disk.

The restore mission searches the History User Report List file for entries that have been requested for restoring. Any entries that have a restore mission name matching the mission will be restored. A copy of the archived CDAM dataset is restored to disk and a copy of the requested entry is placed in the Active User Report List file, allowing the user access to the restored report.

You can define different restore missions that can restore reports at different times. For example, restore critical reports immediately and non-critical reports on an hourly basis:

- Restore Mission RSTADHOC - Restores reports immediately.
- Restore Mission RST0060M - Restores reports on an hourly basis.

If you have to manually load tapes or cartridges, you should ensure that restore requests do not continually flood the operator's console. It is better to create a specific interval to carry out these requests.

When Should I Restore Reports?

You can limit the authority of who is allowed to restore reports under CONTROL-D. It may be that you allow all end users to control their reports, or that only the computer service people are allowed to restore reports. If you are not giving online access to users, they will not have the ability to restore their reports.

When deciding the frequency of restoring reports, you should consider the needs of all parties involved (both operators and end users). If certain reports are constantly being restored, it may be that the report should remain online for a longer duration. You should weigh carefully the costs involved in keeping reports online and archiving reports if they are heavily accessed (that is, constantly being restored).

Using the restore mission parameters you can specify time and event dependency information for the execution of the mission.

Where Are Restore Missions Defined?

You define the restore missions online using the CONTROL-D Mission Definition facility (Option M in the IOA Primary Option menu). The definitions are stored as members of a partitioned dataset (PDS) in the CONTROL-D restore missions library. You use the Mission Definition screen to define your parameters (see below):

Restore Mission Definition Screen

```

----- CONTROL-D CATEGORY                                RST MI SSION RST0060M ----- (M. S)
COMMAND ==>>>>                                         SCROLL==>>>> CRSR
+-----+-----+-----+-----+-----+-----+-----+-----+-----+
CATEGORY                                               MI SSION
OWNER      M90                TASKTYPE RST          GROUP
DESC
=====
DAYS                                               DCAL
                                               AND/OR
WDAYS                                               WCAL
MONTHS     1- Y 2- Y 3- Y 4- Y 5- Y 6- Y 7- Y 8- Y 9- Y 10- Y 11- Y 12- Y
DATES
CONF CAL          SHI FT      RETRO N MAXWAIT OO
MI NI MUM         PDS
=====
I N
TIME FROM      TO      NOT LATER THAN      PRI ORI TY      I NTERVAL
=====
OUT
SHOUT WHEN          TO          URG N
MSG
===== >>>>>>> END OF RESTORE MI SSION PARAMETERS OF THI S CATEGORY <<<<<< =====
PLEASE FI LL I N MI SSION PARAMETERS. USE "SHPF" TO SEE PFK DEFI NI TI ON      15. 15. 36

```

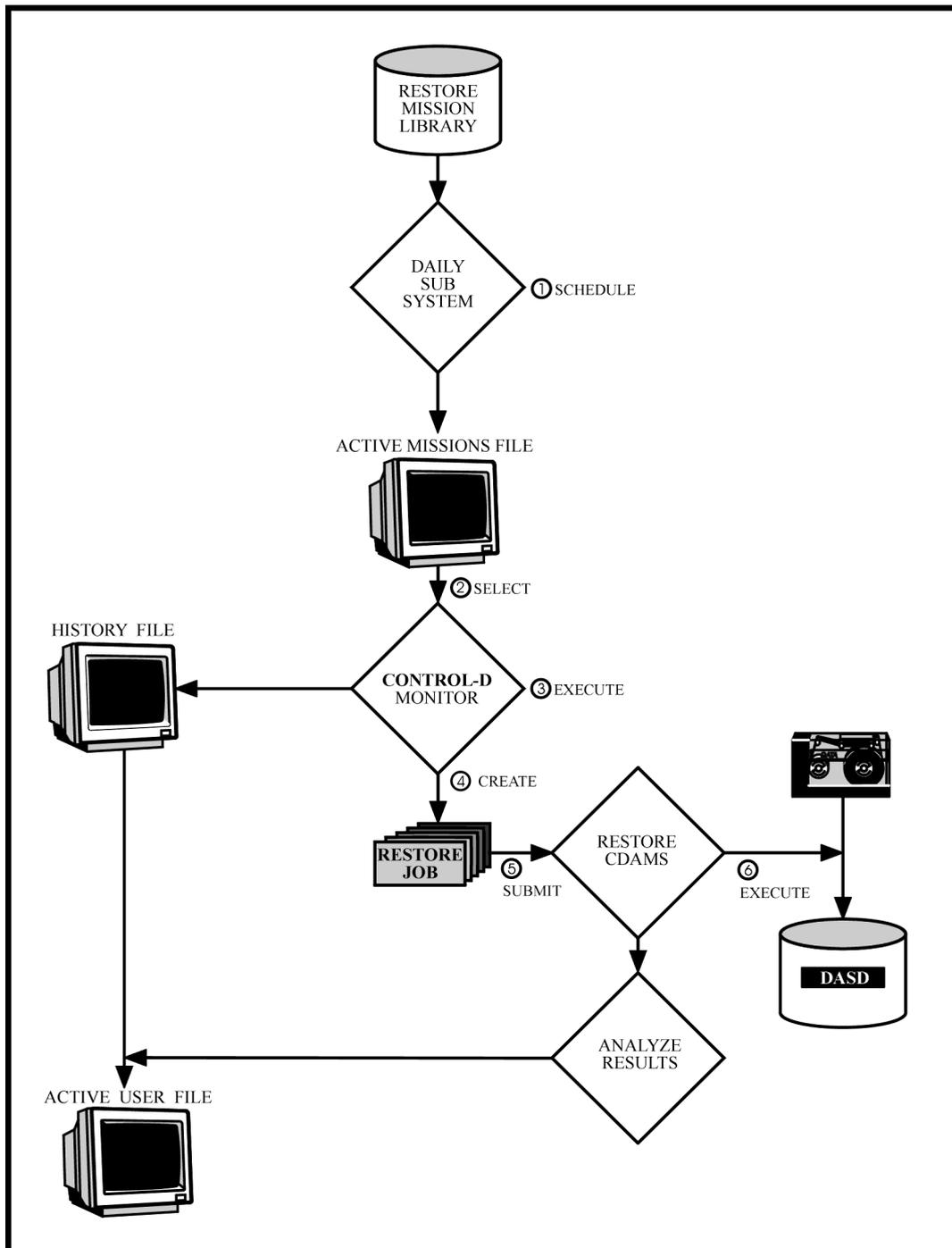
You will define parameters in your restore mission definitions that will supply CONTROL-D with the following information:

- When the restore mission should be scheduled.
- When the restore mission should be executed.

How Do I Activate a Restore Mission?

Restore Missions must be scheduled to the Active Missions file to execute. A scheduling program called by the New Day procedure CTDNDAY is responsible for performing the scheduling of Restore Missions. The scheduling options are discussed later in this phase.

Figure 33 Graphic Overview of Restore Mission Workflow

**NOTE**

DAILY SUBSYSTEM in the above figure refers to the New Day procedure and the programs it calls.



Schedule Restore Mission to the Active Missions File

A restore mission must be placed in the Active Missions file to execute. The mechanism used to place a copy of the restore mission definitions in the Active Missions file is the New Day procedure (CTDNDAY).

The New Day procedure calls a special scheduling program that runs independently of the CONTROL-D monitor (a started task – STC). The program can run at any time, even if the CONTROL-D monitor is not active.

The scheduling program will scan your restore mission library and analyze which restore missions should be scheduled to the Active Missions file depending on the Basic Scheduling parameters you have defined. You can also specify special parameters in the list of missions to be scheduled that can override any specified scheduling criteria. For example, parameter FORCE will ignore Basic Scheduling parameters and always place the restore mission in the Active Missions file.

Methods of Scheduling Restore Missions

You can invoke the scheduling program under a variety of environments. Below is a list of the possible invocation environments and a description of how they work.

- Online from the Restore Mission Library

All users will use this method for ad hoc scheduling or testing. You simply specify, using the online options, which restore missions you want to place in the Active Missions file.

- Batch execution of the Scheduling Program

You can run the scheduling program as a batch job, using procedure CTDRSDAY. The batch job will analyze the Basic Scheduling parameters of the specified restore missions and schedule the relevant missions to the Active Missions file.

- Using CTDNDAY (recommended method)

During the run of the New Day procedure CTDNDAY, as explained in the CONTROL-D and CONTROL-V chapter of the *INCONTROL for z/OS Administrator Guide*, one of its phases is an execution of the scheduling program. During this phase, it will analyze a supplied list of restore missions and determine which ones should be scheduled to the Active Missions file.

Create Restore Job

The result of the execution is a restore job that will restore the selected CDAM files to disk and copy the relevant entries back to the Active User Report List file.

This job is created in the format of the backup product you want to use to perform the restore. Which backup product is used at your site is specified at time of installation in member CTDPARM in the IOA PARM library.

Restore Job Skeleton

There must be a skeleton member in the CONTROL-D SKL library (the Skeleton library) that matches the name of the restore mission. This member is used as a basis for building the restore job. There are sample members of all supported backup products in the CONTROL-D SKL library.

Restore Job Skeleton JCL

```

EDIT ---- CTDP. PROD. SKL(RST0060M) - 01.04 ----- COLUMNS 001 072
COMMAND ==> SCROLL ==> CSR
***** ***** TOP OF DATA *****
//M9ORST JOB , IOA, CLASS=A, MSGCLASS=X
//*
//*****
//* RESTORE STEPS *
//*****
//*
%REPEAT%
//RESTORE EXEC PGM=FDRDSF, COND=EVEN, REGION=OM
//SYSPRINT DD DSN=CTDP. PROD. %MISNAME%. RSTLIST,
// DI SP=(MOD, PASS), SPACE=(CYL, (1, 1)), UNIT=SYSALLDA
//DISK1 DD UNIT=SYSALLDA, DI SP=SHR, VOL=SER=FDSYM3
//TAPE1 DD DSN=CTDP. BKP. %ODATE%. %TIME%. LABEL1,
// UNIT=(TAPE, , DEFER), DI SP=SHR
//SYSIN DD *
RESTORE TYPE=DSF, MAXCARDS=9999
%DSNS%
//*
%ENDREPEAT%
//*****
//* CONTROL-D ANALYZE STEP *
//*****
//ANALYZE EXEC PGM=CTDRSC, COND=EVEN, REGION=OM,
// PARM=' %TIMESTMP%, %MISNAME%'
//STEP1 DD DSN=IOA. PROD. LOAD, DI SP=SHR
//SYSIN DD DSN=CTDP. PROD. %MISNAME%. RSTLIST,
// DI SP=(OLD, DELETE)
//DAAMF DD DI SP=SHR, DSN=CTDP. PROD. Active Missions File
//DAAMF1 DD DI SP=SHR, DSN=CTDP. PROD. Active Missions File
//DALOG DD DI SP=SHR, DSN=IOA. PROD. LOG
//DAVACT DD DSN=CTDP. PROD. ACTUSR, DI SP=SHR,
// AMP=(' BUFSP=300000' )
//DAVHST DD DSN=CTDP. PROD. HSTUSR, DI SP=SHR,
// AMP=(' BUFSP=300000' )

```

```
//SYSPRINT DD SYSOUT=*, HOLD=YES
//SYSABEND DD SYSOUT=*, HOLD=YES
//PRTDBG DD SYSOUT=*, HOLD=YES
//
***** BOTTOM OF DATA *****
```

Create Restore Job JCL

The restore mission uses the skeleton member to create a restore job in the CONTROL-D JOB library (the backup job library). All variable values from the skeleton member are substituted. This job contains a list of all the CDAM data restored.

Restore Job JCL

```
EDIT ---- CTD.P. PROD. JOB(RST0060M) - 01.00 ----- COLUMNS 001 072
COMMAND ==> SCROLL ==> CSR
***** TOP OF DATA *****
//M9ORST JOB , IOA, CLASS=A, MSGCLASS=X
//*
//*****
//* RESTORE STEPS *
//*****
//*
//RESTORE EXEC PGM=FDRDSF, COND=EVEN, REGION=OM
//SYSPRINT DD DSN=CTDP. PROD. M9ORST. RSTLIST,
// DI SP=(MOD, PASS), SPACE=(CYL, (1, 1)), UNIT=SYSALLDA
//DISK1 DD UNIT=SYSALLDA, DI SP=SHR, VOL=SER=FDSYM3
//TAPE1 DD DSN=CTDP. BKP. D000317. T175627. LABEL1,
// UNIT=(TAPE, , DEFER), DI SP=SHR
//SYSIN DD *
RESTORE TYPE=DSF, MAXCARDS=9999
RESTORE DSN=CTDP. R3. JGL1030. J08529. D0761755. S91. N002500
RESTORE DSN=CTDP. R3. BL1140D. J08502. D0761542. S91. N000900
//*
//*****
//* CONTROL-D ANALYZE STEP *
//*****
//ANALYZE EXEC PGM=CTDRSC, COND=EVEN, REGION=OM,
// PARM='13470051, M9ORST '
//STEPLIB DD DSN=IOAP. PROD. LOAD, DI SP=SHR
//SYSIN DD DSN=CTDP. PROD. M9ORST. RSTLIST,
// DI SP=(OLD, DELETE)
//DAAMF DD DI SP=SHR, DSN=CTDP. PROD. Active Missions File
//DAAMF1 DD DI SP=SHR, DSN=CTDP. PROD. Active Missions File
//DALOG DD DI SP=SHR, DSN=IOAP. PROD. LOG
//DAVACT DD DSN=CTDP. PROD. ACTUSR, DI SP=SHR,
// AMP=(' BUFSP=300000' )
//DAVHST DD DSN=CTDP. PROD. HSTUSR, DI SP=SHR,
// AMP=(' BUFSP=300000' )
//SYSPRINT DD SYSOUT=*, HOLD=YES
//SYSABEND DD SYSOUT=*, HOLD=YES
//PRTDBG DD SYSOUT=*, HOLD=YES
//
***** BOTTOM OF DATA *****
```

Once the JCL for the restore job has been written to the JOB library it is then ready for submission.



NOTE

Because this library is used to create a new member (or replace an existing one), the library should be compressed on a regular basis to avoid any space problems.

Submit Restore Job

Once the JCL created for the restore job has been written to the JOB library, CONTROL-D provides two methods for submitting the job to the system:

- The CONTROL-D monitor will submit the job (default).
- CONTROL-M or another automated scheduling package will submit the job.

These methods are described below:

- Submit using the CONTROL-D monitor.

CONTROL-D will automatically submit the job to the system.

- Submit using CONTROL-M.

If you have CONTROL-M installed in Shared Database mode, you can add a condition to trigger the submission of the JCL by CONTROL-M. This is the preferred method for CONTROL-M users because the execution of the restore job can be monitored by CONTROL-M.

- Submit using the production control system.

You can pass control to another production control system to submit the job. Using this method, the execution of the job can be monitored by the production control system. This method is implemented using CONTROL-D Exit CTDX011.

Execute Restore Job

Once the restore job has started executing, it has two phases. The first is to restore all the requested CDAM datasets to DASD. The second is to analyze the results of the execution, to copy the selected entries to the Active User Report List file (so that the restored CDAMs can be accessed), and to update the status of the History User Report List file entries to indicate that they have been successfully restored.

If the restore mission fails while executing, you may have to run a RSTRESET job from the CONTROL-D JCL library.

Define Restore Missions

There are two supplied restore mission definitions that you can use. For many sites, no other definitions are required. We recommend that when you are creating new restore mission definitions, you use the CLIST CTDCRMIS. This CLIST will automatically create a restore mission definition and a restore skeleton job for you, according to the parameters you supply.

You can also define the restore mission parameters online using the CONTROL-D Mission Definition facility screens (Option M in the IOA Primary Option menu). The definitions that you create are saved in the CONTROL-D restore missions library. Note that because the definitions are saved in a partitioned dataset (PDS), you should ensure that the PDS is backed up regularly in case you lose your definitions due to some type of system error.

In this section, we will offer recommendations on specific parameters that you will define in your restore mission definitions. Below is a summary of the information that you will specify. We have split the information into four distinct steps. For a detailed explanation, see the printing, backup and restore mission parameters chapter in the *CONTROL-D User Guide*.

We will use this four-step guide to explain how to define restore missions. Each step corresponds to a particular category of the restore mission parameters:

- 1 General mission information (General parameters).
- 2 When to schedule the mission (Basic Scheduling parameters).
- 3 When to execute the mission (Runtime Scheduling parameters).
- 4 What to do upon termination of the mission (Post-Processing parameters).

Restore Mission Parameters Definition Screen

```

----- CONTROL-D CATEGORY                                RST MISSION RST0060M -----(M. S)
COMMAND ==>                                           SCROLL==> CRSR
+-----+
CATEGORY
OWNER      M90                TASKTYPE RST          MISSION
DESC
=====
DAYS                                             DCAL
                                           AND/OR
WDAYS                                             WCAL
MONTHS  1- Y 2- Y 3- Y 4- Y 5- Y 6- Y 7- Y 8- Y 9- Y 10- Y 11- Y 12- Y
DATES
CONFCAL          SHI FT      RETRO N MAXWAIT OO
MI NI MUM        PDS
=====
IN
TIME FROM      TO      NOT LATER THAN      PRI OR I TY      I N T E R V A L
=====
OUT
SHOUT WHEN          TO          URGN
MSG
=====
>>>>>>> END OF RESTORE MISSION PARAMETERS OF THIS CATEGORY <<<<<<< =====
PLEASE FILL IN MISSION PARAMETERS. USE "SHPF" TO SEE PFK DEFINITION      15.15.36
    
```

Step 1: General Mission Information

The first set of parameters you can fill in are the General Mission parameters. In this section, you define general information about the mission, much of which can be used for tracking and control purposes.

General Mission Parameters

We recommend that the mission names reflect the restore interval. This should make it easy to identify and forecast when the next restore will occur.

CATEGORY		MISSION
OWNER	TASKTYPE RST	GROUP
DESC		

Step 2: When to Schedule the Mission

The second set of parameters you can fill in are the Basic Scheduling parameters. In this section, you define information about when to schedule the mission to the Active Missions file.

Basic Scheduling Parameters

DAYS		DCAL	
			AND/OR
WDAYS		WCAL	
MONTHS	1- Y 2- Y 3- Y 4- Y 5- Y 6- Y 7- Y 8- Y 9- Y 10- Y 11- Y 12- Y		
DATES			
CONF CAL	SHI FT	RETRO N	MAXWAI T OO
MI NI MUM	PDS		

A scheduling program called by the New Day procedure CTDNDAY analyzes these parameters to determine if the mission should be placed in the Active Missions file. The various options for scheduling were detailed in “Schedule Restore Missions to the Active Missions File” under “Restore Mission Workflow” earlier in this chapter.

We recommend that you select a method for scheduling of the restore missions and implement it at this stage. This will mean that the restore procedures will be in place for the implementation of CONTROL-D into production (which will occur in Phase 8).

Step 3: When to Execute the Mission

The third set of parameters you can fill in are the Runtime Scheduling parameters. In this section, you define information about when the mission should execute after it has been placed in the Active Missions file.

Runtime Scheduling Parameters

IN				
TI ME FROM	TO	NOT LATER THAN	PRI ORI TY	I NTERVAL

Once all runtime parameters are fulfilled concurrently, the restore mission will start executing. The CONTROL-D monitor checks the Active Missions file at specified intervals (defined in CTDPARM) to see if the specified criteria have been met. You can specify dependency information to the restore mission using parameter IN.

Example

The following definition specifies that the restore mission should not run until the operators have added a condition. In this example, we are using a manual trigger to execute the mission.

IN	OP-START-RESTORE-ADH	ODAT		
TI ME FROM	TO	NOT LATER THAN	PRI ORI TY	I NTERVAL

Step 4: What to Do Upon Termination of the Mission

The fourth set of parameters you can fill in are the Post-Processing parameters. In this section, you define information about what to do when the mission finishes executing.

Report Decollating Mission Post Processing Parameters

OUT			
SHOUT WHEN NOTOK		TO OPER2	URG V
MSG RESTORE MISSION RST0060M ENDED NOT OK - PLEASE CHECK			

We recommend that you use the Shout facility for exception handling (such as when a mission fails). You should try to avoid sending “comforting” messages indicating that all your restore missions have worked successfully as these may obscure any real exceptions that occur in CONTROL-D.

Cyclic Restore Missions

Standard restore missions (when the TASKTYPE parameter is set to RST) are scheduled to the Active Missions file and execute once (unless manually rerun).

Normally you will define restore missions as being “cyclic” by setting the TASKTYPE parameter to CRS. This means that the mission can have multiple executions rather than just one. The flow of a cyclic mission is that the mission is scheduled to the Active Missions file. The mission executes at a specific point based on time and dependency parameters, and when it completes it is rescheduled for another potential execution. Using this method, a Restore Mission can have multiple executions.

Example

```

CATEGORY PROD                                MI SSI ON RST0060M
OWNER     M90                                GROUP     ADMIN
DESC      RESTORES SELECTED REPORTS EVERY HOUR
DESC
=====
DAYS      ALL                                DCAL
                                           AND/OR
WDAYS                                           WCAL
MONTHS    1- Y 2- Y 3- Y 4- Y 5- Y 6- Y 7- Y 8- Y 9- Y 10- Y 11- Y 12- Y
DATES
CONF CAL          SHI FT    RETRO N MAXWAIT 00
MI NI MUM        PDS
=====
IN
TIME FROM 0800 TO 1900 NOT LATER THAN    PRI ORI TY    I NTERVAL 060
=====
OUT
SHOUT WHEN                                TO                                URGN
MSG
===== >>>>>> END OF RESTORE MI SSI ON PARAMETERS OF THI S CATEGORY <<<<<< =====

```

In the definition above, we specify that the restore mission should restore all reports (for this mission) at an hourly interval between 0800 and 1900 hours. This means that the restore mission will execute at an hourly interval between the specified times to check if any reports should be restored.

NOTE

You should by now have defined and implemented the restore procedures.



Daily Flow of Housekeeping Tasks

During this phase, we have detailed which utilities we need to set up to maintain the CONTROL-D User Report files, and have given recommendations on how to set up backup and restore missions. We recommend that you run the utilities on a daily basis using CONTROL-M or another automated scheduling package, if possible. Listed below is the recommended flow of housekeeping tasks.

After the nightly report decollating missions have completed, do the following:

Table 35 Daily Housekeeping Tasks Following The Nightly Run Of Decollating Missions

Task	Related Information
1. Run backup missions	To copy created CDAM files to tape (that is, archive reports).
2. Back up the Active User Report List file	Using any DASD management product such as DMS/OS or using the IDCAMS REPRO utility.
3. Run CTDCA2P	To copy any new user entries to the Permanent User Report List file.
4. Run CTDDELRP	To move the entries that have passed their Active User Report List file deadlines to the History User Report List file, and delete the associated CDAM files from DASD.
5. Run CTDCLHIS	To delete entries that have passed their Archive duration from the History User Report List file and to release their associated tapes back into the system.
6. Run CTDCP2A	To copy “dummy” entries to the Active Report List file, if you are allowing users to temporarily change the attributes of reports of the coming night. This utility is optional, depending on how you set up your report decollating mission SEARCH parameter.
7. Check UNIDENT	On a regular basis so that the reports assigned to the UNIDENT user will be checked to determine how and why reports have not been assigned.

NOTE

You should now set up the required utilities to run on a daily basis.



Review

During this phase, you have learned what the purpose of the CONTROL-D user files is, which types of entries are contained in the files, how we manage the files, how to set up backup and restore procedures, and which processes should be performed on a daily basis to administer CONTROL-D.

Before you continue, you should have:

- Implemented the housekeeping utilities.
- Set the search default using CONTROL-D Wish WD0933.
- Defined and implemented the backup missions.
- Defined and implemented the restore missions.
- Implemented backup and restore procedures.

Phase 6: Implement CDAM Direct Write

In this phase we will discuss the CDAM Direct Write facility and define what is required to implement this facility. We will examine the options you have for creating report output when using CONTROL-D and detail how the Compressed Dataset Access Method (CDAM) works.

This phase details the CDAM requirements from an implementation point of view. For further detailed information about the Compressed Dataset Access Method and its parameters, see the CDAM chapter in the *CONTROL-D User Guide*.

Some of the questions we will be answering in this phase are:

- What is CDAM?
- How does CDAM work?
- What options do I have to create report output?
- How do I implement the CDAM Direct Write option?

Inputs

Before you start this phase you should have tested your report decollating missions (Phase 3).

Outputs

At the end of this phase you will have:

- Created JCL Procedures that use the CDAM Direct Write facility.
- Updated the relevant report decollating mission definitions for CDAM Direct Write.

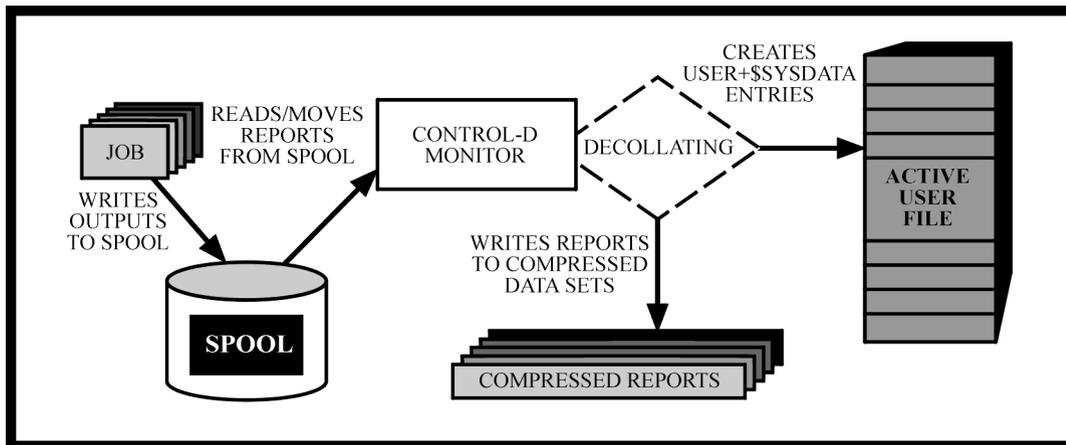
Compressed Dataset Access Method (CDAM) Overview

There are two sources from which CONTROL-D can decollate report output: The spool (known as Post-Spool processing) and CDAM datasets (known as Pre-Spool processing). The workflow for both methods is summarized below. In this phase, we will detail the actions required to achieve the second workflow (that is, creating reports directly to CDAM datasets from batch jobs, using the Pre-Spool method).

Create Reports to the Spool (Post-Spool)

This is the standard method of creating report output. Using this method, your batch jobs create output directly to the spool volume. Using report decollating missions, CONTROL-D can retrieve output from any class whether it be Held or Non-Held. CONTROL-D then processes the report as specified in the report decollating mission parameters, deletes the original output from the spool (if in Non-Held class), creates a compressed dataset for the report output, and creates user and \$SYSDATA entries in the Active User Report List file so that the report can be accessed, printed, archived, and so on.

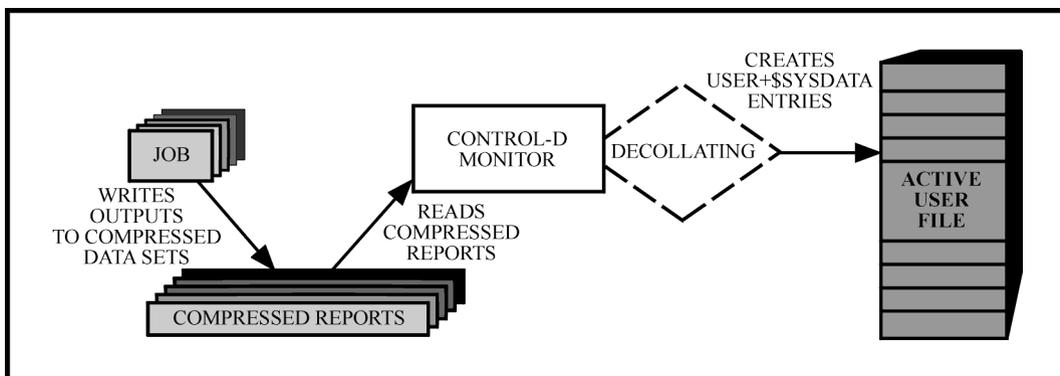
Figure 34 Creating Report to the Spool Workflow (Post-Spool)



Create Reports Directly to CDAM Files (Pre-Spool)

Using this method, you create report output directly to compressed datasets from batch jobs. Parameters in the JCL of the job invoke the CDAM Subsystem, which creates a compressed dataset for the report output. A report decollating mission can be automatically scheduled to process the created CDAM file. The CDAM file is then decollated as specified in the report decollating mission parameters and creates user and \$\$SYSDATA entries in the Active User Report List file so that the report can be accessed.

Figure 35 Creating Reports Directly to CDAM Files Workflow (Pre-Spool)



Benefits of CDAM Direct Write

All CONTROL-D features (for example, online viewing, printing, archiving) are available using either of the two CDAM creation methods. The benefits of writing directly to CDAM datasets rather than to the spool, are summarized below:

- Redundant read and/or write operations are eliminated (that is, using the Post Spool method, output is written to the spool, then written to a CDAM dataset). This duplication is eliminated using the Pre-Spool method.
- The elapse time of jobs creating large report outputs is reduced by 10% or more. This benefit is achieved because of an increase in performance when writing to CDAM datasets rather than to the system spool.
- The reports are written in compressed format, saving between 30% to 70% of required space.
- CDAM datasets are protected using the installation security package, avoiding potential security infringements that can occur on the spool.
- The spool is no longer used as a report repository and can be reduced in size, releasing valuable disk space.
- The danger of the spool reaching 100% utilization is greatly reduced.

CDAM Installation Options

Several parameters are defined during the installation process that affect the operation of Compressed Dataset Access Method (CDAM).

The parameters are defined in the CTDPARM member of the IOA PARM library.

CTDPARM Installation Parameters Member

BROWSE -- IOAP. PROD. PARM(CTDPARM)	- 01.03 -----	LINE 00000010	COL
COMMAND ==>			SCROLL ==
CTDPARC			*
AMBLK#=100,	CDAM - NUMBER OF BLOCKS		*
AMBLKSZ=23476,	CDAM - BLOCK SIZE (3380 DISKS)		*
AMFSIZE=1000,	# OF RECORDS - ACTIVE MISSION FILE		*
AMNAME=CDAM,	CDAM - NAME		*
AMPREF=CTDP. U3,	CDAM - COMPRESSED DSN DEFAULT PREFIX		*
AMPREFD=CTDP. R3,	CDAM - MONITOR COMPRESSED DSN PREFIX		*
JB1PREF=CTDP. J3,	CDAM - DEF PREFIX OF JOBSDSN1 FILES		*
AMUNIT=SYSALLDA,	CDAM - UNIT		*
AMVOL=,	CDAM - VOLUMES (READ THE GUIDE)		*
BKPUTIL=FDRCAT,	BACKUP/RESTORE UTILITY		*
CDQNAME=D3ETROLD,	QNAME FOR ENQ REQUESTS TO DATABASE		*

These parameters control the following CDAM functions:

- The default initial size of allocation request for a CDAM dataset.
- The name of the CDAM Subsystem.
- The default prefix of CDAM datasets created from the spool output (Post-Spool method).
- The default prefix of CDAM datasets created directly from batch jobs (Pre-Spool method).
- The default prefix of CDAM datasets created using parameter ALLOCOPT.
- The volumes and/or units to use for CDAM dataset allocation.

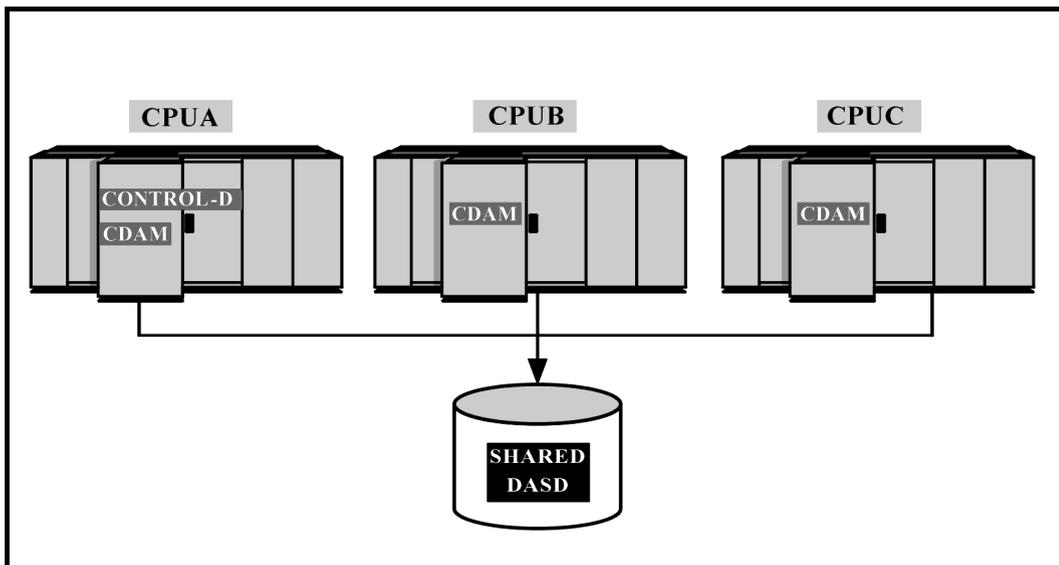
The CDAM Subsystem

The CDAM subsystem is the component of CONTROL-D that actually performs the creation of compressed datasets. The CDAM subsystem is used by the CONTROL-D monitor and by your batch jobs to read and write the compressed reports. CDAM should always be active after installing CONTROL-D.

Multi-CPU Support

The CDAM subsystem must be active on every CPU from which you want to create compressed datasets. The CDAM subsystem should remain active 24 hours a day. It should be activated as part of the IPL procedures (for details, see the CONTROL-D and CONTROL-V chapter in the *INCONTROL for z/OS Administrator Guide*). If you want to create CDAM datasets or perform online viewing in a multi-CPU environment, you must ensure that the CDAM subsystem is active on all CPUs involved.

Figure 36 CDAM Subsystem



Control the CDAM Subsystem

If you need to activate the CDAM subsystem manually, you can use the following operator command:

```
S IOASINIT, OPTIONS=D
```

This command executes a start routine for the CDAM subsystem. The name of the subsystem is defined in parameter AMNAME of member CTDPARM.

Though normally it should not be necessary, if you need to deactivate the CDAM subsystem, you can issue the following operator command:

```
S IOASTERM, OPTIONS=D
```

The CDAM subsystem should and can be active from this phase on. It is also important that you test the allocation of CDAM datasets before you reach the production implementation phase. We suggest that you set up test jobs for this purpose.



NOTE

You should now ensure that the CDAM subsystem is installed and functioning correctly on all required CPUs.

Set Up CDAM Direct Write

In this section, we will detail the requirements for implementing the CDAM Direct Write facility. To use this facility you must make some minor changes to the JCL of the batch jobs that create report output. To gain the benefits of CDAM Direct Write, you need to change the philosophy behind the way you create report output. Rather than writing reports to the spool, you will now be bypassing the spool and creating the report output directly to a compressed dataset (Pre-Spool method).

JCL Requirements

To achieve this we must change the JCL from the old philosophy of writing to the spool to the new philosophy of writing to compressed datasets. The Compressed Dataset Access Method controls the allocation of the CDAM datasets automatically, using the defined installation parameters. The first example shows how reports are written to the spool and the second example highlights the requirements to create output to a compressed dataset.

JCL and Allocation Messages for Spool Output

In this example, we will create two reports to spool into two different classes.

JCL Write to the Spool Example

```
//M90SPOOL JOB ,CARD
//*
//STEP1 EXEC PGM=IEBGENER
//SYSUT1 DD DISP=SHR,DSN=IOAP.PROD.SAMPREPS(REPORT1)
//SYSUT2 DD SYSOUT=P
//SYSIN DD DUMMY
//SYSPRINT DD SYSOUT=*
//*
//STEP2 EXEC PGM=IEBGENER
//SYSUT1 DD DISP=SHR,DSN=IOAP.PROD.SAMPREPS(REPORT2)
//SYSUT2 DD SYSOUT=D
//SYSIN DD DUMMY
//SYSPRINT DD SYSOUT=*
```

The allocation messages from the job show us the JES datasets created to the spool.

JES Allocation Messages

```
IEF236I ALLOC. FOR M90SPOOL STEP1
IEF237I 192 ALLOCATED TO SYSUT1
IEF237I JES2 ALLOCATED TO SYSUT2
IEF237I DMY ALLOCATED TO SYSIN
IEF237I JES2 ALLOCATED TO SYSPRINT
IEF142I M90SPOOL STEP1 - STEP WAS EXECUTED - COND CODE 0000
IEF285I IOAP.PROD.SAMPREPS KEPT
IEF285I VOL SER NOS= MVS002.
IEF285I JES2.JOB04208.S0000101 SYSOUT
IEF285I JES2.JOB04208.S0000102 SYSOUT
IEF373I STEP /STEP1 / START 00125.1115
IEF374I STEP /STEP1 / STOP 00125.1115 CPU OMIN 00.16SEC SRB
```

JCL and Allocation Messages for CDAM Output

To create reports directly to CDAM datasets the following JCL is required:

Direct Write to CDAM Method Sample JCL

```
//M90CDAM JOB ,CARD
//*
//STEP1 EXEC PGM=IEBGENER
//SYSUT1 DD DISP=SHR,DSN=IOAP.PROD.SAMPREPS(REPORT1)
//SYSUT2 DD SUBSYS=(CDAM,'SYSOUT=P')
//SYSIN DD DUMMY
//SYSPRINT DD SYSOUT=*
//*
//STEP2 EXEC PGM=IEBGENER
//SYSUT1 DD DISP=SHR,DSN=IOAP.PROD.SAMPREPS(REPORT2)
//SYSUT2 DD SUBSYS=(CDAM,'SYSOUT=D')
//SYSIN DD DUMMY
//SYSPRINT DD SYSOUT=*
```

The allocation messages issued show the name of the CDAM file created and the volume on which it was created.

Direct Write to CDAM Allocation Messages

```

IEF236I  ALLOC.  FOR M90CDAM STEP1
IEF237I  192 ALLOCATED TO SYSUT1
IEF237I  CDAM ALLOCATED TO SYSUT2
IEF237I  DMY ALLOCATED TO SYSIN
IEF237I  JES2 ALLOCATED TO SYSPRINT
IEF237I  254 ALLOCATED TO SYS00002
IEF237I  246 ALLOCATED TO SYS00001
IEF142I  M90CDAM STEP1 - STEP WAS EXECUTED - COND CODE 0000
IEF285I  IOAP. PROD. SAMPREPS KEPT
IEF285I  VOL SER NOS= MVS002.
IEF285I  SYS00125. T112043. RA000. M90CDAM. R0000001 SUBSYSTEM
IEF285I  JES2. JOB04216. S0000101 SYSOUT
IEF285I  CTDpdbv. PROD. UCAT KEPT
IEF285I  VOL SER NOS= INST01.
IEF285I  CTDp. U3. M90CDAM. J04216. D1251120. S01. N000100 CATALOGED
IEF285I  VOL SER NOS= WORK02.
IEF373I  STEP /STEP1 / START 00125. 1120
IEF374I  STEP /STEP1 / STOP 00125. 1120 CPU OMI N 00. 44SEC SRB

```

CDAM Parameters

There are two ways to create CDAM files:

- During execution of a decollation mission.
- Directly from the job, using the SUBSYS command.

When CDAM files are being created, default values defined in member CTDPARM are used unless they are overridden. The way in which they can be overridden depends on the way in which the CDAM file is being created:

- When the CDAM file is being created by a decollation mission, the default values can be overridden by parameters specified in PRINT/CDAM lines in the mission.
- When the CDAM file is being created by a SUBSYS command, default values can be overridden by parameters specified in the SUBSYS statement.

There are two types of parameters that are associated with the CDAM subsystem and files:

- Sysout Control Parameters
- CDAM Control Parameters

These are described immediately below.

Sysout Control Parameters

Sysout control parameters can be used to assign sysout attribute information to the compressed reports. These can then be used when the report is printed by CONTROL-D. Examples of such parameters are CHARS, FCB, and SYSOUT.

Below are examples of sysout control parameter overrides in a SUBSYS statement, and in the PRINT/CDAM line of a decollation mission.

Example - Sysout Control Parameters in a SUBSYS Statement

```
//DDNAME DD SUBSYS=(CDAM, 'SYSOUT=T, CHARS=SP10')
```

Example - Sysout Control Parameters in a Decollation Mission (In the PRINT/CDAM Line)

You can also use parameter PRINT/CDAM of the report decollating mission definition to specify or override the attributes for the reports to be printed. For example:

```
ON DSN          = PGMSTEP=STEP1, DDNAME=SYSUT2
PRT COPIES     LVL USER          DEST          MAX COPIES
PRINT/CDAM PARS = SYSOUT=P, CHARS=SP12
PRINT/CDAM PARS =
WHEN LINE     - COL          - PRINT REF NXT CT AND/OR
STRING =
DO USER       = *          LVL LINE 006 COL 016 - 019 S A T
SYNONYM =          CONCAT =
DO NAME       = BILLING REPORT LINE COL -
DO PRINT      = LASINV5    MUST =
DO
```

CDAM Control Parameters

CDAM control parameters are used to control the functions performed by the CDAM subsystem. There are two types of control parameters:

- Allocation parameters
- Retrieval parameters

Allocation Parameters

When CONTROL-D allocates a CDAM dataset, it uses dataset allocation control parameters (such as PREFIX, BLOCK, UNIT).

Below is an example of allocation parameter override in a SUBSYS statement.

Example - Allocation Parameters in a SUBSYS Statement

```
//DDNAME DD SUBSYS=(CDAM, ' PREFIX=GL10, UNIT=PROD' )
```

In the above example, the CDAM dataset is created with a prefix of GL10, which overrides the default prefix specified in member CTDPARM. The CDAM dataset will be allocated on the PROD units, again overriding the default value specified.

Retrieval Parameters

Retrieval control parameters are used to specify retrieval information for CDAM datasets, that is, which CDAM you want to decollate. The parameters enable you to retrieve exactly the CDAM file or files you want to decollate.

Retrieval parameter overrides can be specified in the decollating mission parameters using the DSN and ON DSN fields. The types of parameters you can specify include JOBNAME, DDNAME, PGMSTEP. An example is shown below.

Example - Retrieval Parameters in a Decollating Mission (in an ON DSN Statement)

```

=====
WHEN IN QUEUE N CLS   TIME FROM   UNTIL   INTERVAL   PRI OR I TY
DSN      LAST=YES
=====
OUT
SHOUT WHEN                               TO              URG
MSG
=====
DEF COPI ES 01 LVL 95 USER UNIDENT          DEST           MAX COPI ES
=====
ON DSN      = PGMSTEP=STEP1, DDNAME=SYSUT2
PRT COPI ES   LVL   USER                    DEST           MAX COPI ES
PRINT/CDAM PARMS =
WHEN LI NE    -      COL      -      PRINT  REF NXT  CT      AND/OR
STRING =
DO

```

NOTE



You should now update all relevant report decollating mission definitions with the appropriate CDAM retrieval parameters.

CDAM Dataset Naming Conventions

You must code parameter SUBSYS onto every JCL DD statement that produces report output that you want to handle. The subsystem automatically allocates and creates the CDAM dataset. The dataset name generated for each CDAM file is described in the CDAM chapter of the *CONTROL-D User Guide*. You can set the default prefix of the CDAM dataset name in member CTDPARM in the IOA PARM library, or override it using the PREFIX allocation parameter, when using the Pre-Spool method.

Scheduling Based on CDAM Dataset Creation

You can combine the creation of a CDAM dataset with the scheduling of a report decollating mission definition to the Active Missions file to process the output created in the CDAM dataset. You do this by using the sample CONTROL-D Exit CTDX018.

The exit is invoked by the CDAM subsystem during output processing whenever the CDAM control parameter EXIT is set to YES in the DD statement SUBSYS parameters. For example:

```
//DDNAME DD SUBSYS=(CDAM, 'EXIT=YES')
```

There is a sample exit (CTDX018O) in the IOA SAMPEXIT library that details how this is achieved.

Some examples of when this option can be used are

- for ad hoc jobs
- for user controlled jobs
- if a site does not want to define scheduling information for report decollating missions

Recommendations

The CDAM Direct Write facility will give maximum benefits to jobs that create large volume reports. The benefits are scaled according to the size of the output. For example, if you implement the top 20% of jobs creating large outputs, you will receive about 80% of the benefits of the CDAM Direct Write facility.

For the initial pilot implementation we suggest that you follow this recommendation by targeting the jobs that produce large volumes of output and modify these jobs to write directly to compressed datasets, or implement all reports using this method.

Prepare JCL for Production

We recommend that you make the required JCL changes to your batch jobs during this phase. We suggest that you create test versions of your JCL procedures that contain the required parameters to write to CDAM. One of the actions you will take when CONTROL-D goes “live” will be to copy the test procedures into production for the first night's run using CONTROL-D.



NOTE

You should now set up the required test JCL procedures for jobs using the CDAM direct write facility.

Review

During this phase you have learned how the Compressed Dataset Access Method allocates datasets directly from batch jobs, reviewed the CDAM installation parameters, reviewed the CDAM sysout and control parameters, and identified how to set up and test the CDAM Direct Write facility.

Before you continue, you should have:

- Prepared JCL procedures to be used for the production implementation of CONTROL-D.
- Updated the relevant report decollating mission definitions to decollate reports directly from CDAM datasets.

Phase 7: Handling MSGCLASS Output

This is an optional phase of the project plan. In this phase, we will discuss how to handle the MSGCLASS output (JCL listings) produced at your site.

We will discuss how to handle MSGCLASS output and similar reports using CONTROL-D generic decollating missions. In this phase, you will set up generic decollating missions to handle this type of output. We will examine the options you have for setting up generic decollating missions and detail what the generic decollating mission workflow is. We will also offer recommendations regarding the implementation of generic processing.

Some of the questions we will be answering in this phase are:

- How can I handle the MSGCLASS output?
- What is a generic decollating mission?
- What are the differences between generic and regular decollating missions?
- How do generic decollating missions work?
- How do I control generic processing?
- How do I schedule a generic decollating mission?
- What are the parameters of a generic decollating mission?
- What is the workflow of a generic decollating mission?

Inputs

Before you start this phase you should have inserted recipient information into the recipient tree (Phase 2).

Outputs

At the end of this phase you will have:

- Defined and tested the generic decollating missions.
- Defined appropriate authorizations in the recipient tree for online access to MSGCLASS output.

Generic Decollating Missions Overview

You can use CONTROL-D generic decollating missions to control the MSGCLASS output produced by your batch jobs.

CONTROL-D can process the JCL output produced to the spool and store it in compressed datasets. You have the option to store the output in a special CDAM file designed specifically for small outputs. You can then keep the MSGCLASS output online, available for viewing and problem determination, and archive the output to tape or cartridge. If the outputs have been deleted from the online environment and are required during the archive period, they can be easily restored.

Benefits of MSGCLASS Archive

We recommend that you handle all the MSGCLASS output produced by your production batch work by using CONTROL-D generic decollating missions. You have the ability to view the JCL online, apply supplied rulers when viewing to check for error situations, and archive the JCL. If you currently print all JCL listings, this practice can be discontinued once CONTROL-D is processing the outputs. If you require a hard copy at any time you can use the CONTROL-D Online facilities to produce one.

The benefits of CONTROL-D handling MSGCLASS output are listed below:

- No printing is required.
- No splitting of JCL output occurs.
- No filing of JCL listings is necessary.
- No physical storage area required for JCL is necessary.
- Secure backup of JCL is provided.

- Easy retrieval of JCL for problem determination is provided.
- Online viewing selection criteria can be used to identify erroneous jobs (for example, show all the jobs that failed with condition code SB37).
- Online viewing of special rulers can be used to extract all the erroneous messages from a job (for example, show all invalid condition codes produced).
- Installation security package can control access to JCL listings.

What is a Generic Decollating Mission?

We use a special type of decollating mission to handle the MSGCLASS output produced by JES. The missions we use are called generic decollating missions.

We use the name “generic” to describe these missions because, usually, a generic mission will handle output with variable job names that have the same distribution requirements (for example, all the JCL listings beginning with job name characters JAC are assigned to the Accounts Application Programming recipients).

Generic Versus Regular Decollating Missions

Standard report decollating missions can handle output from the spool or from CDAM datasets. They are executed once to handle the output produced by a specific job name (unless defined as cyclic report decollating missions, with a task type of CRP).

The generic decollating missions monitor specific JES classes (assigned in member CTDPARM in the IOA PARM library) for the appearance of Non-Held output. When an output appears, CONTROL-D looks for a generic mission to process the output.

The table below compares the differences between standard and generic decollating missions:

Table 36 Differences Between Standard and Generic Report Decollating Missions (Part 1 of 2)

Standard Report Decollating Mission	Generic Report Decollating Mission
Decollates from the spool or CDAM.	Decollates from spool only.
Decollates from any specified class.	Decollates only from the defined generic classes.
Decollates Held and Non-Held output.	Decollates Non-Held output only.

Table 36 Differences Between Standard and Generic Report Decollating Missions (Part 2 of 2)

Standard Report Decollating Mission	Generic Report Decollating Mission
Handles specific job names only.	Can use job name masks.
Executes once (unless the task type is set to CRP).	Executes every time a job name match is found.

Set Installation Options

The Generic Missions analyze specific JES classes for Non-Held output. These classes are defined in the CTDPARM member of the IOA PARM library. These are the classes that CONTROL-D monitors – when an output appears in these classes, CONTROL-D will search for a generic decollating mission to handle the output. You can specify up to eight classes for generic processing.

Installation Parameters (CTDPARM)

```

BROWSE -- IOAP.PROD.PARM(CTDPARM) - 01.03 ----- LINE 00000023 COL 001 080
COMMAND ==>                                SCROLL ==> CSR
      DFLTRST=RST0060M,  DEFAULT RESTORE MISSION NAME      *00450001
      DFLTUSR=SYSTEMS,   FUTURE USE - DEFAULT USER        *00460000
      FCBON=N,           FUTURE USE - FCB ON/OFF INDICATOR  *00480000
      GENCLAS=PW,        GENERIC CLASSES                    *00490002
      ESCAPCL=A,         SYSOUTS ESCAPE CLASS (FOR GENERI C) *00490101
      JES3ESC=,          JES3 ESCAPE CLASS (FOR GENERI C)   *00491001
    
```

NOTE



You should now decide and define which classes will be used for generic processing.

Define Generic Decollating Missions

You use the Report Decollating Missions Definition facility (Option R in the IOA Primary Option menu) to define generic missions in the decollating mission library. You use parameter **GENERIC** of the decollating mission parameters to specify that the mission is a generic mission.

When a generic decollating mission executes, the output is handled according to the instructions defined in the generic decollating mission parameters. Using a job name mask we can define decollating instructions that are the same for different job names.

Generic Report Decollating Mission Definition Screen

```

----- CONTROL-D/V CATEGORY AAA                                JOB PBR* ----- (R.S)
COMMAND ===>                                                SCROLL===> CRSR
+-----+
CATEGORY PROD                                JOBNAME PBR*    GENERI C Y MONI TOR
OWNER      M90                                TASKTYPE REP  GROUP                                JOBI D
DESC
=====
DAYS                                                DCAL
                                                AND/OR
WDAYS                                                WCAL
MONTHS  1- Y 2- Y 3- Y 4- Y 5- Y 6- Y 7- Y 8- Y 9- Y 10- Y 11- Y 12- Y
DATES
CONFCAL          SHI FT    RETRO N MAXWAIT OO
MI NI MUM        PDS
=====
I N
WHEN I N QUEUE  CLS    TIME FROM    UNTI L    I NTERVAL    PRI ORI TY
DSN
=====
O U T
SHOUT WHEN          TO          URG
MSG
=====
DEF COPI ES    LVL    USER                                DEST          MAX COPI ES
=====
ON CLASS      = P          EXTWTR                                DEST          FORM
PRT COPI ES   LVL    USER                                DEST          MAX COPI ES
PRINT/CDAM PARS =
WHEN LI NE    -          COL    -          PRINT  REF NXT  CT    AND/OR
STRING =
DO USER      =          S A T          LVL    LI NE    COL    -
SYNONYM =          CONCAT =
DO NAME      = JCL LI STING          LI NE    COL    -
DO BACKUP    = BKP0031D
DO
===== >>>>>>>> END OF JOB/REPORT PARAMETERS FOR THIS CATEGORY <<<<<< =====
FILL IN REPORT DEFINITION. CMDS: EDIT, SCHED, SHPF, PATH                                10.51.22

```

In the previous example, all output written to the generic class of P with a job name starting with the letters PBR, is assigned to the PRODCNTL recipient.

Generic Job Names

When the report decollating mission is defined as generic, parameter JOBNAME can contain a job name mask. This mask will be compared with the job names appearing on the generic output classes. For example:

Table 37 Job Name Masking in Generic Decollating Missions

Jobname Mask	Selected Job Names
*	All jobs will be selected for processing.
PBL*	All jobs beginning with PBL will be selected.
P??BKUP	All jobs beginning with P with any two characters following and ending in BKUP will be selected.
P*B*	Any jobs with a P followed anywhere by a B are selected.

Control the Generic Process

You can control generic processing by turning it off and on. You use operator commands to perform this process. By default, generic processing will be started when CONTROL-D is started (unless it was previously deactivated by an operator command).

One reason that generic processing may be deactivated is if the CONTROL-D New Day Procedure (CTDNDAY) fails to schedule the Generic Missions to the Active Missions file. When generic processing is deactivated, the Generic Missions will not select outputs from the defined generic classes.

The operator command to stop generic processing is:

```
F CONTROLD, STOPGEN
```

The operator command to start generic processing is:

```
F CONTROLD, STARTGEN
```

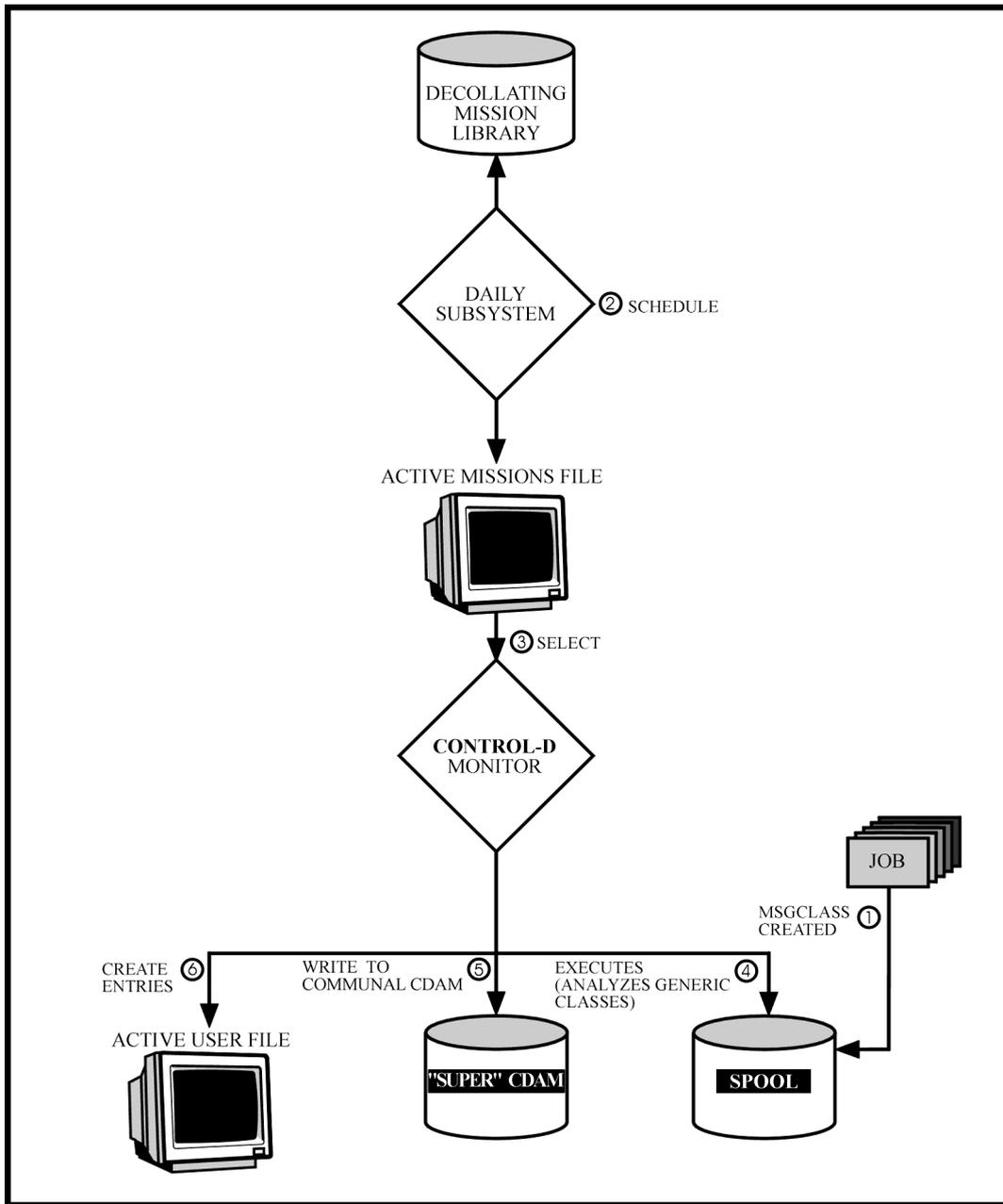
Only in extreme situations should generic processing be stopped and started manually.

Generic Processing Workflow

The generic decollating mission workflow of CONTROL-D is shown in Figure 14. It shows the stages involved from initially scheduling a Generic Decollating Mission through to processing the output. There are certain phases of the workflow that you have to decide how to perform for your site. We will examine each phase in detail:

1. MSGCLASS output written to spool.
2. Schedule generic decollating mission to the Active Missions file.
3. Select generic decollating mission for execution.
4. Execute generic decollating mission instructions.
5. Write output to a collective CDAM file.
6. Create entries in the Active User Report List file.

Figure 37 Generic Decollation Workflow



MSGCLASS Output Written to Spool



NOTE

DAILY SUBSYSTEM in the above figure refers to the New Day procedure and the programs it calls.

MSGCLASS output is created for all jobs that run under JES. In installation parameter GENCLAS in member CTDPARM, you specify which classes are assigned for generic processing. You should ensure that the MSGCLASS output you want to handle is written to one of the defined generic classes as Non-Held output.

Normally, you specify to which class to assign the JCL output using parameter MSGCLASS of the JCL JOBCARD. For example:

Sample JCL Statements

```
//M90TEST JOB , I O A, CLASS=A, MSGCLASS=W
//*
//STEP1 EXEC PGM=I EBGNER
//SYSUT1 DD DI SP=SHR, DSN=I OAP. PROD. SAMPREPS(REPORT1)
//SYSUT2 DD SYSOUT=D
//SYSIN DD DUMMY
//SYSPRINT DD SYSOUT=*
```

Schedule Generic Decollating Missions to the Active Missions File

Generic Missions must be scheduled to the Active Missions file to execute. The mechanism used to place a copy of the generic decollating mission definitions on the Active Missions file is a special scheduling program called by the New Day procedure (CTDNDAY).

You can schedule generic decollating missions using any of the methods detailed in Phase 3 for regular report decollating missions. We recommend that you use member GENLIST read by the CTDNDAY procedure to schedule generic missions. CONTROL-D will analyze a supplied list of generic missions and determine which ones should be scheduled to the Active Missions file. The reason for this recommendation is that if the CTDNDAY procedure fails to schedule the generic missions, it will automatically deactivate generic processing. The other methods of scheduling will not do this if an error occurs.

MSGCLASS output that is written to a generic class before a generic decollating mission is scheduled, or while generic processing is deactivated, will be processed when the relevant mission is scheduled, or when generic processing is restarted. If generic processing is stopped for any reason, a highlighted message is written to the console every ten minutes. This is to make you aware that the spool might be filling up with MSGCLASS output.

Select Generic Decollating Missions for Execution

The CONTROL-D monitor analyzes the Active Missions file at the interval specified in installation parameter INTERVALD in member CTDPARM, and selects missions for execution once all Runtime dependencies have been met. Normally, for Generic Missions you will not define any dependency parameters.

Execute Generic Decollating Mission Instructions

Whenever a Non-Held output appears on the spool in one of the defined generic classes, the CONTROL-D monitor looks for a generic decollating mission that matches the job name. If a match is found, the sysout is decollated according to the defined mission parameters and deleted from the spool. If no match is found, CONTROL-D changes the priority of the sysout and continues to analyze the generic classes.

In JES3 sites, unmatched outputs written to the generic class are directed to another class as specified in parameter ESCAPCL in member CTDPARM.

Generic Decollating Mission Allocation Option

```

ON CLASS      = P          EXTWTR          DEST          FORM
PRT COPIES   LVL        USER          DEST          MAX COPIES
PRINT/CDAM PARS = ALLOCOPT=JOBSDSN1
PRINT/CDAM PARS =
WHEN LINE    -          COL            -          PRINT    REF NXT    CT          AND/OR
STRING =
DO USER      = PRODCNTL          LVL        LINE        COL        -          S T
SYNONYM =          CONCAT =
DO NAME      = JCL LISTING          LINE        COL        -
DO BACKUP    = BKP0031D
DO
===== >>>>>>>> END OF JOB/REPORT PARAMETERS FOR THIS CATEGORY <<<<<<< =====
    
```

Allocation Options Comparison

A comparison between some of the allocation options is shown below. We are comparing the normal way in which CONTROL-D handles report output, the ALLOCOPT=ONEDSN option that groups output at job level, and the ALLOCOPT=JOBSDSN1 option that groups output in a “super” CDAM. Assume that one thousand batch jobs are running each night. The table below shows the resources used for each option:

Table 38 Comparison of Allocation Options (Based On 1,000 Jobs Per Night)

	NORMAL	ONEDSN	JOBSDSN1
JES DATASET	3000+	3000+	3000+
CDAM FILE	3000+	1000	1
SSYSDATA ENT	3000+	1000	1000
USER ENT	1000+	1000+	1000+
VTOC ENT	3000+	1000	1
TRKS RQD	3000+	1000	180

BMC Software strongly recommends that generic decollating missions handling MSGCLASS output uses the JOBSDSN1 allocation parameter. This will prevent and save on resources used. It cuts down on the number of VTOC entries, prevents fragmentation problems, cuts down on the number of records stored in the CONTROL-D user files and reduces the amount of space required to hold the MSGCLASS output.

For further information on the allocation options, see the CDAM chapter in the *CONTROL-D User Guide*.

Create Entries in the Active User File

The result of the decollation process is that entries are created in the Active User file. These entries are created as records in a VSAM file that details which parts of the CDAM file are assigned to each user. As soon as a decollation has been performed, the MSGCLASS entries are available for online viewing, archiving and if absolutely necessary, printing.

Recommendations

BMC Software recommends that after initial testing you set up the generic missions to handle the production MSGCLASS output. This will mean that the MSGCLASS output will be handled by CONTROL-D from this point onwards. This will provide some data for your backup missions and CONTROL-D utilities to process. It also means that there is one less task to do when CONTROL-D goes “live” in production.

You may choose to handle the MSGCLASS output of the selected pilot application only, or you may want to handle all the production MSGCLASS using generic missions. The difference in time required between the options is minimal.

The examples we have covered in this phase have dealt purely with generic missions and MSGCLASS output. You may have other reports from the pilot application that are suited to the generic process. You should set up appropriate generic missions to handle these.

NOTE



You should now decide which MSGCLASS outputs you will handle during the initial implementation and set up the required generic missions to process this output.

Provide Access to Archived MSGCLASS

You should ensure that anyone requiring access to CONTROL-D archived MSGCLASS is authorized appropriately in the recipient tree. You will be assigning the MSGCLASS output to one or more recipients. You can assign the output to the PRODCNTL recipient that you defined during Phase 2. You should use the AUTHORIZE field of this recipient to authorize which userids can view the MSGCLASS output.



NOTE

You should now define authorizations in the recipient tree for the appropriate userids.

Review

During this phase, you have learned the differences between generic and regular decollating missions, decided which classes should be used for generic processing, reviewed the parameters required for a generic mission and reviewed the workflow of the generic process.

Before you continue, you should have:

- Defined, tested and implemented the generic decollating missions.
- Set up appropriate authorizations in the recipient tree for MSGCLASS access.

Phase 8: Production Implementation

In this phase, you will implement into production all the work you have done so far – after a consultation period with the end users. This is really the first stage of production implementation. By the end of this phase you will be using CONTROL-D to produce all the printed reports of your selected pilot application.

We will detail which steps are required for CONTROL-D going “live” in the production environment and what should be done following the implementation.

Some of the questions we will be answering in this phase are:

- What needs to be done before the implementation?
- How do I prepare the end users for the implementation?
- How do I select an implementation date?
- What tasks need to be performed for the implementation?
- What needs to be done after the implementation?

Inputs

Before you start this phase you should have:

- Selected the super users (Phase 1).
- Decided your report decollating mission scheduling method (Phase 3).
- Tested the print bundles (Phase 4).
- Put system administration tasks in place (Phase 5).
- Put CDAM Direct Write procedures in place (Phase 6).

Outputs

At the end of this phase you will have:

- Defined accepted banner pages and bundle formats.
- Implemented the pilot application into production.
- Performed a Report Pruning Survey.
- Implemented the results of the Report Pruning Survey.

Pre-Implementation

The pre-implementation process involves the delivery of information to the end users informing them of the new Distribution Management System being implemented.

Before you implement CONTROL-D into production there is an important process to be performed. This process involves a period of consultation with the end users. Your objective will be to make the implementation of CONTROL-D as smooth as possible for the end users. This will be achieved by involving and informing them of the implementation process.

You should try to make the end users feel that they have some control over the output that they receive. It will not help your cause if one day the users come in and receive their reports in a completely different format than usual without explaining what has occurred to their print bundles. People like to be informed of change, especially if there has been very little of it in the distribution system for the last twenty years or so. Any potential resistance to change can be diffused by informing the users of the new distribution system and explaining the new format of their report bundles. We will break down the pre-implementation process into six categories of information for the end user as follows:

- Super users' role
- Presentation of bundle format
- Contact information for user problems
- Application live date
- Review of phases to come
- Glimpse of facilities to come

Super Users' Role

Super users play a key role during the pre-implementation period. Before any information is issued, you should ensure that the super users are fully aware of the status and objectives of the project. If they know and agree with what you are trying to achieve, it will be easier to sell the project to the end users.

It may be that the super users perform much of the consultation process with their staff. Where possible, the super users should coordinate and convey all required information to the end users.

It is preferable to have a top down approach when spreading this information (that is, you present information to the super users, they present the information to their section heads, and the section heads present the information to their relevant staff). Whatever method you choose (or occurs naturally), try to make sure that all users are aware of the new systems implementation date and implications.

Presentation of Bundle Format

During Phase 4, we examined how to sort the reports in the user bundles. We suggest that you discuss with the super users how reports should be sorted within the bundles.

During Phase 4, we also examined how to control the format of the banner pages and how to control which banner pages and indexes are produced. We recommend that you supply sample banner pages to the super users and let them decide which format to use. You should also discuss which banners should be produced in the user bundles.

With these decisions made, the results can be presented to the end users. It should be explained how bundles are organized and what the information contained on the banner and index page is. It is a good idea to present a parallel print bundle in the new format to the users as an example. You can also explain that the format has been decided after consultation with the super users.

Contact Information for User Problems

One section of the bundle banners should contain information about who to contact regarding report problems. This information should be highlighted to the end users during the presentation stage. Many sites prefer to have this coordinated through the super users during the initial implementation. In this way the super users may be able to filter any unnecessary calls to the computer department.

The bundle formats section in Phase 4 supplies details of how to supply information of this type in the user banners. The objective of this is to give the users a feeling of support.

Application Live Date

You should inform the users of the implementation date assigned for CONTROL-D. By this stage, you should have a good idea of when the pilot application can go “live.” You should select a date that is not critical from the user point of view (that is, not at month end, or particularly busy dates). Again, you can get valuable input from your super users on this issue.

You should also avoid dates that correspond with other new implementations, such as new applications or the installation of new hardware. Try to pick a relatively calm period for the computer department, if possible.

NOTE



You should by now have selected a date for implementation of the pilot application.

Overview of Future Actions

You should use the pre-implementation phase to publicize some of the further actions that will be taken after the initial implementation. These further actions will be discussed in detail later in this phase and in Phase 9, as follows:

- Report Pruning Survey

You will ask the users to identify reports or sections of reports that they do not require. The identified reports will be “pruned” from the users' bundles. (Discussed later in this phase.)

- Online Viewing Survey

You will ask the users to identify which reports they would like to view online (or on their PC) rather than receiving a hard copy report. (Discussed in Phases 9 and 10.)

- Online Viewing Training

You will provide online viewing training using the CONTROL-D User Reports (Online Viewing) facility. (Discussed in Phase 9.)

The users should be aware that this is merely the first step towards a better report distribution service.

Preview of Facilities to Come

You can also use the pre-implementation period as an opportunity to “sell” the online viewing capabilities of CONTROL-D to the users. You can give them a flavor of the benefits of online viewing. This should whet their appetite to use the Online Viewing facility. A quick demonstration of viewing, selective printing, and pre-defined report rulers should be shown.

You can announce when each of the “previews” will occur and supply the users with a timetable for the implementation of online viewing. Of course, this will be affected by the number of reports to be viewed online, the response from the user surveys, and the number of people wanting to use the online facilities.

Implementation of the Pilot Application

In this section, we will outline the steps required to implement the pilot application into production. You should by now have selected a date for the implementation. We will use the following checklist to implement the pilot application. Many of the tasks should already be in place, such as backup procedures, restore procedures, and utilities. The following actions will be required to implement the application into production.

Implementation Checklist

- Modified JCL procedures have been copied to production (for CDAM Direct Write).
- CDAM Subsystems are installed and active in all required environments.
- Report decollating missions scheduling has been activated.
- Print mission scheduling has been activated.
- Generic missions are processing MSGCLASS outputs.
- Housekeeping procedures are in place.
- Backup procedures are in place.

- Restore procedures are in place.
- Utility CTDDELRP has been set up (see following note).
- Utility CTDCLHIS has been set up.
- Utility CTDCA2P has been set up.
- Utility CTDCP2A has been set up (optionally, depending on parameter SEARCH).
- Installation options reviewed (CTDPARM parameters).
- Operator knowledge is in place (for printer control).
- Required recipients are defined in the recipient tree.

NOTE



When CONTROL-D is implemented into production, you should change the input parameters of utility CTDDELRP. We suggest that you keep all reports online for two days before deleting the compressed datasets from DASD and moving the entries to the History file. We also recommend that reports should not be deleted until they have been backed up and printed. The following parameters will achieve these objectives:

DAYS 2 WAI TPRI NT

We will define and adjust the CTDDELRP parameters further in Phase 9, when we identify specific durations for reports to be viewed online.

Summary

When all points on the checklist are achieved, you should have a smooth implementation into production. Be sure to monitor the critical phases of the implementation, such as scheduling of Report Decollating Missions and their execution to ensure that you are getting the desired results. At this stage, you will be producing all the output of the pilot application under CONTROL-D. After the first night's run you may want to adjust the creation time of the printed bundles of CONTROL-D depending on how the workflow of the site goes.

From the computer services point of view, having CONTROL-D implemented should make problem determination easier and faster. Also, reprints can easily be done online without having to recreate report output. At this stage, it will be up to the CONTROL-D administration team to perform any rerun requests. We will potentially be giving the end users this power in Phase 9.



NOTE

You should by now have implemented the pilot application into production.

Post-Implementation

You should allow for a “cooling down period” after the initial implementation, before the Report Pruning Survey is carried out. The intention of this survey is to identify unneeded or unwanted reports that the users receive and to stop producing them.

Perhaps the best time to do this is around two weeks after the initial implementation, when the users have become accustomed to their new enhanced distribution system. You can use this time to refine and make any necessary adjustments to your live environment and to determine if the system is performing as desired.

Report Pruning Survey

Undoubtedly, there is a lot of redundant data inherent in most systems. However, weeding out this redundant data can sometimes be more difficult than anticipated. It may be that users are not interested or motivated to remove this redundant data. The super users will play a major role in motivating the appropriate staff to participate in this survey.

You should expect to weed out about 10% of printed report data as a result of this survey. Although this percentage may be small, it will still provide a substantial saving of resources. In many cases, users do not identify redundant reports because it is comforting to know that a report is there in the unlikely event that they ever need to access it.

The biggest reduction in printed output will occur after the online viewing survey. If you can persuade users to use Online Viewing to reference reports and print by exception, massive reductions can be made. You will perform the online viewing survey in Phase 9, which will identify reports that should no longer be printed but viewed online if required.

The biggest task you have is in changing the users' attitude from that of receiving reports to that of utilizing available information. This is the key to revolutionizing the system from a Report Distribution System to an Information Access System.

Survey Methods

There are several different approaches you can use to conduct the survey. BMC Software suggest that you use the actual reports to carry the information to the user. You can do this on the banner pages of CONTROL-D by printing a survey form on one of the banner pages. You can ask the users to identify which reports they do not require. You can use the user banner page to target each CONTROL-D recipient (user banner page).

Some sites use emotional ploys to try to achieve a better response to the survey, perhaps by printing the cost of each bundle on the report or by associating the survey with environmental messages. Extra pressure to respond to the survey can be added by the super users.

Example Messages:

- “This bundle of reports costs \$24 dollars” (can be calculated using Exit 5)
- “Three trees were killed to print this report” (can be calculated using Exit 5)
- “Every wasted page costs the company 50 cents”

The survey form may ask the users simply to identify which reports on the index page they do not require, sign, and return the page to the CONTROL-D implementation team. Remember that you have full control over the format of the banners and any designs or messages that you want them to carry. It is important to publicize the survey. You can do this through the super users. The more publicity the survey gets, the better the survey response will be.

Implement Survey Feedback

You will have to decide whether there will be a cut off date for the survey or whether it will be an ongoing exercise. Whatever response you get to the Report Pruning Survey, you will have to update the changes in the report decollating mission definitions or in the Permanent User Report List file. You may have Change Control procedures that have to be followed to implement the required changes or specific forms for discontinuance of receiving reports.

It is recommended that the results of the Report Pruning Survey are implemented before you conduct a further survey to identify reports for online viewing. You can of course select any method you prefer and perhaps combine the two surveys.



NOTE

You should by now have implemented the results of the Report Pruning Survey.

Review

During this phase you have implemented the selected pilot application into production and reviewed the pre- and post-implementation advice.

Before you continue, you should have:

- Defined accepted banner pages and bundle formats.
- Implemented the pilot application into production.
- Implemented the results of the Report Pruning Survey.

Phase 9: Online Viewing Implementation

In this phase, you will implement the User Report (Online Viewing) facility of CONTROL-D. This will provide users with a platform to access report information online by using their preferred access environment. It will also supply the users with a mechanism to manipulate report output and offer them the capabilities of a more productive and better service to meet their business objectives.

This phase includes recommended actions that should be taken before online viewing is implemented, details the steps required for implementation, and suggests how this phase should be approached.

Some of the questions we will be answering in this phase are:

- How should I approach the online viewing implementation?
- How do I persuade the users to change?
- What benefits will the end users get from the implementation of online viewing?
- What benefits will the computer department get from the implementation of online viewing?
- What needs to be done before the implementation?
- How do I set up the online viewing environment?
- How should the User Survey be conducted?
- Who should train the users to use the Online facilities?

Inputs

Before you start this phase you should have implemented the Report Pruning Survey results (Phase 8).

Outputs

At the end of this phase you will have

- Set up the online viewing access environments.
- Performed a User Survey about online viewing.
- Trained appropriate users for online viewing.
- Defined the required view authorizations in the recipient tree.
- Established report online viewing durations (using utility CTDDLRP).
- Modified the report decollating mission parameters for online reports.
- Implemented the pilot application for online viewing.

General Information About Online Viewing

There are many benefits associated with the change from paper-based reports to online viewing of information. Most new applications written are based largely around the online access of information with fewer paper-based reports produced than in the past. However, we still have to handle these reports and the substantial numbers of reports produced from older applications.

When applications were written in the past it was not foreseen that the expansion of the applications would put a terminal on most desks. Despite improvements in technology, reports still arrive late, sometimes unreadable, sometimes lost and in a cumbersome format. With CONTROL-D, our aim is to make paper-based reports as obsolete as punch cards and paper tape are now.

Benefits of Online Viewing

One of your most important tasks is to “sell” the benefits of online viewing to the end users. If you can change the users' attitude from that of receiving reports to that of utilizing available information, you have the key to revolutionizing your current paper-based distribution system to an information access system.

If you have come this far, you probably already realize the benefits of online viewing. As previously mentioned, end users may resist change or be apprehensive about it. Receiving a report every day provides a comfort factor, regardless of what they do with it. Over the last twenty years or so, users have become used to receiving their reports sometime during their second cup of coffee. To change this mentality can be difficult.

To sell the benefits of online viewing you can highlight the improvements that will occur in their daily jobs and the advantages that they will gain. You should also provide them with a feeling of support and security.

Benefits Summary

When online viewing is implemented, it has a major impact on both the end user and the computer department.

For the end users, it means that they

- have faster information access (as soon as the job has executed and has been decollated)
- can find and manipulate data much faster
- can share common data without duplicating it
- can selectively print all or parts of a report to the mainframe or remote printers
- are in control of restoring their own archived reports
- have a more reliable system (for example, no lost or spoiled reports)
- have improved ability to control and/or handle the information required for their daily jobs
- have improved data security (for example, confidential reports will not go to wrong recipient)
- require less physical storage space for storing reports
- get a better service

For the computer department, it should mean that

- There is no need to perform or respond to report rerun requests.
- There is less printing to do.
- Printing costs are lower (less paper, toner, ribbons, printers, and so on).
- There is less report distribution to do.
- Print workloads do not have to be scheduled.
- Physical report output does not have to be delivered.
- A better service is provided to their users.
- A more reliable service is provided, for example, no lost, spoiled or incorrectly handled reports.

Presentation of the Online Viewing Facility

During Phase 8, we recommended that you give the users a taste of the Online Viewing facility. If you have not already done so, we suggest you do this before you conduct the User Survey for online viewing. A powerful demonstration of the online viewing options should help to increase the number of users requesting to view report output online.

Please refer to the guidelines in Phase 8 for recommendations on the format of these presentations.

NOTE

You should now conduct user presentations of the Online Viewing facility.



Online Viewing Survey

We have tried to change the end users' mentality from that of receiving reports, to that of accessing information online as required. The demonstration or previews of the Online Viewing facility should have persuaded the users that they should switch most, if not all, of their reports to the online environment.

We are now ready to conduct a User Survey to see which users of the pilot application would like to receive their reports online. It is important to get the super users involved in this phase. They will be able to drive the survey in the end user departments and can make sure that the User Surveys are filled in and returned.

Survey Format

If the project has been properly sold, there could be up to a 60% reduction in the amount of printed output. The survey should be conducted with the same recommendations as the Report Pruning survey in Phase 8.

We now want users to identify the following:

- What reports would they like to view online?
- How long should each report be kept online?
- Which userids require access to this recipients reports?
- Which environment is desired for the users to access the reports?
- When should the report start being produced online (ASAP or by a specific date)?

You should try to keep a report online for the minimum amount of time possible. While reports are held online, the CDAM dataset stays on the DASD. Reports should be deleted from DASD as soon as possible, for they can always be restored if required. This point should be emphasized to the users when asking them to specify online durations. If a report is purely for reference purposes, there is no reason that it cannot be deleted from DASD as soon as it is archived. The report can always be restored if required.

NOTE

You should by now have conducted a survey of users for online viewing.



Decide the Online Viewing Environments

One of the first decisions you must make is how end users will access the online report information. You should select environments with which the end user is familiar (for example, if the end user has only used CICS to access the system, you do not want to have them learn TSO in order to use CONTROL-D). The list of environments that can be used are listed below:

- TSO
- TSO/ISPF
- ROSCOE/ETSO
- CICS
- VTAM
- IMS/DC
- IDMS/DC
- COM-PLETE
- VM/CMS
- PC (Using CONTROL-D/WebAccess Server)

From Phase 1, you should have some idea of how many users have online access and which environments are currently used. Implementing online viewing in the PC environment will be discussed in Phase 10.

You should find out from the super users approximately how many recipients of the pilot application have online access and which environments they use. Using these figures, you will be able to calculate what percentage of users will take the online viewing option that you will be offering. We recommend that end users use the environment with which they feel most comfortable. The online viewing facilities of CONTROL-D are standard across all supported environments (all screens, messages, and so on, are uniformly presented across all platforms).

The IOA Online Monitor

If the end users are accessing their output through the following environments, they will be using the special IOA online support.

- CICS
- VTAM
- IMS/DC
- IDMS/DC
- COM-PLETE
- VM/CMS

This means that they will access the IOA Core through an online server called the IOA Online monitor (IOAOMON). The IOAOMON is a started task that provides an environment for executing the IOA application.

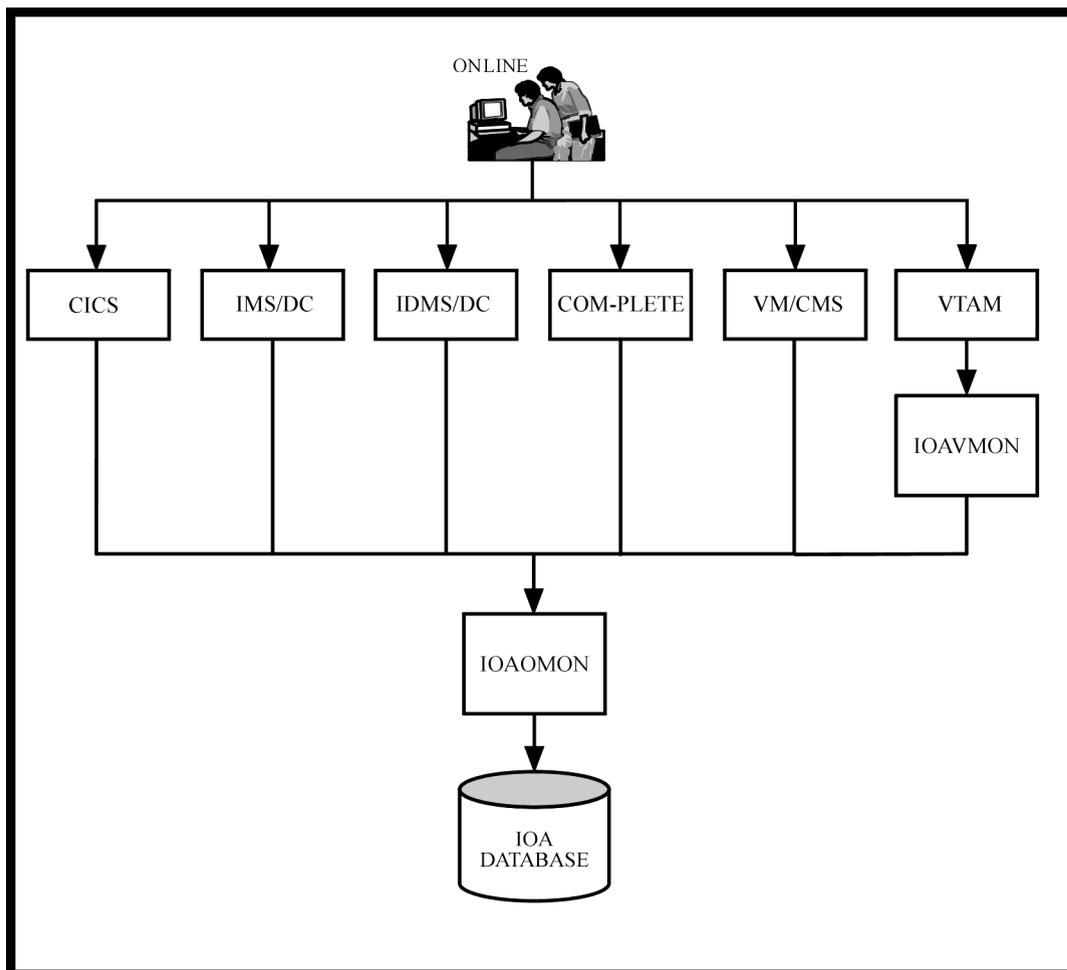
Users who want to use VTAM access will use a special online server called the IOA VTAM monitor (IOAVMON). Figure 15 gives an overview of the special IOA online support environments. For a description of the principles of operation of the online servers, see the discussion about the IOA online monitor in the IOA administration chapter of the *INCONTROL for z/OS Administrator Guide*.

NOTE



You should now set up the required online environments.

Figure 38 Overview of the Online Viewing Environment



Implement Online Viewing Survey Results

With the response from the survey, the following actions will be required to implement the reports to the online environment:

- Update report decollating mission definitions.
- Define viewing authorizations.
- Set up online viewing durations.

Update Report Decollating Mission Definitions

We need to update the report decollating mission definitions for reports identified for online viewing. The changes we will make are setting of the default number of PRT COPIES, and optionally, the removal of surplus DO PRINT statements.

Basic Example

The user has asked to view a report online. You need only change the PRT COPIES parameter to 00 to achieve this. Even if there is a DO PRINT specified, it will be ignored. For neatness, you may want to remove the DO PRINT statement.

ON CLASS	= T	EXTWTR		DEST	FORM
PRT COPIES	00	LVL	USER	DEST	MAX COPIES
	PRI NT/CDAM	PARMS	=		
WHEN LINE	-	COL	-	PRI NT	REF NXT
	STRING	=		CT	AND/OR
DO USER	= BR10AC		LVL	LINE	COL - S T
			SYNONYM	=	CONCAT =
DO NAME	= ACC FINAL ANALYSIS		LINE	COL	-
DO PRI NT	= STD			MUST	=
DO BACKUP	= BKPO031D				
DO					

Advanced Example

If a response is received from three users that they want to receive a report online, but there is a fourth recipient who wants to receive a printed copy of the report, the following must be done:

- Update the report decollating mission definition to PRT COPIES 00, This means that none of the users will receive a printed copy of the report.
- Update parameter SEARCH in the report decollating mission definition to A or P for the user requesting a printed copy.

Default Viewing Authority

If you have designed your recipients in a hierarchical structure in the tree, default viewing authority will already be in place. A userid authorized to a specific recipient will, by default, be authorized to view reports assigned to the recipient's children (that is, users connected by a parent/child relationship), as defined in the tree.

Turn on Report Security

When supplied, the default working mode of CONTROL-D is that no report security is turned on. This allows you to use the *CONTROL-D Getting Started Guide* and to become familiar with the options of CONTROL-D. When you are ready to implement the security definitions you have made in the recipient tree, you should assemble Exit CTDX004 and its security module CTDSE04, to provide report viewing security. For further information, please refer to the *INCONTROL for z/OS Administrator Guide* (for Exit CTDX004) and the *INCONTROL for z/OS Security Guide* (for Exit CTDSE04).

NOTE



You should by now have authorized the relevant userids in the recipient tree.

Set Up Online Viewing Durations

So far, we have been allowing all reports created by CONTROL-D to remain online for a fixed period of time (2 days) before deleting the CDAM files and moving the entries to the History User Report List file. Based on the results of the survey, you will want to be more specific about the durations that reports will be available for online access. This is dependent on the needs and/or requests of the end users. Reports that are not required for online viewing should be moved to the History User Report List file immediately (that is, during the next scheduled run of utility CTDDDELRP).

You can use the selection criteria of utility CTDDDELRP to specify exactly your requirements.

NOTE



You should by now have set up CTDDDELRP with the appropriate selection criteria.

Set Up Transitional Environment

If you feel that the transition from receiving reports to online viewing is too big a step for your end users, you can cushion this by allowing the users to have both. You can set up the required access in the recipient tree and supply basic training to the users. You can define a transition period where the users can use the Online Viewing facility but also have their hard copy as a comfort factor. Once they have established confidence in the Online Viewing facility, you can then stop the distribution of the hard copy reports. The approach could be:

- Supply both hard copies and opportunity to view online.
- After a testing and/or usage period you can ask if you can discontinue printing of the hard copy version.
- If the user still wants the hard copy report, inform them that they will no longer be able to use the online version.
- Return them to their original hard copy only.
- While the performance of their colleagues increases using online facilities, the inflexibility and slowness of the hard copy users will become evident. Soon, they too will request to view their reports online.

Optional Enforcement of Online Viewing

If the response to your survey was poor, you may want to target certain reports for online viewing and enforce this. You could inform the users that from now on, specific reports will only be available for online viewing.

Train Users for Online Viewing

Before you can implement online viewing in production, the end users who have requested reports for online viewing must receive basic training in the usage of the online facilities. The recommended way to handle this is to have a distributed approach to the training. Normally, it would be too much work for you and your team to perform the training for all end users. Ideally, you may have a training department who can conduct it for you.

We recommend that you train the super users, and then ask them to train the end users. You need to inform the users of the following:

Basic Facilities:

- How to access the online viewing environment.
- What the fields of the entry panel mean (regarding selection criteria).
- What the three user files are for.
- What the various and recommended display options are.
- How to view their reports.
- How to print their reports.
- How to restore their reports.

Advanced Facilities (optional):

- How to create rulers, that is, create different views of their reports.
- How to use the Notepad facility (tagging notes to reports and specific text).
- How to use the Remark function.
- How to update sysout attribute information (if using the SEARCH Active or Permanent facility).
- Explain the principles of reports moving from the Active to History User Report List files and the online duration of reports.

The *CONTROL-D Online Viewing Guide* provides a detailed description of all panels and options in the online environment. This guide can be used as a workbook for self-study to learn how to use the Online Viewing facility.

Training Approach

Some users may be satisfied to use CONTROL-D without using the advanced facilities of online viewing, such as performing data manipulation or report reformatting. The basic facilities are very easy to use and should take the users a few minutes to learn.

It may be that you train the users for online viewing in two stages, first showing how to use the basic facilities, and then showing the advanced facilities. As the users become more familiar and confident with the basic options, they can gradually extend their usage of the various advanced options. Some users will want to use the full capabilities of the product straight away.

It is important that you proceed at the users' pace during this phase of the implementation because of the spectrum of different skill levels that exist in the user departments.

Create a Company Reference Document

Many companies produce a summary document giving an overview of the facilities available for their site. This document may contain a couple of pages telling the users how to access the system and what they need to do to access their reports. This can be a useful reference for the end user and save many calls to the super users or computer department.

Of course, the *CONTROL-D Online Viewing Guide* is a complete reference document and workbook for ultimate reference in case of difficulties.

Define Rulers

A ruler is simply a different view of a report. When you create a ruler you are manipulating the data of the report to a format that you require or prefer.

One of the main reasons for defining rulers is the switch from 132-character width paper-based reports to an 80-character screen display. Of course, users can scroll right and left but this can become cumbersome and users may lose their place and become frustrated. Using the ruler option, we can reformat the page to bring all relevant information into view simultaneously.

Some of the options that are available when creating different views of a report are:

- Fix lines as Header or Footer lines (so they do not disappear if you scroll down).
- Insert Overlay lines (for example, to provide eye-catchers).
- Exclude lines from a report, such as redundant Header information.
- Cut and paste the report, that is, the ability to rearrange and/or exclude columns of the report.
- Color selected columns of the report.
- Highlight selected columns of the report.
- Freeze selected columns of the report (so they do not disappear if you scroll to the right).
- Include certain lines of a report based on the specification of string values, including logical operators such as Greater Than/Less Than criteria.
- Exclude certain lines of a report based on the appearance of specified strings, including logical operators such as Greater Than/Less Than logic.

- Color and/or highlight lines or strings based the specification of string values.

Different rulers can be defined for viewing and printing. There is no limit to the number of rulers that can be defined for a report. No physical data of the original report can be physically changed by creating rulers.

Global Rulers

Ruler definitions are normally specific for each user and/or jobname and/or report name. However, special rulers can be used that can be shared between users and/or job names and/or reports. These are called global rulers. These can be very effective for users wanting to share similar rulers without duplicating their work. This can also be useful for application departments who want to have standard rulers defined for all their staff. They may even appoint a “ruler coordinator,” responsible for the creation of rulers for the department.

User Profiles

Using CONTROL-D, you have the ability to define different values and formats of how the default CONTROL-D screens appear for each user, for groups of users, or for all users. If you have users who want to change the default field contents (such as colors) of certain displays, this can be easily achieved by updating the appropriate User Profiles.

It is the IOA Profile capability that controls this function. IOA User Profiles are supported under all IOA online environments. The profiles also save information (from profiled fields) each time the user exits the IOA Online facility.

For further information, see the discussion about IOA profiles in the IOA administration chapter of the *INCONTROL for z/OS Administrator Guide*.

Use the View Indicator

There is a special field on the Active User Display that can indicate whether a report has been viewed, or how many times a report has been viewed. This can be useful if you think reports may not be required online, or when a report is being kept online for a longer duration than is necessary without actually being used. If this is so, it makes sense to archive the report and move it to the History file (from where it can be restored by the user if it is required, thus saving on valuable DASD resource). The value of the View Indicator field is determined by the value set for the Profile Symbol SUSRVEW in the User Profile member. There are three possible values for the View Indicator profile, as follows:

Table 39 Possible View Indicator Values

Value	Meaning
N	The View Indicator will not be displayed.
Y	The View Indicator will be displayed as a blank if the report has not been viewed, and as a V if it has been viewed.
A	The View Indicator will indicate the number of times the report has been viewed.

The View Indicator

ACTIVE LIST	<D> JOB JOB6	REP	USR	CHILD (U)
COMMAND ==>>				SCROLL==>> CRSR
0 USER REPORT		ODATE	PAGES	LINES V N STATUS
BR11	I NVENTORY-FOR-1001	07/04/00	3	137 1 Decol lated
BR12	I NVENTORY-FOR-1002	07/04/00	4	185 2 Decol lated
BR13	I NVENTORY-FOR-1003	07/04/00	3	145 2 Decol lated

NOTE

You should by now have trained the users to use the Online Viewing facility.



Implement Online Viewing Into Production

Once you have conducted the User Survey, you should be able to estimate how much work is involved in implementing the online viewing service. You need to perform the following:

- Define the view authorizations in the recipient tree.
- Turn on security.
- Update the relevant report decollating mission definitions.
- Adjust CTDDELRP for appropriate online durations.
- Train users.
- Create company reference document (optional).
- Set online viewing implementation date.

After the above tasks have been performed, you will be able to implement the pilot application for online viewing usage.



NOTE

You should by now have implemented the pilot application for online viewing.

Review

During this phase you have presented the benefits of online viewing to the users, conducted a User Survey, implemented the survey response, and conducted user education for online viewing.

Before you continue, you should have:

- Presented online viewing capabilities.
- Performed a user survey about online viewing.
- Set up the required online access environments.
- Trained appropriate users for online viewing.
- Updated the report decollating mission definitions for online reports.
- Established report online viewing durations.
- Defined the required view authorizations in the recipient tree.
- Implemented the pilot application for online viewing.

Phase 10: CONTROL-D/WebAccess Server Implementation

In this phase, we will review the implementation requirements of CONTROL-D when implementing CONTROL-D/WebAccess Server as well.

NOTE



In this chapter (as in the rest of this guide) “CONTROL-D” refers only to CONTROL-D and not to CONTROL-D/WebAccess Server.

If you are not implementing CONTROL-D/WebAccess Server, you can skip this phase.

CONTROL-D/WebAccess Server provides users with a platform to access report information downloaded from the mainframe onto their PC environment. It supplies the users with a mechanism to manipulate report output and offers them the capabilities of a more productive and better service to meet their individual business objectives.

We will review which actions are required to implement and support the CONTROL-D/WebAccess Server users from CONTROL-D. For all information relating to the CONTROL-D/WebAccess Server product itself, please refer to the following documentation.

- *CONTROL-D/WebAccess Server Tutorial*

Provides a hands-on, online learning experience that guides you through the full range of CONTROL-D/WebAccess Server features, from basic to advanced.

- *CONTROL-D/WebAccess Server User Guide*

Describes all CONTROL-D/WebAccess Server concepts, features, facilities and operating instructions in detail. It may be used as a learning guide as well as a reference guide.

- *CONTROL-D/WebAccess Server Administration Guide*

Contains installation instructions, advanced operating instructions, and information about CONTROL-D/WebAccess Server user management.

Some of the questions we will answer in this phase are:

- What is CONTROL-D/WebAccess Server?
- Why use CONTROL-D/WebAccess Server?
- What benefits will the end users get from CONTROL-D/WebAccess Server?
- What are the links between CONTROL-D/WebAccess Server and CONTROL-D?
- What needs to be done to support the CONTROL-D/WebAccess Server environment?

Inputs

Before you start this phase you should have implemented the results of the Report Pruning Survey (Phase 8).

Outputs

At the end of this phase you will have:

- Set up the CONTROL-D environment to support CONTROL-D/WebAccess Server users.
- Performed a User Survey of potential CONTROL-D/WebAccess Server users.
- Implemented CONTROL-D/WebAccess Server for appropriate users.

CONTROL-D/WebAccess Server Overview

CONTROL-D/WebAccess Server is a software product that allows you to view and manage mainframe and non-mainframe reports on the PC, and frees you from an abundance of printed output. It is based on the Online Viewing facility of the CONTROL-D, with many additional capabilities using a comprehensive Graphical User Interface (GUI).

For mainframe-produced reports, the product requires that CONTROL-D be implemented on the mainframe computer. Reports produced by CONTROL-D can be downloaded either automatically or manually to the PC or LAN environment using the CONTROL-D/WebAccess Server software.

Facilities of CONTROL-D/WebAccess Server

Using the CONTROL-D/WebAccess Server software, PC users have the ability to do the following:

- Transfer (automatically or by manual request) reports that have been generated on the mainframe computer and distributed by CONTROL-D.
- Display on the screen a list of transferred reports.
- Select any report from the list to view online or reformat, as required.
- Print any part of a report, in its original format or any other designed format.
- Extract information from mainframe reports and automatically load into another PC application, such as spreadsheets, databases, and so on.
- View AFP reports (AFPDS) through the Online Viewing facility, prepare the reports for downloading from the mainframe, perform a file transfer of the AFP reports to the required PC or LAN, and perform AFP file management on the PC or LAN.

Why CONTROL-D/WebAccess Server?

CONTROL-D was developed to automate and improve the manual report distribution process. It performs decollation to distribute reports to defined recipients; and it can then prepare any designated PC reports for transfer to the PC environment.

CONTROL-D/WebAccess Server was designed to work in conjunction with CONTROL-D to enable automatic transfer of mainframe reports to the PC environment.

PC report recipients can then access the downloaded information. This frees up costly mainframe resources, and provides report accessibility to the ever growing numbers of PC users.

In addition, CONTROL-D/WebAccess Server takes advantage of the user-friendly capabilities of the PC.

CONTROL-D/WebAccess Server Operating Requirements

Operating CONTROL-D/WebAccess Server requires the following hardware:

Table 40 Hardware Requirements for CONTROL-D/WebAccess Server

Item	Requirement
Computer	Pentium 90 or above with 8 MB of RAM.
Operating System	Windows NT or Windows 95/98.
Memory	Minimum 4 MB of free random access memory (RAM) dedicated to CONTROL D/WebAccess Server.
Disk Drive	Hard disk drive with at least 20 MB of free disk space.
Mouse	Windows compatible mouse.

Communication between CONTROL-D and CONTROL-D/WebAccess Server requires the following hardware/software:

Table 41 Communication Hardware/Software Requirements

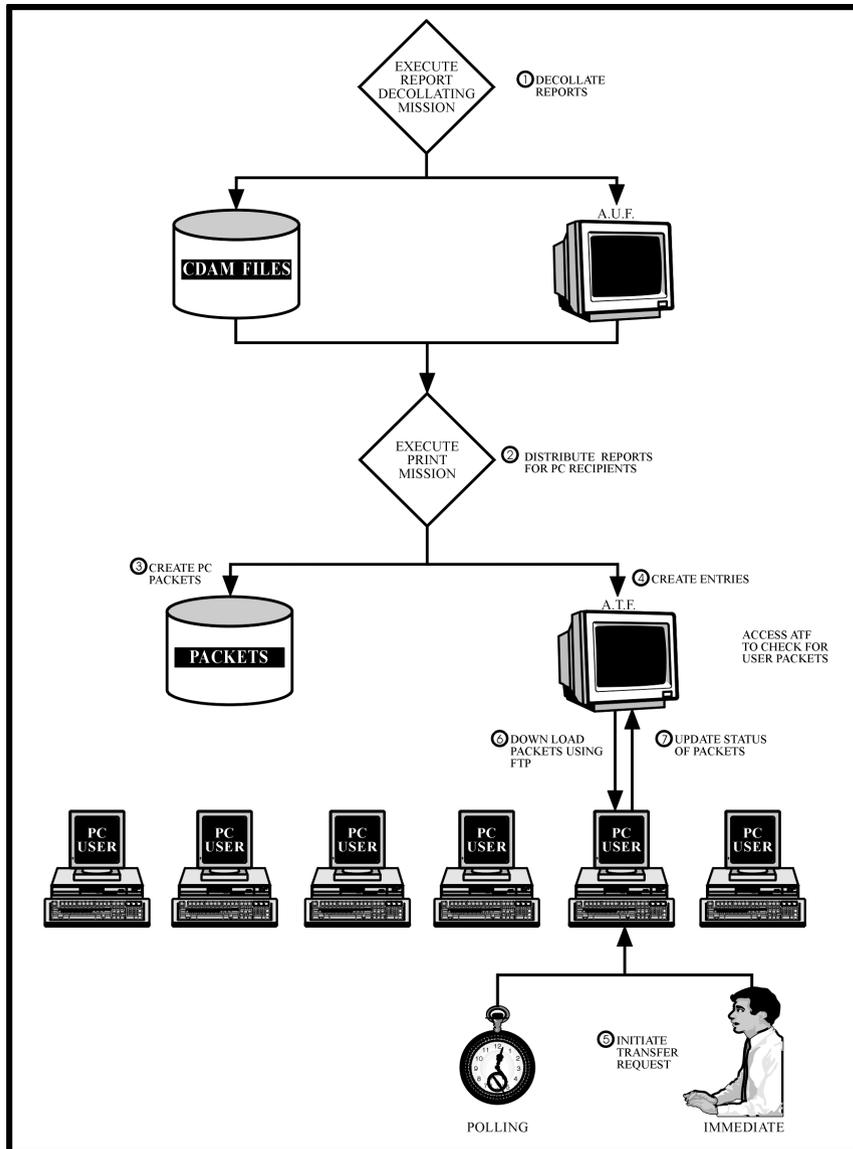
Item	Requirement
CONTROL-D	Release 5.0.0 or above.
Mainframe-PC connection	
Emulation software and/or hardware	Windows HLLAPI software with file transfer capabilities.

Control Access to CONTROL-D

In the CONTROL-D/WebAccess Server environment, it is the responsibility of the CONTROL-D/WebAccess Server administrator to assign user IDs to individuals or groups who require access to CONTROL-D/WebAccess Server. The user IDs defined must also be related to the CONTROL-D recipient names, as defined in the recipient

4. Entries are created in the Active Transfer file.
5. Transfer request is initiated.
6. Reports are transferred to the PC environment.
7. Status of packets is updated to TRANSMITTED.

Figure 39 CONTROL-D/WebAccess Server Workflow



Mainframe Reports are Decollated by CONTROL-D

CONTROL-D performs normal report decollation, that is, it assigns the relevant reports to the relevant recipients. As a result of decollation, entries are created in the Active User Report List file.

Assign Destinations for CONTROL-D/WebAccess Server Reports

You should assign a destination of CTDPC or CTDPCPRT to specific reports assigned to the users. This means that reports will be designated as PC reports for transfer to the PC path specified, or printed directly to the PC attached printer.

You can do this by any of the following methods:

- Setting parameter DEST in the recipient tree (that is, for all recipients' reports).
- Setting parameter DEST of the printing mission (that is, for all selected reports).
- Setting the destination field of specific reports in the Permanent User Report List file to CTDPC and setting parameter SEARCH of the relevant report decollating mission to P.
- Setting the destination field of specific reports in the Active User Report List file to make temporary changes and setting parameter SEARCH, of the relevant report decollating mission to A.

For details on the usage of parameter SEARCH, see Phase 5.

Distribute Reports for PC Recipients (Print Mission Execution)

CONTROL-D performs normal report printing, that is, it selects specified users for inclusion in the bundle and selects reports to be printed by the specific printing mission name.

Reports are printed according to destination. If reports have a destination of CTDPC or CTDPCPRT (assigned in the Permanent or Active User Report List files), or the default destination for the recipient in the tree is CTDPC, or the printing mission specifies a DEST of CTDPC, these reports are designated as PC reports and the following occurs:

- PC packets are created for each user.
- An entry for each packet is created in the Active Transfer file.

- Immediate mode

By a single request, all the currently available packets are transferred. This is a manual request issued by the PC user.

- Polling mode

By repetitive requests, the packets that are (or become) available within the scheduled time period are transferred. Scheduling specific times allows unattended report transfer overnight.

Polling Mode is the recommended mode, since transfer may be scheduled for times when the reports are likely to be ready on the mainframe. Furthermore, the demand on mainframe resources can be reduced by scheduling report transfer at non-peak times.

Reports are Transferred to the PC Environment

Before new reports are downloaded to the PC, any reports that exist on the PC path (such as the hard disk, file server, and so on) that have passed their retention period (as specified in the recipient tree), are automatically deleted to provide space for the forthcoming transfer.

Whichever method is used to initiate the request, CONTROL-D/WebAccess Server accesses the Active Transfer file to determine which packets are awaiting transfer to the PC user who issued the request. It then activates the site's file transfer program and transfers the relevant packets to the PC or LAN. If no file transfer program is used, packets can be downloaded to diskette and sent to the relevant users.

Recipient Tree Transfer Control Parameters

Parameters defined in the CONTROL-D recipient tree control the transfer process, as explained below:

Figure 40 Sample Recipient Tree PC Parameters

P C P A R A M E T E R S			
AUTHORIZED	Y		
PC PATH	C:\ACCOUNT\CTDPC\REPORTS		
PC RETAIN	006 (days)	MF RETAIN	014 (days)
MAX SIZE	00500000 (lines)	TRANSMIT FROM	0300 TO 0730 (hhmm)

Table 42 PC Parameters of the CONTROL-D Recipient Tree

Parameter	Description
AUTHORIZED	As discussed previously, this parameter determines if a recipient's reports are authorized to be downloaded to CONTROL-D/WebAccess Server.
PC PATH	The full name of the PC path to which reports will be downloaded. This is the place where downloaded packets will be stored by the file transfer program.
PC RETAIN	The number of days to keep the users' reports on the PC. Reports that are past their expiration date are automatically deleted before any new reports are downloaded.
MF RETAIN	The number of days to keep the bundle ready for transmission on the mainframe. The reports will wait on the mainframe in WAIT TRANSMISSION status until they are transmitted or exceed the value specified in this parameter.
MAX SIZE	The maximum size of a packet to be transmitted for this user.
TRANSMIT	The time interval in which the CONTROL-D/WebAccess Server user is allowed to download reports from the mainframe.

Update Status of Packets to TRANSMITTED

CONTROL-D/WebAccess Server sends a confirmation to CONTROL-D that transfer was successful. The Active Transfer file is updated with a status of TRANSMITTED for all packets that were successfully transferred.

Tracking and Control of Packets

In this section, we examine the facilities provided by CONTROL-D for tracking and controlling the packet files.

Allocation of Packet Files

During the installation process of CONTROL-D, several parameters related to CONTROL-D/WebAccess Server can be defined. These parameters affect the allocation of the packet files when they are created by the printing mission. Two files are created for each CONTROL-D/WebAccess Server user, a CDAM file (containing the compressed reports) and an index file (containing the CDAM file names). The parameters are defined in member CTDPARM in the IOA PARM library.

CTDPARM Parameter Member

BROWSE -- I OAP. PROD. PARM(CTDPARM)	- 01.03	-----	LINE 00000010	COL
COMMAND ==>			SCROLL ==	
PCPREF=CTDPC,	CTDPC COMPRESSED	DSN DEFAULT	PREFIX	*
PCUNIT=SYSDA,	CTDPC - UNI T			*
PCVOLS=,	CTDPC - VOLUMES			*
PCTRS=19,	CTDPC - NO OF TRKS FOR INDEX FILES			*

These parameters control the following functions:

- The default prefix of CTDPC packet files. If the parameter is not specified, the value specified in parameter AMPREFD will be used.
- The volumes and/or units to use for CTDPC packet files. If the parameters are not specified, the value specified in parameter AMUNIT is used.
- The number of tracks to be allocated for the CTDPC index files (the default value is 10).

Active Transfer File

As discussed previously, each time a user packet is created, an entry is written to the Active Transfer file, which is displayed in the CONTROL-D File Transfer Control screen. From this screen, the user can perform the following functions:

- Hold packets, that is, prevent transmission.
- Delete packets.
- Re-transmit packets, for example, if errors occurred.
- Print a packet, allowing immediate printing of a packet. When you select this option, a Print window is opened where you can specify printer name, class, destination, and so on, for printing all the reports contained in the packet.
- Examine packet details.
- List all reports contained in a packet.



NOTE

You should now conduct a user survey of potential CONTROL-D/WebAccess Server users.

Implement Survey Results

There are two actions that must be performed when implementing the survey results. We have to:

- Implement CONTROL-D/WebAccess Server on the appropriate users' PCs.
- Implement the required changes to CONTROL-D.

Implement CONTROL-D/WebAccess Server for the Appropriate PC Users

We recommend that you use a PC support team to implement the required software at the PC level. You should also appoint a CONTROL-D/WebAccess Server administrator who is responsible for the administration and control of the CONTROL-D/WebAccess Server environment and its users. Ultimate control of access and download is maintained at the mainframe CONTROL-D level, through the recipient tree. However there are some PC-oriented tasks that should be controlled by the CONTROL-D/WebAccess Server administrator.



NOTE

You should now implement CONTROL-D/WebAccess Server for all appropriate users.

Implement the Required Changes to CONTROL-D

Based on the results of the user survey, you will have to make the appropriate changes to CONTROL-D for the identified PC reports.

Some recipients may request that all their reports be downloaded to the PC. If this is so, the simplest way to achieve this is to update parameter DEST for the relevant recipient to CTDPC in the recipient tree (recommended method) or to set up a printing mission with a DEST of CTDPC for the relevant users.

If a user requires only selective reports to be downloaded, the DEST field in the Permanent User Report List file should be updated to CTDPC for the relevant reports. You should also ensure that parameter SEARCH in the relevant report decollating mission for this user is set to the appropriate value.

When using the multi-chunk option (described in Phase 4), it is possible to print regular reports and PC reports in the same printing mission. No changes are required for the printing mission – each time the mission encounters a report with different characteristics (for example, a DEST of CTDPC), the mission automatically creates a new chunk and handles it appropriately.

You should remember that even if a report is downloaded to a PC you still have all the control on the mainframe for the report that you normally have. From the mainframe point of view, downloading to a PC is equivalent to printing to a remote destination. For example, the following capabilities are still available:

- Viewing the reports on the Active User Report List file as soon as they are created.
- Keeping the report for online viewing on the mainframe (controlled by utility CTDDLRP).
- Archiving the report on the mainframe.
- Creating rulers for online viewing on the mainframe.
- Selective printing.
- Restoring archived reports.

NOTE



You should now set up the CONTROL-D environment to support users according to the results of the user survey.

Available Learning Resources for CONTROL-D/WebAccess Server

Resources for learning CONTROL-D/WebAccess Server have been developed for a range of media and are provided with the CONTROL-D/WebAccess Server package. The users can select whichever resources suit their needs. The resources for learning are as follows:

- *CONTROL-D/WebAccess Server Computer-Based Training*

CONTROL-D/WebAccess Server Computer Based Training (CBT) consists of three interactive training units that offer a well-rounded basic knowledge of CONTROL-D/WebAccess Server. All explanations and instructions are provided online on the PC screen.

- *CONTROL-D/WebAccess Server Tutorial*

The *CONTROL-D/WebAccess Server Tutorial* guides you step by step through a comprehensive list of topics. By following the book and carrying out the instructions on the PC, practical working experience will be gained.

- *CONTROL-D/WebAccess Server Demonstration Mode*

CONTROL-D/WebAccess Server can be run in a special demonstration mode that provides demonstration reports. These ready-to-use reports allow you to begin learning and experimenting with the online report viewing facilities immediately.

Review

During this phase, you have presented the benefits of CONTROL-D/WebAccess Server to the users, conducted a user survey, and implemented the survey response in the CONTROL-D/WebAccess Server and CONTROL-D environments.

Before you continue, you should have:

- Set up the CONTROL-D environment to support CONTROL-D/WebAccess Server users.
- Performed a user survey of potential CONTROL-D/WebAccess Server users.
- Implemented CONTROL-D/WebAccess Server for appropriate users.

Phase 11: Project Review

In this phase, you will review the achievements of the pilot implementation of CONTROL-D. You will analyze what is required for the future implementation of applications to CONTROL-D. We will also be discussing how to decide what to do next and your strategy for proceeding.

Some of the questions we will be answering in this phase are:

- What do I need to do in preparation for the following implementations?
- What has been the impact of the pilot implementation?
- How do I decide what to do next?
- How can I measure the success of the CONTROL-D implementation?

Inputs

Before you start this phase you should have:

- Reviewed the “old” system (Phase 1).
- Implemented generic processing (optional – Phase 7).
- Implemented online viewing (Phase 9).
- Implemented CONTROL-D/WebAccess Server (optional – Phase 10).

Outputs

At the end of this phase you will have:

- Selected the next application to implement.
- Reviewed the automated system.

Requirements for Future Implementations

Not all actions performed during the pilot implementation have to be repeated for subsequent implementations. Many were “one time only” tasks, for example, the administration tasks are in place, the structure of the recipient tree has been decided, and so on.

The list below highlights outputs that must be achieved in each phase for subsequent applications. In other words, these are the tasks that need to be performed for each new application.

Phase 1 Outputs: Decide Implementation Strategy

- Perform a distribution system review.
- Decide your project objectives.
- Decide your implementation strategy.
- Select a pilot application.
- Select the super users.
- Assign resources to the project.

We will discuss (later in this phase) how to decide which applications to implement next and how to decide your implementation strategy.

It may be that the super users selected for the pilot can be used as a user support team for future implementations. If this is possible, we recommend that you use these users as they already have the experience of managing the implementation of CONTROL-D in the end user environment. If not, you will have to identify new super users for each new application.

Phase 2 Outputs: Define Recipient Tree

- Set standards for recipient names.
- Insert basic recipient information.

Having defined the recipient tree structure and set standards for recipient naming during the pilot implementation, the requirements for future applications will be to identify the recipients of the application and to insert the basic recipient information in the tree.

Phase 3 Outputs: Design Decollating Missions

- Decide your report decollating mission scheduling method.
- Define decollating missions for the pilot application.
- Insert synonyms into the recipient tree.
- Test decollation missions.

The process of defining report decollating mission definitions should be easier for future applications after the experience gained from the pilot application. We suggest that when you are defining report decollating mission definitions for future applications, you merge this phase with Phase 6 – identify jobs using CDAM Direct Write, and define the report decollating mission definitions accordingly.

Phase 4 Outputs: Design Print Bundles

- Define printing missions for the recipients of the pilot application.
- Set printing mission naming standards.
- Design the basic format of the printed bundles.
- Initially test your printing mission definitions.

It may be that no further printing missions need to be defined. You may want to set up test missions to check that the user output is printed as required. The production implementation of printing reports from new applications may only involve updating the INCLUDE/EXCLUDE parameters of existing printing missions. You should also consider the timing of print bundle production as new applications are implemented and the print volume increases.

Phase 5 Outputs: Implement System Administration Tasks

- Implement the CONTROL-D “housekeeping” utilities.
- Set the SEARCH default using CONTROL-D with WD0933.
- Define, test and implement backup procedures.
- Define, test and implement restore procedures.

As a result of the pilot implementation, all required administration procedures should already be in place and no further actions should be required for future implementations.

Phase 6 Outputs: Implement CDAM Direct Write

- Create JCL procedures that use the CDAM Direct Write facility.
- Update the relevant report decollating mission definitions for CDAM Direct Write.

We recommended previously that you do this phase in conjunction with Phase 3, for example, when defining the report decollating mission definitions. Again, we recommend that you identify the top 10% of large volume jobs to give you the biggest “payback.”

Phase 7 Outputs: Handle MSGCLASS Output

- Define and test the generic decollating missions.
- Define appropriate authorizations in the recipient tree for online access to MSGCLASS output.

You may already be processing all MSGCLASS outputs as a result of the pilot implementation. If not, you should set the required generic missions up, or modify the existing missions. Authorizations for MSGCLASS viewing will probably be similar for all applications (that is, operations personnel access), but you may need to define access for development teams, and so on.

Phase 8 Outputs: Production Implementation

- Define accepted banner pages and bundle formats.
- Implement the pilot application into production.
- Perform a Report Pruning Survey.
- Implement the results of the Report Pruning Survey.

Depending on your objectives you can determine if you should perform a Report Pruning Survey after the implementation of each application or whether to implement all applications and then perform a global Report Pruning Survey. Postponing the survey at this point will basically mean that you are postponing the implementation of online viewing services until all applications are defined and are being printed and bundled by CONTROL-D.

Phase 9 Outputs: Online Viewing Implementation

- Perform a user survey about online viewing.
- Set up the online viewing access environments.
- Train appropriate users for online viewing.
- Modify the report decollating mission parameters for online reports.
- Establish report online viewing durations (CTDDELRP).
- Define the required view authorizations in the recipient tree.
- Implement the pilot application for online viewing.

Whichever strategy you follow for the Report Pruning Survey (that is, global or per application), we recommend that the implementation of online viewing services be performed at an application level. This will ensure that attention can be concentrated to a specific application's needs and that quality and objectivity are not lost trying to implement online viewing services in a “Big Bang” approach. We recommend a gradual introduction of users to the online viewing services to ease the implementation for you and for them.

Phase 10 Outputs: CONTROL-D/WebAccess Server Implementation

- Set up the CONTROL-D (and z/OS) environment to support CONTROL-D/WebAccess Server users.
- Perform a user survey of potential CONTROL-D/WebAccess Server users.
- Implement CONTROL-D/WebAccess Server for appropriate users.

For potential CONTROL-D/WebAccess Server users, we suggest that you follow the recommendations made for Phase 9.

For future implementations, you should consider combining the survey in Phase 9 with the survey performed here. Many of the support and implementation procedures can be controlled by the CONTROL-D/WebAccess Server administrator, if one has been assigned.

Phase 11 Outputs: Project Review

- Review the automated system.
- Select the next application to implement.

After implementing each application, we suggest that you analyze the implementation and make any necessary enhancements for following applications. Each time you implement, you will have to determine what to do next. We will discuss this in the following section and identify how to select and assign priorities for implementation.

Which Application Should I Select Next?

Having gained the experience of the first implementation, the following applications will be implemented easier and faster. We have identified what needs to be done for subsequent applications in the previous section. Now you have to decide what your strategy will be and which applications to implement next.

Decide Strategy

After the initial implementation, you should consider your implementation strategy for the subsequent applications. This will depend on your project objectives and available resources. You may want to implement all applications for bundling and printing, or you may want to process each application for online viewing.

It is also important that you reassess how many resources are required to achieve your objectives based on the experience gained with the pilot implementation. If possible, you should continue with the staff who already have experience from the pilot implementation.

Select Next Application

Deciding which applications to handle next will depend on several issues. There may be specific problem applications that the implementation of CONTROL-D will solve. There may be high priority systems. There may be pressure from end users eager for improved services.

Generally, we recommend that you select applications for implementation based on the benefits that you will gain by automating the application. You should prioritize the systems that will deliver most benefits. If possible, and depending on your resources, you may be able to work on multiple applications concurrently.

**NOTE**

You should now select the next application to implement.

Compare Systems

Depending on the size of the pilot application, it may be difficult at this stage to get a true picture of the automated system and what benefits it has produced. We suggest that you perform a total system comparison when CONTROL-D is fully implemented, using the following guidelines.

Calculate Project Success

In Phase 1, we asked you to measure your current system. We will use the measurements gathered during Phase 1 to compare to the automated CONTROL-D system. We asked you to measure key resources and services used and provided by the output management system. We will use the following list to discuss each key area of the output management process and to calculate what has been achieved:

- Measuring volumes of printed output.
- Evaluating spool utilization.
- Removing redundant data from circulation.
- Quantifying the backup resource.
- Analyze new output management methods.
- Analyze information availability.
- Analyze online viewing usage.
- Review the end user methodology.

Measure the Volume of Printed Output

In Phase 1 we asked, “How much output do you currently produce?”

If the results from the Report Pruning, online viewing and CONTROL-D/WebAccess Server surveys were positive, many reports should have been extracted from the print workload. It is usual that the progression to online viewing increases as time passes. As more applications are implemented under CONTROL-D and users continue to request online access to information, the print workload should continue to fall. CONTROL-D supplies a number of pre-defined reports that tell you how much output is being printed for each recipient. You can find sample reports in the IOA SAMPLE library.

Evaluate Spool Utilization

In Phase 1 we asked, “How big is the spool and how is it used?”

From the initial study, you should have identified the trends and utilization of spool volumes. With the introduction of CDAM Direct Write, the utilization of the spool should have dropped and the trends should have stabilized. After full implementation, you should reassess the requirements of the spool volumes and reclaim any space that was previously unavailable.

Remove Redundant Data from Circulation

In Phase 1 we asked, “How much unwanted data is sent to users?”

From the results of the Report Pruning survey in Phase 8, you should have identified how much unwanted data was being distributed. In some cases, the results of this survey can be alarming because of the discovery of large volumes of redundant output circulating in the distribution system. You should document what percentage of reports was identified as redundant.

Quantify the Backup Resource

In Phase 1 we asked, “How many resources are used for report backups?”

You calculated how many resources were allocated for the archiving of report data. After implementing the backup missions of CONTROL-D, you should compare the resources used. If you have set up the backup missions according to the recommendations specified in Phase 5, the new archiving strategy should be more economical, because there is no duplication of data being archived and reports are archived in a compressed format.

Analyze the New Output Management Methods

In Phase 1 we asked, “What is the current level of report reruns?”

With the implementation of online viewing in Phase 9, the end users now have control over their reports and have the ability to restore archived reports if required. This facility should dramatically reduce the number of report rerun requests received from the users. The objective should be that there are zero rerun requests from the end user environment once they have the capability to manage their reports on their own.

Analyze Information Availability

In Phase 1 we asked, “What are the average report delivery times?”

If you implemented online viewing services for mainframe or PC users, your report delivery services should have vastly improved. Information is now available for access to the users as soon as it is created. For PC users, reports can be automatically downloaded overnight to the PC environment so that they are available for the start of the working day.

If reports are still being printed, the time saved on splitting and bundling of output should enable faster report delivery, as well as delivering a higher quality product. For sites that formally delivered printed output to users some distance from the computer center, the availability of online information will be one of the highlights of the implementation.

Analyze Online Viewing Usage

In Phase 1 we asked, “How many report recipients have online access?”

During Phase 1, we asked you to assess the scope of your users' access to terminals and PCs. In Phases 9 and 10 we discovered the users' preferences and requirements for online viewing. You should calculate what percentages of report recipients have adopted online viewing services.

Review End User Methodology

In Phase 1 we asked, “What happens to the report once the user receives it?”

Now that the implementation is complete, you should have a better understanding of how reports are used within your company. It may be many years since anyone investigated the report distribution system. The objective of the implementation was not only to automate and improve the output management system but also to identify redundant data.

The enhanced system should enable the users to improve their handling of information to meet their business requirements.

NOTE

You should now perform a project review.



Review

During this phase, you examined what is required for future implementations, decided a strategy to process the other applications and reviewed the success of the implementation by comparing it with the previous system.

Before you continue, you should have:

- Selected the next application to implement.
- Reviewed the automated system.

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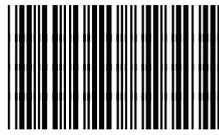
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Notes



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