



Information Management for z/OS
Panel Modification Facility Guide
Version 7.1

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Tivoli Information Management for z/OS Panel Modification Facility Guide

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Programming Interface Information

This publication documents intended Programming Interfaces that allow the customer to write programs to obtain the services of Tivoli Information Management for z/OS.

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Preface

Panels are used in Tivoli® Information Management for z/OS to record, store, and retrieve information in the Tivoli Information Management for z/OS database. This guide provides information on how to use and change Tivoli Information Management for z/OS panels.

There may be references in this publication to versions of Tivoli Information Management for z/OS's predecessor products. For example:

- TME 10™ Information/Management Version 1.1
- Information/Management Version 6.3, Version 6.2, Version 6.1
- Tivoli Service Desk for OS/390® Version 1.2

Who Should Read This Guide

This guide includes information beneficial to the person who plans changes to the Tivoli Information Management for z/OS panels. It is also helpful to the person who actually performs the modifications using the Panel Modification Facility (PMF). Because the depth of knowledge required for modifying a panel depends on the complexity of the change, the guide makes a distinction between the step-by-step procedures presented in the middle chapters and the reference information found in the later chapters.

If you are planning a panel modification, you should read all the chapters and then use the reference chapters to design your changes. If you are actually modifying a panel, you can follow the step-by-step checklists, keeping in mind the possible impact of your changes. An outwardly-simple external change can have complex implications.

This guide assumes that you have a working knowledge of Tivoli Information Management for z/OS, including how to use commands, immediate response chains (IRCs), and stored response chains (SRCs). You should also know how to run searches and generate reports.

Prerequisite and Related Documentation

The library for Tivoli Information Management for z/OS Version 7.1 consists of these publications. For a description of each, see “The Tivoli Information Management for z/OS Library” on page 625.

Tivoli Information Management for z/OS Application Program Interface Guide, SC31-8737-00

Tivoli Information Management for z/OS Client Installation and User's Guide, SC31-8738-00

Tivoli Information Management for z/OS Data Reporting User's Guide, SC31-8739-00

Tivoli Information Management for z/OS Desktop User's Guide, SC31-8740-00

Tivoli Information Management for z/OS Diagnosis Guide, GC31-8741-00

Tivoli Information Management for z/OS Guide to Integrating with Tivoli Applications, SC31-8744-00

Tivoli Information Management for z/OS Integration Facility Guide, SC31-8745-00

Tivoli Information Management for z/OS Licensed Program Specification, GC31-8746-00

Tivoli Information Management for z/OS Master Index, Glossary, and Bibliography, SC31-8747-00

Tivoli Information Management for z/OS Messages and Codes, GC31-8748-00

Tivoli Information Management for z/OS Operation and Maintenance Reference, SC31-8749-00

Tivoli Information Management for z/OS Panel Modification Facility Guide, SC31-8750-00

Tivoli Information Management for z/OS Planning and Installation Guide and Reference, GC31-8751-00

Tivoli Information Management for z/OS Problem, Change, and Configuration Management, SC31-8752-00

Tivoli Information Management for z/OS Program Administration Guide and Reference, SC31-8753-00

Tivoli Information Management for z/OS Reference Summary, SC31-8754-00

Tivoli Information Management for z/OS Terminal Simulator Guide and Reference, SC31-8755-00

Tivoli Information Management for z/OS User's Guide , SC31-8756-00

Tivoli Information Management for z/OS World Wide Web Interface Guide, SC31-8757-00

Note: Tivoli is in the process of changing product names. Products referenced in this manual may still be available under their old names (for example, TME 10 Enterprise Console instead of Tivoli Enterprise Console®).

What This Guide Contains

This guide can be grouped into five general areas:

- Chapter 1 through Chapter 4 introduces PMF and discusses planning considerations. If you are new to PMF, these chapters will get you started using PMF dialogs and will also raise planning-type questions you need to answer before changing any panels. There are also some examples of panel modifications for you to review. This will help you when you begin your own panel modifications.
- Chapter 5 through Chapter 11 is the guide to the various PMF tasks. Remember that any panel modification is usually a series of separate tasks. For example, changing one panel could involve:
 - Modifying the dictionary
 - Creating a new field
 - Copying a panel
- Chapter 12 through Chapter 24 includes checklists that give detailed instructions for performing each PMF task. Use this part of the guide for each specific panel modification you need to perform.
- Chapter 25 through Chapter 28 presents summary information about PMF and detailed information about program exits you can use. Also included are detailed examples of using the list processor program exit.

- Chapter 29 provides detailed information on how to create data model records. A knowledge of data model records is useful if you are performing PMF tasks in conjunction with building API applications and work interfaces, or with customizing the Tivoli Information Management for z/OS Desktop.

How Information Is Presented in This Guide

The panels presented in this guide are not meant to be exact replicas of the way a panel appears on the screen. The information on the panels is correct but the spacing is not always exact.

In the text of this guide, selections on panels and fields on data-entry panels appear like this:

The **Return to caller** field

and commands appear like this:

CONTROL

Also in the text, the input you enter on the command line or in data-entry fields appears like this:

Type **2,1,4,YES,END,10,**

Tivoli Information Management for z/OS provides two panel styles: the standard panel style and the enhanced panel style. The style of panel does not affect the data that must be entered on it. This guide uses the Tivoli Information Management for z/OS standard panel style when showing you how a panel looks. The *Tivoli Information Management for z/OS Program Administration Guide and Reference*, the *Tivoli Information Management for z/OS Planning and Installation Guide and Reference*, and the *Tivoli Information Management for z/OS User's Guide* all contain additional information about the enhanced panel style.

Contacting Customer Support

For support inside the United States, for this or any other Tivoli product, contact Tivoli Customer Support in one of the following ways:

- Send e-mail to **support@tivoli.com**
- Call 1-800-TIVOLI8
- Navigate our Web site at **<http://www.support.tivoli.com>**

For support outside the United States, refer to your Customer Support Handbook for phone numbers in your country. The Customer Support Handbook is available online at **<http://www.support.tivoli.com>**.

When you contact Tivoli Customer Support, be prepared to provide identification information for your company so that support personnel can assist you more readily.

The latest downloads and fixes can be obtained at **<http://www.tivoli.com/infoman>**

1

Introducing PMF

The Tivoli Information Management for z/OS System and Management applications work together to extend your ability to gather, organize, and locate information about your data processing installation.

PMF is a facility of the Management application that consists of a series of panel dialogs that lead you through the various stages of creating panels for your own applications and modifying the panels that make up the Tivoli Information Management for z/OS product.

This chapter gives you a general overview of the elements of PMF and the Tivoli Information Management for z/OS data sets that you need to be familiar with before doing any panel modifications. The chapter also explains the Tivoli Information Management for z/OS database and its relationship to the data sets and panels—technical information you need before doing complex panel modifications.

PMF is a tool for modifying panels that come with the Tivoli Information Management for z/OS product. Using PMF, you can also:

- Create new panels and panel sets for recording, storing, and retrieving information
- Delete and copy existing panels
- Look at and modify information in the dictionary data set to reflect the new and changed panels
- Print information about the panels and the dictionary

For example, some minor changes you can make with PMF are:

- Delete a field from a panel
- Add a field to a panel
- Change the name of a field
- Change a field's validation criteria and data type
- Keep a history of changes to a specific field

You can make more complex changes, too. Some examples are:

- Increase the number of users allowed in a privilege class
- Change the flow of a set of panels
- Control the data stored in the database
- Create new panel sets to support new record types

Making minor panel modifications does not involve special knowledge, although you should never change anything without testing the change to be sure it does not affect other related fields or panels. The more complex modifications, on the other hand, require thorough understanding of the internal representation of information in the Tivoli Information Management for z/OS database, and of the relationships among the panels, the data, and the database. Detailed information you need to know before you start using PMF to make

complex changes to Tivoli Information Management for z/OS panels is included in the “How Tivoli Information Management for z/OS Works” on page 4.

The Elements of PMF

PMF, like other Tivoli Information Management for z/OS facilities, consists of several distinct elements:

- PMF dialogs guide you through the processes of creating, updating, copying, testing, and deleting panels and parts of panels.
- PMF screen commands, combined with cursor positioning as in other Tivoli Information Management for z/OS facilities, enable you to make both external and internal panel modifications with a minimum of key strokes.
- PMF reports, which you can print at any time, help you identify related or interdependent panels or fields before you start making changes.
- Data sets that contain the panels and the dictionary.
 - When you use PMF, Tivoli Information Management for z/OS copies a panel to be changed from a *read* or *write panel data set*; you make changes to it and then file it on the write panel data set. When it is ready to use, you can put the changed panel into your own *user-defined read panel data set*.
 - During the process of updating or creating panels, you can examine and update the *dictionary data set* to add new prefix words (*p-words*) or structured words (*s-words*), and to change validation patterns for data-entry fields.

These data sets are not unique to PMF, but it is only through PMF that you can work with them.

All of these elements are discussed in more detail on the following pages, and each PMF panel has associated help panels.

PMF Dialogs

The PMF dialogs are similar to all Tivoli Information Management for z/OS dialogs. You select a task from a Primary Options Menu, which leads you to sets of selection panels, from which you can display data-entry and summary panels. For an example, see “Changing a Field Name” on page 97.

PMF Screen Commands

The screen commands used for PMF are:

AT	Delimits an area on the panel.
BLANKA	Blanks out an area on the panel.
CONTROL	Creates or updates control information for fields, selections, and panels.
FIELD	Defines and tests screen attribute bytes for fields.
MOVEA	Moves an area on the panel.
SLEFT	Shifts the entire panel to the left.
SRIGHT	Shifts the entire panel to the right.

“Using PMF Commands” on page 80 presents these screen commands in the context of their use.

PMF Reports

When you are creating or updating panels, PMF reports can help you in two ways:

- They can show you the internal information (for example, s-word indexes, target panels, dialog controls) for a panel or set of panels, providing information you need to make your changes correctly.
- They can help you assess the impact your changes will have on the rest of the panels in a set or on all the panels in your application.

The PMF REPORT option offers eight kinds of reports you can print and examine. The reports are:

PANEL CONTENT	A print-out of the contents of a single panel or set of panels.
S-WORD LIST	A list of the s-words in the dictionary.
P-WORD LIST	A list of the p-words and their validation patterns in the dictionary.
PANEL XREF	A cross reference of panels to panels.
S-WORD XREF	A cross reference of s-words to panels.
P-WORD XREF	A cross reference of p-words to panels.
STRING FIND	A listing of all the panels containing a specified character string.
PANEL SUMMARY	A one-line summary of the audit, service, and help information for each panel.

“Running PMF Reports” on page 227 tells you how to run these reports and how they can help you plan your panel modifications.

Data Sets

The BLGPARMS macro contains definitions of the three kinds of VSAM data sets you need to use PMF. When Tivoli Information Management for z/OS is initialized, the data sets are allocated according to the information in the macro.

Read Panel Data Sets

Your Tivoli Information Management for z/OS installation includes a base Tivoli-supplied read panel data set. This data set contains the panels as originally shipped with the product. When you modify panels as part of customizing Tivoli Information Management for z/OS, you can replace them in the base read panel data set, or put them in your own user-defined read panel data sets.

Before making any changes to the Tivoli-supplied panels, copy them into a master panel data set, just in case something happens to your read panel data sets.

Because VSAM data sets cannot be concatenated through JCL, you must define your own read panel data sets in the BLGPARMS macro and reinitialize Tivoli Information Management for z/OS before your read panel data sets can be used. The order in which the data sets are defined in BLGPARMS is a logical concatenation, so you can control the order in which the data sets are searched for a panel to be displayed.

Refer to the *Tivoli Information Management for z/OS Planning and Installation Guide and Reference* and the *Tivoli Information Management for z/OS Operation and Maintenance Reference* for detailed information about defining, combining, and maintaining the read panel data sets.

Write Panel Data Set

This is the target (output) data set for all the panels you modify; it is unique to PMF. The write panel data set is defined in the BLGPARMS macro and is allocated when Tivoli

Information Management for z/OS is initialized. If you change its attributes, you must update the BLGPARMs macro and the DEFINE cluster and reinitialize Tivoli Information Management for z/OS.

After you have successfully tested new or changed panels, copy them from the write panel data set to a read panel data set for general use. Refer to the *Tivoli Information Management for z/OS Planning and Installation Guide and Reference* for more information about defining the write panel data set.

Dictionary Data Set

This data set is an integral part of Tivoli Information Management for z/OS. The dictionary data set makes it possible to search the Tivoli Information Management for z/OS database quickly. Each entry in the dictionary data set has an index. The dictionary data set contains:

- S-Word definitions.
- P-Word definitions. P-Words consist of two parts: the prefix and the validation. A p-word can contain a prefix with no validation or it can contain a validation with no prefix.

Before you change a field on a panel, you can refer to the dictionary for information about the s-word and p-word associated with the field.

If your panel modifications involve defining new p-words, validation patterns, or s-words, you must update the dictionary before changing or creating any panels.

To use the dictionary as a reference, you can search it directly through a PMF panel dialog or extract data from it using the PMF report facility. “Using the Dictionary” on page 183 discusses the dictionary and its contents in detail.

How Tivoli Information Management for z/OS Works

Before you use PMF, be sure to review how Tivoli Information Management for z/OS works. On the next few pages is an overview of the following topics:

- The Tivoli Information Management for z/OS BLX-Service Provider
- The Tivoli Information Management for z/OS database, including the structures that make recording and retrieval of data possible
- The Tivoli Information Management for z/OS search mechanism
- The relationships among panels, the dictionary, and the database, and how PMF works within them
- The types of panels included in Tivoli Information Management for z/OS

Centralizing VSAM Input and Output

Tivoli Information Management for z/OS contains a central address space that allows a number of users to perform tasks simultaneously. This central address space is called the BLX-Service Provider (BLX-SP).

The BLX-SP provides all input and output needs for all VSAM data sets used by all user address spaces. By centralizing all VSAM input and output in the BLX-SP, performance is significantly improved through the use of VSAM local shared resources (LSRs) defined in the BLX-SP.

Because the BLX-SP provides this centralized capability, the BLX-SP must be started before any Tivoli Information Management for z/OS user address space can run. This includes not only the interactive Tivoli Information Management for z/OS users, but also any batch Tivoli Information Management for z/OS jobs, utilities, or user application programs using one of the APIs.

Program Calls to the BLX-SP

Several things can initiate a program call:

- A user's address space
- Tivoli Information Management for z/OS utilities
- A user's API

When one of these issues a request to Tivoli Information Management for z/OS, the BLX-SP takes over by way of a program call. These program calls take the request to the BLX-SP router. The router then decides which program call service routine to start.

If the service routine can complete the request, it does so, and control is returned to the calling party. However, if the service routine cannot complete the request, the request is forwarded to one of the BLX-SP's tasks.

Database Overview

As a user proceeds through a set of panels, making selections, and entering data, Tivoli Information Management for z/OS collects s-words and p-words that correspond to the fields and data being entered. When the user files the record built with the help of the panels, the s-word and p-word indexes go into one data set, and the s-word and p-word data goes into another.

These data sets, the structured description data sets (SDDSs), and the structured description index data sets (SDIDSs), form the actual database for Tivoli Information Management for z/OS. The records created by Tivoli Information Management for z/OS users are in the SDDS in the form of structured descriptions. The records are located by index keywords stored in the SDIDS.

The structured description log data set (SDLDS) is an optional data set used as a backup for records written to the SDDS.

Database Data Sets

The SDDS and SDIDS are key-sequenced VSAM data sets. The SDDS is the primary record-storage data set. Depending on how Tivoli Information Management for z/OS was set up at your location, you have either a single-cluster SDDS or up to 100 multiple-cluster SDDSs. Each SDDS cluster allows you to store up to 400GB of data.

The SDIDS is a cross-reference to the searchable words stored in the SDDS.

A process called *cognizing* cross-references data that can be used in search arguments. The information in the SDIDS records can be in s-words, in p-words concatenated with specific user responses, or in *abstract words* entered by the user. The abstract words are typically individual words from a description abstract.

Each record in the SDIDS contains the s-word, p-word, or abstract word, and a bit string that indicates which records in the SDDS contain the indexed word. This "inverted" database organization lets the search mechanism locate all records containing a particular word

(s-word, p-word, or abstract word) in a single read operation. Figure 1 shows the relationship between the words in the SDIDS and the records in the SDDS.

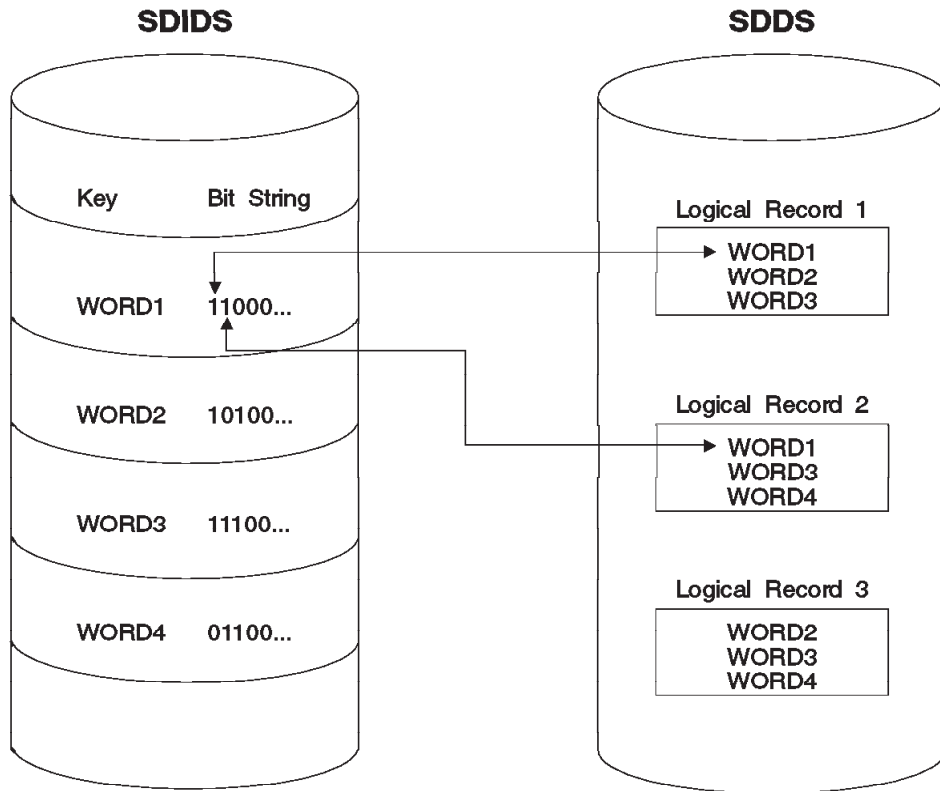


Figure 1. Relating the SDIDS to the SDDS

If the user enters a search argument of **WORD1** with the ARGUMENT or SEARCH command or by responding to an inquiry-mode panel, the search mechanism reads the SDIDS record for WORD1 and checks the bit string to determine which records contain WORD1. If the user enters a search argument of **WORD1 WORD3** (to retrieve records containing both words), the search mechanism reads the SDIDS for WORD1 and WORD3 and performs a logical AND operation on the bit string of each word. This example is shown in Table 1.

Table 1. Bit-String Setting Example

Argument	Bit-String Setting
WORD1	110
WORD3	111
Logical AND result	110 (Records 1 and 2)

For each word that is entered as part of the search argument, this process is repeated. Refer to the *Tivoli Information Management for z/OS User's Guide* for more information about search arguments and the Tivoli Information Management for z/OS search mechanism.

S-Words and P-Words

Depending on whether a selection or an actual value is entered in a data-entry field, a piece of information collected from the user through a panel is represented internally as an s-word, a p-word, or both, to which the value entered on the screen is attached. S-Words are attached to the data indirectly in that they are cognized separately. P-Words prefix the value entered and are cognized as part of the value. The use of these structures allows for general as well as specific searches of the database.

All the s-words and p-words related to the product are defined in the dictionary data set. Each word has an entry—a record identified by a key called its index. You can, using PMF, print a report showing the contents of the dictionary data set to examine the s-words and p-words defined there.

The purposes of s-words and p-words are similar but not identical. S-Words define record types and provide uniqueness in displaying data; p-words prefix the data and allow a freeform search of the database. See “Using the Dictionary” on page 183 for more information about s-words and p-words and their functions.

You can modify the externals of panels without directly affecting the database because the structured descriptions are independent of the wording on the panels. Because Tivoli Information Management for z/OS uses these structured descriptions of the information on its panels, you must be very careful when making any changes to them.

Data Modeling

In earlier releases of Tivoli Information Management for z/OS, panels were the only means of describing the composition of data records. (By *composition*, we mean that set of fields which define a record type and the attributes of each of those fields.)

In recent releases, another means of storing the composition in records (called *data model records*) rather than in panels was provided. Data model records consist of

- Validation records
- Data attribute records
- Data view records

“Using Data Model Records” on page 539 describes a means of creating a data model of a problem record. The *Tivoli Information Management for z/OS Application Program Interface Guide* provides more specific information about using data model records with the APIs.

Relationship of the Data Sets, Panels, and Database

Figure 2 on page 8 is a representation of the data sets that make up a typical Tivoli Information Management for z/OS environment. The actual names of your data sets may differ.

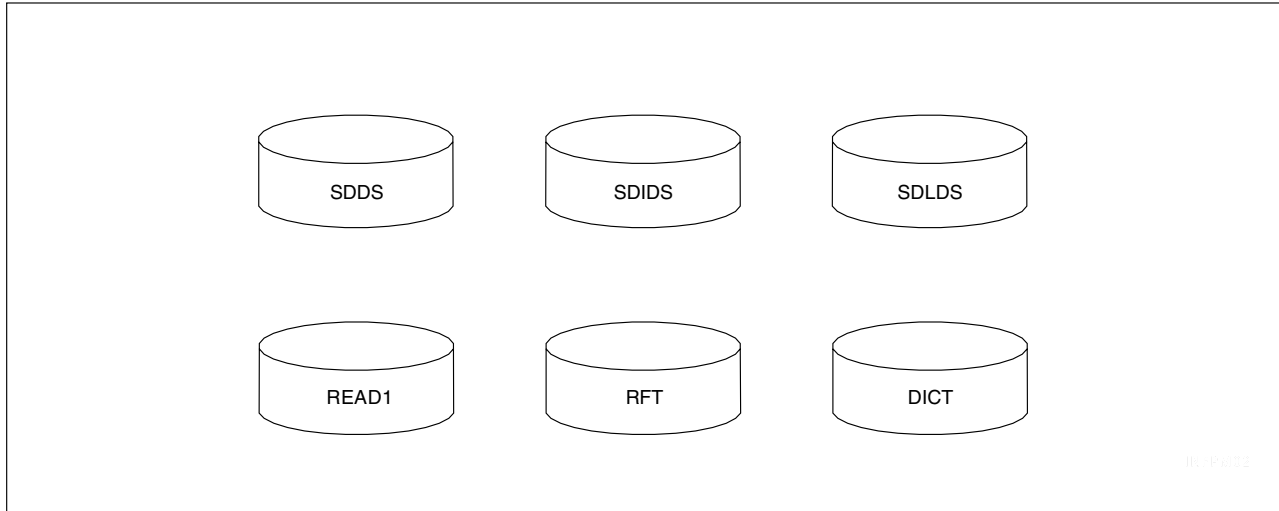


Figure 2. Tivoli Information Management for z/OS Environment Data Sets

The READ1 panel data set contains all the panels available to the Tivoli Information Management for z/OS user. This includes the base panels from Tivoli and any panels that have been modified by the installation. Most environments include a structured description log data set (SDLDS), as shown here, for recovery of the SDDS. The dictionary data set (DICT) contains all the s-words and p-words that have been defined to Tivoli Information Management for z/OS. The report format table data set (RFT) is an MVS™ partitioned data set that contains the report format tables used to generate Tivoli Information Management for z/OS reports.

This combination of data sets is common to all Tivoli Information Management for z/OS users. When you use PMF, however, you must define additional data sets in your PMF session member. Figure 3 shows the relationships among them.

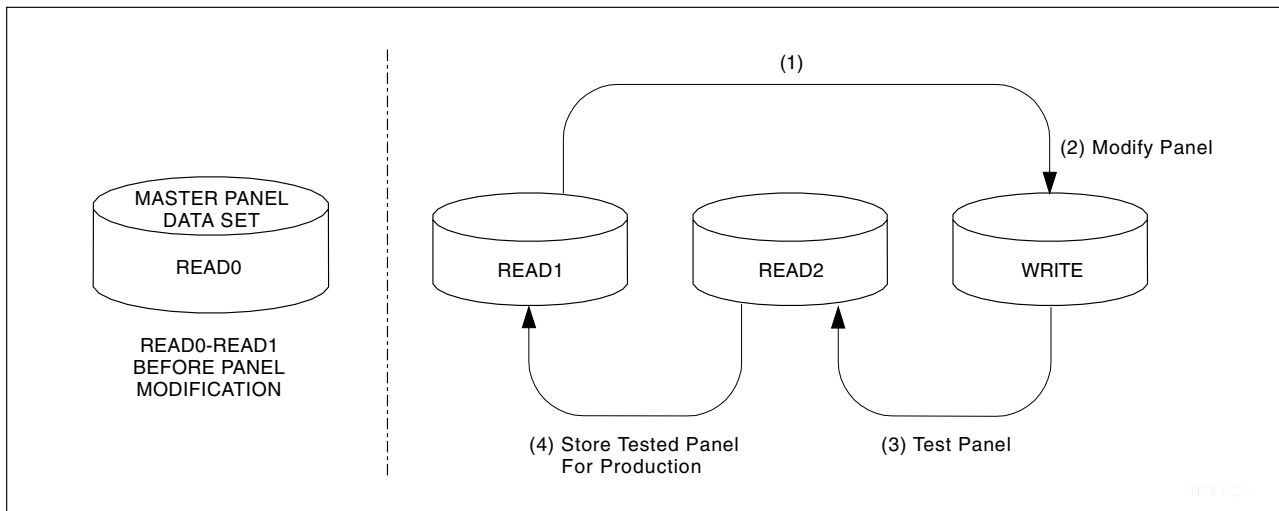


Figure 3. Data Set Relationships

When you are using PMF, you have access to the base read panel data set. (In this figure, the basic read panel data set is READ1.)

The first time you update and file a panel, Tivoli Information Management for z/OS copies the panel you want from the read panel data set to your write panel data set. (In this figure, the write panel data set is WRITE.) Arrow 1 illustrates this action. The panel you work on is the copy in your write panel data set.

To test modified panels, copy them to another read panel data set and then run your tests. (In this figure, the second read panel data set is READ2.) Arrow 3 illustrates this action.¹ When you are ready to put your modified panels into production status, copy the tested panels back to your installation's base read panel data set (READ1) where they are available to all your users. Arrow 4 illustrates this action.

Refer to the *Tivoli Information Management for z/OS Planning and Installation Guide and Reference* for specific instructions for allocating and using the data sets you need for PMF.

Figure 4 on page 10 represents the process of creating a problem record, showing the internal relationship between the panels and the Tivoli Information Management for z/OS database. The scenario that this figure illustrates follows it.

1. This is not the panel test step of panel update; this is the testing of the panel or panels in the Tivoli Information Management for z/OS environment, which requires that they be on a read panel data set.

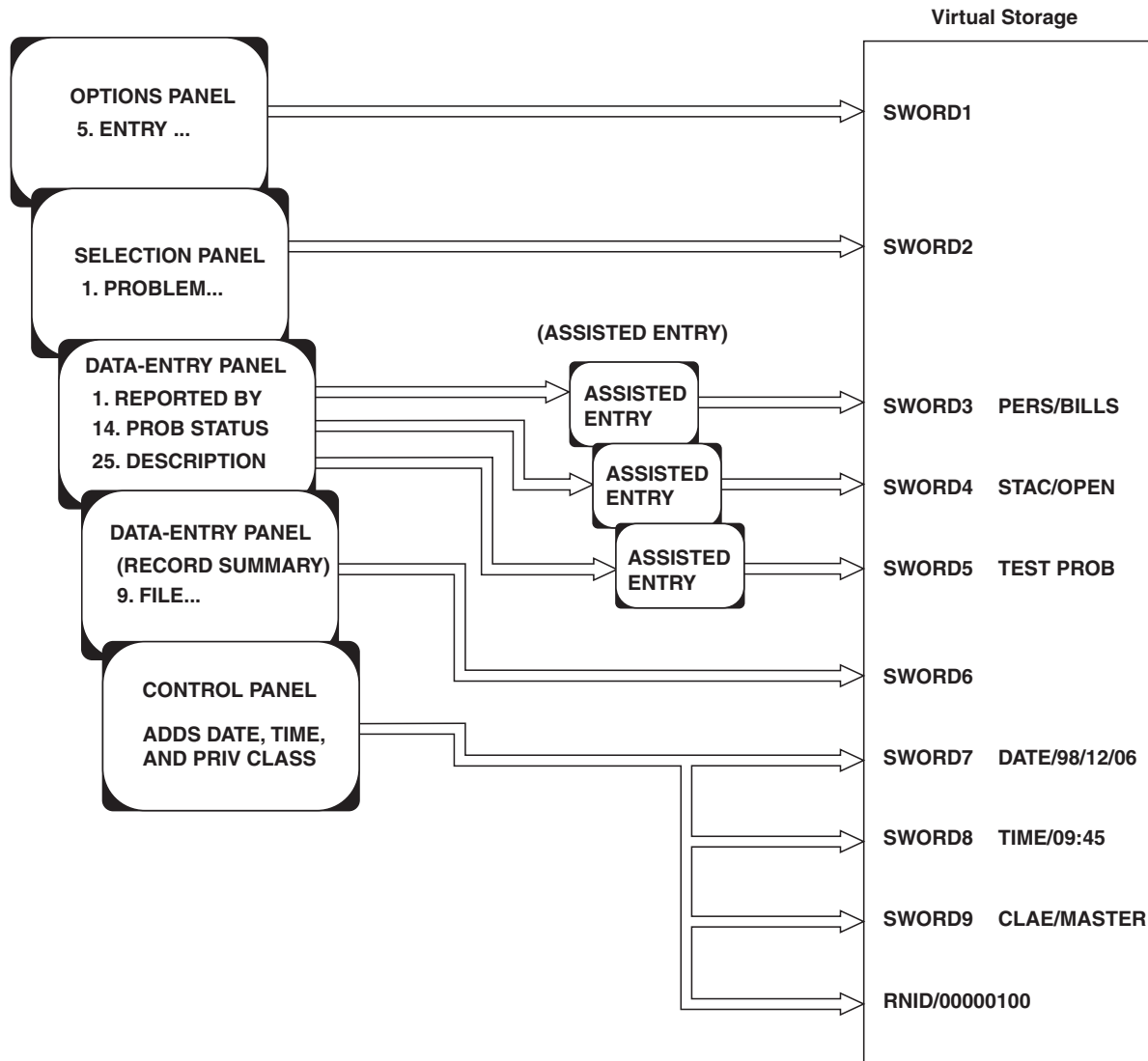


Figure 4. Creating a Problem Record

1. Starting at the Management application Primary Options Menu, select option **5** for *Entry*. This action collects the s-word that is associated with the selection in virtual storage. The record exists in storage until it is ready to be stored in the database.
2. On the next panel, select option **1** for *Problem record*. This collects the s-word that identifies this record as a problem record. (Every problem record has the same s-word because you must use this panel to create a problem record.)
3. On the data-entry panel, use the following procedure:
 - a. Type data for the fields and press **Enter**.
 - b. The data for each field is validated by its associated assisted-entry panel. If correct, the data is saved in storage along with the proper s-word and p-word.
 - c. After the data is validated and saved, control returns to the data-entry panel, with the fields filled in. The s-words are used to locate and redisplay the saved data.

Note: If the data was not entered correctly (that is, was not valid), either a valid choice list or an assisted-entry panel for the field is displayed, showing the proper entry format. After you enter the data correctly, it is validated and redisplayed as in the previous step.

- After you complete the record, select option **9** for *File* from the Record Summary panel. This collects another s-word. Control now goes to a control panel (transparent to you, the user), that adds the date, time, and privilege class to the record. If you did not assign an ID to the record, the system assigns one when the record is filed in the SDDS. The s-words and p-words for any fields that are to be searchable (cognized items) are indexed in the SDIDS.

After you finish this record, the logical contents of the SDDS record are:

```
RNID/00000100  SWORD1  SWORD2  SWORD3  PERS/BILLS  SWORD4  STAC/OPEN
SWORD5  TEST  PROB  SWORD6  SWORD7  DATE/97/12/06  SWORD8  TIME/09:45 .../
```

If all the s-words and p-words collected for your problem record are cognized items, the SDIDS records look something like what is shown in Table 2.

Table 2. SDIDS Records

KEY	RECORD REFERENCES
RNID/00000100	...0000000000000001
SWORD1	...010101110101111
SWORD2	...010001010101011
SWORD3	...100010010000001
STAC/OPEN	...010010100010001
SWORD4	...010010100010001
SWORD5	...001000010010001
PERS/BILLS	...100010010000001
TEST	...000000000000101
PROB	...000000000000001

Relationship of the Dictionary, Panels, and Database

The dictionary data set is the central repository of items that can be entered into panels. If you change or add s-words or p-words, you must update the dictionary to reflect your changes before actually modifying the panels. (You might also have to update the dictionary when adding an existing s-word or p-word to a panel.)

You must update the dictionary before you create or modify a panel so that PMF can access the appropriate s-words and p-words from the dictionary and store them in the panel. Then, when a user creates a record or search argument, the s-words and p-words actually come from the panels themselves, as shown in Figure 4 on page 10. Updating the dictionary prevents repeated input and output operations to the dictionary as the user proceeds through the panels.

More about Panel Data Sets

For each panel data set, a data set definition label resides in the BLGPARMs macro. You must know this label to copy or delete panels, to update panels from a specific panel data set, and to print PMF reports.

When updating panels, if you name a specific panel data set by its BLGPARMS label, Tivoli Information Management for z/OS looks *only* in that panel data set. If the panel is not found in the panel data set you specified, PMF assumes you are creating a new panel (even if a panel with the same name is in another panel data set) and presents a selection panel from which to choose a model panel of the type you want. (Look in the session parameters member of the load library for the Tivoli Information Management for z/OS session or use the PMF Panel List report to find the BLGPARMS label.)

If you do not name a specific panel data set by its BLGPARMS label, the order of the data set definition labels in BLGPARMS determines the hierarchy of the search for the panel you want to update. The write panel data set is always searched first, followed by each of the read panel data sets in the order they are defined in BLGPARMS. If the panel is not found, PMF assumes you are creating a new panel and displays a selection panel from which to choose a model panel of the type you want.

Regardless of which data set your updated panel came from, it is always written to the write panel data set when you file it.

Note: The write panel data set is searched *only* during panel update (including the panel-test phase of update), so you must copy a new or updated panel from the write panel data set to a read panel data set if you want the new or updated panel to be used during a Tivoli Information Management for z/OS prompting sequence (for final testing, for example).

Tivoli Information Management for z/OS Panel Types

The Tivoli Information Management for z/OS dialogs use nine different types of panels. You can create or update panels in any of the types using PMF. They are shown here with a brief description of the purpose of each.

A *data-entry panel* enables you to enter data, and then displays the entered fields for you to verify. This panel can also include display-only fields and selections.

You can always use a data-entry panel instead of a selection panel (shown on page 15) or options panel (shown on page 16).

```

BLG0B300                PROBLEM CLOSE ENTRY                PROBLEM: _____

Enter problem closing data; cursor placement or input line entry allowed.

1. Resolved by....<R> _____    10. Problem status.....<R> _____
2. Resolver dept..... _____    11. Cause code.....<R> _____
3. Resolver phone.... _____    12. Program name..... _____
4. Resolver class.... _____    13. Device name..... _____
5. Date closed.....<R> _____    14. Original prob. number.. _____
6. Time closed..... _____      15. Cause change number.... _____
7. Total time..... _____      16. Fix change number..... _____
8. Duplicate count.... _____    17. Date rep. notified..... _____
9. Outage..... _____          18. Rerun time..... _____
                                   19. Vendor PD time..... _____

When you finish, type END to save or CANCEL to discard any changes.

====>

```

An *assisted-entry panel* prompts the user to enter data for a particular field on a data-entry panel. It describes the data-entry field and the format in which your response should be. It also validates the data after you enter it on the data-entry panel.

You must have one assisted-entry panel for every entry field on a data-entry panel.

You can use data attribute records to replace assisted-entry panels (see “Using Data Model Records” on page 539).

```

+ BLG6REQN ----- REPORTER NAME ----- PERS/-+
|
| USE...Enter name of the person entering problem, change, etc.
|
| FORM...Up to 40 characters, including special characters and
|         embedded blanks. The entire value will be searchable as
|         a single piece of data. If you want to search or sort
|         records by last name, enter the last name first.
|
| EXAMPLES: Janet Cooper-King..Reply.....Cooper-King Janet
|           Tim Johnson.....Reply.....Johnson Tim
|           Default.....Reply.....=
|
+----- REPLY AS ILLUSTRATED -----+

====>

```

A *table panel* displays data that you generate in the course of using a Tivoli Information Management for z/OS facility.

From a table panel, you can scroll up, down, left, and right. The panel can display a list of records from the database or lists of items in an individual record.

```

BLG1TSRL                SEARCH RESULTS LIST                LINE 1 OF 162

DATABASE: 5

   RECORD ID  DESCRIPTION ABSTRACT
1. 00007098  ABEND 0C4 ON CARMVS1
2. 00007099  FUZZY DISPLAY
3. 00007582  PASSWORD REVOKED IN ERROR
4. 00007583  OUTPUT DELIVERY TOO SLOW
5. 00008893  RESPONSE TIME TOO SLOW
6. 00007773  OUTPUT DELIVERY OFTEN MISROUTED
7. 00007775  POOR SECOND LEVEL SYSTEM SUPPORT
8. 00123043  DASD ERROR
9. 00034432  PRINTER ON FIFTH FLOOR JAMMED
10. 00000324  3279 WITH NO COLOR
11. 00003445  PS2 8514 DISPLAY FLICKERING
12. 09900222  PRINTER ON SECOND FLOOR DOWN
13. 00014342  BAD SERIAL CARD
14. 00008789  LAN CONNECTION FAILING

Line Cmds: C=Copy D=Delete P=Print S=Select U=Update
Type DOWN or UP to scroll the panel, or type END to exit the panel.

===>

```

A *control panel* controls much of the internal panel processing, and is transparent to the user. You can use PMF panel update for any combination of the following tasks:

- Add data to a record (date and time entered, for example)
- Control panel flow
- Display a message panel
- Call a function (for example, FILE or CANCEL)
- Call a program exit
- Test for the presence or absence of data

```

BLMITSCU                FUNCTION LINE SUMMARY                LINE 1 OF 17

   FUNC FUNC S-WORD PREFIX MULT APPLY AUTH TRUE FALSE MESSAGE PROGRAM
   TYPE CODE INDEX INDEX B E NOT CODE TARGET TARGET PANEL EXIT/TSP

'' **** * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *
'' FLOW 002A 0000 0561 N N N 0000          BLG1ACAN
'' TEST 0000 0000 0340 Y N N 0000
'' FLOW 001B 0000 0000 N Y N 0000          BLGTSPPE
'' TEST 0000 0000 0340 Y N Y 0000
'' FLOW 001B 0000 0000 N Y N 0000          BLGTSPPU
'' TEST 0000 0000 0340 Y N N 0000
'' ADD 0000 0C34 00D8 N N N 0000
'' ADD 0000 0C61 028B N N N 0000
'' ADD 0000 0BB1 007A N Y N 0000
'' FLOW 000B 0000 0000 N N N 0000          BLG01147
'' ADD 0000 0C35 00DF N N N 0000
'' ADD 0000 0C62 0291 N N N 0000

Line Cmds: A=After C=Copy D=Delete I=Insert M=Move R=Repeat U=Update
Type DOWN, UP, LEFT, or RIGHT to scroll the panel, or type END to exit.

===>

```

A *terminal simulator panel* is similar to a program. It contains programming statements that let you do many activities, for example:

- Find data in the database
- Call your own code

- Change the flow of a dialog
- Run in batch mode

For complete information on creating and updating TSPs, refer to the *Tivoli Information Management for z/OS Terminal Simulator Guide and Reference*.

```

BLMITUCU                FUNCTION LINE SUMMARY                LINE 1 OF 1

  FUNCTION  LABEL  LITERAL                GET APPLY  FIELD
  NAME      NAME   DATA                VAR  NOT   NAME
0. *****  *****  *****                ****  ****  *****
1. LABEL    BLG33443
*** *****  *****  *****                ****  ****  *****

Line Cmds: A=After C=Copy D=Delete I=Insert M=Move R=Repeat U=Update
Type DOWN, UP, LEFT, or RIGHT to scroll the panel, or type END to exit.

===>

```

A *selection panel* is a menu panel that contains up to nine numbered items. If you need more than nine items, consider using a data-entry panel rather than a selection panel.

Another advantage a data-entry panel has over a selection panel is that you can display data (such as the record ID) on a data-entry panel.

```

+ BLM8CUA0 ----- PANEL TYPE ----- 1 of 1--+
|
| USE...Identify the type of panel that you wish to have created.
|
| 1.SELECTION.....Panel containing menu selections.
| 2.OPTIONS.....Panel containing dialog begin options.
| 3.HELP.....Panel for help or tutorial information.
| 4.MESSAGE.....Panel containing message information.
| 5.DATA ENTRY.....Panel allowing display or entry fields.
| 6.ASSISTED ENTRY....Panel containing value definitions.
| 7.TABLE.....Panel allowing multiple columns or lines.
| 8.CONTROL.....Panel for testing flow, program invocation.
| 9.TERMINAL SIMULATOR.Panel for keystroke automation.
+----- SELECT ITEM -----+

===>

```

Panel Types

An *Options panel* is a menu panel that contains up to nine numbered items, each of which begins a different dialog. If you need more than nine items, consider using a data-entry panel rather than an options panel.

Another advantage a data-entry panel has over an options panel is that you can display data (such as the record ID) on a data-entry panel.

```
BLM8CG00          DICTIONARY UPDATE          PMF
+-----+-----+-----+
| IDENTIFY RECORDS TO BE DISPLAYED, ADDED, OR MODIFIED |
| OPTIONS: |
| 1. S-WORD DISPLAY.....Display structured word records. |
| 2. S-WORD UPDATE.....Update structured word records. |
| 3. P-WORD DISPLAY.....Display prefix word records. |
| 4. P-WORD UPDATE.....Update prefix word records. |
|-----+-----+-----+
| SELECT OPTION |
+-----+-----+-----+
====>
```

A *message panel* provides explanatory information about messages or error conditions. The entire message panel is displayed whenever possible. If there is not enough space on the screen, the message is displayed as a single line.

Be sure to create a message panel whenever you believe a message to the user is beneficial. Messages can be issued through a control panel or through a TSP.

```
BLM8CU31          MESSAGE PANEL UPDATE          EXTERNALS
+-----+-----+-----+
| BLG9J014          MESSAGE          SYSTEM |
| BLG10014I Your current privilege class is _____. |
| The indicated privilege class, which you specified for Information Management |
| for z/OS invocation or selected from the privilege class display, has been |
| made your current privilege class. You have all the authorities allowed |
| by this class. Reply ;HELP and press Enter for more information, |
| TO LEAVE THIS PANEL, PRESS ENTER |
+-----+-----+-----+
| Modify textual data within the box. When you finish, type END to |
| save or CANCEL to discard any changes. No control information |
| exists for a message panel. |
+-----+-----+-----+
====>
```

A *help panel* contains scrollable text that describes the product, clarifies the data on a panel, or gives additional information about a message.

Be sure to create a help panel for every panel and every message you create.

```
BLG4J014          MESSAGE HELP          LINE 1 OF 18
BLG10014I Your current privilege class is WRITERS.

EXPLANATION:
  You are running under the specified privilege class.

SYSTEM ACTION:
  You can use all the functions authorized by this privilege class.

USER RESPONSE:
  If you want to change the privilege class, select Class on the primary
  options menu.  If you want to see the functions for which this class
  is authorized, display the privilege class record using the SELECT
  line command on the privilege class list display.

SYSTEM PROGRAMMER RESPONSE:
  None

Type DOWN or UP to scroll the panel, or type END to exit the panel.

====>
```


2

Planning for Panel Modifications

On the surface, a panel modification (for example, changing the name or length of a field) appears simple. However, each change potentially requires further changes. For this reason, the planning and preparation you do for your panel modifications are probably more important than the modifications themselves.

Ask yourself the following questions as you prepare for a panel modification:

- Does the field or selection you want to modify appear on more than one panel? If so, do you want to modify each occurrence on all the panels? For example, if you rename the Change type field to “Change category”, even assuming that is the only change you make to the Change record panels, you must change 12 panels:
 - Requester entry panel
 - Requester inquiry panel
 - Requester display panel
 - Assisted-entry panel
 - Two summary panels for update
 - Summary panel for display
 - Two summary panels for delete verification
 - Help panel for the display summary panel
 - Help panel for the update summary panel
 - Inquiry options panel
- Is the modification that you want to make to one field applicable to another field with a similar meaning or purpose? If so, you probably want to keep all similar fields consistent. For example, if you change the length of one name field, you probably want to change the length of all name fields.
- Does your modification affect data retrieval? For example, if you change a p-word, users must then include the logical OR operator in search arguments to retrieve both current and older records from the database.
- Does your modification affect the way data is stored in the database? For example, changing an s-word, a p-word, or shortening the length of a field affects the database as well as data retrieval. See “Changing Data Collection” on page 22 and the discussion of the Replace Previous Reply function on page “Replace Previous Reply” on page 57 for more about this consideration.
- Is the panel that you want to modify used for more than one purpose? If so, you must be aware of the effects of changing a multipurpose panel. Consider creating a new panel instead of modifying an existing one. For example, say you want to modify the validation criteria for the Problem status field. The assisted-entry panel that controls validation for this field is also used for change and activity status. If your installation requires separate validations for this field, consider creating individual panels.

-
- Does your modification involve inserting or removing a panel from a panel flow sequence? If so, you might have to update or recreate SRCs. And, if your users can create their own SRCs, they might have to modify them.
 - Is the field you want to modify used in any reports? If so, you might have to change the reports. For example, if you increase the length or change the name of a field, consider applying the same change to the reports that involve the field. As another example, if you change the status fields to accept values other than INITIAL, OPEN, and CLOSED, you might also want to change those criteria for the reports because these values are used in many reports as the record-selection criteria.

The PMF reports, including the cross-reference listings and s-word and p-word lists, can help you identify the panels affected by your planned modifications. See “Running PMF Reports” on page 227 for more information.

Guidelines for Panel Modifications

The following general suggestions can help you use PMF efficiently and effectively.

Identifying Panels That Require Changes

Use PMF reports, based on the type of change you want to make, to identify the panels to change. Panel modifications fall into two categories:

- External, which affect the visible portion of the panels
- Internal, which affect the control information for the panels. ²

For external modifications, the following PMF reports can help you identify panels that need changing:

- String Find
- Panel Content
- S-Word Cross-Reference
- P-Word Cross-Reference
- Panel Cross-Reference (when replacing a panel in the flow).

Depending on the change you contemplate, you might need to look at a combination of these reports.

For internal panel modifications, a combination of reports is usually required; the S-Word and P-Word Cross-Reference reports are usually the most helpful. These reports are useful in identifying panels for specific changes such as field lengths, validation pattern changes, and so on. For panel changes that affect the entire application, such as removing a set of panels, look at both the PMF reports and the panel flow associated with the application being changed. See Running PMF Reports for more information.

Identifying Changes That Affect Other Panels

Most of the time you spend on panel modifications goes into preparation because changes to one panel often require changes to other panels as well. Multiple panel changes are most frequently required when you modify a panel’s control information. Three items to consider are:

- Different modes

2. Although a keyword phrase on a selection or options panel is visible, it is also part of the panel’s control data. Therefore, modifications to a keyword phrase qualify as internal changes.

Most panels have corresponding panels that are used in various modes. For example: display, inquiry, and entry-mode panels can contain the same field or selection. A change to the entry-mode version of a panel can require a change to the corresponding display and inquiry-mode panels.

- **Multiple applications**

Some assisted-entry panels are used for more than one field. Therefore, a change to one assisted-entry panel can require modification to all the panels that use the assisted-entry panel.

- **Consistency**

When you change the externals of a panel, such as the bottom titles and use lines, make the same changes to all similar panels: consistency is essential to ease of use and understanding.

Changes Affecting the Database

Certain panel changes can affect your database. Generally, if you change the way the data is stored in the database, such as changing the s-word, p-word, or shortening the length of fields, you affect data retrieval. For more information, see “Changing Data Collection” on page 22. If the contents of the database, specifically the SDIDS, are uncontrolled, the search mechanism and reports soon become unreliable and produce bad results and out-of-context matches.

Minimizing the Impact to SRCs

Panel modifications that change the panel flow can affect SRCs. When an entirely new panel is added, existing SRCs are affected if the new panel is in the path of SRC flow. Similarly, if you start a new dialog with a conditionally required field on a panel that is part of the standard panel flow followed by an SRC, the SRC might be affected and, consequently, probably ends.

To minimize the impact of your modifications on SRCs, use s-word indexes instead of p-word indexes in fields on data-entry panels. Because the s-words are collected into the SRC, the SRC keys on s-words rather than field numbers. Then, if you move fields and their numbers on the panel, the SRC still produces the correct responses. See “Using the Dictionary” on page 183 for more information on s-words.

Changes Affecting Reports

Many PMF modifications can affect report processing. Therefore, in addition to making panel changes, you might have to change RFTs. For example, reports could be affected if you:

- Change the name of a field.
- Define a new s-word or p-word. Using a new index for the same s-word or p-word does not affect the report.
- Change values for certain fields, such as status or priority.
- Collect new data. All data fields that are collected appear in detail reports; other reports contain selected fields from records.

Potentially, any field change affects reports. Those fields that are key to the processing of reports are identified in “Summary Information about Panels” on page 389. For more details about reports, refer to the *Tivoli Information Management for z/OS User’s Guide*, the *Tivoli*

Information Management for z/OS Data Reporting User's Guide, and Tivoli Information Management for z/OS Problem, Change, and Configuration Management.

Panel Size Considerations

When panels are written to a panel data set, the data is compressed. The maximum size of compressed data that can be filed is $65\,536 \times$ (maximum record length of the panel data set) bytes. The number of control lines that comprises this maximum number varies depending on how the data in them is compressed. The more control lines your panel contains, the longer it takes you to update and file the panel in PMF. Performance of the product is not affected whether you build two short panels or one long panel.

Understanding Interrelationships of Panel Information

The information that is stored in your database is controlled by the panels that make up the dialogs, primarily through the s-words and p-words. S-Words and p-words control the processing and display of panel responses. Several relationships exist for panel information; they fall into two categories:

- The relationship between s-words or p-words and the panels
- The relationships between panels.

The data-entry and assisted-entry panels illustrate both of these interrelationships.

Each entry field on a data-entry panel requires an assisted-entry panel to validate it. Your response to a data-entry field is actually two responses: the selection number of the entry field and the value in that field. This is true even if you move the cursor and type directly in the entry field. In most cases, a p-word from the assisted-entry panel is attached to the value, which is then stored in the database.

Either an s-word (the preferred method) or a p-word in the data-entry panel controls the redisplay of the completed field. To redisplay the data-entry field, the p-word or s-word must match the assisted-entry panel response. This is accomplished by using the same p-word or s-word in both panels or by setting flags on both panels (the Branch and link flag on data-entry panels and the Collect from caller flag on assisted-entry panels).

If you understand how the various kinds of panels and the structures connecting them to the database relate to each other, you can avoid many problems when you modify the panels and their control information.

Changing Data Collection

When you consider changing the data collected by panels or the validation patterns associated with specific fields, you must also consider the data previously entered in the database. For example, say a field is alphanumeric and you change it to numeric. Your users cannot retrieve all previously entered data through the prompting sequence unless they abbreviate the search argument or use an asterisk in every position not matching the new validation pattern.³

You can deal with this situation. Because databases are usually dynamic, you can use two assisted-entry panels until all previously created records have been deleted. Change the first assisted-entry panel to reflect your new validation criteria for create mode only. The second panel, for inquiry mode, contains both validation patterns. Users can enter data in both

3. A user can retrieve existing records using keywords with the **ARGUMENT** command or directly with the **SEARCH** command. Keyword searches, however, require the user to know the p-word and the validation pattern for the field.

previous and current validation patterns in inquiry mode (until the database is corrected) but not in create mode. This technique can also apply to fields that you have lengthened or shortened.

You can use a technique that is similar in principle for s-word changes. Construct a new s-word to shadow the previous s-word (see “Understanding the Philosophy Behind S-Words” on page 190). Then the new s-word is collected in create mode, and the shadowed s-word is used in inquiry mode.

Updating Tivoli-Supplied Panels

Keep in mind several specific considerations when you update Tivoli-supplied panels:

- Do not modify the name of an Tivoli-supplied field to change the intent of the field. If the panel does not include a field appropriate to the data to be entered, create a new field.
- Do not create a new field to change the p-word or s-word for an Tivoli-supplied field. To do so could result in two fields collecting a portion of the same data, thereby reducing the number of records returned on a search. See “Using the Dictionary” on page 183 for information on creating new p-words and s-words.
- Some panels are classified as “communicating”; you can modify only their externals. For more information see “Panels That Cannot Be Modified” on page 393.
- Tivoli Information Management for z/OS contains several sensitive areas. Changes to these areas should be performed carefully and tested thoroughly before you implement them. For a complete description, see “Sensitive Areas in PMF” on page 77.
- PMF does not support modifying Tivoli-supplied s-words and p-words. You can add new indexes (numbered 8000 or above) for your own s-words and p-words.
- If you are considering changing the user profile panels (other than BLGPVARS), make sure that the s-word representing a profile default and the maximum length do not change. For more information about Tivoli Information Management for z/OS profiles, refer to the *Tivoli Information Management for z/OS User’s Guide* and *Tivoli Information Management for z/OS Program Administration Guide and Reference*.

Recommendations for Using PMF

The recommendations that follow will help you use PMF effectively:

- Establish a master read panel data set that contains only the unmodified Tivoli-supplied panels. Specify **RDONLY=YES** for this data set in your session-parameters member to avoid inadvertently modifying or deleting the Tivoli-supplied panels. For more information on read-only data sets, refer to the *Tivoli Information Management for z/OS Planning and Installation Guide and Reference*.
- Limit panel update and delete authority and dictionary update authority to one or two individuals.
- Limit all other users to read-only access to all panel data sets.
- Document and keep available a current copy of all changes made with PMF.
- To avoid having to update SRCs after modifying panels, wait to create any SRCs until all your changes are finished.

- When you change line commands on panels, adhere to the following convention so your users accessing Tivoli Information Management for z/OS through the ISPF graphical user interface (GUI) mode can select them as pushbuttons.
 - Begin the line commands with: Line Cmds:
 - Follow that with 2 spaces.
 - Separate a line command from its description with an equal sign (=).
 - Separate a line command description from the next line command with 2 spaces.
 - Use no more than 2 lines for line commands.

Here is an example of this convention:

```
Line Cmds:  A=After  B=Before  C=Copy  D=Delete  I=Insert  
           L=Line command  M=Move  U=Update
```

- Do not change panels using the GUI mode. Attribute bytes cannot be selected by the cursor, so PMF commands, such as AT and MOVEA, do not work correctly.

3

General Procedures for Updating Panels

This chapter explains how to use PMF panels to modify existing Tivoli Information Management for z/OS panels. Before starting any panel modification, be sure you have planned it thoroughly. See “Planning for Panel Modifications” on page 19 for more information on planning.

The following steps describe a general procedure for updating panels:

1. Gather the information you need for the change. If you know of a panel that contains the information or the s-word or p-word you need, you can locate associated information. See “Determining the Characteristics of Fields on Tivoli Information Management for z/OS Panels” on page 403 for a procedure you can follow to determine the characteristics of a field, including its p-word and s-word.

2. Print the appropriate PMF reports to determine all the panels that are affected by the modifications. See “Running PMF Reports” on page 227.

For example, if you want to remove or change the name of a field, several other panels might refer to that field. The panels include entry, inquiry, and display-mode panels and, possibly, the assisted-entry and help panels and the summaries for update, display, and delete verification.

In addition, you must know how these panels are affected and how the change affects your database, related panels, SRCs, and reports.

3. Use the dictionary to:
 - Determine the indexes of s-words and p-words that you want to identify in the panel
 - Add or update the validation criteria for an assisted-entry panel
4. Request the panel for update. You must have panel update authority to do this. One modification can include several tasks:
 - Make external panel modifications by a combination of direct entry, cursor movement, and screen commands.
 - Modify control information for a particular field, selection, or column. The CONTROL command is the starting point for this task.

Note: You must supply certain control information for the panels you modify; the required fields differ for the various panel types. Based on your modification, you might have to complete or update additional control fields as well. See “Required Control Information” on page 52 for more information about the specific fields you must update.

- Type **end** and press **Enter** after you complete the control information and external modifications. This displays the panel’s update options.

- Select any other appropriate option to provide control information that applies generally to the panel, such as common data and null reply processing.
 - Select **Test** to verify your modifications.
 - File the panel.
5. Print the updated panels to maintain a current copy.
 6. Copy panels to a read panel data set when they are ready for use.

When updating a panel, you can temporarily interrupt the update process with the **SUSPEND** and **RESUME** commands. This technique is useful when you need to display or update entries in the dictionary or to display the externals or control information of another panel.

Identifying the Panel to Update or Create

For any panel modification, you must first identify the panel you want to update or create. When you select **Panel Update** on the Panel Modification Facility options panel, BLM8C000, panel BLM8CU00 appears.

Enter the 8-character name of the panel on which you wish to work. If the panel name is not found in any panel data set, you are creating a new panel with this name. Fill in the **Data set definition label** field if you want to search a specific panel data set. If the **Data set definition label** is left blank, PMF searches the write panel data set first and then the read panel data sets, in the order defined at installation in the BLGPARMS macro. You can view this order by selecting **Panel List** from the Panel Modification Facility options panel.

BLM8CU00	PANEL NAME ENTRY	UPDATE
Identify panel to be updated; cursor placement or input line entry allowed.		
<div style="text-align: center;"> 1. Panel name.....<R> _____ 2. Data set definition label..... _____ </div>		
To enter the panel update dialog, press Enter without field modifications.		
===>		

Whether you are updating or creating a panel, each modification is by panel type. If you are creating a new panel, you are presented with a panel from which to select the panel type. You are then presented with a panel model to update. See “Creating Panels from Models” on page 137 to review all the panel model types. The modifications you can make to an existing panel and to a panel model are the same. When you have either the panel model or the existing panel displayed for update, the update options available to you are the same.

Panel Update Options

The panel update options enable you to change the visible information and control information associated with a panel. When a panel is requested for update, it is converted from an internal data area format to a series of dialogs. You then use these dialogs to modify the externals and internals of the panel.

The external translation of the internal data area fields and values is obtained from the message CSECT. When the panel update process is finished, the panel is converted back to the internal data area format.

Each panel type has several update options you can use to modify various sections of the panel. The dialogs presented are based on the type of panel being updated. Many of the fields associated with one panel type are presented in a similar manner (same field names, same panel flow, and so on) for another panel type. For example, every panel type has a dialog for the Common selection. However, based on the panel type, additional fields or dialogs can also be present. For example, only table panels use the General update option.

The update options apply to an entire panel. To modify control information for a single selection, field, or column on a panel, you have two choices:

- Issue the CONTROL command from the panel's Externals Update panel
- Select the line for update from the panel's Summary panel

See "Modifying Panel Control Information" on page 39 for further information.

Each selection, field, option, or column for a panel is called a control line. Because control lines contain information on a per-selection or field basis, a method is required to tie the selection and fields to the control information, as well as to display and modify this control information. These functions are performed for the panels that require them by a combination of logical screen attribute bytes (using the **FIELD** command) and the **CONTROL** command.

When you begin the panel update dialog, or when you enter the **end** command for the creation of a new panel, an options panel appears that enables you to display or modify the information associated with each panel type.

On the next few pages are examples of the kinds of update options panels you will see. Notice that you can select different options depending on the type of panel with which you are dealing.

This is the update options panel for a selection panel. The update options panels for assisted-entry, options, and data-entry panels are similar to this one.

Panel Update Options

```
+-- BLM8CU10 ----- SELECTION PANEL UPDATE -----+
|
|  OPTIONS:
|
|    1. EXTERNALS...Modify visible text or control data.
|    2. COMMON.....Modify help and service information.
|    3. NULL REPLY...Modify null reply control information.
|    4. SUMMARY.....Display summary of control information.
|    5. TEST.....Display or process panel via Info/System.
|    6. FILE.....Panel alterations complete, store panel.
|
+----- SELECT OPTION -----+
```

====>

This is the update options panel for a help panel. Notice that help panels have no **Null Reply** option.

```
+-- BLM8CU40 ----- HELP PANEL UPDATE -----+
|
|  OPTIONS:
|
|    1. EXTERNALS...Modify visible text or control data.
|    2. COMMON.....Modify help and service information.
|
|    4. SUMMARY.....Display summary of control information.
|    5. TEST.....Display or process panel in test mode.
|    6. FILE.....Panel update is complete, store panel.
|
+----- SELECT OPTION -----+
```

====>

This is the update options panel for a message panel. Notice that message panels have no **Null Reply** or **Summary** options.

```

+- BLM8CU30 ----- MESSAGE PANEL UPDATE -----+
|
|  OPTIONS:
|
|    1. EXTERNALS...Modify visible panel text of message.
|    2. COMMON.....Modify panel service information.
|
|    5. TEST.....Display or process panel in test mode.
|    6. FILE.....Panel update is complete, store panel.
|
+----- SELECT OPTION -----+

```

====>

This is the update options panel for a table panel. Notice that the **Null Reply** option is replaced by the **General** option.

```

+- BLM8CU80 ----- TABLE PANEL UPDATE -----+
|
|  OPTIONS:
|
|    1. EXTERNALS.....Modify visible text or control data.
|    2. COMMON.....Modify help and service information.
|    3. GENERAL.....Sort data, repeat column information.
|    4. SUMMARY.....Summary of control information.
|    5. TEST.....Display/process panel in test mode.
|    6. FILE.....Panel update is complete, store panel.
|
+----- SELECT OPTION -----+

```

====>

This is the update options panel for a control panel. Notice that the **Externals** option is replaced by the **Abstract** option and that control panels have no **Null Reply** option. The update options panel for a TSP is similar to this one.

```

+- BLM8CU60 ----- CONTROL PANEL UPDATE -----+
|
|  OPTIONS:
|
|    1. ABSTRACT....Modify description of this control panel.
|    2. COMMON.....Modify common panel control information.
|
|    4. SUMMARY....Display summary of control information.
|    5. TEST.....Process panel in test mode.
|    6. FILE.....Panel update is complete, store panel.
|
+----- SELECT OPTION -----+

```

====>

Table 3 summarizes the update options for each panel type. Descriptions of all the options follow.

Table 3. Summary of Update Options by Panel Types

Update Option	Selection	Options	Help	Message	Data Entry	Assisted Entry	Table	Control	TSP
Externals	X	X	X	X	X	X	X		
Abstract								X	X
Common	X	X	X	X	X	X	X	X	X
General							X		
Null reply	X	X			X	X			
Summary	X	X	X		X	X	X	X	X
Test	X	X	X	X	X	X	X	X	X
File	X	X	X	X	X	X	X	X	X

Externals Enables you to modify what the user sees on the panel and the information that controls that panel. You make changes by using a combination of direct entry, cursor movement, and screen commands. More detailed information can be found in “Externals/Abstract Update Options” on page 31.

Abstract Enables you to modify the description of a control panel or TSP panel. This description is the documentation of the panel: what it does, who changed or created it, when, and why. More detailed information can be found in “Externals/Abstract Update Options” on page 31.

Common Enables you to modify the information associated with panel maintenance and help information. More detailed information can be found in “Common Update Option” on page 32.

General Enables you to modify information that applies to all columns of a table panel, and control an application’s block data. More detailed information can be found in “General Update Option” on page 33.

Null reply	Enables you to modify what happens when the user presses Enter without any selection or field input. More detailed information can be found in “Null Reply Update Option” on page 33.
Summary	Enables you to display a table panel that shows a summary of the control information associated with all selections, fields, or columns for a panel. It enables you to change a panel’s control information, common information, and null reply information by using line commands on the table panel display. You can also, through the table panel summary, delete control information or select a control line for update. More detailed information can be found in “Summary Update Option” on page 35.
Test	Enables you to verify the operation of a panel you are modifying before you file it. More detailed information can be found in “Test Update Option” on page 36.
File	Saves your modified panel by writing it to the write panel data set. File processing also verifies many panel changes. If it finds an error, a message describes the type of error. You can then correct the error and try again to file the panel.

Externals/Abstract Update Options

The Externals update option lets you modify the visible portion of a panel.

All panel types except control panels and TSPs have the **Externals** update option. Control panels and TSPs have an **Abstract** update option instead of the **Externals** update option because those panel types are not displayed (they have no externals). The abstract is text that describes the function of the control panel or TSP.

After you select the **Externals** update option, you can type new text on the panel and use the PMF screen commands to move, add, or delete fields. See “Using PMF Commands” on page 80 for more information. For each field created or modified, you must create or modify control information as well. This is discussed in “Modifying Panel Control Information” on page 39.

Note: The Externals option treats **SO** and **SI** characters as data, and not as attribute bytes.

The **CONTROL** command can only be issued from the Externals or Abstract Update panel. When you end the update of control information, you return to the Externals or Abstract Update panel.

When you select **Externals**, the panel which you indicated on the Panel Name Entry panel is presented. When you are creating a new panel, the **Externals** or **Abstract** update option presents you with a model panel for update.

For example, this is the Externals Update panel for a new selection panel.

```

BLM8CU11                SELECTION PANEL UPDATE                EXTERNALS

+-----+-----+
| PANEL NAME                TOP TITLE                DIALOG NAME |
+-----+-----+
| USE....This line describes the general purpose of the panel. |
| 1. KEY PHRASE.....Provide additional description of keywords. |
| 2. KEY PHRASE.....Provide additional description of keywords. |
| 3. KEY PHRASE.....Provide additional description of keywords. |
| 4. KEY PHRASE.....Provide additional description of keywords. |
| 5. KEY PHRASE.....Provide additional description of keywords. |
| 6. KEY PHRASE.....Provide additional description of keywords. |
| 7. KEY PHRASE.....Provide additional description of keywords. |
|                                BOTTOM TITLE          |
+-----+-----+

Modify textual data within the box. To modify control data, type
CONTROL on the command line. When you finish, type END to save or
CANCEL to discard any changes.

===>

```

For more information about the models or the externals layouts, see “Creating Panels from Models” on page 137.

Common Update Option

The Common update option lets you enter or change panel maintenance information and help information. All the panel types have the Common update option. When you select **Common** on a panel update options panel, a data-entry panel appears that shows the common information for your panel. If you are creating a new panel, default common information for the new panel is included.

Panel BLM8CU17 is the Common Update panel for a selection panel. Common Update panels for options and data-entry panels are similar. Help panels, message panels, assisted-entry panels, table panels, and control panels have unique combinations of common information fields displayed on their Common Update panels.

```

BLM8CU17                COMMON UPDATE                PANEL: _____

Enter common panel control data; cursor placement or input line entry allowed.

1. Help target..... _____ Communicating panel.... _____
2. Divert allowed..... _____ Dialog section..... _____
3. Change command allowed... _____ Tivoli release level... _____
4. Change command complete.. _____ Tivoli PTF level..... _____
5. User service level..... _____ Tivoli FMID/APAR level.. _____
6. Panel name changed..... _____ Panel modified..... _____
7. Panel added to flow..... _____ Date last altered..... _____
8. Panel deleted from flow.. _____ Time last altered..... _____
                                           User last altered..... _____

When you finish, type END to save or CANCEL to discard any changes.

===>

```

General Update Option

The General update option applies to the control information in table panels. You use it to enter general control information for the table panel display as a whole. This is the option to select when you want to control the display of block data on a table display panel.

When you select **General**, the General Update data-entry panel (BLM8CU85) displays the information for your table panel. If you are creating a new table panel, default information for the new panel appears.

This is the General Update data-entry panel:

```

BLM8CU85                GENERAL UPDATE                PANEL: _____
Enter general panel control data; cursor placement or input line entry allowed.

1. Sort option..... _____ (Search only)
2. Sort field index..... _____ (Search only) Prefix word... _____
3. Sort order..... _____ (Search only)
4. Repeat count..... _____
5. Repeat spacing..... _____
6. Repeat delimiter..... _____
7. Block data line count..... _____
8. Last column not foldable.. _____
9. Maximum row count..... _____ (List processor only)

When you finish, type END to save or CANCEL to discard any changes.

===>

```

Null Reply Update Option

The **Null Reply** update option lets you specify control information that applies to processing a null reply. A null reply occurs when a user presses **Enter** without making a selection or filling in a field. You can allow null replies on selection, options, data-entry, and assisted-entry panels.

You can also make a null reply perform the same as the **END** command. To do this, set the **Dialog end** field to **YES**. (The panel flow for the null reply follows; the **Dialog end** field is on the Panel Flow Processing panel.) When you select **Null Reply**, the Null Reply Summary panel displays with the information for your panel. If you are creating a new panel, default information for the new panel appears.

When you select **Null reply** for a new panel or a panel that does not currently allow a null reply, PMF creates a new control line and gives you an informational message to let you know that a null reply line was created.

The default control line contains a dialog-end request, so be sure to issue **CANCEL** to return to the options panel if you do not want a null reply control line. To inadvertently create a default null reply control on some panels (selection panels, for example) can result in a dialog mismatch.

Panel Update Options

Panel BLM8CU12 is the Null Reply Summary panel for a selection panel. Options, data-entry, and assisted-entry panels have similar Null Reply Summary update panels. You select either **Panel flow processing** or **Data collection processing** to complete the null reply information. You might need to change both, but you must select them one at a time.

```
BLM8CU12                NULL REPLY SUMMARY                PANEL: _____

Dialog end..... _____      Function index..... _____
Create target..... _____     Code acronym..... _____
Inquiry target..... _____     Force SRC end..... _____
Authorization code..... _____  Program exit symbol.... _____
Target is data entry.... _____

Select one of the choices, or type END to save or CANCEL to discard changes.

1. Panel flow processing.
2. Data collection processing.

====>
```

Null Reply Panel Flow Processing

The panel flow processing panel lets you update control information associated with panel-to-panel flow (for example, identify the next panel that is to be processed after a null reply). When you select **Panel flow processing** from the Null Reply Summary panel, a data-entry panel displays the information for a null reply. If you are creating a new panel, default information for the new panel appears.

Panel BLM8CU1E is the data-entry panel for Panel Flow Processing. Options, data-entry, and assisted-entry panels for panel flow processing each have a unique set of fields.

```
BLM8CU1E                PANEL FLOW PROCESSING                PANEL: _____

Enter panel flow control data; cursor placement or input line entry allowed.

1. Authorization code..... _____
2. Null target (create).... _____
3. Null target (inquiry).... _____
4. Dialog end..... _____
5. Override dialog target... _____
6. Target is data-entry.... _____
7. Force SRC generate end... _____
8. Program exit symbol..... _____

When you finish, type END to save or CANCEL to discard any changes.

====>
```


Null Reply Data Collection Processing

The data collection processing panel lets you define the function to be performed when the user responds with a null reply. When you select **Data collection processing** from the Null Reply Summary panel, a data-entry panel displays the null reply information.

Panel BLM8CU1H is the data-entry panel for Data Collection Processing. Data collection processing panels for options, data-entry, and assisted-entry panels are similar.

BLM8CU1H DATA COLLECTION PROCESSING PANEL: _____

Enter null reply control data; cursor placement or input line entry allowed.

1. Function code index..... _____ Code acronym... _____

2. Replace previous reply.. _____

When you finish, type END to save or CANCEL to discard any changes.

====>

Summary Update Option

The summary update option provides access to all of a panel's control information through a single panel. It is one of two ways you can change a panel's control information; the other is the **CONTROL** command.

Based on the panel type, the **Summary update** option provides:

- Common information associated with each panel type
- General information associated with table panels
- Null reply information associated with selection, options, data-entry, and assisted-entry panels
- One line of control information for each:
 - Selection on a selection or options panel
 - Field or selection on a data-entry panel
 - Column on a table panel
 - Line in a TSP or control panel

When you select **Summary** on any Panel Update panel, the Control Line Summary panel appears.

Panel BLM1TSU7 is a Control Line Summary for a data-entry panel. All Control Line Summary panels are similar.

BLM1TSU7		CONTROL LINE SUMMARY					LINE 1 OF 23	
CONTROL LINE	FIELD TYPE	WORD INDEX	PREF INDEX	AUTH CODE	TARGET PANEL	REPLY REQD	PROGRAM EXIT	
COMMON LINE								
NULL ENTRY	SELECTION	000B	0000	0000	BLG0CU00	NO	BLG02024	
CHANGE: _____	DISPLAY	0000	01E9	0000		NO		
1. Requested by....	ENTRY	0B59	0000	0000	BLG6REQN	YES		
11. Change type....	ENTRY	0C09	0000	0000	BLG6PTYP	NO		
2. Requester dept..	ENTRY	0B9B	0000	0000	BLG6RQDP	NO		
12. Change status..	ENTRY	0BEE	0000	0000	BLG6STAT	YES		
3. Requester phone.	ENTRY	0B2D	0000	0000	BLG6PHON	NO		
13. Change reason..	ENTRY	0C0A	0000	0000	BLG6CRES	NO		
4. Network name....	ENTRY	0CA3	0000	0000	BLG6NETN	NO		
14. User change num	ENTRY	0CCF	0000	0000	BLG6URN0	NO		
5. System name.....	ENTRY	0CA5	0000	0000	BLG6SYSN	NO		
15. Initial priorit	ENTRY	0BE6	0000	0000	BLG6PRII	NO		
6. Program name....	ENTRY	0CAB	0000	0000	BLG60APN	NO		

Line Cmds: D=Delete U=Update
Type DOWN, UP, LEFT, or RIGHT to scroll the panel, or type END to exit.

====>

Note: When the phrase under the heading “Control Line” is truncated, the Summary option uses dummy attribute bytes and temporary **SO** and **SI** characters to ensure that DBCS portions of mixed strings remain valid.

On the summary panel, you can delete control information with the **DELETE** line command. A single-line message appears, and the line is deleted from the display. You can also update control information for an item by using the **UPDATE** line command. However, you cannot add a control line, nor can you delete a Common control line. After updating the necessary information, enter **end** to return to the Summary panel, or enter **CANCEL** to discard the updated information.

See “Modifying Panel Control Information” on page 39 for more details on modifying control information.

Test Update Option

Before making a modified panel available for use, test your changes to make sure that all information defined for the panel is consistent and works. All update panel types have Test as an option.

A panel test simulates the prompting sequence, and it tests not only the panel being updated, but also its relationship to other panels. With this option, you can test most of the changes you made using PMF, including:

- Display of data
- Field validation criteria
- Required fields
- Panel targets
- Dialog structure (begin and end)
- Processing control panels.

During panel test, records are not filed and some system functions are not available; therefore, you cannot test all your changes. Some of the items you cannot test are:

- Journal fields
- Cognized fields
- Force SRC to end
- New report selections.

Notes:

1. When you test more than a simple panel change, start the panel test from a Primary Options Menu in inquiry mode unless you are sure it is a record create or update situation. This procedure ensures that the environment necessary for the panel-to-panel flow is established properly, and it helps avoid unnecessary confusion within the test dialog.
2. An assisted-entry panel, if it has no target panel and the **Test field** is **YES**, cannot be tested by itself. You must begin the test with a panel that calls the assisted-entry panel, and that panel must have **Branch and link** set to **YES**.
For help, message, and table panels, the test cannot begin from the panel itself. Instead, you must start with a panel that calls the panel to be tested.

When you select **Test** on any Panel Update panel, the Panel Test Entry panel appears. The Panel name field is already filled in when the panel appears. You can change the panel name to begin the test with a panel that precedes this one in the prompting sequence. If you want to test the panel in create mode, enter **CREATE** in the Create/inquiry field. If you want to test the panel in inquiry mode, enter **INQUIRY** in that field.

```

BLM8CT00          PANEL TEST ENTRY          PANEL TEST
Enter starting panel name; cursor placement or input line entry allowed.

1. Panel name.....<R> BLG6DSAB
2. Create/inquiry...<R> _____

To begin the Panel Test dialog, press Enter without field modifications.

===>

```

When you press **Enter** twice from the Panel Test Entry panel, Tivoli Information Management for z/OS verifies that the panel you changed or created is valid and can be filed correctly. If major errors are found, you are informed, and your test ends. If no major errors are encountered, enter the prompting sequence at the panel you specified.

When you are in panel test mode, your write panel data set is searched first for any panels to display. Then you can test the interactions of several panels that you have modified before you copy them to a read panel data set.

During the test, the modified panel is displayed, processed, and verified as it would be during normal processing, except that no data is stored in the database and SRCs are not generated or run. You can respond to the panel to ensure that the flow from panel to panel is correct, or to test several panels in sequence. Be sure you perform a comprehensive test of each new or changed panel before storing it in a panel data set.

If you use the **INITIALIZE** command while you are in panel test, you return to the Panel Test Entry panel, not the Tivoli Information Management for z/OS Primary Options Menu. Therefore, if you run a TSP from within panel test and that TSP contains an **ADDDATA** of **INIT**, you probably will not obtain the results you expect.

In Case of a Problem

If you experience problems when you test or file modified panels, or when PMF validates response combinations, you receive a message. Issue the **HELP** command for an explanation. User ABENDs are explained in the *Tivoli Information Management for z/OS Messages and Codes* book. However, the majority of the difficult problems you find are those that you, rather than Tivoli Information Management for z/OS, detect. “Solving Problems Caused by Your Panel Modifications” on page 383 describes methods for identifying and fixing some of these problems.

The **VIEW INTERNALS** command is very helpful in testing a modified panel if you start your test at the beginning of a dialog. When you issue this command from a modified panel, dialog flow is presented so that you can see which panel calls the modified panel, and which panel is called by the modified panel. This command also displays the s-word and index for each field or selection you interacted with during the dialog. An example of a **VIEW INTERNALS** display is in “Solving Problems Caused by Your Panel Modifications” on page 383.

File Update Option

Each panel type has a **File** update option that saves the panel updates you make. When you are making extensive panel changes, file the panel periodically. Then, if you have a problem or make an error that you want to ignore, you can use the **CANCEL** or **INITIALIZE** command without losing all your changes.

Certain panel changes are verified during file processing. If the panel does not pass this verification, a message appears, and the panel is not filed. After you make the appropriate corrections, the panel can be filed. If you receive a message, issue the **HELP** command for an explanation.

When you select the **File** update option, your modified panel is filed, and the Panel Name Entry panel appears with a message that says your panel was written to the write panel data set.

```

BLM8CU00                PANEL NAME ENTRY                UPDATE
Identify panel to be updated; cursor placement or input line entry allowed.

1. Panel name.....<R> BLG6DSAB
2. Data set definition label..... _____

To enter the panel update dialog, press Enter without field modifications.

BLM04015I Panel BLG6DSAB was written to the WRITE panel data set.
===>
    
```

Modifying Panel Control Information

The selections from PMF update options help you begin updating or creating a new panel, but each Tivoli Information Management for z/OS panel needs associated control information as well. Only message panels have no control information. The kinds of control information you can change depend on the panel type you are dealing with.

Accessing the Control Update Dialog

You can modify control information through the **Externals** update option (using the **CONTROL** command) or through the Summary update option. The next several pages explain how the two approaches work.

CONTROL Command

For TSPs, assisted-entry, control, and help panels, control information is associated with the panel itself. For data-entry, options, selection, and table panels, control information is associated with each field, option, or selection. The following example uses the **CONTROL** command to modify control information for a specific option.

On the Tivoli Information Management for z/OS Primary Options Menu, select PMF. Then on the Panel Modification Facility options panel, select **Panel Update**. The Panel Name Entry panel appears.

In the Panel name field, type **BLG0F200** and press **Enter** twice.

Modifying Panel Control Information

```
BLM8CU00          PANEL NAME ENTRY          UPDATE
Identify panel to be updated; cursor placement or input line entry allowed.

1. Panel name.....<R> BLG0F200
2. Data set definition label..... _____

To enter the panel update dialog, press Enter without field modifications.

===>
```

To select **Externals**, type **1** and press **Enter**.

```
+ BLM8CU20 ----- OPTIONS PANEL UPDATE ----- PMF--+
|
| OPTIONS:
|
| 1. EXTERNALS...Modify visible text or control data.
| 2. COMMON.....Modify help and service information.
| 3. NULL REPLY..Modify null reply control information.
| 4. SUMMARY.....Display summary of control information.
| 5. TEST.....Display or process panel via Info/System.
| 6. FILE.....Panel alterations complete, store panel.
|
+----- SELECT OPTION -----+

===> 1
```

Panel BLG0F200 is presented for update. To modify the control information for each option, type **CONTROL** on the command line, move the cursor to the option you want to change, and press **Enter**.

To modify the control information for a TSP, assisted-entry, control, or help panel, type **CONTROL** on the command line and press **Enter**.

```

BLM8CU21                OPTION PANEL UPDATE                EXTERNALS

-----
| BLG0F200                ACTIVITY INQUIRY                1 OF 1 |
|-----|
| OPTIONS:                |
| 1. REQUESTER...Requester name, date, priority, etc. |
| 2. STATUS.....Assignee, status, date, impact, etc. |
| 3. CLOSE.....Complete date & time, actual impact, etc. |
| 4. CONTROL.....Date & time entered, date altered, etc. |
| 5. ACTIVITIES...Name of activities assigned to changes. |
| 6. ARGUMENT....Add freeform or prefixed search arguments. |
| 7. SEARCH.....Initiate search with current search words. |
| 8. INITIALIZE...Return to the primary options menu. |
|                SELECT OPTION                |
|-----|

Modify textual data within the box. To modify control data, type
CONTROL on the command line. When you finish, type END to save or
CANCEL to discard any changes.

====> control
    
```

The Option Control Summary panel for panel BLG0F200 appears with the control information associated with the option you selected, in this example, option 1. You can now change that option's control information by choosing one of the selections available.

```

BLM8CU23                OPTION CONTROL SUMMARY                PANEL: BLG0F200

OPTION: 1. Requester

Dialog begin..... YES                Structured word index.... 0CFC
Dialog end..... NO_                Structured word..... XIMDIAENTO
Create target..... BLG0F210        Apply not logic..... NO_
Inquiry target..... BLG0F210        Cognize response..... NO_
Branch and link..... NO_            Force SRC generate end.... NO_
Authorization code..... 0000        Program exit symbol..... ____
Target is data-entry.... NO_

Select one of the choices, or type END to save or CANCEL to discard changes.

1. Panel flow processing.
2. Data collection processing.

====>
    
```

Summary Option

The following example uses the Summary update option to modify the control information on an options panel. Begin the procedure as you would to modify control information using the **CONTROL** command. On the Primary Options Menu, select **PMF**. Then on the Panel Modification Facility options panel, select **Panel Update**. In the Panel name field, type **BLG0F200** and press **Enter** twice.

To select Summary, type **4** and press **Enter**.

Modifying Panel Control Information

```
+ BLM8CU20 ----- OPTIONS PANEL UPDATE ----- PMF-+
|
|  OPTIONS:
|
|    1. EXTERNALS...Modify visible text or control data.
|    2. COMMON.....Modify help and service information.
|    3. NULL REPLY..Modify null reply control information.
|    4. SUMMARY.....Display summary of control information.
|    5. TEST.....Display or process panel via Info/System.
|    6. FILE.....Panel alterations complete, store panel.
|
+----- SELECT OPTION -----+
```

====> 4

The Control Line Summary panel for the panel appears. To continue, enter the **UPDATE** line command on the summary line for the option you want to modify, in this example, option 1.

```
BLM1TSU2                CONTROL LINE SUMMARY                LINE 1 OF 9

CONTROL LINE           WORD INDEX  STRUCTURED  CREATE      INQUIRY      PROGRAM
                        INDEX       WORD        TARGET      TARGET       EXIT

''  COMMON LINE
U' 1. REQUESTER        0CFC  XIMDIAENTO          BLG0F210
'' 2. STATUS           0CFD  XIMDIASTA0          BLG0F220
'' 3. CLOSE            0CFE  XIMDIACL00          BLG0F230
'' 4. CONTROL          000A
'' 5. ACTIVITIES       000A          BLG7ACNM
'' 6. ARGUMENT         0005
'' 7. SEARCH           0004          BLG1TSRL
'' 8. INITIALIZE       0008
```

Line Cmds: D=Delete U=Update
Type DOWN, UP, LEFT, or RIGHT to scroll the panel, or type END to exit.

====>

The Option Control Summary Panel for panel BLG0F200 displays with the control information associated with option 1. You can now change that option's control information by choosing one of the selections available.


```

BLM8CU23                OPTION CONTROL SUMMARY                PANEL: BLG0F200

OPTION: 1. Requester

Dialog begin..... YES          Structured word index.... 0CFC
Dialog end..... NO_           Structured word..... XIMDIAENT0
Create target..... _          Apply not logic..... NO_
Inquiry target..... BLG0F210  Cognize response..... NO_
Branch and link..... NO_      Force SRC generate end.... NO_
Authorization code..... 0000    Program exit symbol..... _
Target is data-entry.... NO_

Select one of the choices, or type END to save or CANCEL to discard changes.

1. Panel flow processing.
2. Data collection processing.

===>
    
```

Enter **END** to save your changes and return to the previous panel, or enter **CANCEL** to ignore your changes.

Using the Control Information Update Dialog

The process of accessing the PMF dialog for updating control information is essentially the same for all panels. The kinds of changes you can make to control information vary according to panel type and change type. For example, to create control information for a selection or field during update of the panel’s externals:

1. For data-entry and table panels, use the **FIELD** command with operands to alter the characteristics of individual fields through the use of attribute bytes; you can also use the **FIELD** command without operands to define new attribute bytes or display and change the settings of existing attribute bytes. Attribute bytes have several purposes in PMF. They are used to:
 - Highlight words or fields
 - Protect or unprotect fields
 - Delimit fields
2. Type **CONTROL** on the command line, position the cursor within the delimited area for the field (unless you are creating or modifying the control information for the panel itself), and press **Enter**.

For more information about these steps, see “Using PMF Commands” on page 80.

The first panel displayed is the Control Summary panel, a split-function data-entry panel whose appearance and content are determined by the kind of panel you are updating. The top part of the panel shows selected control information about the field, selection, or column. The bottom part of the panel provides several selections among which you can choose to update the control information.

After updating the necessary information, enter **end** to return to the summary panel. You can then make another selection, enter **end** to save all changes, or enter **CANCEL** to ignore the changes and return to the panel on which you entered **CONTROL**. You can also use the Summary selection and line commands to update the same fields.

For each panel type, you must update certain fields. Based on your modification, additional fields can require updating. See “Required Control Information” on page 52 for more information about the specific fields you must update.

Modifying Panel Control Information

When you modify a panel, the old control information remains associated with that panel until you change it. When you are creating a new panel, default control information is associated with that panel unless you change it.

These control information categories are found on a Control Summary panel. Not all of them appear for all panel types.

Panel flow processing	Enables you to update control information associated with panel-to-panel flow
Data collection processing	Enables you to define the information to be collected for each selection or field
S-Word and validation collection	Identifies the s-word and validation data that is to be collected based on your response
Response processing	Enables you to specify the number of words allowed in a reply, the maximum length of the reply, journal information, and data type
P-Word validation	Enables you to specify the p-word and its validation attached to a response
Data display processing	Enables you to enter display control information associated with the columns on a table panel
Control flow processing	Enables you to define the type of control line (ADD , TEST , or FLOW) on a Control panel
Test data processing	Enables you to define the type of information for which this control line will test
Control line update	Enables you to update control information associated with a help panel

The Panel flow processing information and Data collection processing information associated with a null reply are a kind of control information.

The control update selections available to each panel type are shown in Table 4.

Table 4. Control Update Selections by Panel Types

Categories	Selection	Options	Help	Message	Data Entry	Assisted Entry	Table	Control
Panel Flow Processing	X	X			X	X	X	
Data Collection	X	X			X			X
S-Word and Validation Collection						X		
Response Processing						X		
P-Word Validation						X		
Data Display Processing							X	
Control Flow Processing								X
Test Data Processing								X
Control Line Update			X					

Refer to the *Tivoli Information Management for z/OS Terminal Simulator Guide and Reference* for more about control information in TSPs.

Control Information Categories

Each panel type has a unique set of control information. The selection you make on the Control Summary panel displays appropriate related panels on which you collect the necessary control information.

Panel Flow Processing

On a Panel Flow Processing panel, you update control information for a selection, field, or column associated with panel-to-panel flow. For example, you can indicate the next panel processed after a specific selection is made.

This is an example of the PMF data-entry panel you use to modify the panel flow processing for a field on a data-entry panel.

```

BLM8CU7A                PANEL FLOW PROCESSING                PANEL: BLG0J200

Enter panel flow control data; cursor placement or input line entry allowed.

                                FIELD: 6. Problem close data.....

                                1. Authorization code..... 0000
                                2. Response required..... NO_
                                3. Target panel..... BLG1M120
                                4. Branch and link..... YES
                                5. Field type.....<R> ENTRY ____
                                6. Dialog begin..... NO_
                                7. Dialog end..... NO_
                                8. Override dialog target... NO_
                                9. Target is data-entry..... NO_
                                10. Force SRC generate end... NO_
                                11. Program exit symbol..... ____

                                When you finish, type END to save or CANCEL to discard any changes.

                                ===>
    
```

The selection, field, or column for which you are entering control information is protected information displayed above the fields.

Data Collection Processing

On the Data Collection Processing panel, you define what information to collect (for example, the s-word to be collected when a selection is made).

| You can also specify when data that is entered into a field on the data-entry panel should be
 | processed. Two passes are made on a data-entry panel. Fields that have **Processing order**
 | specified as **normal** are processed (top-to-bottom, left-to-right) on the first pass; on the
 | second pass, fields that have **Processing order** specified as **last** are processed, again
 | top-to-bottom, left-to-right.

| You can also specify in what format you want the date and time displayed. You can specify
 | that the date and time should be displayed in the format of the user, or you can specify that
 | you want the date and time to be displayed in a universal format. The *Tivoli Information*
 | *Management for z/OS Planning and Installation Guide and Reference* contains additional
 | information about these formats.

Modifying Panel Control Information

This panel represents the PMF data-entry panel that you use to modify the data collection processing for a field on a data-entry panel.

```
BLM8CU7B          DATA COLLECTION PROCESSING          PANEL: BLG0J200

Enter collection control data; cursor placement or input line entry allowed.

FIELD: 6. Problem close data.....

1. Structured word index.... 0B2B          Structured word.. XISDEFAULT
2. Prefix index.....          Word acronym.....
3. Replace previous reply... YES          Prefix word.....
4. Use s-word for display... YES
5. Field justification..... RIGHT
6. Suppress character.....
7. Cognize response..... NO_
8. Processing order.....
9. Date/time display form...

When you finish, type END to save or CANCEL to discard any changes.

====>
```

The selection, field, or column for which you are entering control information is protected information displayed above the fields.

Structured Word Collection

On the Structured Word Collection panel for assisted-entry panels, you identify the s-word to collect based on the user's response.

This panel represents the PMF data-entry panel that you use to modify the s-word collection and validation for an assisted-entry panel.

```
BLM8CU5B          STRUCTURED WORD AND VALIDATION COLLECTION          PANEL: BLG6PRII

Enter collection control data; cursor placement or input line entry allowed.

1. Structured word index..... 0BE6          Structured word.. XIMS0SPI00
2. Collect from caller..... NO_          Word acronym..... IM = INIT PRIORI

Validation:
3. Record structured word index..          Structured word..
4. Record name.....
5. Data structured word index....          Structured word..
6. Description s-word index.....          Structured word..

When you finish, type END to save or CANCEL to discard any changes.

====>
```

Response Processing

On the Response Processing panel for assisted-entry panels, you specify the number of words allowed in the reply, the maximum length of the reply, journal information, cognize information, and the data type. You can specify whether data is to be validated as mixed case. You can also specify how the data is stored in the SDDS portion of the database and thus, how it will appear when viewed at a later time. You can also specify whether the p-word, both the s-word and the p-word, or neither, are cognized (that is, stored in the SDIDS to be used for searching).

Note: If the data is cognized in mixed case (that is, searchable in mixed case), any search argument must enclose the search data with single quotation marks. For this reason, your organization may choose to specify that fields not be cognized in mixed case.

Panel BLM8CU5D is an example of the PMF data-entry panel you use to modify the response processing for an assisted-entry panel.

```

BLM8CU5D                RESPONSE PROCESSING                PANEL: _____
Enter collection control data; cursor placement or input line entry allowed.

1. Reply value (create).... ___    11. Collect as string data..... ___
2. Reply value (inquiry)... ___    12. Data is a date..... ___
3. Reply value meaning..... ___    13. Data type.....<R> _
4. Replace previous reply.. ___    14. Case sensitive validation?.. ___
5. Journal reply..... ___         15. Collected data case..... ___
6. Journal sequence..... ___      16. Cognize in mixed case?..... ___
7. Cognize response..... ___      17. Cognize unparsed string?.... ___
8. Cognize only p-word..... ___
9. Force search on 'any'... ___
10. OR operator allowed..... ___

When you finish, type END to save or CANCEL to discard any changes.

====>
    
```

In panel BLM8CU5D, you can specify information to define the case characteristics for that field.

Case-sensitive validation of literal validation patterns?

This defines whether the case of the entered data must match that in a literal validation string (<Open> for example) in order to pass validation.

Note: Non-literal validation patterns (such as ACV7) always accept data in either case, regardless of the setting of this field.

YES Both the letter and the case of the letter must match

NO (default) Either case of a letter will match

Collected data case

This defines how the data is stored in the SDDS portion of the database and, therefore, how it will appear when viewed at a later time. The case pattern can include any of the following case specifications:

UPPER Upper case (default)

LOWER Lower case

Modifying Panel Control Information

FIRST	First character upper case; all others lower case
PATTERN	As specified in the validation pattern for literal patterns; all upper case for non-literal patterns
ASIS	Exactly as entered by the user

These values are customizable via the BLMMSGC message CSECT. In the API's PIDT built by BLGUT8, these values will be shown as single character values **U**, **L**, **F**, **P**, and **A**, respectively. Values shown in the PIDT are NOT customizable and will remain the same even if the values in BLMMSGC are changed.

Cognize in mixed case?

This defines how the data is cognized (that is, stored in the SDIDS to be used for searching).

YES	The data is cognized exactly as it is stored in the database; to find this record, a search argument must be case-specific and both the letter and the case must match; that is, OPEN will find only Open and not OPEN , open , or OpEn .
NO (default)	The data is cognized in all upper case; to find this record, a case-insensitive search argument can have letters in any case. For example, OPEN will find Open , OPEN , open , OpEn , and so forth.

Note: All assisted-entry panels which collect data with the same prefix should use the same value for this field. If some data is cognized in mixed case and other data with the same prefix is cognized in upper case, some searches may not produce correct results.

Cognize unparsed string?

This defines how the data is parsed when it is stored in the SDIDS to be used for searching.

YES	The entire string is cognized, including special characters and embedded blanks (with a prefix if one is defined). For example, if the field value is Hang/disconnect using V.90 modem a single entry Hang/disconnect using V.90 modem will be cognized. If the string is longer than 32 characters, it is truncated because the maximum length that can be cognized is 32.
NO (default)	When cognizing the data, special characters are translated to blanks, then the data is split into a group of words (delimited by blanks), and each word is stored independently in the SDIDS (with a prefix if the field is defined to have a prefix). For example, if the field value is Hang/disconnect using V.90 modem six separate words will be cognized: HANG DISCONNECT USING

V
90
MODEM

Prefix and Content Validation (Assisted-Entry Panels)

You can use the Prefix and Content Validation dialog panel to identify the p-word to attach to a response and the validation required for a panel. This information must first be defined in the dictionary.

You can specify numerous validation patterns; however, each pattern that you want on the assisted-entry panel should have a unique prefix index in the dictionary. In addition, you can identify more than one p-word. Multiple p-words and responses are stored in the database if a multiple pattern is specified and the validation criteria for each pattern are met.

This panel represents the Prefix & Content Validation panel. You can issue the **UPDATE** line command to modify control information for a line, the **INSERT** line command to add a new control line, or use the **DELETE** line command to delete a control line.

```

BLMITSAC                PREFIX & CONTENT VALIDATION                LINE 1 OF 1

    PREFIX      PREFIX  DATA      PATTERN  AUTH
    INDEX      WORD    VALIDATION  TYPE     CODE
''  ****      ***** ***** *      ****
''  01B6      PRII/   NNVIL      *      0000
**  ****      ***** ***** *      ****

Line Cnds: D=Delete U=Update
Type DOWN, UP, LEFT, or RIGHT to scroll the panel, or type END to exit.

===>
    
```

Panel BLM8CU5I represents the PMF data-entry panel that you use to modify the prefix and content validation of an assisted-entry panel.

Modifying Panel Control Information

```
BLM8CU5I          PREFIX AND VALIDATION          PANEL: BLG6PRII

Enter collection control data; cursor placement or input line entry allowed.

1. Prefix word index..... 01B6          Prefix word... PRII/
2. Pattern type.....          Validation... NNVL
3. Authorization code..... 0000

When you finish, type END to save or CANCEL to discard any changes.

====>
```

Data Display Processing

If you select **Data display processing** from the Column Control Summary for a table panel, the panel BLM8CU8B appears. On the Column Display Update panel, you can enter display control data associated with the column of the table panel being updated. The column is protected information displayed above the fields.

This panel represents the PMF data-entry panel you use to modify the column display of a table panel.

```
BLM8CU8B          COLUMN DISPLAY UPDATE          PANEL: BLG1TSRL

Enter column control data; cursor placement or input line entry allowed.

COLUMN: 2          Structured word: XLM0I0GS00
                   Word acronym: DEPT
                   Prefix word: _____

1. Maximum field width...<R> 12_          8. Sequence number suffix..... _
2. Line command column..... NO_          9. Permanent column..... NO_
3. Line sequence column..... NO_         10. Horizontal scroll..... NO_
4. Column justification.... RIGHT        11. Repeat/delete/move protected. NO_
5. Structured word index.... 0B9B       12. Date/time display form..... _____
6. Suppress character..... _
7. Prefix word index..... _____

When you finish, type END to save or CANCEL to discard any changes.

====>
```

Control Flow Processing

The Control Flow Processing panel for a control panel lets you:

- Define the type of control line
- Specify a function code that starts a specific function

- Define a program exit that should be started
- Define the target panels for the control panel test and add functions.

This panel represents the PMF data-entry panel you use to modify the control flow processing of a field in a control panel.

```

BLM8CU6A          CONTROL FLOW PROCESSING          PANEL: _____
Enter control flow information; cursor placement or input line entry allowed.

1. Control line type.....<R> _____
2. Function code index..... _____      Function acronym... _____
3. Dialog end..... _____
4. True target panel..... _____
5. False target panel..... _____
6. Authorization code..... _____
7. Program exit/TSP name.... _____
8. Message panel..... _____

      When you finish, type END to save or CANCEL to discard any changes.

====>
    
```

Test Data Processing

On the Test Data Processing panel for a control panel, you define the type of information for which this control line is going to test. When a **TEST** control line is processed, the true target panel (defined for control flow processing) is processed if the test is true. Otherwise, the false target panel (also defined for control flow processing) is processed. If the target panel is blank, control is passed to the next control line. This panel represents the PMF data-entry panel you use to modify the test data processing of a field in a control panel.

```

BLM8CU64          TEST DATA PROCESSING UPDATE          PANEL: BLG1A111
Enter 'test word' control data; cursor placement or input line entry allowed.

1. Begin multiple test..... YES      Structured word.. _____
2. End multiple test..... NO_        Word acronym.... _____
3. Structured word index.... 0000    Prefix word..... DATE/_
4. Prefix word index..... 0340      Validation..... <.>
5. Apply not logic..... NO_

      When you finish, type END to save or CANCEL to discard any changes.

====>
    
```

Updating Control Information for Help Panels

When you enter **CONTROL** from a help panel's **Externals** option, you see a summary of all the control information for the panel.

This panel represents a Help Control Summary panel. You can issue the **UPDATE** line command to modify control information for that line or the **INSERT** line command to add a new control line. In both cases, the Control Line Update panel appears.

```
BLM1THSC                HELP CONTROL SUMMARY                LINE 1 OF 8

      SELECTION      KEYWORD      FUNCTION  AUTH      TARGET
      NUMBER        PHRASE        CODE     CODE     PANEL

''      **      *****
''      1      OVERVIEW      0002     0000     BLG2ZUSE
''      2      INFO/MANAGEMENT 0002     0000     BLG2ZOSV
''      3      GENERAL USE      0002     0000     BLG2ZGEN
''      4      PREFIXES        0002     0000     BLM2ZPMR
''      5      CHANGES FROM V1 0002     0000     BLG2ZSOC
''      6      CHANGES FROM V2 0002     0000     BLG2ZSC2
''      7      CHANGES FROM V3 0002     0000     BLG2ZSC3
''      8      CHANGES FROM V4 0002     0000     BLG2ZSC4
**      **      *****

Line Cmds: A=After C=Copy D=Delete I=Insert M=Move R=Repeat U=Update
Type DOWN, UP, LEFT, or RIGHT to scroll the panel, or type END to exit.

===>
```

This panel represents the PMF data-entry panel for a help panel control line.

```
BLM8CU43                CONTROL LINE UPDATE                PANEL: BLM2ZIMN

Enter selection control data; cursor placement or input line entry allowed.

1. Selection number...<R> 1                Code acronym.. CODE - INVOKE
2. Keyword phrase..... OVERVIEW
3. Authorization code.... 0000
4. Target panel..... BLG2ZUSE
5. Function code index... 0002

When you finish, type END to save or CANCEL to discard any changes.

===>
```

Required Control Information

This section describes the control information that you must consider and deal with when adding a new field, selection, column, validation, or control line to a panel. The following information is an overview of what you need to know about a panel's control information; in most cases, you must know much more. The fields are divided into groups by panel type and control line function.

Note: If you do not know the s-word or target panel name, keep the default data that PMF provides. Later, you can identify all your panels with incomplete control information by generating an S-Word or Panel Cross-Reference report. See “Running PMF Reports” on page 227 for more information about the PMF reports.

Selection or Options Panel

Change the fields shown in Table 5 when you enter control information for a selection or options panel for the respective control line function.

Table 5. Fields to Change when Entering Control Information

Function	Fields Requiring Change
Selection	S-Word index, Target panels
Null Reply	Function-code index, Target panels
Common	Help target

You must specify s-word indexes to identify the s-words that internally represent each visible phrase or option.

You must change the target panels (one for create mode and one for inquiry mode) to the next panel to be processed when the selection or option is chosen. If the panel appears during record entry, change the **Create target** and clear the **Inquiry target** field. If the panel appears during inquiry, change the **Inquiry target** panel and clear the **Create target** field. The same panel can be used for both create and inquiry modes.

For every option or selection on a panel, you should have a help panel associated with it. Tivoli Information Management for z/OS assigns a help panel name each time an option or selection field is added to a panel. However, you still have to create that help panel.

Consider completing dialog fields (**Dialog end** only, for a selection panel) for selections.

Data-Entry Panel

Change the fields shown in Table 6 when you enter control information for a data-entry panel for the respective control line function.

Table 6. Fields to Change when Entering Control Information

Function	Fields Requiring Change
Display-Only	S-Word index or P-Word index, Target panel (clear the field), Field type (display), Branch and link (no), Replace previous reply (no),
Selection	S-Word index, Target panel, Field type (selection), Branch and Use s-word for display (no)
Entry Field	S-Word index or P-Word index, Target panel, Use s-word for display
Null Reply	Function-code index, Target panel
Common	Help target

For a display-only field, you must change the panel externals so the field is protected. For an entry field, you must change the panel externals so the field is unprotected.

When you add a **File record** selection to a panel, you *must* set the **S-Word index** field to **OCF1**.

Required Control Information

For an entry field, the target panel identifies the assisted-entry panel that validates the response.

You can use either an s-word index or a p-word index to identify the data that is to be displayed in the field; you cannot use both. An s-word index is better; however, if you enter a p-word index, you must also:

- Enter **NO** in the **Use s-word for display** field.
- For a display-only field, clear the **S-Word index** field.
- For an entry field, change the **S-Word index** field to the function code **000A**.

For every option or selection on a panel, you should have a help panel associated with it. Tivoli Information Management for z/OS assigns a help panel name each time an option or selection field is added to a panel. However, you still have to create that help panel.

Consider changing the **Dialog** fields for selections and null reply.

Assisted-Entry Panel

You must change the fields shown in Table 7 when you enter control information for an assisted-entry panel for the respective control line function.

Table 7. Fields to Change When Entering Control Information

Function	Fields Requiring Change
Control	S-Word index, Validation s-word index or record name, P-Word index
Common	Help target

You can use either an s-word index or a p-word index to define the context of the value entered during argument or freeform searching. However, an s-word index is preferable unless the field is to be searched as a keyword. Use an s-word index whenever the field is to be searched using a prompting sequence or is to be used in conjunction with the calling data-entry panel. The s-word index must match that of the calling data-entry panel.

If the assisted-entry panel is not to return to the last panel that specified the **Branch and link** field, change the **Return to caller** field to **NO** and specify target panels.

You might want to consider completing the **Reply number** (create and inquiry) fields for control.

The **Reply value** field in create mode uses 1 as the default, but it can be changed. If the assisted-entry panel is used in combination with a data-entry panel, the normal create value is 1.

The reply number in inquiry mode also uses 1 as the default, but it can be changed. If the assisted-entry panel is used in combination with a data-entry panel and the create value is 1, the inquiry value should also be 1. This prevents the user from adding more than one valid reply in search mode for any record in which only one value per field can be entered.

Help Panel

You must change the fields shown in Table 8 on page 55 when you add a selection to a help panel.

Table 8. Fields to Change When Adding a Section to a Help Panel

Function	Fields Requiring Change
Selection	Selection number, Target panel

You must enter the selection number to define a corresponding selection on the help panel.

The **Target panel** should identify the panel to be displayed when the user selects this item. The **Target panel** is the name of the next help panel.

You can use function codes **0002**, **0007**, or **000D** for help panels with selections. If you specify function code **0002**, you must specify a **Target panel**. Otherwise, enter function code **0007** or **000D** to cancel the display.

Note: Help panels created for messages must not contain selections.

Table Panel

You must change the fields shown in Table 9 when you enter control information for a table panel for the respective control line function.

Table 9. Fields to Change When Entering Control Information

Function	Fields Requiring Change
Column	S-Word index, P-Word index, Maximum field width
Common	Help target

Depending on how the data is collected, change either the s-word or p-word index.

Change the **Maximum field width** field to the maximum width of the column. This field must equal or exceed the size of the column depicted in the panel externals. If the column width in the panel externals is less than the maximum width, you can use column scrolling to see all the data in the column.

Control Panel

You must change the fields shown in Table 10 for each of the control-line types.

Table 10. Fields to Change for Each Control-Line Type

Type	Fields Requiring Change
FLOW	Target panels
ADD	S-Word index, P-Word index, Function-code index (0000), Control line type (ADD), Target panel
TEST	S-Word index, P-Word index, Function-code index (0000), Target panels, Control line type (TEST)

The control-line type defines the purpose of the control line. The s-word or p-word index identifies the data that should be added or tested, depending on the control-line type. The **Target panel** identifies the next panel to be processed if it is set by this control line.

Special Design and Modification Considerations

Remember to consider these things when you design a new panel:

- A panel name ID must be 8 characters long.
- A record ID can have a maximum of 8 characters.
- Depending on the key length of your SDIDS, for each field, you can:
 - Cognize a maximum of 16 or 32 characters, including the p-word.
 - Journal a maximum of 16 or 32 characters, including the p-word.

Contact your database administrator to find out the key length of your SDIDS.

- The maximum length for a field is 255 bytes. Each field is stored in a structured description entry (SDE). An SDE contains prefix information specific to the field. Therefore, the prefix information varies in length. The maximum length for an SDE is 255 bytes, which includes the prefix information and the data for the field. Each item in an SDE contains a prefix and data. The maximum length for the prefix and data combined, except for string data, is 64 bytes, including the prefix. The maximum length for the prefix and string data combined is 138 bytes.
- The maximum length for a line of freeform text is 255 bytes.

You will probably use other fields in addition to the ones listed here to meet your installation's requirements. The following specialized PMF functions, interfaces, and concepts will help you complete the control information for your panels.

- Database management
- Function codes
- Program-exit interface
- Panel management
- Dialog-control interface
- SRC interface
- Window-display interface
- Authorization codes

Before using these functions, be aware of special considerations. A description of each function follows, along with a discussion of the advantages and disadvantages of using it.

Database Management

The type and amount of information stored in Tivoli Information Management for z/OS databases controlled through the panel architecture, and thus can be tailored using PMF. The following interfaces and functions can help you in this task:

Replace previous reply field	Deletes an earlier response or value within the same record and saves the new response or value
Cognize response field	Makes the data entered searchable
Cognize only p-word field	Controls whether only the p-word or both the s-word and the p-word are searchable
Cognize in mixed case	Controls whether data is to be cognized in mixed case or upper case
Cognize unparsed string	Controls how data is to be cognized as strings
Journal field	Keeps a history of changes to fields or selections

Enhanced retrieval capability	Provides a way to collect the data for a search
Synonym entry	Makes searching easier without affecting other functions
Dynamic panel flow sequencing	Collects and displays information depending on the previous user's response
Text type control	Limits the type of text entered in the record.
Data type field	Specifies the data type for the assisted-entry panel.

In addition to these functions, your changes to data collection can have an impact on previously entered data in the same fields.

Based on your installation's needs, you must determine the functions from which it can derive the most benefit. The advantages and disadvantages discussed in the following sections should help you to make the necessary trade-offs.

Before continuing in this section, make sure you understand how the search mechanism operates (refer to the *Tivoli Information Management for z/OS Planning and Installation Guide and Reference*), as well as the purpose and use of s-words and p-words (see "Using the Dictionary" on page 183).

Replace Previous Reply

One of the fields you can fill in on the Data Collection panel when you create or modify a panel is the **Replace previous reply** field. The function the field represents can save space in your SDDS.

Replace previous reply allows only one occurrence of a value to be specified in a record at a time. This function means that only the most recent reply for the field is saved and stored in the database. The only time this function does not have meaning is in inquiry mode when you are not using quick search panels. For example, a problem should have only one status. Therefore, the **Status** field on a panel has **Replace previous reply** set to **YES**, and only the last status entered is stored in the record. If, however, multiple occurrences of a field or selection can be permitted in the same record (such as module names involved with a problem, several components, or several commands), set **Replace previous reply** to **NO**.

The processing done for **Replace previous reply** is part of what happens when a record is filed. Along with adding date and time data to the record, the system compresses the record before writing it to the SDDS. The purpose of compression is to conserve space in the SDDS; its effect is to ensure that only one response for a given value or dialog is kept within the record and that it is the last one collected. Compression of a field is controlled by setting the **Replace previous reply** field; **YES** requests compression as the record is filed; **NO** bypasses compression.⁴

For an individual response item, the compression process is as follows: each replaceable response item in a record's response chain (a chain of SDEs) is replaced by successively-newer responses until the later response item becomes the only one left.

4. Responses and replies here mean "response items": a response item is what the system collects from a panel to store in the database. It can be an s-word, a p-word, or the name of a panel and the number of a selection (response) on the panel.

Replacing a Dialog

When you enter **YES** in the **Replace previous reply** field for a response item that begins a dialog (you have also specified **YES** in the **Dialog begin** field), you are requesting that the entire dialog be replaceable, that is, capable of being compressed as the record associated with it is filed.

Note: You must specify **Replace previous reply** for the response item that ends the dialog for the system to recognize that the dialog is replaceable.

When you specify **Replace previous reply** for a dialog, the compression process merges successively newer versions of the dialog (the *new* dialog) with the oldest version (the *old* dialog). Replaceable response items from the new dialog replace corresponding response items in the old dialog that are marked as replaceable. Any response items in the new dialog, for which there are no corresponding replaceable items, are added at the end of the old dialog's response items.

If your users can re-access a dialog, the dialog should be replaceable.

You can see the results of the compression process by issuing **VIEW ON** before you file a record; replaceable responses change from the first viewing to the second.

If you build new dialogs or modify existing ones, you must adhere to the same rules for replacing responses that Tivoli Information Management for z/OS does.

■ Replacing Response Items:

To locate replaceable response items, the system scans the response chain from top to bottom (earliest to latest). The first replaceable response item found becomes the old response item. The system then tries to find another response for the same field further along the chain, and replaces the first with the second according to the following algorithm:

1. Both response items must be marked as replaceable; if not, no replacement takes place.
2. If the old response item contains an s-word, the new response item must contain the same s-word or replacement does not take place. This consistency ensures that items containing s-words cannot be completely removed from the response chain.
3. If the old response item contains a p-word but no s-word, the new response item must contain the same p-word. If the new response item also contains an s-word, the old response item is still replaced, thus items containing s-words replace those without s-words.
4. If the old response item does not contain an s-word or a p-word, the new response item must contain the same panel name and response number as the old response item. The new response item can contain an s-word, a p-word, or both, in addition to the panel name and response number.

■ Replacing Dialogs:

The system only compresses dialogs it recognizes as duplicates. Duplicate dialogs both begin and end with replaceable response items, and both contain matching control attributes (s-words, p-words, and so on). When dialog compression is complete, the old dialog contains all the response items, and the new dialog is gone from the response chain. The algorithm for compressing dialogs is as follows:

1. Both the old and new dialog-begin and dialog-end response items must be marked as replaceable, or no compression takes place.
2. If the old dialog-begin response item contains an s-word, the new dialog-begin response item must contain the same s-word.
3. If the old dialog-begin response item contains a p-word and no s-word, the new dialog-begin response item must contain the same p-word. It can also contain an s-word.
4. If the old dialog-begin response item does not contain an s-word or a p-word, the new dialog-begin response item must contain the same panel name and response number.
5. If the old dialog-end response item contains an s-word, the new dialog-end response item must contain the same s-word.
6. If the old dialog-end response item contains no s-word, the new dialog-end response item must contain the same panel name and response number.

Notes:

- Nonreplaceable dialogs can consist entirely of replaceable response items. In this situation, the effect of compression is as follows: whenever a record is updated, all the replaceable items are moved from the newer dialog in the chain to an older one, leaving the newer dialog with only its dialog-begin and dialog-end response items. The resulting growth of the SDDS record is not harmful to the database, but you should be aware of it.
- Report processing looks for the oldest, or first, response items in a record to put in the report; panel display processing looks for the newest, or last, items to display on the screen. When the record is compressed, both processes produce the same response item if you specify **Replace previous reply** as **YES**, because there is only one response.
- When you use an assisted-entry panel in conjunction with a data-entry panel (entry field), specify the **Replace previous reply** field as **YES**. Otherwise, both the previous entry and the current entry are saved, but only the value last entered appears. Because all previously-entered values are saved, subsequent searches and reports produce misleading or confusing results.
- When an assisted-entry panel accepts multiple responses (that is, the reply value is greater than one), you can collect these responses as multiple SDEs. If **Replace previous reply** is **YES**, only the last SDE is saved in the record.

If you enter **YES** in the **Replace previous reply** field:

Advantages:

- Requires less storage in database
- Prevents mutually exclusive values from coexisting in the same record

Disadvantages:

- Prevents entry of nonmutually exclusive (or multiple) values in the same record
- Requires detailed understanding of the compression process

Cognize Response

The **Cognize response** field enables your installation to control the words entered in the SDIDS; that is, those words that are searchable by the user. The general rule for structured data (data other than freeform text) is to cognize the user replies, because:

- The user is accustomed to seeing the data during the record entry process.
- Generally speaking, data that is not searchable is not usable.
- Users assembling summary reports are hampered when data in the record is not searchable.

However, at certain times, *not* cognizing data is desirable. For example, you might want to make certain fields in the financial record, or certain dates and times, not searchable. Also, when data is not cognized, the amount of time required to file a record is reduced.

When you change the cognize status of an existing field, previously created records are not changed. Therefore, if you change a **Cognize response** field to **NO**, in previously created records, this field is still searchable. Alternatively, if you change a **Cognize response** field to **YES**, the data created before the change is not searchable. This disparity can lead to unreliable search results. To avoid this problem, update the previously created records. Use the new panels, which will cognize (or uncognize) the field, but only if you have set **Replace previous reply** to **YES** in both old and new panels and have retyped the entry in the field.

If you enter **NO** in the **Cognize response** field:

Advantages:

- Reduces I/O time during file
- Prevents searching on restricted data

Disadvantages:

- Restricts the user during inquiry definition
- Confuses the user as to what is, and what is not, searchable
- Can affect the usability of reports
- Can require changes to remove selections from inquiry panels

Cognize Only P-Word

The **Cognize only p-word** field enables your installation to control when only p-word data is entered in the SDIDS. There might be instances when you do not need to cognize both the s-word and the p-word. For instance, when a user performs freeform searches (as opposed to structured searches), the s-words in the SDIDS are not used. Freeform searches use p-words only.

Currently, if a user performs a structured search, both the s-word and the p-word are located in the SDIDS. For many fields, only the p-word is needed to find the data. When you choose to cognize only the p-word for a field, you reduce the amount of SDIDS activity. By doing this, you improve performance in filing records (because only the p-word is cognized) and in searching for records.

All data-entry fields are cognized from their associated assisted-entry panel, so that is where you specify to cognize only the p-word. Also, you can choose to cognize only the p-word for fields on control panels that collect data.

If you change the cognize status of an existing field, previously created records are not changed. Therefore, if you change a **Cognize only p-word** field from **NO** to **YES**, in previously created records, the s-word is still cognized. Alternatively, if you change a **Cognize only p-word** field from **YES** to **NO**, in previously created records, the s-word is not cognized. This can lead to unreliable search results. You can solve this problem in either of two ways:

- Update the previously created records using the updated panels, which will uncognize (or cognize) the s-word, but only if you have set **Replace previous reply** to **YES** in both old and new panels and have retyped the entry in the field.
- Use the WORDFIX TSP control line to uncognize (or cognize) the s-words. Refer to the *Tivoli Information Management for z/OS Terminal Simulator Guide and Reference* for an example.

Data-entry fields are cognized from assisted-entry panels. The VIEW INTERNALS panel contains a column showing the cognize setting for each field. This lets you see which fields are currently cognized for each record. For more information about the cognize setting, see “Interpreting Internal Data” on page 385.

If you enter **YES** in the **Cognize only p-word** field:

Advantages:

- Reduces the size of the SDIDS
- In most cases, reduces I/O time during file and search

Disadvantages:

- If not all existing records are updated, some will contain cognized s-words and some will not. This applies only to assisted-entry panel data and control panel data.
- Restricts you from using the same prefix for multiple fields if you want to be able to search for one of those fields. For example, the prefix **PH/** is used for all phone numbers. If you choose to cognize only the p-word for any of the phone number fields and you request a search for a specific phone number, you will not be able to determine from the search results whose phone it is (that is, reporter phone, resolver phone, manager phone). You will only know whether the phone number exists in any records.

Journal Information

The history function of Tivoli Information Management for z/OS enables you to define the information that is tracked in the journal. The obvious advantage to journalizing is that the user can see a history of changes to individual fields in the record. The disadvantages are minimal: increased storage space and changes to the history display panel, other display panels, and reports.

When you make an existing field a journal field, records already created are not affected. Once the panel is available for general use, subsequent changes to that field are recorded. Journalizing is performed through assisted-entry and control panels. Displaying the data is performed through data-entry and table panels. To journalize a field, the **Cognize response** field must also be set to **YES**.

You can journalize values, but not selections, in one of two ways: **FIRST** or **ORDER**. **FIRST** indicates that the journalized data is history control data (such as date and time altered); **ORDER** should be used for journalized data that is not control data. This

distinction is important for controlling how the fields appear when the user selects **History** from a panel or when the user runs a report. Journalized **FIRST** data can appear on the history table panel. The panel must contain a column that displays the data using the column's s-word or p-word. Journalized **ORDER** data appears on the history table panel in the column defined by the s-word index 0ED1.

For example, assume that you want the following journal fields:

- Date altered
- Time altered
- Status
- Outage

When the record is filed, all fields marked as journalized are placed in the history. If the record is subsequently displayed, and **History** is selected, the history could be displayed as follows:

STATUS	OUTAGE	JOURNALIZED DATA	
OPEN	10:10	DATM/10/10/1998	TIMM/10:20
CLOSED		DATM/10/11/1998	TIMM/12:20

However, a different arrangement could be used:

DATE	TIME	JOURNALIZED DATA	
ALTERED	ALTERED		
10/10/1998	10:20	STAC/OPEN	OUTC/10:10
10/11/1998	12:20	STAC/CLOSED	

Note the two different column arrangements. The display is controlled by the sequence in which you define the journalizing as well as the table-panel columns in the history table panel. You must define the history table panel to display the history data you want to see and in the order you want to see it. In the first example, status and outage appear first, each with its own column heading. In addition, the values are displayed without their corresponding p-words; they were defined in the **Journal sequence** field as **FIRST**. Date altered and time altered were defined as Journal **ORDER** and are displayed in the journalized data column. All noncontrol journalized values and their associated p-words are displayed in this column. The second example is reversed. Thus, the journal fields that are always entered when a record is filed, such as date and time last altered, should specify **FIRST**, whereas all other fields should be **ORDER**. Note, however, that in either case the information is journalized. The only difference is how it is stored and the way it is displayed.

You can only journalize a field that is cognized. Only the first 32 bytes (including the prefix) are journalized. S-Words are not used in the journaling process.

When you journalize fields that contain string data, such as the Description abstract field, all the data entered is shown in alphabetic sequence when viewing the history data because Tivoli Information Management for z/OS collects the data alphabetically. Entries are cognized in the SDIDS separately, which means that each word has up to 32 bytes (including the prefix) journalized. No logical phrases are collected. For example, if the **Description Abstract** had a p-word of ARR/, the phrase 'THIS IS A TEST' would be collected as ARR/THIS, ARR/IS, ARR/A, ARR/TEST. But it would be sorted and displayed as, 'ARR/A, ARR/IS, ARR/TEST, ARR/THIS'. When you journal multiple fields that have

the same prefix, all fields will be treated as one for journaling purposes. For example, if you have fields **A** and **B** both with the prefix **PFX/** and field **A** contains **123**, if you enter **123** into field **B**, that change will not be journaled.

If you enter **YES** in the **Journal reply** field:

Advantage:

- Allows the user to view the history of changes to specific fields

Disadvantages:

- Requires additional storage
- Requires changes to display panels and reports (only if you use Journal FIRST)

The following fields are used for this purpose:

- **Journal reply**
- **Journal sequence**

Note: If Universal Time processing has been enabled for your application, a **Date Modified** history entry is only built if the local date of the user making the change is different than it was for the previous change. Therefore, a U.S. Pacific Time user who makes a change at 18:00 on 2/20/01 and another change at 23:00 the same night will not have a second **Date Modified** entry generated for the second change. However, to a U.S. Eastern Time user, the history data for the Pacific Time user's changes will appear as follows:

```
02/20/2001  21:00
              02:00
```

The date for the second change, when viewed in U.S. Eastern Time, should be 02/21/2001; but because the Pacific Time user's date did not turn between changes, the Eastern Time user's view does not display a date change either. However, because history entries are always listed in chronological order, you can tell when a date change should occur when viewing histories of records originating in another time zone.

Enhancing Retrieval Capability

You can enhance users' and reports' information-retrieval capability by providing for and collecting the data they need in order to search the database. See "Using the Dictionary" on page 183 for information about proper s-word and p-word design.

Using Logical OR

An application can generate a report that contains either the **Date entered** field or the **Date last altered** field (for a specific day). This search can be performed through the panels, so the user need not know the p-words. To set up such a report, have one assisted-entry panel following another, and allow the second assisted-entry panel to permit a logical OR (|) operator as the first character. (In most cases, the | character is not allowed as the first character of a response.)

Applying NOT Logic

To prevent extra input and output (I/O) activity to the SDIDS, use the **Apply NOT logic** field on the Data Collection panel to build a search argument. Build the search argument to retrieve every record in the database that does not contain the corresponding s-word or

p-word. For example, searching for all records whose status is not (¬) closed probably requires less I/O than searching for all records whose status is either open or initial.

Force Search on Any

Another consideration on the Data Collection panel is the **Force search on any** field. When a user in inquiry mode responds with a period (.) for *any*, or with a not symbol and period (¬.) for *not any*, to an assisted-entry panel, the resulting search argument retrieves either all the records or no records at all. For instance, responding '.' to the panel BLG6RQDP (Reporter Department) indicates that the user wants to locate all records with a requester department GROS/. To find all such records, the search mechanism must read all records in the SDIDS that begin with GROS/. To avoid excessive I/O activity for this process, the search mechanism bypasses all these reads and simply uses the previously collected s-word to determine which records contain the assisted-entry value.

In some cases, the previously collected value might not be an s-word that implies the generic category of values collected by the assisted-entry panel. In these cases, setting the **Force search on any** field to **YES** ensures valid results (reading all SDIDS entries) from the search processor.

If you use these data collection controls when creating panels and subsequent search arguments:

Advantages:

- Improves search performance (except **Force search on any**)
- Reduces need for knowledge of p-words
- Enhances SRC generation and use

Disadvantage:

- Requires knowledge of s-words and search mechanism

On control or assisted-entry panels, use the following fields for this purpose:

- **OR operator allowed**
- **Apply not logic**
- **Force search on any**

Synonym Entry

Tivoli Information Management for z/OS functions frequently use prefixes to define the context of definition values. Therefore, you should not change or rename prefixes. However, prefixes can have synonyms, that is, different prefixes attached to the same value, and such a synonym can be installation defined.

For example, assume that you want a prefix of KEY for the **Key item affected** field in addition to the COMK/ prefix. However, reports use the COMK prefix. Therefore, you must define a synonym prefix. When the user responds to a field, both prefixes can be collected, thus:

```
COMK/REPORTS  KEY_REPORTS
```

From this point on, the user can search with either prefix. For an example of multi-prefix collections (RNID/ and CLAN/), request panel BLG6PNAM for update.

If you use a synonym prefix:

Advantage:

- You can use installation-defined prefixes without affecting other functions.

Disadvantage:

- Requires one extra I/O operation for each synonym

The following fields on assisted-entry panels are used for this purpose:

- **Pattern type:** multiple (pattern)
- **Pattern type:** last (end pattern)

Dynamic Panel Flow Sequencing

You might want a certain panel, sequence of panels, or fields to display or collect data based on other information collected in the record. For example, if the record status is CLOSED, you want to make sure that the resolution panel appears.

Because remembering a complex panel sequence can be difficult, consider limiting the number of dynamically displayed panels. An alternative is to keep the panel flow constant but to prevent certain selections until the proper dialog is complete. For example, when the user selects **File**, perform test and verification. The control panel processor issues a message to inform the user of missing data, conflicting fields, and so on.

If you use control panels to dynamically set the next panel to be processed:

Advantage:

- Allows information to be collected or required based on information previously entered in the record

Disadvantages:

- Can be more difficult for users to remember the panel sequence
- More difficult to create and maintain SRCs

Use the following fields on control panels to dynamically change the panel flow:

- **Message panel** field
- All fields for **Test data processing**

Text Type Control

You can change the type of text that is required in a record, or you can control the type of text that can be entered based on other record information. For example, if a record status is OPEN, you can prevent resolution text from being entered in a record. A control panel can set a different text-entry panel based on the current status. (This is basically the same function just described in “Dynamic Panel Flow Sequencing”.)

Freeform text is identified to the text processor by an s-word. (Run the S-Word List report to see all the s-words.) The panel that starts the freeform text program exit uses the s-word in the calling control line to present and store the text.

If you choose to control text type, you can:

- Remove various text selections and change the externals to permit entry of only one type of text
- Add another s-word and selection for additional text. You can then use authorization codes to restrict the entry or display of this text.

Advantages:

- Controls the type of text based on a previous response
- Can reduce number of panels required to collect freeform text

Disadvantages:

- None

Data Type Field

The **Data type** field allows your installation to control the type of data that is accepted as responses to data fields. This also provides control on the data collected and stored in the SDDS.

You can choose one of the following types for the data type field:

- M** Mixed data
- S** Single-byte character set (SBCS) data only
- D** Double-byte character set (DBCS) data only

As shipped, most data type fields in Tivoli Information Management for z/OS are set to allow mixed data. This means that the fields can accept data that is all SBCS, data that is all DBCS, or data that contains both SBCS and DBCS.

Every assisted-entry panel has a data type associated with it. If you use only SBCS data, you can just accept the default of mixed data, and never concern yourself with the **Data type** field again.

If you are a DBCS user, this data type validates entire responses before existing validation (through validation patterns) of the response is performed. Therefore, an assisted-entry panel with a data type of SBCS does not accept a response that contains mixed or DBCS information. When a response is of the correct data type, validation by validation patterns is performed.

Advantage:

- Greater control over collection of data gathered from field responses

Disadvantage:

- Any assisted-entry panel that is used by a number of data-entry fields and that requires different data types will have to be duplicated, and a different data type assigned to each assisted-entry panel.

Function Codes

Function codes enable you to start various panel processing functions, such as **FILE**, and commands, such as **SEARCH**, **HELP**, or **INITIALIZE**, through selections on panels and from control panels. By using function codes that call commands, you can add selections on panels where the user probably wants commands, and you can reduce the amount of education required to learn the commands. For a complete list and description of these functions, see “Function Code Indexes” on page 186.

Program Exit Interface

A program exit is an Tivoli-supplied module that performs a function that is beyond the scope of the panel architecture. For example, verifying the format of a date or verifying that a record ID exists in the database are functions performed by program exits.

Tivoli Information Management for z/OS provides common program exits and specific program exits. The common set contains the program exits you can use for your company. The specific set includes program exits that are unique to Tivoli Information Management for z/OS functions, such as profile, SRCs, and PMF.

Note: Never remove a specific program exit from the base panel flow.

Each program exit is uniquely numbered, and the functions of these exits are described in “Program Exits for Use with Panels” on page 407. Program exits perform functions that are not directly possible through the panel architecture. Therefore, the environment from which they are called (processing mode and panel type) must be exactly as stated in the description of each program exit.

When you change or delete a panel that calls a program exit, something is likely to go wrong. Therefore, if you must delete a panel that calls a program exit, examine the description of the exit to determine its purpose. You might have to call this exit in a subsequent panel in your final panel flow. You can call program exits from your own panels or fields if you want them to perform a function such as setting up the environment for a record entry function.

You can specify program exits on five types of panels: selection, options, data-entry, assisted-entry, and control. If the program exit detects an incorrect panel type or environment, it issues a message and bypasses further processing of the selection, option, assisted-entry panel response, data-entry selection, or control line.

Restriction: Because a program exit can be started in many different ways, unpredictable results can occur when you call a program exit in a manner other than the one specified in “Program Exits for Use with Panels” on page 407. When you observe such results, examine other panels that call the program exit and determine where in the panel flow these panels are presented. Try to make sure that the environment is the same.

A program exit can be run in an API environment only if this is specified in the **Environment** description for the program exit, as detailed in “Program Exits for Use with Panels” on page 407.

If you use a program exit:

Advantages:

- Calls functions not available through the panel architecture
- Performs installation-defined validations
- Controls various Tivoli Information Management for z/OS functions

Disadvantages:

- Requires knowledge of the program exits and their functions
- Requires knowledge of when and why they are called (the Panel Cross-Reference report tells you when and from which panels program exits are called)

The **Program exit symbol** field in a control line identifies the program exit.

Panel Management

PMF provides several fields that enable you to manage panels more easily. You can use these fields in multiple dialogs, thus reducing the amount of maintenance required for panel changes.

Special Considerations

The **Branch and link** field and the **Return to caller** field can be used to reduce the number of assisted-entry panels required. The **Return to caller** field affects only assisted-entry panels. The **Branch and link** field is on data-entry, selection, and options panels. The same assisted-entry panel can be called by different panels. The calling panel specifies the **Branch and link** field as **YES**, and the called panel (assisted-entry panel) specifies the **Return to caller** field as **YES**, as shown in the following diagram.

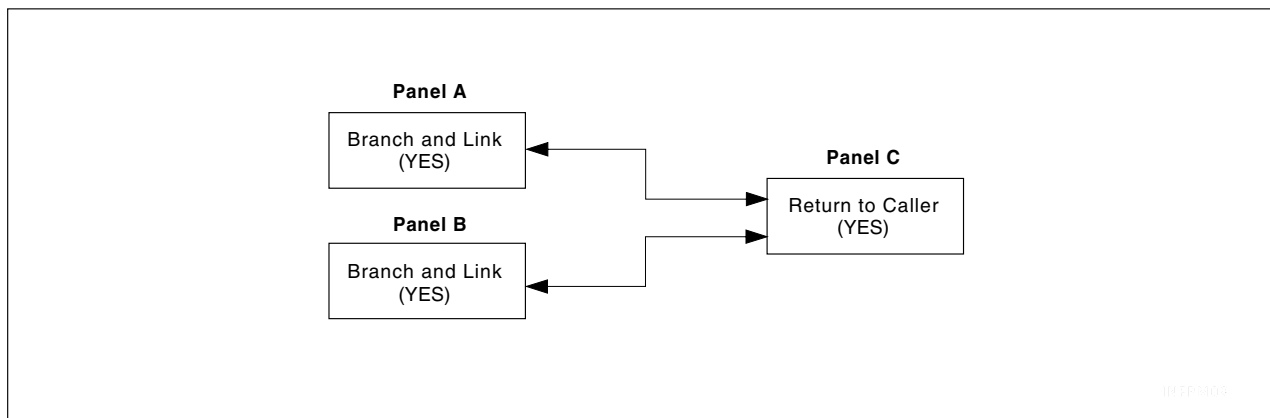


Figure 5. Panel Management

Panel C is called by both panels A and B. **Return to caller** causes panel A or panel B to be set when the user responds to panel C.

Use the **Collect from caller** field when the same type of information, such as user ID, is requested on a panel. Remember that a data-entry panel and assisted-entry panels are used to match data to the field entered. Usually, a different assisted-entry panel is used for each field. However, for panels such as the data-entry panel that allows definition of privilege classes, 18 fields are presented. Rather than create an assisted-entry panel for each field, the same assisted-entry panel collects the user ID. However, to redisplay the data on the data-entry panel, the s-word or p-word must be unique. To attain that uniqueness, the **Collect from caller** field is used to get the s-word for each field from the calling data-entry panel. This is illustrated in the diagram that follows.

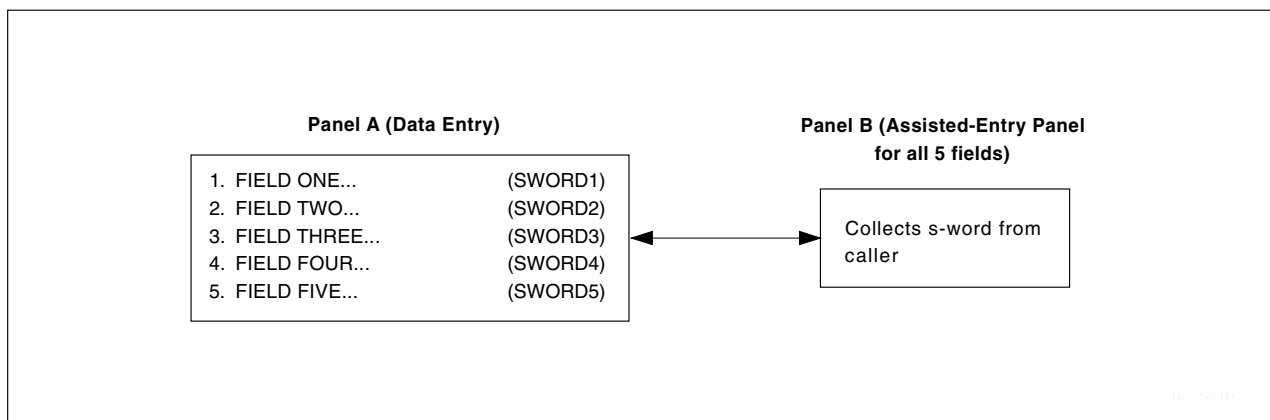


Figure 6. Obtaining an s-word from a data-entry panel

In Figure 6 on page 68, Panel B is the target panel for all fields on panel A. Panel B gets the s-word shown in Panel A for each field, thus redisplaying the data correctly. Using five assisted-entry panels containing s-words 1 through 5 produces the same result.

The dual-mode target panel exists so that the same panel can be used in both create and inquiry mode. Thus, a single dialog of panels can be used for a record type, rather than duplicate copies of panels. The result is the same as using two sets of panels: one for entry (create mode) and one for inquiry. Although this technique reduces the number of panels you must create, it does present a dilemma from a human-factors point of view. For example, a selection might be required during the record-entry process but could be bypassed in inquiry mode. Thus, the bottom title cannot easily define to the user how to respond to the panel.

Advantages:

- Reduces the number of panels required
- Eases maintenance

Disadvantages:

- Can cause out-of-context search results
- Difficult to tell user how to respond to the panel

Use the following fields and panels for panel management:

- **Branch and link**
- **Return to caller**
- **Collect s-word from caller**
- **Dual-mode target panels**

Dialog Control Interface

The interface to the dialog processing functions allows you to control the way dialog commands operate within dialogs without having to run specific functions. To understand this interface, you must understand the concept of a dialog. Simply stated, a dialog is a series of panels that collect related data. A dialog starts on any panel where you set the **Begin a dialog** field to **YES**, and it ends on any subsequent panel in the flow where you set the **End a dialog** field to **YES**. That is, every dialog begin must have a corresponding dialog end.

This section deals with dialogs that are controlled through panels. Other dialogs are initiated by commands, such as **SEARCH**. Although you can, in some cases, end these command dialogs through panels presented by the command, the command itself actually starts the dialog.

Starting and Ending a Dialog

You can begin a dialog on data-entry panels (selections without input fields) and options panels. You can end a dialog on data-entry (selections and null reply only), selection, options, assisted-entry, and control panels. When the panel processors find a dialog end, the next panel to appear is the panel from which the dialog began (unless overridden, as described in the next section).

If no panels within a dialog allow the user to issue the **END** command, the user cannot end the dialog. The **CANCEL** command can be used, but then all responses are lost. Thus, the first guideline for dialog processing is that every dialog begin must have a matching dialog end. When a record is filed, an additional check makes sure that this is true.

When the **END** command is entered within a dialog, Tivoli Information Management for z/OS attempts to complete the dialog successfully. This is done by scanning the control lines in the current panel for a dialog-end indicator and processing that control line. If no dialog end is found, a null reply is simulated for the current panel. If a selection (or field on a data-entry panel) is required, the **END** command processing stops, and the user is asked to enter a response. Thus, the **END** command makes sure that a dialog is completed successfully either by simulating a null reply on one or more panels or by automatically selecting an item if dialog end is indicated on a selection. If more than one item on a selection or options panel ends the current dialog, the user is informed that a selection must be made, because the **END** processor cannot determine which selection the user wants to enter. This process is repeated until a panel containing a dialog-end indicator is found.

For example, assume that two data-entry panels are presented one after the other. If the user enters the **END** command when the first data-entry panel appears, a null reply is simulated and the second data-entry panel is processed. A null reply is simulated again if no required fields exist on the second panel. If this null reply ends the current dialog, the panel from which the dialog began is presented. If, however, the first panel has a dialog end specified, the second panel is never displayed because the first panel ended the current dialog. Thus, because both panels should be displayed, only the null reply line for the second panel should contain a dialog end.

Overriding a Dialog End

When a dialog is ended, the normal procedure is to return to the panel you came from. However, you might want to display a panel other than the one that began the dialog (for example, present a panel with options that are permitted only after previous dialogs are completed). When you want a different panel to display, set the **Dialog override target** field to **YES**, and set the **Target panel** to the name of the panel you want to display.

Diagnosing Problems with Dialogs

Dialog problems usually fall in one of two categories:

- When you enter **END**, an unexpected panel appears.
- When you try to file a record, message BLG22507I appears telling you that a dialog mismatch was found.

If an unexpected panel appears when you enter **END**, you might have specified the **Dialog begin** on the wrong panel. This is the most common mistake in using dialogs. Another common mistake is specifying the dialog end on the wrong panel. Use the **VIEW INTERNALS** command to identify the beginning and ending of each dialog. (See “Interpreting Internal Data” on page 385 for more information about **VIEW INTERNALS**.) Dialogs usually begin from selections on data-entry, options, or selections panels. Dialogs can be ended from data-entry, options, selections, or control panels.

If you receive message BLG22507I, you have a dialog mismatch. Either a dialog was started and never ended, or a dialog was ended but was never started. When you have a dialog mismatch, Tivoli Information Management for z/OS will not file any records. Therefore, it is usually safe to assume that the error is caused by a panel you very recently modified. Using the **VIEW INTERNALS** command helps you find the dialog mismatch.

Advantage:

- Controls the method in which dialogs are presented and decides when they are complete

Disadvantage:

- Requires considerable knowledge of dialog processing

The following fields are used to control dialog processing:

- **Dialog begin**
- **Dialog end**
- **Override dialog target**

SRC Interface

The interface to SRCs provided through the panel architecture enables you to control the amount of information entered in an SRC as well as when the SRC must end. Panels collect information for subsequent retrieval and to guide users through functions and dialogs. When panels are presented for the latter purpose or contain selections for both purposes, they should not be started until the SRC is run, and, at times, should and must cause the SRC generation process to end. For example, the **File** selection stores a record in the database. Thus, the selection **File** should end the SRC generation process.

SRCs provide a simple means of processing through panels. However, as the database grows, defaults added by the SRC can cause information to be entered improperly, or in some cases, to be bypassed entirely because of the contents and flow of the SRC. These problems are difficult to detect until reports contain unexpected or unchanging data. To prevent these problems, make sure that a specific panel is always displayed or prohibit the entry of data in a specified field during SRC generation.

For example, assume that an SRC is created that contains a default system down time of 00:00. In addition, assume that the SRC continues past the panel that contains this field. When the SRC runs, a system down time of 00:00 is entered in every record. If this occurs often, the output of a report would not accurately reflect the proper statistics. This problem is compounded when multiple SRCs are created with each SRC defining a different default.

However, you can set the **Force SRC generate end** field to **YES** to stop the SRC generation process. In addition, with function code 002A, you can test for **GENERATE** mode and set a different target panel during **GENERATE** to make sure that the user cannot enter specific defaults when an SRC is created. Refer to the *Tivoli Information Management for z/OS User's Guide* for information on creating and using SRCs.

SRCs cause the panel flow to run with previously recorded panel responses. If a panel flow is changed after an SRC is created, the SRC might require changing. To reduce this risk, when an SRC runs, s-words associated with selections and fields are used rather than the specific selection numbers. This association enables you to change the order of selections or fields without changing previously created SRCs. Thus, whenever possible, an s-word should be used on selection and data-entry panels. The selection number and target panel are located by comparing the s-word in the SRC and the s-word in the associated control lines in the panel to locate the appropriate selection.

Advantages:

- Ensures database integrity by controlling information entered by an SRC
- Prevents starting specific functions until an SRC is run

Disadvantage:

- Requires knowledge of when the generation of an SRC should be ended

Use the following fields to control SRC generation:

- **Force SRC generate end**
- **Divert allowed**

Window Display Interface

The window display service of Tivoli Information Management for z/OS handles the display of table panels (and, through a table panel, help panels). The interface to window display occurs through the table panel update process. Each function that displays a table panel, such as the SEARCH or VIEW command, normally expects the table panel to contain specific columns, line command areas, and so on.

If the table panel has no line command area, you cannot add one because the function does not provide the code to support a line command area. In addition, certain functions do not support specific types of changes to column control information, changes to which data appears, or changes to other control types of functions. Generally, you must examine each function that displays a table panel to determine the kinds of changes you can make to the table.

You can make some changes to all table panels. The following areas of most table panels can be changed:

- Top title information
- Bottom title instructions
- Amount of application block data displayed
- Column widths

In addition, some table panels, such as connectivity displays, are displayed by a specific program exit started from a panel. If the program exit uses the target panel from the calling control line, a locally created table panel can be generated.

Advantages:

- You can modify certain display characteristics of table panels.

Disadvantages:

- It requires knowledge of the interface fields and of the types of modifications supported by the starting function.
- You cannot use a null reply to leave a table panel. Some window displays enable you to use the BACK command; for most others you must use the **END**, **CANCEL**, **INITIALIZE**, or **QUIT** command.

Examine the table panel to determine the changes you can make to modify the interface presented by window display services. The changes are application dependent. Examples of fields in the window display interface are:

- Column folding
- Column scrolling
- Justification characters
- Repeat column information

Authorization Codes

Authorization codes in conjunction with privilege classes allow installation-defined authority. This authority can be on a record, selection, or field basis. The following pages describe the way authorization codes work for the various panel types. Based on the panel type, you can control entry or display authority.

The authorization codes are not stored in the database but in the panels, so you can change authorization without affecting the database. See “S-Word Authorization Codes” on page 74 and “Checklists for Modifying Authority” on page 353 for more information.

Selection Panels and Options Panels

For these panel types, the user cannot select the option or selection unless authorized. If an unauthorized user attempts to select an item, the panel remains displayed, and a message appears.

Data-Entry Panels

For data-entry panels, authorization codes control the following:

- For a selection, the effect of an authorization code is the same as for selection and options panels.
- For a display-only field, the data is not displayed unless the user is authorized to view the field.
- For an input field, the authorization code has two purposes. Not only does the field not accept input (by either selection or direct entry), but the data associated with the field is not displayed unless the user has the appropriate authority.

Note: If you define an authorization code for a display-only field on a data-entry panel and a user issues a **VIEW** or **VIEW INTERNALS** command, the user *will* see the data for the display-only field even if that user is not in the authorization code. To prevent this, you must define the authorization code for the field on the assisted-entry panel.

Assisted-Entry Panels

Authorization codes defined in assisted-entry panels are on a validation pattern basis. That is, you can define the authorization for the entry of each value. For example, you can restrict who can close a problem versus who can open a problem. Or, you can restrict the **Closing code** field. You can restrict an entire range of values based on authorization code.

Tivoli Information Management for z/OS checks authority codes on assisted-entry panels when a user attempts to blank out a field. If the user has the authority to enter any of the values that an assisted-entry panel accepts, that user can blank out a field.

Note: If you define an authorization code on the first validation line of an assisted-entry panel, and a user issues a **VIEW** or **VIEW INTERNALS** command, the user will not see the data for the field unless that user is in the MASTER privilege class.

Message Panels

No authorization codes can be specified for message panels.

Help Panels

Authorization codes can be specified for selections on help panels. If an unauthorized user attempts to select an item, the panel remains unchanged, and a message appears.

Table Panels

You can use authorization codes only for search results list table panels and list processor table panels to restrict the display of column data. The control information for the table panel, in panel BLG1A201, defines which fields are displayed on search results list table panels. If a user is not authorized to view a field from a record, the data does not appear on the search results list. Special control panels, called record access panels, control the authority for displaying records. If a user is not authorized to view an entire record, the record ID and the word “unauthorized” are displayed on the search results list. The control panel that tests authority, BLG1A210, controls this authorization using the s-word and the authority code fields of the control lines. See “Record Processing” on page 394 for the names of the record access panels for all record types and “Table Panel Modifications” on page 156 for a list of search results list table panels.

- For a display-only field, the data is not displayed unless the user is authorized to see it.
- For an input field, an authorization code is ignored; authority is defined in the assisted-entry panels.
- For a list processor input field, the data is not displayed unless the user is authorized to see it.

Control Panels

The authorization code is used for FLOW and TEST control lines. The control line is skipped if the user is not authorized to view or do whatever is on the calling panel.

Note: You can use a control panel to change the panel flow based on authorization codes; see the checklists in “Modifying Control Panels” on page 313. TSP authorization codes are not used.

Advantages:

- Restricts the display of specific fields
- Restricts the use of specific functions
- Restricts the entry of specific records, selections, or assisted-entry panel responses

Disadvantage:

- Requires knowledge of s-words and, possibly, an installation-defined coding scheme

S-Word Authorization Codes

The s-word index in privilege class records determines whether the specific privilege class has authority to perform the requested function. In all other cases, the s-word index limits authority. The authorization code for each field is the last 4 characters of the associated s-word.

Index	Authorization Code	Actual Authority
0E71	0110	Problem Record Entry
0E72	0120	Problem Record Update
0E73	0130	Problem Record Delete

Index	Authorization Code	Actual Authority
0E74	0140	Problem Record Display, Solution Record Display
0E75	0150	Problem Record Assign
0E76	0160	Problem Record Close
0E7A	0210	Change Record Entry
0E7B	0220	Change Record Update
0E7C	0230	Change Record Delete
0E7D	0240	Change Record Display
0E7E	0250	Change Record Assign
0E7F	0260	Change Record Close
0E87	0310	Config Record Entry
0E88	0320	Config Record Update
0E89	0330	Config Record Delete
0E8A	0340	Config Record Display
0E90	0410	Class Record Entry
0E91	0420	Class Record Update
0E92	0430	Class Record Delete
0E93	0440	Class Record Display
0E99	0510	Finance Record Entry
0E9A	0520	Finance Record Update
0E9B	0530	Finance Record Delete
0E9C	0540	Finance Record Display
0EA9	0771	PMF - External
0EAA	0772	PMF - Internal
0EAB	0773	PMF - Dictionary Update
0EAC	0774	PMF - Dictionary Display
0EAD	0775	PMF - Panel Copy
0EAE	0776	PMF - Panel Delete
0EAF	0777	PMF - Panel Set
0EB0	0778	PMF Reports
077C	077C	PMF Panel List
0EB2	077.	PMF All
0EB6	0810	SRC Entry
0EB7	0820	SRC Update
0EB8	0830	SRC Delete
0EB9	0840	SRC Display
0EBF	0*60	Close All
0EC0	0*10	Entry All
0EC1	0*20	Update All
0EC2	0*30	Delete All
0EC3	0*40	Display All

Special Considerations

Index	Authorization Code	Actual Authority
0EC4	0**0	Records All
0EE7	0A10	People Entry
0EE8	0A20	People Update
0EE9	0A30	People Delete
0EEA	0A40	People Display
0EEB	0C10	Solution Record Entry
0EEC	0C20	Solution Record Update
0EED	0C30	Solution Record Delete
1186	0910	Rules Record Entry
1187	0920	Rules Record Update
1188	0930	Rules Record Delete
1189	0940	Rules Record Display
118A	118A	Select Rules Record
118B	09**	Rules All Records
14F0	0AA1	Database Administration
7D2E	7001	System Administrator privilege class
7D2F	7002	NPDA privilege class
7D30	7003	SAMID privilege class
7D31	7004	Help Desk Operator privilege class
7D32	7005	Network Operator privilege class
7D33	7006	Operations Manager privilege class
7D34	7007	Problem Controller privilege class
7D35	7008	Change Controller privilege class
7D36	7009	Config Controller privilege class
7D55	0B10	Person Record Entry
7D56	0B20	Person Record Update
7D57	0B30	Person Record Delete
7D58	0B40	Person Record Display
7D80	7010	Application System Unit privilege class
7D81	7011	Documentation Support privilege class
7D82	7012	Environment Support privilege class
7D83	7013	Hardware Support privilege class
7D84	7014	Process Support privilege class
7D85	7015	System Support privilege class
7D86	7016	Network Support privilege class

Sensitive Areas in PMF

PMF allows considerable flexibility in customizing Tivoli Information Management for z/OS panels to meet your installation's needs. However, this flexibility, at times, adds complexity to accomplishing tasks and involves sensitive areas of the products. This section lists these areas and describes why you should perform changes carefully and test them thoroughly before implementing them throughout your installation. The sensitive areas include:

- Profile panels
- PMF panels
- Control panels
- SRC panels
- Validation data panel
- Program exits
- Fields used by programs
- Dialog processing
- Panel-to-panel flow

Profile Panels

The profile initialization function depends on the s-words and field lengths used in profile panels. Thus, if you consider changing the profile panels, make sure that the s-word representing a profile default and the maximum length remain the same. If you change the maximum length, RFT processing is unpredictable. You can delete fields or limit the valid values. You can also add user-defined profile fields. See “Creating User-Defined Profile Variables” on page 207 for more information. For information about controlling profiles, refer to the *Tivoli Information Management for z/OS Planning and Installation Guide and Reference*.

PMF Panels

Changing the PMF panels themselves is not recommended. It is possible, by changing the PMF panels incorrectly, to severely or completely limit your ability to use PMF to modify other panels. If you must modify PMF panels, keep these cautions in mind:

- PMF depends on the s-words and field lengths used in PMF panels. Thus, if you must change these panels, make sure that the s-word representing a field and the maximum length remain the same.
- PMF includes many control panels whose purpose is to ensure the integrity of the control lines you create as you modify other panels. If the PMF panels are changed, these control panels must also be changed.
- If you maintain a master panel data set that contains only the unmodified Tivoli-supplied panels, you have a way to recover from unexpected situations.

Control Panels

Control panels are the most flexible and the most complex of all the panel types. A word of caution: avoid having two control panels call each other because a loop can occur when the control panels are run. It is better to have additional control panels than to try to perform functions in as few panels as possible because you can correct problems easier when you build control panels on a per function basis.

SRC panels

SRC processing depends on the SRC Summary panel, BLG0U001. Therefore, this panel cannot be replaced with another panel name. The field selection numbers on panel

BLG0U001 can be modified; however, if you change selection **9. File record**, to another selection number, you must also change its s-word from **000A** to **0CF1**.

Validation Data panel

Do not change the Validation Data panel (BLGLVSEL). Tivoli Information Management for z/OS looks for the default s-word on that panel; if it is not found, unpredictable results will occur.

Program Exits

You cannot write your own program exits for applications that use the Tivoli Information Management for z/OS product. However, the program exits used in Tivoli Information Management for z/OS have been externalized so you can use them on various panels or within locally created applications. Each program exit performs a specific task and, in many cases, must be started within a specific environment or application.

Many of the program exits used by Tivoli Information Management for z/OS programs are specific to Tivoli Information Management for z/OS functions and unsuitable for your use or adaptation. These are called *specific* program exits. The *common* program exits are the ones you can use as they are to perform the same functions for your applications that they perform for Tivoli Information Management for z/OS. See “Program Exits for Use with Panels” on page 407 for detailed information about these exits.

Many program exits use s-words and p-words to locate user responses, perform searches, and so on. Thus, if you want to use a program exit, you must thoroughly understand the purpose and the environment of the exit. The environment can be particularly important to the task being performed.

If you use a program exit, you must ensure that your environment matches the one stated for that program exit in “Program Exits for Use with Panels” on page 407.

Fields Used by Programs

When you modify Tivoli Information Management for z/OS panels, you are at the same time modifying the Tivoli Information Management for z/OS product itself. Modifications to some fields also affect the working of Tivoli Information Management for z/OS. “Panels That Cannot Be Modified” on page 393 presents the fields you must not modify at all. Keep the following general restrictions in mind as you modify other fields:

- Certain s-words and p-words for fields are used by Tivoli Information Management for z/OS for control purposes, such as record IDs, record types, and up components. These fields are identified in the dictionary by a **YES** in the Program Used column of the dictionary display. Do not use these s-words and p-words for an alternative meaning. Use shadowed s-words and p-words if contextual retrieval is a requirement.
- Do not modify the validation criteria for the **User-assigned record ID** field. If you change this field’s validation pattern to accept a response that begins with a numeric value, it causes errors in record retrieval. It can also cause ABEND conditions when you run the BLGUT1 or BLGUT3 utilities to restore your VSAM database. The net results are that you cannot restore a database that contains records created with this modification, nor do the Tivoli Information Management for z/OS APIs support them. If you change the length, the p-word value, or the s-word for this field, the results can be unpredictable and, probably, undesirable.

- Do not modify the validation criteria for the **Device type** field used in configuration records. If you change this field's validation pattern to accept a length greater than 3, it causes errors when you use the SWAP command.
- Certain p-words and their prefixed characters are used by the program exits; do not change their meanings when you create your own p-words. The characters are often used in an abbreviated form for internal search operations, so using as few as the first 2 characters in a new p-word can cause unexpected results during record create and retrieval. These reserved p-word characters are:

CL	These characters designate privilege classes. Using them for any other purpose can affect the integrity of the authorization system.
DAT	Use these characters only for fields designated as Date fields.
PTID	These characters designate partition identifiers, and are used in logical database partitioning. You should refer to the <i>Tivoli Information Management for z/OS Program Administration Guide and Reference</i> for additional information on logical database partitioning.
RN	These characters designate record identifiers, and Tivoli Information Management for z/OS uses them for its own control purposes. Giving the characters a different meaning can result in incorrect processing by Tivoli Information Management for z/OS.
SP, SR, SA	These characters in p-words designate approver status in change records. (For example, SP**/ or SA01/.) Change Management uses them to determine the approval status for a record. If you use these characters in p-words for other fields in change records, it can result in erroneous status information for those records.
TIM	Use these characters only for fields designated as Time fields.
- The escalation control block (ESCB) only accepts escalation durations in the format DD:HH:MM. This allows a maximum duration of 99:23:59. If you modify panel BLG6RDUR to accept a duration greater than this, you will get unpredictable results.

Dialog Processing

Dialog processing is essential if you allow users to cancel portions of a record entry without losing the entire record. Basically, every task can be considered a dialog, with each dialog containing subdialogs. The number of subdialogs can be controlled through the panel design. However, this requires knowledge of how dialog processing works. The best method for learning the dialog process is to examine panels associated with a specific application, such as the service record panel path. Examine the panels in this path and how the **Dialog begin** and **Dialog end** fields are used to control the record file process, as well as how the **END** and **CANCEL** commands operate.

Panel-to-Panel Flow

Both PMF and the panel processors validate that panels are built correctly. However, panel-to-panel flow errors cannot always be detected. For example, if one panel uses the **Branch and link** field and the called panel does not contain the **Return to caller** field, a panel flow error occurs. Similarly, if you set the **Return to caller** field to **YES** and you also specify a target panel, your target panel is ignored.

It is important to understand the relationship between each field and other fields and how each field fits in the overall panel-to-panel flow. You can detect the majority of these errors during panel testing and, for the most part, they are easy to correct once the cause is identified.

Using PMF Commands

In addition to the Tivoli Information Management for z/OS commands, PMF provides several screen control commands to help you make external and internal panel modifications. Using screen commands you can:

- Define, view, and test screen attribute bytes for fields (**FIELD**)
- Create or update control information for fields or panels (**CONTROL**)
- Delimit, move, or blank out an area on the panel (**AT**, **MOVEA**, and **BLANKA**)
- Shift wide panels to the right or left (**SRIGHT** and **SLEFT**).

To use a screen command, type the command on the input line. Then move the cursor to the appropriate screen location and press **Enter**. You can define your PF keys to issue the PMF screen commands. Use the **ISPF KEYS** command to define these. If you are using the Enhanced Panel Style Window, a PMF keylist has already been defined for you. The *Tivoli Information Management for z/OS Program Administration Guide and Reference* contains additional information on Enhanced Panels. Then you only have to move the cursor and press a PF key.

Do not change data-entry panels using the graphical user interface (GUI) mode in ISPF Version 4.1. Attribute bytes cannot be selected by the cursor, so PMF commands, such as **AT** and **MOVEA**, do not work correctly.

Using the FIELD Command

The **FIELD** command enables you to define a screen attribute byte at the current cursor position. You also use **FIELD** to clear, show, and activate (or test) the attributes of a field.

An attribute byte controls the hardware characteristics associated with the physical screen:

- Whether a field is protected
- Whether a field is high intensity (is highlighted)
- Whether the cursor can skip to the next field.

Each of the attributes on a panel applies to all the data that follows, up to the next attribute byte.

You can use the **FIELD** command to specify individual attributes or to change them. To do either, enter the command with the operands you want on the command line, position the cursor on the appropriate area of the screen, and press **Enter**. The attribute byte is shown as a blank, but you cannot type over it. All of the attributes, except **PROTECT**, take effect immediately. You cannot issue the **FIELD** command over a DBCS component byte, an **SO** or **SI**, or an attribute byte generated by the scroll processor.

To display all of the attribute bytes associated with a panel, issue **FIELD** with the **SHOW** operand. This displays the panel with the location of all field attributes identified, as seen in the following figure. In the display, each attribute character is replaced by either a percent sign (%) or a question mark (?). See the discussion of the **SHOW** operand for more information about the appearance of attribute bytes.

Panel BLG11111 is an example of what a panel looks like after you issue the FIELD SHOW command.

```

BLG11111?                TOP TITLE                ?RECORD:%____?
?
?Add purpose of panel, how the user interacts with panel, and other usage notes.
?
?
? ?1. Field name 1.....%____?                ?9. Field name 9.....%____?
? ?2. Field name 2.....%____?                ?10. Field name 10.....%____?
? ?3. Field name 3.....%____?                ?11. Field name 11.....%____?
? ?4. Field name 4.....%____?                ?12. Field name 12.....%____?
? ?5. Field name 5.....%____?                ?13. Field name 13.....%____?
? ?6. Field name 6.....%____?                ?14. Field name 14.....%____?
? ?7. Field name 7.....%____?                ?15. Field name 15.....%____?
? ?8. Field name 8.....%____?                ?16. Field name 16.....%____?
?
?
?                                BOTTOM TITLE
?
? NOTE: THIS PANEL MAY NOW BE MODIFIED VIA CURSOR MOVEMENT AND PMF SCREEN
?      COMMANDS. CHANGE THE VISIBLE TEXT OF THE FIELDS AS REQUIRED. ISSUE
?      THE HELP COMMAND FOR ADDITIONAL INFORMATION. YOU MAY ERASE THESE
?      TEXT LINES VIA CURSOR MOVEMENT AND THE ERASE EOF KEY.
?
?
?====>

```

FIELD Command Information

In the preceding panel, row one, column one (preceding BLG11111) shows no field attribute byte because the first character on any Tivoli Information Management for z/OS display must always be an attribute byte. **FIELD SHOW** does not convert the first position on the display. Note also that for each field an attribute byte immediately precedes the number. If you type percent signs or question marks on the panel, they are treated as text and are not converted to attribute bytes.

FIELD Syntax and Operands

The syntax of the FIELD command and its operands follows:

```

FIELD [ [ Protect|Unprotect ] [ High|Low ] ]
      [ [ SKip|Noskip ] [ High|Low ] ]
      [ Clear ]
      [ Activate ]
      [ SHow ]
      [ Off ]

```

PROTECT Identifies the field as display only and protects it from changes. When you modify the panel, you can type over any character following this attribute byte up to the next attribute byte that defines an input field. The **PROTECT** operand does not take effect until the panel is displayed by Tivoli Information Management for z/OS or during **FIELD ACTIVATE**. You can only specify **PROTECT** when updating data-entry and table panels. You can test whether you have set these fields correctly by using the **FIELD ACTIVATE** command. Issue the command, and then try to type data into the field you want to test. If you can still type data in the field, the field is not protected. Selection, options, message, control, assisted-entry, and help panels are always protected when processed.

UNPROTECT

Indicates that the identified field accepts input and can be changed when the

panel is displayed during a session. The **UNPROTECT** operand is valid for data-entry and table panels only. You can test whether you have set these fields correctly by using the **FIELD ACTIVATE** command. Issue the command, then try to type data into the field you want to test. If you can type data in the field, the field is unprotected.

- HIGH** Displays the data following this attribute byte with high intensity (brightness). **HIGH** takes effect immediately so that you can see the word or phrase highlighted.
- LOW** Displays the data following this attribute byte in normal intensity. **LOW** takes effect immediately so that you can see the data at normal intensity. **LOW** is the default for display intensity.
- SKIP** Indicates that the cursor automatically advances to the next unprotected field after the user enters data. Use **SKIP** only as the ending attribute for an input field. It is the default for unprotected fields. You can test whether you have set these fields correctly by using the **FIELD ACTIVATE** command. Issue the command, and then try to advance the cursor into the field you want to test. If you can position the cursor in the field by using the **TAB** key, your change was successful.
- NOSKIP** Indicates that the cursor does not automatically advance to the next unprotected field when the user enters data. Use **NOSKIP** only as the ending attribute for an input field. You can test whether you have set these fields correctly by using the **FIELD ACTIVATE** command. Issue the command, and then try to move the cursor into the field you want to test. If you cannot position the cursor in the field by using the **TAB** key, your change was successful.
- CLEAR** Indicates that the byte at the cursor location is to be removed and replaced by a blank. **CLEAR** blanks attribute bytes and other characters as well. If an attribute byte has associated control information, **CLEAR** deletes that information, too.
- You cannot use **CLEAR** over a DBCS component byte, an SO or SI, or an attribute byte generated by the scroll processor.
- ACTIVATE** Displays a data-entry or table panel with all field attributes in effect.
- You can test both the protected and unprotected fields. Test data keyed into fields during **ACTIVATE** mode is removed after each panel interaction.
- During **FIELD ACTIVATE**, all commands are valid, and the recent **FIELD** changes take effect immediately. To redisplay the panel for update, enter **FIELD OFF**. **FIELD ACTIVATE** turns off **FIELD SHOW**.
- DBCS SO and SI characters are not treated as attribute bytes but as part of the data.
- SHOW** Displays the panel identifying the location of all field attributes. You can use **FIELD SHOW** on selection, options, data-entry, and table panels.
- In **FIELD SHOW** mode, each attribute byte is represented by either the percent sign (%) or a question mark (?). The percent sign indicates an attribute byte that has control information associated with it. The question mark indicates an attribute byte with no associated control information.

Because these characters replace the actual attributes on the screen, all visual and physical effects of the replaced attribute bytes are temporarily suspended. For example, high-intensity fields are not highlighted.

Note: When FIELD SHOW is active, you cannot change the panel externals. You must issue the FIELD OFF command before making any changes to the panel externals.

You can use the ACTIVATE and SHOW operands alternately to verify the visual and physical attributes of the panel you are updating. The AT, BLANKA, MOVEA, and CONTROL commands can be issued during FIELD SHOW. To redisplay the panel without the attributes so you can update it, enter **FIELD OFF**. **FIELD SHOW** turns off **FIELD ACTIVATE**.

Note: DBCS SO and SI characters are not treated as attribute bytes but as part of data.

OFF Ends **ACTIVATE** or **SHOW** and displays the externals panel without the attribute byte indicators (% and ?). To leave externals update processing, **END** or **CANCEL** the session.

FIELD Prompting Sequence

If you issue **FIELD** without any operands, the following selection panel is displayed. You can view or change the characteristics of a field or save changes you made.

```

+ BLM8CF40 ----- FIELD COMMAND ----- PMF--+
|
| FIELD COMMAND DIALOG IN EFFECT, SELECT OPTION
|
| OPTIONS:
|
| 1. ALTER.....Alter characteristics of attribute byte.
| 2. CLEAR.....Clear attribute byte and replace with blank.
| 3. END.....Alterations complete, save changes.
|
+----- SELECT OPTION -----+

```

===>

The choices are the same for all panel types:

- Alter** You can view or change the attributes of the field from which you issued the **FIELD** command.
- Clear** Replaces the attribute byte with a blank, deletes any associated control information, and returns to the panel from which you issued the **FIELD** command.
- End** Saves any changes you made and returns to the panel from which you issued the **FIELD** command.

When you select **Alter**, the Field Attributes panel is displayed. On it, you supply or change the field's characteristics by entering **YES** or **NO** in the operand fields.

This is the Field Attributes panel for a data-entry or table panel. For a selection, options, message, assisted-entry, help, or control panel, the Field Attributes panel shows only the **High** field.

```
BLM8CF00          FIELD ATTRIBUTES          PANEL: BLG0EN20

Enter field characteristics; cursor placement or input line entry allowed.

                1. High.....<R> NO
                2. Protect.....<R> YES
                3. Skip..... YES

                WHEN COMPLETE REPLY END (TO SAVE) OR CANCEL (NO SAVE)

====>
```

If the cursor is positioned at an existing attribute byte, when you issue the **FIELD** command, the Field Attributes panel shows the attribute characteristics already in effect for the field. You can change the characteristics by typing over the entries on the panel. If you issue the **FIELD** command for a new field, the data-entry fields on this panel are primed with default values; you can change them as appropriate. See “Checklist for Highlighting a Field” on page 241 for more details on highlighting a field.

Using the CONTROL Command

Use the **CONTROL** screen command to define control information for a panel. The **CONTROL** command has no operands.

If you have not assigned PF keys for the various screen commands in a PMF session, you must first type the command on the command line, position the cursor on the panel to indicate what the command pertains to, and then press **Enter**. With the **CONTROL** command, the cursor positioning depends on the panel type:

- For selection and options panels, you can position the cursor anywhere on the line containing the selection or option number.
- For data-entry and table panels, you can position the cursor anywhere within the area (but before the right-hand attribute byte) for which control information is to be entered or modified. (See the following discussions for more information about data-entry and table panels.)
- For help, assisted-entry, control panels, and TSPs, you need not position the cursor before you press **Enter**.
- For message panels, you cannot define control information.

Before you enter the **CONTROL** command on data-entry, table, options, or selection panels, use the **FIELD** command to set the attribute bytes delimiting the field, selection, or column. An input field must begin with the **UNPROTECT** attribute byte; a display-only field or selection must begin with the **PROTECT** attribute byte.

After you issue the **CONTROL** command, a summary panel is displayed for the field, selection, column, or panel on which you positioned the cursor. If no control information already exists, default control information is included in the summary display.

Note: The information about the field name displayed on the Control Line Summary panel and the Field Control Summary panel is left justified and can contain extraneous information on the right. This does not affect processing. The control information is not associated with the name or the number of the field or selection; typing over this data does not change the control information.

From the summary panel, select the field you want to update. You can then modify the appropriate fields. After you complete the updates, enter **end** to display the Externals panel. At this point, control information is associated with the first attribute byte to the left of the field, selection, or column: the **CONTROL** command links the control information to the attribute byte. The leftmost column of data-entry, table, options, and selection panels contains a mandatory attribute byte. If you put control information in that attribute byte, the *only* way to remove that control information is through the **Summary** selection on the Panel Update panel. You cannot delete or clear control information from the leftmost column through panel externals.

The control information required for Tivoli Information Management for z/OS panels is discussed in “Required Control Information” on page 52.

Using CONTROL on Data-Entry Panels

A data-entry panel accepts three types of control lines. Each type requires a specific pattern of attribute bytes and selection numbers. The patterns are shown here as they are presented for **FIELD SHOW**:

- Input fields:
 - ?n. Field name%____?
 - ?nn. Field name%____?
 - ? represents a protect attribute.
 - % represents an unprotect attribute with control information associated with it.
- Display-only fields:
 - Field name%____?
 - Both the ? and % are protect attributes; however, the % has control information associated with it.
- Selections:
 - %n. Key phrase
 - %nn. Key phrase
 - % is a protect attribute with control information associated with it.

Note: Blanks are not permitted between the attribute byte and the selection number. Where:

- ? Represents an attribute byte.
- % Represents an attribute byte that is linked to control information.
- n Is 1 SBCS digit (1 - 9).
- nn Is 2 SBCS digits (10 - 99).

- . Is an SBCS period. The period immediately following the number is required. Periods following the field name are optional.
- _ Is an underscore, a data-entry fill character that identifies the input or display area (optional). If all characters are the same, they are overridden by the profile data-entry fill character. If at least one character is different, they are not overridden (for example, mm/dd/yy). DBCS characters cannot be used as data-entry fill characters.

Both input and display-only fields require the ending attribute byte (?) to indicate the length of the enterable field or the displayable field.

You can create 80- or 132-character wide panels; however, 132-character wide data-entry panels can be displayed on a 132-character screen only. If you put an attribute byte (or any other data) after column 80 on your screen, the panel is automatically defined as 132 characters wide. If your users do not have a 132-character screen, when they attempt to display the panel, they receive an error message.

For more information about creating data-entry panels, see “Creating a Data-Entry Panel” on page 141.

Using CONTROL on Table Panels

When you issue the **CONTROL** command from a table panel, you must position the cursor in the column data area. This is the single row in the center of the table panel externals just below the column heading area. To define the current width of the column, use attribute bytes to begin and end either a line command area or column data fields. You can indicate the end of one column with the attribute byte that begins the next.

For example:

```
%__? %__?  
or  
%__%__?
```

PMF automatically adds an attribute byte for the last column at the end of the displayable part of the panel. If only nulls exist in columns 81-132 of the top title, column, or bottom title area, the ending attribute is placed in column 80 of the column data area. If data exists past column 80, the ending attribute byte is placed in column 132 of the column data area.

Note: Only the displayed amount is considered in the screen width. When you specify horizontal scroll for columns that begin before column 80, the total amount might exceed 132 characters.

For more information about creating table panels, see “Creating a Table Panel” on page 152.

Using the AT, BLANKA, and MOVEA Commands

The **AT** command marks and saves current and previous screen locations to delimit an area on the panel. It has no operands.

A screen location identifies a row and column within the displayable section of the panel. In most cases, current and previous screen locations define the diagonal corners of a rectangular area. However, if locations have the same row number or column number, the defined area is a line or column, respectively. To define a character, you specify **AT** twice at the same location.

An **AT** location can contain:

- An SBCS character (including **SO** and **SI**)
- The first or second byte of a DBCS character.

When **FIELDSHOW** is active and the **AT** position overlays any byte of a DBCS portion, the displayed data is adjusted to maintain validity.

AT locations are always treated as pairs; the previous **AT** is paired with the current **AT**. These two screen locations are initially set to zero when a panel (externals) is displayed for update. You must set them before you issue the **BLANKA** and **MOVEA** commands.

You can issue **AT** during update of the panel externals, during **FIELD SHOW**, and during **FIELD ACTIVATE**. You cannot issue **AT** for help panels. During **FIELD SHOW**, you can see the area defined by the two most recent **AT** commands. **@** marks the current **AT**, and **!** marks the previous **AT**. These characters temporarily replace the data at those locations.

Be sure to put the **AT** command on the preceding attribute byte, if applicable, to ensure you include any control information associated with the data you want to mark.

The **BLANKA** command clears an area of the screen that you have defined by **AT** commands, along with any associated control information. An area can be a single character, a line, a column, or a rectangular area. If an attribute byte associated with control information is set to blanks, its associated control information is also deleted. The **BLANKA** command has no operands.

You cannot delete the control information in the first column on any line of a data-entry panel by using the **BLANKA** command. You must access the Data-Entry Panel Update panel and select **Summary**. From the Control Line Summary panel, you can delete the control information for any line.

Note: If your panel contains DBCS characters, you must be sure that the part of the panel you are blanking out contains both the **SO** and **SI** instructions.

The **MOVEA** command moves an area of the screen defined by the **AT** command, along with any associated control information. An area can be a single character, a line, a column, or a rectangular area. The **MOVEA** command has no operands.

The move operation copies the contents of the area defined by the **AT** locations into a new area of the same size and shape, and then blanks out the original area. Data is moved to where the cursor is positioned. After the move is performed, **AT** locations are automatically updated to refer to the new area. All attribute bytes that are defined within the area are moved. If any of the attribute bytes are associated with control information, the control information is moved as well.

Data contained in the target area is overlaid, and all control information associated with the overlaid area is deleted. Because data contained in the target area is overlaid, it is best to save your panel before you do any moves that involve many lines. It is possible to mistakenly overlay the wrong area; if you save it first, you can go back and start again, rather than having to recreate your panel.

Notes:

1. Do not overlay control information for fields you do not want to change.
2. Do not overlay top title or bottom title lines, such as where line commands are shown.
3. Do not move the fields so that they appear off the screen. If you move a field past 80 characters, Tivoli Information Management for z/OS automatically makes a 132-character width panel, and you cannot change it back to an 80-character wide panel. If your users can see only 80 characters on the screen, they receive an error message when they attempt to bring up the 132-character wide panel.

To move control information for a selection or options panel, include column 1 of the line that contains the selection within the area of the AT specifications. Position the cursor so the new line will start in column 1 when **MOVEA** is entered.

For selection, option, and assisted-entry panels, data cannot be moved into or out of the two blank lines that frame the Use/Description line.

For table panels, the column heading and column data areas can be moved separately or together, but they must be moved to a corresponding location. For example, you cannot move a column heading to a column data area, nor can you move a column data area to a column heading.

Note: If your panel contains DBCS characters, you must be sure that the part of the panel you are moving contains both the **SO** and **SI** instructions.

AT/MOVEA Command Example

The following examples show how the AT and MOVEA commands are used together. Note that the FIELD SHOW command was issued first, so you can see the attribute byte markers.

1. Type **AT** on the command line, position the cursor before the **T** in “This”, and press **Enter**.

```
how the AT and MOVEA
commands work.

_This example demonstrates

===> at
```

2. Type **AT** on the command line, position the cursor following the last “s”, and press **Enter**.

```
how the AT and MOVEA
commands work.

@This example demonstrates_

===> at
```

3. Type **MOVEA** on the command line, position the cursor on the line above the text, and press **Enter**.

how the AT and MOVEA
commands work.

!This example demonstrates@

==> movea

4. The last line moves to the top. To clear the AT symbols, type **FIELD OFF** on the command line, and press **Enter**.

!This example demonstrates@
how the AT and MOVEA
commands work.

==> field off

Notes:

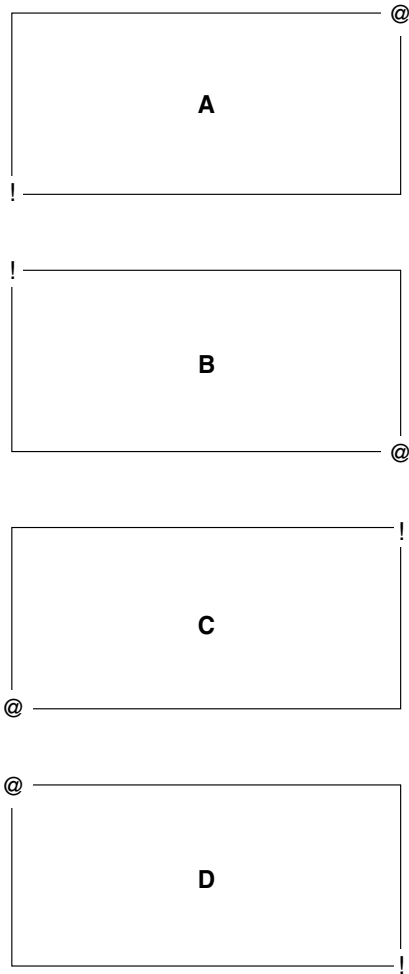
1. The cursor appears before the T in the first step to illustrate positioning if there is an attribute byte. If you do not move the attribute byte, the field has no attributes. For example, if you do not have an attribute byte and control information for a specific selection that is displayed on a panel, the user receives an error message stating that the selection does not exist when making that selection. The error message will confuse a user because the selection *appears* on the panel, but Tivoli Information Management for z/OS does not recognize it as a selection because it has no associated control information.
2. If the line being moved has control information, it, too, is moved.
3. The cursor could be placed under the last character of the line being moved as well as following the last character as shown in the second rectangle.
4. When you enter **FIELD OFF**, data that was overlaid by the AT symbols is redisplayed.

The previous example demonstrates moving a single line. The next example describes a more generalized use of AT and MOVEA.

Moving a Block of Text

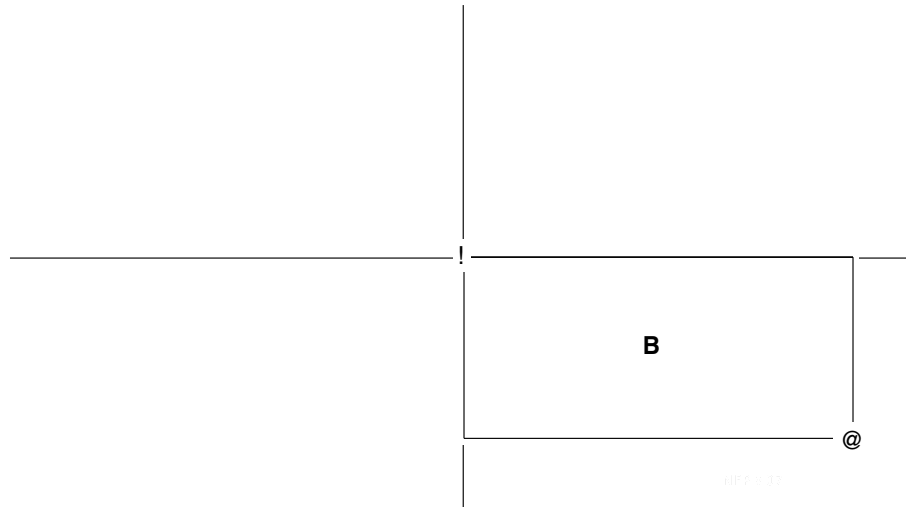
The order in which the AT command is issued to define the corners of the area to be moved determines the position of the data in the target area. In other words, the cursor position can become any one of the four corners of the target area based on the order in which you issue the AT commands. In the examples, ! represents the previous AT location; @ represents the current AT location.

For a rectangular area, ATs can be specified in four different ways.

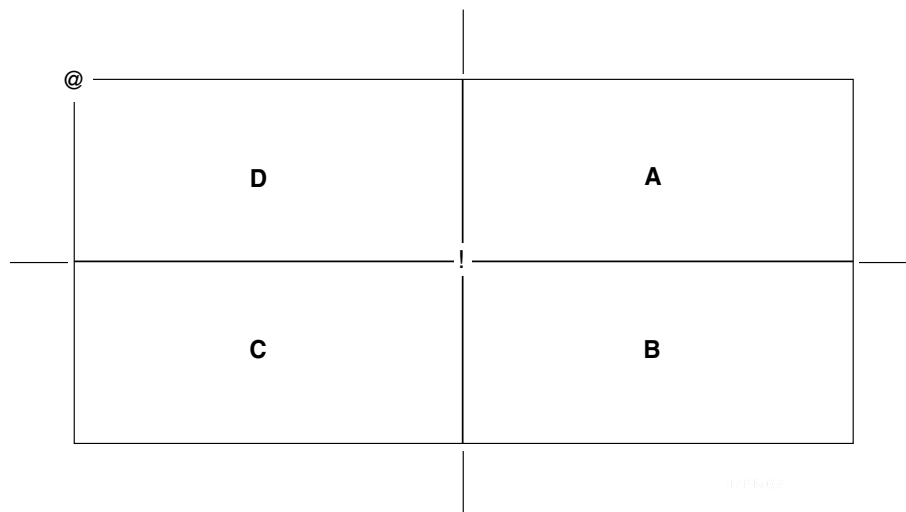


Note the different corners and the order in which the ATs are specified. For example, for area B, the upper left corner designated with ! is the first AT location; the lower right corner designated with @ is the second.

To demonstrate that the order in which the ATs are issued determines the placement of data, divide the new location into four parts. If you position the cursor at the center when you enter the MOVEA command, area B is moved to the second quadrant: the ! representing the previous AT is in the MOVEA cursor position. This is the most common use of the AT and MOVEA commands together.



To overlay areas A, C, or D in their corresponding locations, place the cursor at the center as well. Each successive move will result in the following destinations:



This four-quadrant move capability allows maximum flexibility when you want to move data into the corners or boundaries of a panel.

Note: The area bounded by the @ positions must not split any DBCS characters. This also applies to the destination area. If these requirements are not observed, error messages are issued, and the move is not performed.

To review an example that uses these PMF screen commands, see “Moving, Deleting, and Requiring Fields” on page 100.

Using the SLEFT Command

The SLEFT (SL) command shifts the logical screen left by the specified amount.

SLeft [nn | MAX]

Where:

nn Is a decimal number between 1 and 99.

MAX

Displays the leftmost 80 characters. MAX is the default.

Use SLEFT along with SRIGHT to create or modify 132-character wide data-entry or table panels on an 80-character wide screen.

Note: When scrolling left or right, DBCS characters are adjusted at the left and right screen boundaries to maintain valid mixed data.

Using the SRIGHT Command

The SRIGHT (SR) command shifts the logical screen right by the specified amount.

```
SRight [nn | MAX]
```

Where:

nn Is a decimal number between 1 and 99.

MAX

Displays the rightmost 80 characters. MAX is the default.

Use SRIGHT along with SLEFT to create or modify 132-character wide data-entry or table panels on an 80-character wide screen.

Note: When scrolling left or right, DBCS characters are adjusted at the left and right screen boundaries to maintain valid mixed data.

Using PMF Line Commands

You can use PMF line commands to review and modify panels. The specific line commands you can use on a given table panel are listed at the bottom of the panel. The **ADD** line command, however, can only be used on the Dictionary Update panel. You can use the other line command abbreviations on the control-line summary table displays for control, assisted-entry, and help panels.

Table panels that allow line commands also allow block line commands and line command repetition factors. The only exception to this is the Dictionary table panel, where the integrity of the data depends upon the established numbering scheme. In this case, repetition factors, but not block line commands, are used for the **ADD**, **REPEAT**, and **DELETE** line commands.

The PMF line commands are:

ADD (A,A#)	You can add up to 99 s-words or p-words to the last line of a dictionary display.
AFTER (A)	Indicates the target of a COPY or MOVE line command.
COPY (C,C#,CC)	Copies an entire control line or block of control lines to another location on the panel. The AFTER line command indicates where the duplicate line or lines are copied to.
DELETE (D,D#,DD)	Removes a line or block of lines and the associated control information.
INSERT (I,I#)	Provides a new line or a block of new lines for the additional information.

MOVE (M,M#,MM)	Moves an entire control line or block of control lines to another location on the panel. The AFTER line command indicates where the line or block of lines are moved to. The control line or block of control lines are removed from the old position.
PRINT (P,P#,PP)	Only valid on the panel list display. It produces a Panel Content Report against one or more panels. Processing is the same as other reports. The output control is handled by the user's standard report profile settings.
REPEAT (R,R#,RR)	Duplicates an entire control line or block of control lines. The new control line or block of control lines appear immediately following the line where the command is entered. Note: When you are updating the dictionary, this line command is valid <i>only</i> for the last entry.
UPDATE (U,U#,UU)	Lets you change a line or block of lines and the associated control information.

Refer to the *Tivoli Information Management for z/OS User's Guide* for more information about these and other line commands.

You can also define user line commands to use on search results lists. For more information, refer to the *Tivoli Information Management for z/OS Planning and Installation Guide and Reference*.

4

Performing Panel Modifications

This chapter shows the sequence to follow for any panel modification task.

Profile Considerations

Your Tivoli Information Management for z/OS profile governs the way you access the panels you want to change. When you are updating the external characteristics of a panel, your profile values must be overridden so you can see the actual characteristics of the panel and can update panels that are larger than your own terminal screen. The following profile options are in effect when you update a panel's external characteristics:

- Data-entry field fill character is ignored. The actual character in the logical screen of the panel is displayed.
- Line command field fill character is ignored. The actual character in the logical screen of a table panel is displayed.
- Maximum screen width is set according to the type of terminal your profile indicates that you are using. Although you can update a 132-character wide panel on an 80-character wide screen, you cannot see it all at once on an 80-character wide screen. Use the **SLEFT** and **SRIGHT** screen commands to see your updates beyond 80 characters.
- Maximum screen depth remains at 24 lines; Tivoli Information Management for z/OS uses two lines for the command line and message area. You can modify only the 22 lines that are actually part of the panel. Although you can create a panel for display on a 132-character wide screen, the panel cannot be deeper than 22 lines even if the output device can display more lines than that.

All other profile options remain in effect, and, after you leave the panel externals display, the profile options just discussed return to their original settings.

The output display characteristics are controlled jointly by Tivoli Information Management for z/OS and ISPF.

Initial PMF Panel Flow

PMF is a facility of the Management application. As such, you must begin from the Management application Primary Options Menu (BLG0EN20).

To start any PMF function, type **9** and press **Enter** on BLG0EN20.

```
BLG0EN20          --- PRIMARY OPTIONS MENU ---      APPLICATION: MANAGEMENT

OPTIONS:

  1. OVERVIEW.....Display general information and product enhancements.
  2. PROFILE.....Display or alter invocation or session defaults.
  3. APPLICATION...Change application, list available applications.
  4. CLASS.....Change current class, list available classes.
  5. ENTRY.....Create a record.
  6. INQUIRY.....Search for records.
  7. UTILITY.....Copy, display, print, delete, and update records.
  8. GLOSSARY.....Display a list of searchable words in the database.
  9. PMF.....Modify or create panels.

      Select an option, enter a command, or type QUIT to exit.

      Tivoli Information Management for z/OS Version 7 Release 1
      5697-SD9 (C) Copyright IBM Corp., 1981, 2001.

====> 9
```

The Panel Modification Facility options panel, BLM8C000 appears.

```
+ BLM8C000 ----- PANEL MODIFICATION FACILITY ----- PMF-+
|
|  OPTIONS:
|
|   1. PANEL UPDATE....Display, modify, or create panels.
|   2. DICTIONARY.....Display or modify Dictionary data.
|   3. PANEL COPY.....Create new panel via panel copy.
|   4. PANEL DELETE....Delete existing panel.
|   5. REPORTS.....Panels, prefix, and other listings.
|   6. PANEL SET.....Create panels to be used for inquiry,
|                       creation, update, etc. of records.
|   7. PANEL LIST.....Display panel data set information.
|
+----- SELECT OPTION -----+

====>
```

All panel modification tasks start with this Panel Modification Facility options panel.

Panel update Enables you to display, create, or modify Tivoli Information Management for z/OS panels. See “Creating Panels from Models” on page 137 for detailed information about panel update.

Dictionary Enables you to display, create, or modify s-words and p-words. See “Using the Dictionary” on page 183 for further information.

Panel copy Enables you to create a new panel by copying an existing one of the same type, or to copy panels from one data set to another. See “Copying and Deleting Panels” on page 179 for further information.

Panel delete Enables you to delete an existing panel. See “Copying and Deleting Panels” on page 179 for further information.

Reports	Enables you to print panels and lists of s-words, p-words, and cross-references. See “Running PMF Reports” on page 227 for further information.
Panel set	Enables you to create a set of panels for a new record type. See “Creating a Panel Set” on page 209 for further information.
Panel list	Enables you to display a list of the panel data set names and data set definition labels that the current PMF session-parameters member is referencing.

After you make a selection from this panel, you enter the PMF dialog that corresponds to the process you selected. The chapters referred to here explain most of the panels in each dialog.

Panel Modification Examples

To introduce you to working with PMF, here are two panel modification examples. The first example shows you how to change the name of a field on a Problem Management panel. The second example goes into more detail and steps you through a more complicated panel modification.

Changing a Field Name

As stated previously in “Initial PMF Panel Flow” on page 95, you must select **PMF** from the BLG0EN20 Primary Options Menu. From the PMF options panel, select **Panel Update**. The Panel Name Entry panel appears.

The name of the problem summary panel you are going to modify is BLG0BU00.

In the **Panel name** field, type **BLG0BU00** and press **Enter** twice.

BLM8CU00PANEL NAME ENTRYUPDATE

Identify panel to be updated; cursor placement or input line entry allowed.

1. Panel name.....<R> BLG0BU00
2. Data set definition label..... _____

To enter the panel update dialog, press Enter without field modifications.

====>

On the Data-Entry Panel Update panel (BLM8CU70), select **Externals** because you want to modify the text. Type **1** and press **Enter**.

Panel Modification Examples

```
+ BLM8CU70 ----- DATA ENTRY PANEL UPDATE ----- PMF-+
|
|  OPTIONS:
|
|      1. EXTERNALS...Modify visible text or control data.
|      2. COMMON.....Modify help and service information.
|      3. NULL REPLY..Modify null reply control information.
|      4. SUMMARY.....Display summary of control information.
|      5. TEST.....Display or process panel in test mode.
|      6. FILE.....Panel update is complete, store panel.
|
+----- SELECT OPTION -----+

===> 1
```

The panel you are updating, BLG0BU00, appears. It looks like this:

```
BLG0BU00          PROBLEM SUMMARY          PROBLEM: _____
Reported by..... _____ Problem status..... _____
Assignee name..... _____ Current phase..... _____
Tracked by..... _____ Current priority..... _____
Network name..... _____ Owning priv. class..... _____
System name..... _____ Entry priv. class..... _____
Program name..... _____ Date entered..... _____
Device name..... _____ Time entered..... _____
Key item affected..... _____ Date last altered..... _____

Description..... _____

Select one of the following, type END to save your changes, or type CANCEL
to discard your changes.
    1. Reporter data.          6. Supplemental data.
    2. Status data.           7. Synopsis data.
    3. Close data.            8. Freeform text.
    4. Symptom data.          9. File record.
    5. Resolution data.       10. Create solution and file record.

===>
```

Type **Who found the problem** over **Reported by**. Your changes are made exactly as you type them; if you use all lowercase letters, the new field name on the panel will be all in lowercase. (Be sure to make your changes consistent with the rest of the panel.)

To save your changes and return to the Data-Entry Update panel, type **end** on the command line, and press **Enter**.


```

BLG0BU00          PROBLEM SUMMARY          PROBLEM: _____

Who found the problem.. _____ Problem status..... _____
Assignee name..... _____ Current phase..... _____
Tracked by..... _____ Current priority..... _____
Network name..... _____ Owning priv. class..... _____
System name..... _____ Entry priv. class..... _____
Program name..... _____ Date entered..... _____
Device name..... _____ Time entered..... _____
Key item affected..... _____ Date last altered..... _____

Description..... _____

Select one of the following, type END to save your changes, or type CANCEL
to discard your changes.
    1. Reporter data.          6. Supplemental data.
    2. Status data.           7. Synopsis data.
    3. Close data.            8. Freeform text.
    4. Symptom data.          9. File record.
    5. Resolution data.       10. Create solution and file record.

====> end
    
```

To save your changes, type **6** and press **Enter**.

```

+ BLM8CU70 ----- DATA ENTRY PANEL UPDATE ----- PMF--+
|
|  OPTIONS:
|
|    1. EXTERNALS...Modify visible text or control data.
|    2. COMMON.....Modify help and service information.
|    3. NULL REPLY..Modify null reply control information.
|    4. SUMMARY....Display summary of control information.
|    5. TEST.....Display or process panel in test mode.
|    6. FILE.....Panel update is complete, store panel.
|
+----- SELECT OPTION -----+

====> 6
    
```

The Panel Name Entry panel appears with a message indicating that the panel you changed was written to the write panel data set.

```
BLM8CU00                PANEL NAME ENTRY                UPDATE
Identify panel to be updated; cursor placement or input line entry allowed.

1. Panel name.....<R> BLG0BU00
2. Data set definition label..... _____

To enter the panel update dialog, press Enter without field modifications.

BLM04015I Panel BLG0BU00 was written to the WRITE panel data set.
===>
```

You have now made a panel modification. Remember to change other panels with fields labeled **Reported by** to **Who found the problem** to keep the Problem Management panels consistent.

Press **Enter** twice to return to the Data-Entry Panel Update panel so that you can test your modified panel. Be sure to test your panel modifications before you make them available to others. See “Testing Your Panel Modifications” on page 133 for an example of testing a modified panel. After you test your panel modification, remember to copy your changed panel from the write panel data set to a read panel data set. Otherwise, no one can use your changed panel. See “Copying and Deleting Panels” on page 179 for instructions on copying panels.

Moving, Deleting, and Requiring Fields

Now that you have performed a simple panel modification, it is time to try a more involved modification. In this example, you will move a field on a panel, delete several fields on the same panel, and make an optional field a required field. As stated previously in “Initial PMF Panel Flow” on page 95, you must select **PMF** from the BLG0EN20 Primary Options Menu. From the PMF options panel, select **Panel Update**. The Panel Name Entry panel appears.

The name of the panel you are going to modify in this example is BLG0B100, the Problem Reporter Entry panel.

In the Panel name field, type **BLG0B100** and press **Enter** twice.

```

BLM8CU00          PANEL NAME ENTRY          UPDATE
Identify panel to be updated; cursor placement or input line entry allowed.

          1. Panel name.....<R> BLG0B100
          2. Data set definition label..... _____

To enter the panel update dialog, press Enter without field modifications.

====>
    
```

The Data-Entry Panel Update panel (BLM8CU70) appears.

Because you want to modify the text, select **Externals** on this panel.

Type **1** and press **Enter**.

```

+ BLM8CU70 ----- DATA ENTRY PANEL UPDATE ----- PMF--+
|
|  OPTIONS:
|
|    1. EXTERNALS...Modify visible text or control data.
|    2. COMMON.....Modify help and service information.
|    3. NULL REPLY..Modify null reply control information.
|    4. SUMMARY.....Display summary of control information.
|    5. TEST.....Display or process panel in test mode.
|    6. FILE.....Panel update is complete, store panel.
|
+----- SELECT OPTION -----+

====> 1
    
```

The panel BLG0B100 that you are updating appears.

In this exercise, you will make the following changes:

- Delete **23**, **24**, and **26**.
- Move **18** to where **22** is now.
- Move **19** through **22** up to be **18** through **21**.
- Renumber **25** to **23**.
- Make **2** a required field.

Panel Modification Examples

```
BLG0B100          PROBLEM REPORTER ENTRY          PROBLEM: _____

Enter problem reporter data; cursor placement or input line entry allowed.

 1. Reported by.....<R> _____          13. Problem type..... _____
 2. Reporter dept..... _____          14. Problem status....<R> _____
 3. Reporter phone..... _____          15. User problem number.. _____
 4. Date occurred..... _____          16. Initial priority..... _
 5. Time occurred..... _____          17. Outage..... _____
 6. Network name..... _____          18. Rerun time..... _____
 7. System name..... _____          19. Network impact..... _____
 8. Program name..... _____          20. System impact..... _____
 9. Device name..... _____          21. Program impact..... _____
10. Key item affected... _____          22. Device impact..... _____
11. Date fix required... _____          23. User form number..... _____
12. Time fix required... _____          24. Location code..... _____
                                          26. Outage type..... _

25. Description.....<R> _____

      When you finish, type END to save or CANCEL to discard any changes.

===>
```

First, mark the fields to delete from the panel. To be sure you include any control information for the fields you are deleting, use the **FIELD SHOW** command. (For further help using the **FIELD SHOW** command, see “Using the **FIELD** Command” on page 80.)

On the command line, type **field show** and press **Enter**.

```
BLG0B100          PROBLEM REPORTER ENTRY          PROBLEM: _____

Enter problem reporter data; cursor placement or input line entry allowed.

 1. Reported by.....<R> _____          13. Problem type..... _____
 2. Reporter dept..... _____          14. Problem status....<R> _____
 3. Reporter phone..... _____          15. User problem number.. _____
 4. Date occurred..... _____          16. Initial priority..... _
 5. Time occurred..... _____          17. Outage..... _____
 6. Network name..... _____          18. Rerun time..... _____
 7. System name..... _____          19. Network impact..... _____
 8. Program name..... _____          20. System impact..... _____
 9. Device name..... _____          21. Program impact..... _____
10. Key item affected... _____          22. Device impact..... _____
11. Date fix required... _____          23. User form number..... _____
12. Time fix required... _____          24. Location code..... _____
                                          26. Outage type..... _

25. Description.....<R> _____

      When you finish, type END to save or CANCEL to discard any changes.

===> field show
```

Now you can use the **AT** command to mark the area you want to delete. Type **at** on the command line; do *not* press **Enter** yet, however.

Move the cursor to the question mark (?) on the *left* side of 23. Now press **Enter**.

(For further help using the **AT** command, see “Using the **AT**, **BLANKA**, and **MOVEA** Commands” on page 86.)

```

BLGOB100                PROBLEM REPORTER ENTRY                ?PROBLEM:% _____?
?
?Enter problem reporter data; cursor placement or input line entry allowed.
?
??1. Reported by.....<R>% _____? ??13. Problem type.....% _____?
??2. Reporter dept.....% _____?   ??14. Problem status....<R>% _____?
??3. Reporter phone.....% _____?   ??15. User problem number..% _____?
??4. Date occurred.....% _____?    ??16. Initial priority....% _____?
??5. Time occurred.....% _____?    ??17. Outage.....% _____?
??6. Network name.....% _____?     ??18. Rerun time.....% _____?
??7. System name.....% _____?      ??19. Network impact.....% _____?
??8. Program name.....% _____?     ??20. System impact.....% _____?
??9. Device name.....% _____?      ??21. Program impact.....% _____?
??10. Key item affected...% _____?  ??22. Device impact.....% _____?
??11. Date fix required...% _____?  ??23. User form number....% _____?
??12. Time fix required...% _____?  ??24. Location code.....% _____?
?                                       ??26. Outage type.....% _____?
?
?25. Description.....<R>% _____?
?
?      ?When you finish, type END to save or CANCEL to discard any changes.
?
====> at

```

Remember, you can define your PF keys to issue the PMF screen commands. Then you only have to move the cursor and press a PF key. Use the **ISPF KEYS** command to define these.

Notice that the character on which your cursor was placed is now an @, rather than a ?.

Once again, type **at** on the command line; do not press **Enter** yet.

Move the cursor directly *under* the ? on the *right* side of line 24. (The cursor must be this far over so it encompasses all of the fields you are deleting.)

Press **Enter**.

```

BLGOB100                PROBLEM REPORTER ENTRY                ?PROBLEM:% _____?
?
?Enter problem reporter data; cursor placement or input line entry allowed.
?
??1. Reported by.....<R>% _____? ??13. Problem type.....% _____?
??2. Reporter dept.....% _____?   ??14. Problem status....<R>% _____?
??3. Reporter phone.....% _____?   ??15. User problem number..% _____?
??4. Date occurred.....% _____?    ??16. Initial priority....% _____?
??5. Time occurred.....% _____?    ??17. Outage.....% _____?
??6. Network name.....% _____?     ??18. Rerun time.....% _____?
??7. System name.....% _____?      ??19. Network impact.....% _____?
??8. Program name.....% _____?     ??20. System impact.....% _____?
??9. Device name.....% _____?      ??21. Program impact.....% _____?
??10. Key item affected...% _____?  ??22. Device impact.....% _____?
??11. Date fix required...% _____?  @23. User form number....% _____?
??12. Time fix required...% _____?  ??24. Location code.....% _____?
?                                       ??26. Outage type.....% _____?
?
?25. Description.....<R>% _____?
?
?      ?When you finish, type END to save or CANCEL to discard any changes.
?
====> at

```

Notice that the character on which your cursor was placed is now an @, rather than a ?. Also, the previous @ is now an exclamation point (!). The fields are now marked.

Panel Modification Examples

To delete the marked fields, on the command line, type **blanka** and press **Enter**. For further help using the BLANKA command, see “Using the AT, BLANKA, and MOVEA Commands” on page 86.

```
BLG0B100          PROBLEM REPORTER ENTRY          ?PROBLEM:% _____?
?
?Enter problem reporter data; cursor placement or input line entry allowed.
?
??1. Reported by.....<R>% _____? ??13. Problem type.....% _____?
??2. Reporter dept.....% _____? ??14. Problem status....<R>% _____?
??3. Reporter phone.....% _____? ??15. User problem number..% _____?
??4. Date occurred.....% _____? ??16. Initial priority.....% _____?
??5. Time occurred.....% _____? ??17. Outage.....% _____?
??6. Network name.....% _____? ??18. Rerun time.....% _____?
??7. System name.....% _____? ??19. Network impact.....% _____?
??8. Program name.....% _____? ??20. System impact.....% _____?
??9. Device name.....% _____? ??21. Program impact.....% _____?
?10. Key item affected...% _____? ??22. Device impact.....% _____?
?11. Date fix required...% _____? ??23. User form number....% _____?
?12. Time fix required...% _____? ??24. Location code.....% _____?
?                                     ??26. Outage type.....% _____? @
?
?
?25. Description.....<R>% _____?
?
?      ?When you finish, type END to save or CANCEL to discard any changes.
?
?
===> blanka
```

Fields 23, 24, and 26 are gone, along with all their control information.

Next, move field **18** following field **22**. Again, use the **AT** command to mark the area you want to move.

Type **at** on the command line, but do not press **Enter** yet.

For further help using the BLANKA command, see “Using the AT, BLANKA, and MOVEA Commands” on page 86.

```
BLG0B100          PROBLEM REPORTER ENTRY          ?PROBLEM:% _____?
?
?Enter problem reporter data; cursor placement or input line entry allowed.
?
??1. Reported by.....<R>% _____? ??13. Problem type.....% _____?
??2. Reporter dept.....% _____? ??14. Problem status....<R>% _____?
??3. Reporter phone.....% _____? ??15. User problem number..% _____?
??4. Date occurred.....% _____? ??16. Initial priority.....% _____?
??5. Time occurred.....% _____? ??17. Outage.....% _____?
??6. Network name.....% _____? ??18. Rerun time.....% _____?
??7. System name.....% _____? ??19. Network impact.....% _____?
??8. Program name.....% _____? ??20. System impact.....% _____?
??9. Device name.....% _____? ??21. Program impact.....% _____?
?10. Key item affected...% _____? ??22. Device impact.....% _____?
?11. Date fix required...% _____? !
?12. Time fix required...% _____?
?                                     @
?
?
?25. Description.....<R>% _____?
?
?      ?When you finish, type END to save or CANCEL to discard any changes.
?
?
+ BLM04054W The control information for the specified line is deleted.
===> at
```

Move the cursor to the **R** on field 18. Because you still want to use the number 18 in your modified panel and because the control information is associated with the underscores, not the field number, you do not have to move the number, only the field title and control information.

Now press **Enter**. Notice that the R is now an @.

Type **at** on the command line, but do not press **Enter** yet.

Move the cursor to the right end of field 18, and press **Enter**.

```

BLG0B100                PROBLEM REPORTER ENTRY                ?PROBLEM:% _____?
?
?Enter problem reporter data; cursor placement or input line entry allowed.
?
??1. Reported by.....<R>%_____??13. Problem type.....%_____?
??2. Reporter dept.....%_____?  ??14. Problem status....<R>%_____?
??3. Reporter phone.....%_____?  ??15. User problem number.%_____?
??4. Date occurred.....%_____?  ??16. Initial priority.....%_?
??5. Time occurred.....%_____?  ??17. Outage.....%_____?
??6. Network name.....%_____?    ??18. @run time.....%_____?
??7. System name.....%_____?     ??19. Network impact.....%_____?
??8. Program name.....%_____?    ??20. System impact.....%_____?
??9. Device name.....%_____?     ??21. Program impact.....%_____?
?10. Key item affected...%_____?  ??22. Device impact.....%_____?
?11. Date fix required...%_____?
?12. Time fix required...%_____?
?
?
?25. Description.....<R>%_____?
?
?    ?When you finish, type END to save or CANCEL to discard any changes.
?
====> at

```

Notice that the @ is now an !, and the @ is on the right end of field 18.

To move the marked field, on the command line, type **movea**; do not press **Enter** yet.

Position the cursor directly under the **D** in field 22. Now press **Enter**.

(For further help using the MOVEA command, see “Using the AT, BLANKA, and MOVEA Commands” on page 86.)

Panel Modification Examples

```
BLG0B100          PROBLEM REPORTER ENTRY          ?PROBLEM:%_____?
?
?Enter problem reporter data; cursor placement or input line entry allowed.
?
??1. Reported by.....<R>%_____? ??13. Problem type.....%_____?
??2. Reporter dept.....%_____? ??14. Problem status....<R>%_____?
??3. Reporter phone.....%_____? ??15. User problem number..%_____?
??4. Date occurred.....%_____? ??16. Initial priority.....%_____?
??5. Time occurred.....%_____? ??17. Outage.....%_____?
??6. Network name.....%_____? ??18. !erun time.....%_____?@
??7. System name.....%_____? ??19. Network impact.....%_____?
??8. Program name.....%_____? ??20. System impact.....%_____?
??9. Device name.....%_____? ??21. Program impact.....%_____?
?10. Key item affected...%_____? ??22. Device impact.....%_____?
?11. Date fix required...%_____?
?12. Time fix required...%_____?
?
?
?25. Description.....<R>%_____?
?
?    ?When you finish, type END to save or CANCEL to discard any changes.
?
?
===> movea
```

The **Rerun time** field was moved.

Now you need to move fields 19 through 22 and the **Rerun time** field up to become fields 18 through 22. Use the same technique that you used to move the **Rerun time** field.

First, type **at** on the command line; do not press **Enter**.

Move the cursor to the **N** on field 19. Because the numbers are not changing, do not mark them.

Now press **Enter**.

```
BLG0B100          PROBLEM REPORTER ENTRY          ?PROBLEM:%_____?
?
?Enter problem reporter data; cursor placement or input line entry allowed.
?
??1. Reported by.....<R>%_____? ??13. Problem type.....%_____?
??2. Reporter dept.....%_____? ??14. Problem status....<R>%_____?
??3. Reporter phone.....%_____? ??15. User problem number..%_____?
??4. Date occurred.....%_____? ??16. Initial priority.....%_____?
??5. Time occurred.....%_____? ??17. Outage.....%_____?
??6. Network name.....%_____? ??18.
??7. System name.....%_____? ??19. Network impact.....%_____?
??8. Program name.....%_____? ??20. System impact.....%_____?
??9. Device name.....%_____? ??21. Program impact.....%_____?
?10. Key item affected...%_____? ??22. Device impact.....%_____?
?11. Date fix required...%_____? !erun time.....%_____?@
?12. Time fix required...%_____?
?
?
?25. Description.....<R>%_____?
?
?    ?When you finish, type END to save or CANCEL to discard any changes.
?
?
===> at
```

Notice that the **N** is now an **@**.

Type **at** on the command line, but do not press **Enter** yet.

Move the cursor to the right end of the **Rerun time** field, and press **Enter**.


```

BLG0B100          PROBLEM REPORTER ENTRY          ?PROBLEM:% _____?
?
?Enter problem reporter data; cursor placement or input line entry allowed.
?
??1. Reported by.....<R>% _____? ??13. Problem type.....% _____?
??2. Reporter dept.....% _____?   ??14. Problem status....<R>% _____?
??3. Reporter phone.....% _____?   ??15. User problem number.% _____?
??4. Date occurred.....% _____?   ??16. Initial priority....% _____?
??5. Time occurred.....% _____?   ??17. Outage.....% _____?
??6. Network name.....% _____?   ??18. _____?
??7. System name.....% _____?   ??19. @etwork impact.....% _____?
??8. Program name.....% _____?   ??20. System impact.....% _____?
??9. Device name.....% _____?   ??21. Program impact.....% _____?
?10. Key item affected...% _____? ??22. Device impact.....% _____?
?11. Date fix required...% _____?   Rerun time.....% _____?!
?12. Time fix required...% _____?
?
?
?25. Description.....<R>% _____?
?
?      ?When you finish, type END to save or CANCEL to discard any changes.
?
====> at

```

Notice that what was the @ is now an ! and the @ is on the right end of the **Rerun time** field.

To move the marked field, on the command line, type **movea**; do not press **Enter** yet.

Position the cursor directly under the **O** in field 17. Now press **Enter**.

```

BLG0B100          PROBLEM REPORTER ENTRY          ?PROBLEM:% _____?
?
?Enter problem reporter data; cursor placement or input line entry allowed.
?
??1. Reported by.....<R>% _____? ??13. Problem type.....% _____?
??2. Reporter dept.....% _____?   ??14. Problem status....<R>% _____?
??3. Reporter phone.....% _____?   ??15. User problem number.% _____?
??4. Date occurred.....% _____?   ??16. Initial priority....% _____?
??5. Time occurred.....% _____?   ??17. Outage.....% _____?
??6. Network name.....% _____?   ??18. _____?
??7. System name.....% _____?   ??19. !etwork impact.....% _____?
??8. Program name.....% _____?   ??20. System impact.....% _____?
??9. Device name.....% _____?   ??21. Program impact.....% _____?
?10. Key item affected...% _____? ??22. Device impact.....% _____?
?11. Date fix required...% _____?   Rerun time.....% _____?@
?12. Time fix required...% _____?
?
?
?25. Description.....<R>% _____?
?
?      ?When you finish, type END to save or CANCEL to discard any changes.
?
====> movea

```

The five fields you marked are now in the right place.

But now the numbers jump from 22 (**Rerun time** field) to 25 (**Description**), so the **Description** field should be renumbered.

On the command line, type **field off**, and press **Enter**.

Panel Modification Examples

```

BLG0B100          PROBLEM REPORTER ENTRY          ?PROBLEM:% _____?
?
?Enter problem reporter data; cursor placement or input line entry allowed.
?
??1. Reported by.....<R>% _____? ??13. Problem type.....% _____?
??2. Reporter dept.....% _____? ?14. Problem status....<R>% _____?
??3. Reporter phone.....% _____? ?15. User problem number..% _____?
??4. Date occurred.....% _____? ?16. Initial priority.....% _____?
??5. Time occurred.....% _____? ?17. Outage.....% _____?
??6. Network name.....% _____? ?18. Network impact.....% _____?
??7. System name.....% _____? ?19. System impact.....% _____?
??8. Program name.....% _____? ?20. Program impact.....% _____?
??9. Device name.....% _____? ?21. Device impact.....% _____?
?10. Key item affected...% _____? ?22. Rerun time.....% _____?@
?11. Date fix required...% _____?
?12. Time fix required...% _____?
?
?
?25. Description.....<R>% _____?
?
?    ?When you finish, type END to save or CANCEL to discard any changes.
?
===> field off

```

Type over the **Description** field number, changing it from 25 to **23**.

```

BLG0B100          PROBLEM REPORTER ENTRY          PROBLEM: _____
Enter problem reporter data; cursor placement or input line entry allowed.

 1. Reported by.....<R> _____ 13. Problem type..... _____
 2. Reporter dept..... _____ 14. Problem status....<R> _____
 3. Reporter phone..... _____ 15. User problem number.. _____
 4. Date occurred..... _____ 16. Initial priority..... _____
 5. Time occurred..... _____ 17. Outage..... _____
 6. Network name..... _____ 18. Network impact..... _____
 7. System name..... _____ 19. System impact..... _____
 8. Program name..... _____ 20. Program impact..... _____
 9. Device name..... _____ 21. Device impact..... _____
10. Key item affected... _____ 22. Rerun time..... _____
11. Date fix required... _____
12. Time fix required... _____

23. Description.....<R> _____

    When you finish, type END to save or CANCEL to discard any changes.

===>

```

The next step in this exercise is to change an optional field into a required field. Using the **CONTROL** command, make **Reporter dept.** a required field.

Type **control** on the command line; do *not* press **Enter**. Move the cursor to the underscore area of the **Reporter dept.** field; now press **Enter**.

```

BLG0B100                PROBLEM REPORTER ENTRY                PROBLEM: _____
Enter problem reporter data; cursor placement or input line entry allowed.

1. Reported by.....<R> _____      13. Problem type..... _____
2. Reporter dept..... _____        14. Problem status....<R> _____
3. Reporter phone..... _____       15. User problem number.. _____
4. Date occurred..... _____        16. Initial priority..... _____
5. Time occurred..... _____        17. Outage..... _____
6. Network name..... _____        18. Network impact..... _____
7. System name..... _____          19. System impact..... _____
8. Program name..... _____         20. Program impact..... _____
9. Device name..... _____          21. Device impact..... _____
10. Key item affected... _____     22. Rerun time..... _____
11. Date fix required... _____
12. Time fix required... _____

23. Description.....<R> _____

      When you finish, type END to save or CANCEL to discard any changes.

====> control

```

The Field Control Summary panel for the **Reporter dept.** field appears.

The summary shows the field as not being required. To change this, you must update the panel flow processing. On the command line, type **1** and press **Enter**.

```

BLM8CU73                FIELD CONTROL SUMMARY                PANEL: BLG0B100

FIELD: 2. Reporter dept..... __

Dialog begin..... NO                Structured word index..... 0B2B
Dialog end..... NO                  Structured word..... XISDEFAULT
Target panel..... BLG1M120          Prefix word index..... _____
Branch and link..... YES            Prefix word..... _____
Required field..... NO              Field type..... ENTRY
Authorization code.... 0000         Program exit symbol..... _____

Select one of the following, type END to save your changes, or type CANCEL
to discard your changes.

      1. Panel flow processing.
      2. Data collection processing.

====> 1

```

To make the field required, change the **Response required** field to **YES** by typing over **NO**.

To save this panel, type **end** on the command line, and press **Enter**.

Panel Modification Examples

```
BLM8CU7A                PANEL FLOW PROCESSING                PANEL: BLG0B100
Enter panel flow control data; cursor placement or input line entry allowed.

FIELD: 2. Reporter dept..... _
1. Authorization code..... 0000
2. Response required..... YES
3. Target panel..... BLG1M120
4. Branch and link..... YES
5. Field type.....<R> ENTRY
6. Dialog begin..... NO
7. Dialog end..... NO
8. Override dialog target... NO
9. Target is data-entry.... NO
10. Force SRC generate end... NO
11. Program exit symbol.....

When you finish, type END to save or CANCEL to discard any changes.

===> end
```

The Field Control Summary panel appears, again. Note that **Reporter dept.** is now a required field.

On the command line, type **end** and press **Enter**.

```
BLM8CU73                FIELD CONTROL SUMMARY                PANEL: BLG0B100
FIELD: 2. Reporter dept..... _

Dialog begin..... NO          Structured word index..... 0B2B
Dialog end..... NO           Structured word..... XISDEFAULT
Target panel..... BLG1M120   Prefix word index.....
Branch and link..... YES     Prefix word.....
Required field..... YES      Field type..... ENTRY
Authorization code.... 0000  Program exit symbol.....

Select one of the following, type END to save your changes, or type CANCEL
to discard your changes.

1. Panel flow processing.
2. Data collection processing.

===> end
```

Next, change the panel to let the user know the field is required.

To do this, type **<R>** over the last three dots in the field, as shown. (Adding this **<R>** to the field lets users know the field is required. It does not *make* the field required. You changed the **Response required** field to make it required.)

Type **end** on the command line and press **Enter**.

```

BLG0B100          PROBLEM REPORTER ENTRY          PROBLEM: _____

Enter problem reporter data; cursor placement or input line entry allowed.

1. Reported by.....<R> _____          13. Problem type..... _____
2. Reporter dept....<R> _____          14. Problem status....<R> _____
3. Reporter phone..... _____          15. User problem number.. _____
4. Date occurred..... _____          16. Initial priority..... _____
5. Time occurred..... _____          17. Outage..... _____
6. Network name..... _____          18. Network impact..... _____
7. System name..... _____          19. System impact..... _____
8. Program name..... _____          20. Program impact..... _____
9. Device name..... _____          21. Device impact..... _____
10. Key item affected... _____        22. Rerun time..... _____
11. Date fix required... _____
12. Time fix required... _____

23. Description.....<R> _____

      When you finish, type END to save or CANCEL to discard any changes.

====> end

```

To save the changes you made to the BLG0B100 panel, you must file it in your write panel data set. On the command line, type **6** and press **Enter**.

```

+ BLM8CU70 ----- DATA ENTRY PANEL UPDATE ----- PMF--+
|
|  OPTIONS:
|
|    1. EXTERNALS...Modify visible text or control data.
|    2. COMMON.....Modify help and service information.
|    3. NULL REPLY..Modify null reply control information.
|    4. SUMMARY....Display summary of control information.
|    5. TEST.....Display or process panel in test mode.
|    6. FILE.....Panel update is complete, store panel.
|
+----- SELECT OPTION -----+

====> 6

```

The Panel Name Entry panel appears with a message indicating that the panel you changed was written to the write panel data set.

```
BLM8CU00          PANEL NAME ENTRY          UPDATE
Identify panel to be updated; cursor placement or input line entry allowed.

1. Panel name.....<R> BLG0B100
2. Data set definition label..... _____

To enter the panel update dialog, press Enter without field modifications.

BLM04015I Panel BLG0B100 was written to the WRITE panel data set.
===>
```

Voila! You just completed another panel modification.

Press **Enter** twice to return to the Data-Entry Panel Update panel. Be sure to test your panel modifications before making them available to others. See “Testing Your Panel Modifications” on page 133 for an example of testing a modified panel. After you test your panel modification, you must also copy your changed panel from the write panel data set to a read panel data set. Otherwise, no one can use your changed panel. See “Copying and Deleting Panels” on page 179 for instructions on copying panels.

Creating Selectable Lists

You can create lists of valid values for data-entry fields from which your user can choose. You can define these lists to be always the same choices, or you can define them as dynamic lists. In this next example, you will do both.

Unlike the examples you have seen so far, this task requires you not only to use PMF to modify panels, but also to create new records, called *validation records*.

In this example, you have three networks in your company. They are located in Cary, Los Angeles, and Orlando. Each of these networks have systems associated with them:

- Cary has 13
- Los Angeles has 10
- Orlando has 7.

Your help desk operators want a static list of networks to choose from when they receive a call for help. Then they want to choose the system from another list, but that list should only include those systems associated with the network they already selected.

Here’s how you can give them what they want.

Begin by creating a validation record for each of the networks.

From the Primary Options Menu (BLG0EN20), type **5,5,3** and press **Enter**.

```

BLG0EN20          --- PRIMARY OPTIONS MENU ---      APPLICATION: MANAGEMENT

OPTIONS:

  1. OVERVIEW.....Display general information and product enhancements.
  2. PROFILE.....Display or alter invocation or session defaults.
  3. APPLICATION...Change application, list available applications.
  4. CLASS.....Change current class, list available classes.
  5. ENTRY.....Create a record.
  6. INQUIRY.....Search for records.
  7. UTILITY.....Copy, display, print, delete, and update records.
  8. GLOSSARY.....Display a list of searchable words in the database.
  9. PMF.....Modify or create panels.

      Select an option, enter a command, or type QUIT to exit.

      Tivoli Information Management for z/OS Version 7 Release 1
      5697-SD9 (C) Copyright IBM Corp., 1981, 2001.

====> 5,5,3

```

This is the Validation Record Entry panel.

To create the validation record for the Cary systems, fill in the fields using the following IRC and press **Enter**:

```
1,cary,6,cary system list,,2
```

```

BLG0V500          VALIDATION RECORD ENTRY          RECORD: _____

Enter validation record data; cursor placement or input line entry allowed.

  1. Validation record name...<R> _____
  2. Contact name..... _____
  3. Contact phone..... _____
  4. Contact department..... _____
  5. Location code..... _____
  6. Description.....<R> _____

      When you finish, type END to save or CANCEL to discard any changes.

====> 1,cary,6,cary system list,,2

```

Now enter the system names and descriptions as shown on this panel. The valid entry and description fields allow longer entries than the displayed width of the columns. To enter longer valid entries, use the **L4** line command to display the assisted-entry panel for the valid entry column. To enter longer descriptions, use the **L5** line command.

Your users will see both the valid entry and the description data when prompted to choose a valid reply.

Panel Modification Examples

```

BLGLVLST                VALIDATION DATA ENTRY                LINE 1 OF 13

USE...Enter a list of validation data.
FORM...Valid response, maximum of 30 characters for validation entry.
                                                                RECORD: CARY

  Prefix Prefix Validation  Validation  Entry      Group Auth
  Index  Word  Pattern    Entry      Description Prefix Code
'' _____
'' _____ RALVM05 _____ ALL PRINTERS - ____
'' _____ CARYVM61 _____ BLDG 06, FLR 01 - ____
'' _____ CARYVM62 _____ BLDG 06, FLR 02 - ____
'' _____ CARYVM63 _____ BLDG 06, FLR 03 - ____
'' _____ RALVM01 _____ ALL USERS - ____
'' _____ RTP99 _____ BLDG 001 VENDORS - ____
'' _____ CARYVM99 _____ BLDG 006 VENDORS - ____
'' _____ CARYVM05 _____ CARY PRINTERS - ____
'' _____ RTP000 _____ TEST SYSTEM - ____
'' _____ CARY000 _____ CARY TEST - ____

Line Cnds: A=After B=Before C=Copy D=Delete E=Erase I=Insert
           L=Line Entry M=Move R=Repeat
Type DOWN, UP, LEFT, or RIGHT to scroll the panel, or type END to exit.

====>

```

Scroll forward and add some additional entries on the continuation of this panel. To return to BLG0VU50, type **end** and press **Enter**.

```

BLGLVLST                VALIDATION DATA ENTRY                LINE 11 OF 13

USE...Enter a list of validation data.
FORM...Valid response, maximum of 30 characters for validation entry.
                                                                RECORD: CARY

  Prefix Prefix Validation  Validation  Entry      Group Auth
  Index  Word  Pattern    Entry      Description Prefix Code
'' _____
'' _____ RTP001 _____ DEVELOP SYS #1 - ____
'' _____ RTP002 _____ DEVELOP SYS #2 - ____
'' _____ CARY001 _____ CARY TEST - ____

Line Cnds: A=After B=Before C=Copy D=Delete E=Erase I=Insert
           L=Line Entry M=Move R=Repeat
Type DOWN, UP, LEFT, or RIGHT to scroll the panel, or type END to exit.

====> end

```

You can sort the validation records entered. To see the available options, enter **3** and press **Enter**.


```

BLG0VU50                VALIDATION SUMMARY                RECORD: CARY

Contact name..... _____  Entry priv. class..... _____
Contact phone..... _____  Date entered..... _____
Contact dept..... _____   Time entered..... _____
Location code..... _____   Date last altered..... _____

Description..... CARY SYSTEM LIST

      Select one of the following choices, or type END to save or CANCEL
      to discard any changes.

                1. Validation record.
                2. Validation data.
                3. Data display processing.

                9. File record.
               10. Help text.
               11. Validation data basic.

====> 3

```

On BLG0V502 you can specify

- Whether you want the validation data to be sorted at file time
- Whether you want the data to be sorted in ascending order or descending order
- Whether, when the validation data is displayed, the list should be positioned to the closest matching entry

Make any changes, type **end** and press **Enter**.

```

BLG0V502                VALIDATION DISPLAY UPDATE                RECORD: CARY

Enter validation control data; cursor placement or input line entry allowed.

1. Sort validation data..... YES
2. Sort order..... ASCEND_
3. Scroll list on error..... YES

      When you finish, type END to save or CANCEL to discard any changes.

====> end

```

Enter **9** to file the record. If you specified that you wanted the validation lists to be sorted, then the sort will occur when you file the record.

Panel Modification Examples

```

BLG0VU50          VALIDATION SUMMARY          RECORD: CARY

Contact name..... _____  Entry priv. class..... _____
Contact phone..... _____  Date entered..... _____
Contact dept..... _____   Time entered..... _____
Location code..... _____   Date last altered..... _____

Description..... CARY SYSTEM LIST

      Select one of the following choices, or type END to save or CANCEL
      to discard any changes.

              1. Validation record.
              2. Validation data.
              3. Data display processing.

              9. File record.
             10. Help text.
             11. Validation data basic.

====> 9
  
```

Type **7,1,2,CARY,,1** and press **Enter** to redisplay the validation data. Note that the entries are sorted in ascending order.

To create the next validation record, type **;initialize,5,5,3** on the command line and press **Enter**.

```

BLG0VLST          VALIDATION DATA DISPLAY          LINE 1 OF 13
                                                RECORD: CARY

Prefix  Prefix  Validation  Validation  Entry  Group  Auth
Index  Word   Pattern    Entry      Description  Prefix Code
-----
_____  _____  _____  CARYVM05   CARY PRINTERS  -   _____
_____  _____  _____  CARYVM61   BLDG 06, FLR 01  -   _____
_____  _____  _____  CARYVM62   BLDG 06, FLR 02  -   _____
_____  _____  _____  CARYVM63   BLDG 06, FLR 03  -   _____
_____  _____  _____  CARYVM99   BLDG 006 VENDORS -   _____
_____  _____  _____  CARY000    CARY TEST       -   _____
_____  _____  _____  CARY001    CARY TEST       -   _____
_____  _____  _____  RALVM01    ALL USERS       -   _____
_____  _____  _____  RALVM05    ALL PRINTERS    -   _____
_____  _____  _____  RTP000     TEST SYSTEM     -   _____
_____  _____  _____  RTP001     DEVELOP SYS #1  -   _____
_____  _____  _____  RTP002     DEVELOP SYS #2  -   _____
_____  _____  _____  RTP99      BLDG 001 VENDORS -   _____

Type DOWN, UP, LEFT, or RIGHT to scroll the panel, or type END to exit

====> ;initialize,5,5,3
  
```

Create the validation record for the systems in Los Angeles.

Fill in the fields using the following IRC and press **Enter**:

1,1a,6,los angeles system list,,2

```

BLG0V500          VALIDATION RECORD ENTRY          RECORD: _____
Enter validation record data; cursor placement or input line entry allowed.

1. Validation record name...<R> _____
2. Contact name..... _____
3. Contact phone..... _____
4. Contact department..... _____
5. Location code..... _____
6. Description.....<R> _____

When you finish, type END to save or CANCEL to discard any changes.

====> 1,1a,6,los angeles system list,,2
    
```

Now type the system names and descriptions as shown on the panel.

To file the record and create the next validation record, type **end,9,5,5,3** on the command line and press **Enter**.

```

BLGLVLST          VALIDATION DATA ENTRY          LINE 1 OF 10
USE....Enter a list of validation data.
FORM...Valid response, maximum of 30 characters for validation entry.
RECORD: LA

  Prefix  Prefix Validation  Validation  Entry  Entry  Group  Auth
  Index   Word   Pattern      Entry      Description  Prefix Code
'' _____ _____  LAVMISSC  ISSC USE ONLY  -  -
'' _____ _____  LAVM14    END USERS      -  -
'' _____ _____  LAVM15    END USERS      -  -
'' _____ _____  LAVM16    END USERS      -  -
'' _____ _____  LAVM17    PRINTERS ONLY  -  -
'' _____ _____  LAVMC18   CONTRACTORS ONLY  -  -
'' _____ _____  LAVMEDUC  EDUCATION USE ONL  -  -
'' _____ _____  LAMVS3    END USERS      -  -
'' _____ _____  LAMVS4    END USERS      -  -
'' _____ _____  LAMVS5    END USERS, PRINTE  -  -

Line Cnds: A=After B=Before C=Copy D=Delete E=Erase I=Insert
            L=Line Entry M=Move R=Repeat
Type DOWN, UP, LEFT, or RIGHT to scroll the panel, or type END to exit.

====> end,9,5,5,3
    
```

Now create the validation record for the systems in Orlando.

Fill in the fields using the following IRC, and press **Enter**:

1,orlando,6,orlando system list,,2

Panel Modification Examples

```

BLG0V500          VALIDATION RECORD ENTRY          RECORD: _____
Enter validation record data; cursor placement or input line entry allowed.

1. Validation record name...<R> _____
2. Contact name..... _____
3. Contact phone..... _____
4. Contact department..... _____
5. Location code..... _____
6. Description.....<R> _____

When you finish, type END to save or CANCEL to discard any changes.

BLG03058I Record LA          was stored successfully.

===> 1,orlando,6,orlando system list,,2

```

Now type the system names and descriptions as shown on the panel.

To file the record and create the next validation record, type **end,9,5,5,3** on the command line and press **Enter**.

```

BLGLVLST          VALIDATION DATA ENTRY          LINE 1 OF 10
USE...Enter a list of validation data.
FORM...Valid response, maximum of 30 characters for validation entry.
RECORD: ORLANDO

  Prefix Prefix Validation  Validation  Entry      Group Auth
  Index  Word  Pattern    Entry      Description Prefix Code
..  _____  _____  ORLVM1_____  END USERS  -  _____
..  _____  _____  ORLVM2_____  END USERS  -  _____
..  _____  _____  ORLVM3_____  PRINTERS   -  _____
..  _____  _____  ORLMVS1_____  END USERS  -  _____
..  _____  _____  ORLMVS2_____  END USERS, PRINTE -  _____
..  _____  _____  ORLEDCUC_____  EDUCATION USE ONL -  _____
..  _____  _____  ORLSYS_____  SYSTEM DRIVER -  _____
..  _____  _____  _____      _____  -  _____
..  _____  _____  _____      _____  -  _____
..  _____  _____  _____      _____  -  _____

Line Cmds: A=After B=Before C=Copy D=Delete E=Erace I=Insert
           L=Line Entry M=Move R=Repeat
Type DOWN, UP, LEFT, or RIGHT to scroll the panel, or type END to exit.

===> end,9,5,5,3

```

Because the help desk operator might sometimes want to select the system *before* selecting the network, you should also create a validation record that includes all the systems. Otherwise the operator will receive an error message.

Note: You can also modify your problem panel flow to force the network name to be entered before the user is given a chance to enter the system name.

Fill in the fields using the following IRC, and press **Enter**:

```
1,systems,6,all sites system list,,2
```

```

BLG0V500          VALIDATION RECORD ENTRY          RECORD: _____
Enter validation record data; cursor placement or input line entry allowed.

1. Validation record name...<R> _____
2. Contact name..... _____
3. Contact phone..... _____
4. Contact department..... _____
5. Location code..... _____
6. Description.....<R> _____

When you finish, type END to save or CANCEL to discard any changes.

BLG03058I Record ORLANDO was stored successfully.

====> 1,systems,6,all sites system list,,2
    
```

Now type the system names and descriptions as shown on the panel. Because there are more entries than lines available, you use the **INSERT** line command to add more lines.

```

BLGLVLST          VALIDATION DATA ENTRY          LINE 1 OF 30
USE....Enter a list of validation data.
FORM...Valid response, maximum of 30 characters for validation entry.
RECORD: SYSTEMS

  Prefix  Prefix Validation  Validation  Entry  Group  Auth
  Index  Word  Pattern  Entry  Description  Prefix Code
'' _____ _____ _____ CARYVM05 _____ CARY PRINTERS _____
'' _____ _____ _____ CARYVM61 _____ BLDG 06, FLR 01 _____
'' _____ _____ _____ CARYVM62 _____ BLDG 06, FLR 02 _____
'' _____ _____ _____ CARYVM63 _____ BLDG 06, FLR 03 _____
'' _____ _____ _____ CARYVM99 _____ BLDG 006 VENDORS _____
'' _____ _____ _____ CARY000 _____ CARY TEST _____
'' _____ _____ _____ CARY001 _____ CARY TEST _____
'' _____ _____ _____ RALVM01 _____ ALL USERS _____
'' _____ _____ _____ RALVM02 _____ ALL PRINTERS _____
'' _____ _____ _____ RTP000 _____ TEST SYSTEM _____

Line Cmds: A=After B=Before C=Copy D=Delete E=Erase I=Insert
           L=Line Entry M=Move R=Repeat
Type DOWN, UP, LEFT, or RIGHT to scroll the panel, or type END to exit.

====> down
    
```

Type the system names and descriptions.

Panel Modification Examples

```

BLGLVLST                VALIDATION DATA ENTRY                LINE 11 OF 30

USE...Enter a list of validation data.
FORM...Valid response, maximum of 30 characters for validation entry.
                                RECORD: SYSTEMS

  Prefix Prefix Validation  Validation  Entry      Group Auth
  Index  Word  Pattern    Entry      Description Prefix Code
'' _____
'' _____ RTP001      DEVELOP SYS #1  -   ___
'' _____ RTP002      DEVELOP SYS #2  -   ___
'' _____ RTP99       BLDG 001 VENDORS -   ___
'' _____ LAVMISSC     ISSC USE ONLY  -   ___
'' _____ LAVM14      END USERS      -   ___
'' _____ LAVM15      END USERS      -   ___
'' _____ LAVM16      END USERS      -   ___
'' _____ LAVM17      PRINTERS ONLY  -   ___
'' _____ LAVMC18     CONTRACTORS ONLY -   ___
'' _____ LAVMEDUC     EDUCATION USE ONL -   ___

Line Cnds: A=After B=Before C=Copy D=Delete E=Erase I=Insert
           L=Line Entry M=Move R=Repeat
Type DOWN, UP, LEFT, or RIGHT to scroll the panel, or type END to exit.

====> down

```

Finish typing the system names and descriptions.

To file the record and create the next validation record, type **end,9,5,5,3** on the command line and press **Enter**.

```

BLGLVLST                VALIDATION DATA ENTRY                LINE 21 OF 30

USE...Enter a list of validation data.
FORM...Valid response, maximum of 30 characters for validation entry.
                                RECORD: SYSTEMS

  Prefix Prefix Validation  Validation  Entry      Group Auth
  Index  Word  Pattern    Entry      Description Prefix Code
'' _____
'' _____ LAMVS3      END USERS      -   ___
'' _____ LAMVS4      END USERS      -   ___
'' _____ LAMVS5      END USERS, PRINTE -   ___
'' _____ ORLVM1      END USERS      -   ___
'' _____ ORLVM2      END USERS      -   ___
'' _____ ORLVM3      PRINTERS ONLY  -   ___
'' _____ ORLMVS1     END USERS      -   ___
'' _____ ORLMVS2     END USERS, PRINTE -   ___
'' _____ ORLEDUC     EDUCATION USE ONL -   ___
'' _____ ORLSYS      SYSTEM DRIVER  -   ___

Line Cnds: A=After B=Before C=Copy D=Delete E=Erase I=Insert
           L=Line Entry M=Move R=Repeat
Type DOWN, UP, LEFT, or RIGHT to scroll the panel, or type END to exit.

====> end,9,5,5,3

```

You also must create a validation record that includes the list of the networks.

Fill in the fields using the following IRC, and press **Enter**:

1,networks,6,list of networks,,2

```

BLG0V500          VALIDATION RECORD ENTRY          RECORD: _____
Enter validation record data; cursor placement or input line entry allowed.

1. Validation record name...<R> _____
2. Contact name..... _____
3. Contact phone..... _____
4. Contact department..... _____
5. Location code..... _____
6. Description.....<R> _____

When you finish, type END to save or CANCEL to discard any changes.

BLG03058I Record SYSTEMS was stored successfully.

====> 1,networks,6,list of networks,,2
    
```

Now type the network names and descriptions as shown on the panel.

To file the record, type **end,9** on the command line and press **Enter**.

```

BLGLVLST          VALIDATION DATA ENTRY          LINE 1 OF 10
USE....Enter a list of validation data.
FORM...Valid response, maximum of 30 characters for validation entry.
RECORD: NETWORKS

  Prefix  Prefix Validation  Validation  Entry  Group  Auth
  Index   Word   Pattern   Entry      Description  Prefix Code
  ''      ''      ''      ''      ''      ''      ''
  ''      ''      ''      CARY     CARY, NC    -      -
  ''      ''      ''      LA       LOS ANGELES, CA  -      -
  ''      ''      ''      ORLANDO  ORLANDO, FL    -      -
  ''      ''      ''      ''      ''          -      -
  ''      ''      ''      ''      ''          -      -
  ''      ''      ''      ''      ''          -      -
  ''      ''      ''      ''      ''          -      -
  ''      ''      ''      ''      ''          -      -
  ''      ''      ''      ''      ''          -      -
  ''      ''      ''      ''      ''          -      -
  ''      ''      ''      ''      ''          -      -
  ''      ''      ''      ''      ''          -      -
  ''      ''      ''      ''      ''          -      -
  ''      ''      ''      ''      ''          -      -

Line Cnds: A=After B=Before C=Copy D=Delete E=Erace I=Insert
           L=Line Entry M=Move R=Repeat
Type DOWN, UP, LEFT, or RIGHT to scroll the panel, or type END to exit.

====> end,9
    
```

Next, you need to know the assisted-entry panel names for both the **Network name** and **System name** fields, and you need the s-word index for the **Network name** field.

To find those, create a problem record by typing **5,1** on the command line of BLG0EN20. Press **Enter**.

Panel Modification Examples

```
BLG0EN20          --- PRIMARY OPTIONS MENU ---      APPLICATION: MANAGEMENT

OPTIONS:

  1. OVERVIEW.....Display general information and product enhancements.
  2. PROFILE.....Display or alter invocation or session defaults.
  3. APPLICATION....Change application, list available applications.
  4. CLASS.....Change current class, list available classes.
  5. ENTRY.....Create a record.
  6. INQUIRY.....Search for records.
  7. UTILITY.....Copy, display, print, delete, and update records.
  8. GLOSSARY.....Display a list of searchable words in the database.
  9. PMF.....Modify or create panels.

      Select an option, enter a command, or type QUIT to exit.

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BLG03058I Record NETWORKS was stored successfully.

==> 5,1
```

To find the assisted-entry panel name for the **Network name** field, type **6** on the command line and press **Enter**.

```
BLG0B100          PROBLEM REPORTER ENTRY          PROBLEM: _____

Enter problem reporter data; cursor placement or input line entry allowed.

  1. Reported by.....<R> _____          13. Problem type..... _____
  2. Reporter dept..... _____          14. Problem status....<R> _____
  3. Reporter phone..... _____          15. User problem number.. _____
  4. Date occurred..... _____          16. Initial priority.... _
  5. Time occurred..... _____          17. Outage..... _____
  6. Network name..... _____          18. Rerun time..... _____
  7. System name..... _____          19. Network impact..... _____
  8. Program name..... _____          20. System impact..... _____
  9. Device name..... _____          21. Program impact..... _____
 10. Key item affected... _____          22. Device impact..... _____
 11. Date fix required... _____          23. User form number.... _____
 12. Time fix required... _____          24. Location code..... _____
                                          26. Outage type..... _

 25. Description.....<R> _____

      When you finish, type END to save or CANCEL to discard any changes.

==> 6
```

The assisted-entry panel name is BLG6NETN. To find the s-word index for this field, type **;view internals** on the command line and press **Enter**.


```

+ BLG6NETN ----- NETWORK NAME ----- COMN/-+
USE....Enter the problem, change, or component related network.
FORM...AAAAAAA - 1 to 8 alphanumeric positions.

      EXAMPLES: Remote.....Reply.....remote
                Blue connect.....Reply.....blueconn
                Test aaa.....Reply.....testaaa

----- REPLY AS ILLUSTRATED -----

====> ;view internals

```

The last item shown on the View Internal Data panel gives you the s-word index for the field: **0CA3**.

Now you need the assisted-entry panel name for the **System name** field. To get that name, use this IRC and press **Enter**:

```
;cancel,;cancel,7
```

```

BLG1TVID                                VIEW INTERNAL DATA                                LINE 1 OF 4
PANEL   PANEL  REL COG-  FLAGS   SWORD  STRUCTURED  PREFIX WORD OR
NAME    TYP/RSP  LEV NIZE  F  M  D  INDEX   WORD       VISIBLE PHRASE
BLG0EN20 D/ 5   06 B/  19/00/88 S002C  BA //S/TSI  ENTRY
BLG00000 S/ 1   06 B/  18/04/00 S0032  BA //S/TXS  RECS=PROBLEM
BLG0B001 S/ 1   06 B/  19/00/80 S0CFC  BC IMDIAENT0 REPORTER
BLG0B100 D/ 6   06 N/  41/00/08 S0CA3
*** BOTTOM OF DATA ***

Type DOWN or UP to scroll the panel, or type END to exit the panel.

====> ;cancel,;cancel,7

```

The assisted-entry panel name is BLG6SYSN. Cancel the creation of this problem record by typing **;initialize** and pressing **Enter**.

Panel Modification Examples

```
+ BLG6SYSN ----- SYSTEM NAME ----- NASY/--+
USE...Identify system affected by the change, activity, problem.
FORM..AAAAAAA - 1 to 8 alphanumeric positions.

      EXAMPLES: Baker system.....Reply.....baker
                System 0004.....Reply.....4
                Test 168.....Reply.....test168

----- REPLY AS ILLUSTRATED -----

===> ;initialize
```

The next step is to modify the **Structured word and validation collection** information on the assisted-entry panel for the **Network name** field. Use the IRC as shown and press **Enter**.

9,1,1,blg6netn,,1,control,2

```
BLG0EN20          --- PRIMARY OPTIONS MENU ---      APPLICATION: MANAGEMENT

OPTIONS:

  1. OVERVIEW.....Display general information and product enhancements.
  2. PROFILE.....Display or alter invocation or session defaults.
  3. APPLICATION...Change application, list available applications.
  4. CLASS.....Change current class, list available classes.
  5. ENTRY.....Create a record.
  6. INQUIRY.....Search for records.
  7. UTILITY.....Copy, display, print, delete, and update records.
  8. GLOSSARY.....Display a list of searchable words in the database.
  9. PMF.....Modify or create panels.

      Select an option, enter a command, or type QUIT to exit.

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===> 9,1,1,blg6netn,,1,control,2
```

To enable users to access the list of network locations you defined in the NETWORKS validation record, change the **Validation record name** field to include that record name.

To change the field and file the panel, use the following IRC and press **Enter**.

4,networks,end,end,end,6

```

BLM8CU5B          STRUCTURED WORD AND VALIDATION COLLECTION          PANEL: BLG6NETN

Enter collection control data; cursor placement or input line entry allowed.

  1. Structured word index..... 0CA3      Structured word.. XIM0IC0001
  2. Collect from caller..... NO_         Word acronym..... IM = NETWORK NAM

Validation:
  3. Record structured word index.. 0000    Structured word.. _____
  4. Record name..... _____          Structured word.. _____
  5. Data structured word index.... 0000    Structured word.. _____
  6. Description s-word index..... 0000    Structured word.. _____

          When you finish, type END to save or CANCEL to discard any changes.

====> 4,networks,end,end,end,6

```

To enable users to access the list of systems for a specific network, you must change the BLG6SYSN assisted-entry panel. Use this IRC to reach the Structured Word and Validation Collection panel:

```
1,blg6sysn,,1,control,2
```

```

BLM8CU00          PANEL NAME ENTRY          UPDATE

Identify panel to be updated; cursor placement or input line entry allowed.

          1. Panel name.....<R> BLG6NETN
          2. Data set definition label..... _____

          To enter the panel update dialog, press Enter without field modifications.

BLM04015I Panel BLG6NETN was written to the WRITE panel data set.
====> 1,blg6sysn,,1,control,2

```

Change the **Validation record s-word index** field to include the s-word index from the **Network name** field.

Change the **Validation record name** field to **SYSTEMS**, the name of the validation record containing the list of systems for all sites. When this panel is used in the problem panel flow, Tivoli Information Management for z/OS first looks in the current record for data associated with s-word index 0CA3 to find the record ID of the record that contains the valid responses for this field. If no record ID is found, Tivoli Information Management for z/OS uses the validation record name as the record that contains the valid responses for this field.

To change the fields and file the panel, use the following IRC and press **Enter**:

Panel Modification Examples

3,0ca3,4,systems,end,end,end,6,end

```
BLM8CU5B      STRUCTURED WORD AND VALIDATION COLLECTION      PANEL: BLG6SYSN

Enter collection control data; cursor placement or input line entry allowed.

  1. Structured word index..... 0CA5      Structured word.. XIM0IC0003
  2. Collect from caller..... NO_      Word acronym..... IM = SYSTEM NAME

Validation:
  3. Record structured word index.. 0000      Structured word.. _____
  4. Record name..... _____
  5. Data structured word index.... 0000      Structured word.. _____
  6. Description s-word index..... 0000      Structured word.. _____

      When you finish, type END to save or CANCEL to discard any changes.

====> 3,0ca3,4,systems,end,end,end,6,end
```

To test your changes for this example, you must copy the changed assisted-entry panels to your read panel data set. Type **3** on the command line and press **Enter**.

```
+ BLM8C000 ----- PANEL MODIFICATION FACILITY ----- PMF--+
|
|  OPTIONS:
|
|   1. PANEL UPDATE.....Display, modify, or create panels.
|   2. DICTIONARY.....Display or modify dictionary data.
|   3. PANEL COPY.....Create new panel via panel copy.
|   4. PANEL DELETE.....Delete existing panel.
|   5. REPORTS.....Panels, prefix, and other listings.
|   6. PANEL SET.....Create panels to be used for inquiry,
|                       creation, update, etc. of records.
|   7. PANEL LIST.....Display panel data set information.
|
+----- SELECT OPTION -----+

BLM04015I Panel BLG6SYSN was written to the WRITE panel data set.
====> 3
```

First, copy BLG6NETN.

```

BLM8CC00          PANEL NAME ENTRY          PANEL COPY
Enter panel name to be copied; cursor placement or input line entry allowed.

1. From panel name.....<R> _____
2. From data set definition label..<R> _____
3. To panel name..... _____
4. To data set definition label..... _____
5. Replace panel..... _____

To copy the panel, press Enter without field modifications.

===> 1,blg6netn,2,write,4,read,,
    
```

Next, copy BLG6SYSN and return to BLG0EN20.

```

BLM8CC00          PANEL NAME ENTRY          PANEL COPY
Enter panel name to be copied; cursor placement or input line entry allowed.

1. From panel name.....<R> BLG6NETN
2. From data set definition label..<R> WRITE__
3. To panel name..... _____
4. To data set definition label..... READ__
5. Replace panel..... _____

To copy the panel, press Enter without field modifications.

BLM04011I The PANEL COPY function completed successfully.
===> 1,blg6sysn,,;initialize
    
```

Now test your changes by creating a problem record.

Panel Modification Examples

```
BLG0EN20          --- PRIMARY OPTIONS MENU ---      APPLICATION: MANAGEMENT
OPTIONS:
  1. OVERVIEW.....Display general information and product enhancements.
  2. PROFILE.....Display or alter invocation or session defaults.
  3. APPLICATION....Change application, list available applications.
  4. CLASS.....Change current class, list available classes.
  5. ENTRY.....Create a record.
  6. INQUIRY.....Search for records.
  7. UTILITY.....Copy, display, print, delete, and update records.
  8. GLOSSARY.....Display a list of searchable words in the database.
  9. PMF.....Modify or create panels.

      Select an option, enter a command, or type QUIT to exit.

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BLM04011I The PANEL COPY function completed successfully.
==> 5,1
```

Select the **Network name** field. Type **6** on the command line and press **Enter**.

```
BLGLVSEL          VALIDATION DATA                  LINE 1 OF 3
USE....Select one from the list of valid entries for this field.
                                VALIDATION RECORD: NETWORKS
  1.  CARY                      CARY, NC
  2.  LA                        LOS ANGELES, CA
  3.  ORLANDO                   ORLANDO, FL

Line Cnds: S=Select
Type DOWN or UP to scroll the panel, or type BACK to exit the panel.

==> 1
```

The Problem Reporter Entry panel reappears with **CARY** in the **Network name** field.

Now select the **System name** field: type **7** on the command line and press **Enter**.

```

BLG0B100                PROBLEM REPORTER ENTRY                PROBLEM: _____
Enter problem reporter data; cursor placement or input line entry allowed.

1. Reported by.....<R> _____      13. Problem type..... _____
2. Reporter dept..... _____        14. Problem status...<R> _____
3. Reporter phone..... _____       15. User problem number.. _____
4. Date occurred..... _____       16. Initial priority..... _____
5. Time occurred..... _____       17. Outage..... _____
6. Network name..... CARY _____    18. Rerun time..... _____
7. System name..... _____         19. Network impact..... _____
8. Program name..... _____        20. System impact..... _____
9. Device name..... _____         21. Program impact..... _____
10. Key item affected... _____     22. Device impact..... _____
11. Date fix required... _____     23. User form number..... _____
12. Time fix required... _____     24. Location code..... _____
                                       26. Outage type..... _____

25. Description.....<R> _____

      When you finish, type END to save or CANCEL to discard any changes.

====> 7

```

The Validation Data panel appears containing only those systems associated with the Cary network. Select the third system.

```

BLGLVSEL                VALIDATION DATA                LINE 1 OF 13
USE....Select one from the list of valid entries for this field.
                                       VALIDATION RECORD: CARY

1. CARYVM05                CARY PRINTERS
2. CARYVM61                BLDG 06, FLR 01
3. CARYVM62                BLDG 06, FLR 02
4. CARYVM63                BLDG 06, FLR 03
5. CARYVM99                BLDG 006 VENDORS
6. CARY000                 CARY TEST
7. CARY001                 CARY TEST
8. RALVM01                 ALL USERS
9. RALVM05                 ALL PRINTERS
10. RTP000                 TEST SYSTEM
11. RTP001                 DEVELOP SYS #1
12. RTP002                 DEVELOP SYS #2
13. RTP99                  BLDG 001 VENDORS

Line Cnds: S=Select
Type DOWN or UP to scroll the panel, or type BACK to exit the panel.

====> 3

```

The Problem Reporter Entry panel reappears with **CARYVM62** in the **System name** field.

Complete the remaining required fields on the panel and file the record.

Panel Modification Examples

```
BLG0B100          PROBLEM REPORTER ENTRY          PROBLEM: _____
Enter problem reporter data; cursor placement or input line entry allowed.

1. Reported by.....<R> _____          13. Problem type..... _____
2. Reporter dept..... _____          14. Problem status...<R> _____
3. Reporter phone..... _____          15. User problem number.. _____
4. Date occurred..... _____          16. Initial priority..... _____
5. Time occurred..... _____          17. Outage..... _____
6. Network name..... CARY _____          18. Rerun time..... _____
7. System name..... CARYVM62 _____          19. Network impact..... _____
8. Program name..... _____          20. System impact..... _____
9. Device name..... _____          21. Program impact..... _____
10. Key item affected... _____          22. Device impact..... _____
11. Date fix required... _____          23. User form number.... _____
12. Time fix required... _____          24. Location code..... _____
                                           26. Outage type..... _____

25. Description.....<R> _____

      When you finish, type END to save or CANCEL to discard any changes.

====> 1,vanyo,14,initial,25,testing cary validation,,end
```

You should receive message BLG03058I telling you that your record was stored successfully.

Repeat your test, selecting **LA**, then **ORLANDO** as the network name. You should see only the systems you identified for those networks.

```
BLG0EN20          --- PRIMARY OPTIONS MENU ---          APPLICATION: MANAGEMENT
OPTIONS:

1. OVERVIEW.....Display general information and product enhancements.
2. PROFILE.....Display or alter invocation or session defaults.
3. APPLICATION...Change application, list available applications.
4. CLASS.....Change current class, list available classes.
5. ENTRY.....Create a record.
6. INQUIRY.....Search for records.
7. UTILITY.....Copy, display, print, delete, and update records.
8. GLOSSARY.....Display a list of searchable words in the database.
9. PMF.....Modify or create panels.

      Select an option, enter a command, or type QUIT to exit.

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BLG03058I Record 00002976 was stored successfully.
====>
```

Now test the **SYSTEMS** record. Remember, the reason you created this record was so your operators can select the **System name** before the **Network name** without receiving an error.

Create a problem record.


```

BLG0EN20          --- PRIMARY OPTIONS MENU ---      APPLICATION: MANAGEMENT

OPTIONS:

  1. OVERVIEW.....Display general information and product enhancements.
  2. PROFILE.....Display or alter invocation or session defaults.
  3. APPLICATION...Change application, list available applications.
  4. CLASS.....Change current class, list available classes.
  5. ENTRY.....Create a record.
  6. INQUIRY.....Search for records.
  7. UTILITY.....Copy, display, print, delete, and update records.
  8. GLOSSARY.....Display a list of searchable words in the database.
  9. PMF.....Modify or create panels.

      Select an option, enter a command, or type QUIT to exit.

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====> 5,1

```

Select the **System name** field: type **7** on the command line and press **Enter**.

```

BLG0B100          PROBLEM REPORTER ENTRY          PROBLEM: _____

Enter problem reporter data; cursor placement or input line entry allowed.

  1. Reported by.....<R> _____          13. Problem type..... _____
  2. Reporter dept..... _____          14. Problem status....<R> _____
  3. Reporter phone..... _____          15. User problem number.. _____
  4. Date occurred..... _____          16. Initial priority..... _____
  5. Time occurred..... _____          17. Outage..... _____
  6. Network name..... _____          18. Rerun time..... _____
  7. System name..... _____          19. Network impact..... _____
  8. Program name..... _____          20. System impact..... _____
  9. Device name..... _____          21. Program impact..... _____
 10. Key item affected... _____          22. Device impact..... _____
 11. Date fix required... _____          23. User form number..... _____
 12. Time fix required... _____          24. Location code..... _____
                                          26. Outage type..... _____

 25. Description.....<R> _____

      When you finish, type END to save or CANCEL to discard any changes.

====> 7

```

The Validation Data panel appears containing the list of systems for all the networks. Select the tenth system.

Panel Modification Examples

```
BLGLVSEL                VALIDATION DATA                LINE 1 OF 30
USE....Select one from the list of valid entries for this field.
                        VALIDATION RECORD: SYSTEMS

  1. CARYVM05                CARY PRINTERS
  2. CARYVM61                BLDG 06, FLR 01
  3. CARYVM62                BLDG 06, FLR 02
  4. CARYVM63                BLDG 06, FLR 03
  5. CARYVM99                BLDG 006 VENDORS
  6. CARY000                 CARY TEST
  7. CARY001                 CARY TEST
  8. LAMVS3                  END USERS
  9. LAMVS4                  END USERS
 10. LAMVS5                  END USERS, PRINTERS
 11. LAVMC18                 CONTRACTORS ONLY
 12. LAVMEDUC                EDUCATION USE ONLY
 13. LAVMISSC                ISSC USE ONLY
 14. LAVM14                  END USERS

Line Cnds: S=Select
Type DOWN or UP to scroll the panel, or type BACK to exit the panel.

==> 10
```

The Problem Reporter Entry panel reappears with **LAMVS5** in the **System name** field. Complete the remaining required fields on the panel and file the record.

```
BLG0B100                PROBLEM REPORTER ENTRY                PROBLEM: _____
Enter problem reporter data; cursor placement or input line entry allowed.

  1. Reported by.....<R> _____ 13. Problem type..... _____
  2. Reporter dept..... _____ 14. Problem status....<R> _____
  3. Reporter phone..... _____ 15. User problem number.. _____
  4. Date occurred..... _____ 16. Initial priority.... _
  5. Time occurred..... _____ 17. Outage..... _____
  6. Network name..... _____ 18. Rerun time..... _____
  7. System name..... LAMVS5_ 19. Network impact..... _____
  8. Program name..... _____ 20. System impact..... _____
  9. Device name..... _____ 21. Program impact..... _____
 10. Key item affected... _____ 22. Device impact..... _____
 11. Date fix required... _____ 23. User form number.... _____
 12. Time fix required... _____ 24. Location code..... _____
 13. _____ 26. Outage type..... _

25. Description.....<R> _____

      When you finish, type END to save or CANCEL to discard any changes.

==> 1,vanyo,14,initial,25,testing all systems validation,,end
```

You should receive message BLG03058I telling you that your record was stored successfully.

```

BLG0EN20          --- PRIMARY OPTIONS MENU ---      APPLICATION: MANAGEMENT

OPTIONS:

  1. OVERVIEW.....Display general information and product enhancements.
  2. PROFILE.....Display or alter invocation or session defaults.
  3. APPLICATION...Change application, list available applications.
  4. CLASS.....Change current class, list available classes.
  5. ENTRY.....Create a record.
  6. INQUIRY.....Search for records.
  7. UTILITY.....Copy, display, print, delete, and update records.
  8. GLOSSARY.....Display a list of searchable words in the database.
  9. PMF.....Modify or create panels.

      Select an option, enter a command, or type QUIT to exit.

      Tivoli Information Management for z/OS Version 7 Release 1
      5697-SD9 (C) Copyright IBM Corp., 1981, 2001.

BLG03058I Record 00002979 was stored successfully.
====>

```

Once you know that your changes work, copy them into the read panel data set that your end users access.

Note: You can also use data attribute records to collect valid responses for a field as well as other information that defines an assisted-entry panel. You can specify data attribute records in place of assisted-entry panels for interactive use. See page 539 for more information about data attribute records.

Testing Your Panel Modifications

After you change a panel, always test the panel before you copy it to the read panel data set that your users access. To test most panel changes, begin at the Data-Entry Panel Update panel.

The example that follows tests the changes made to the BLG0B100 panel as described in “Moving, Deleting, and Requiring Fields” on page 100. In that exercise, you moved fields, deleted fields, and made an optional field required. You finished that exercise at the Data-Entry Panel Update panel. Testing begins by selecting **Test** on that panel (BLM8CU70).

The **Panel name** field is automatically filled in with the panel you are testing. However, you do not have to start your test on the panel you changed. You can start it one panel earlier, two panels earlier—even back on the Primary Options Menu. If you want to test null reply or panel flow changes, you *do* need to start on an earlier panel. In this example, you can start from the BLG0B100 panel because you did not change the null reply or panel flow.

You must also know whether the panel you changed is used in create (entry) mode or in inquiry (search) mode. In this example, choose create because BLG0B100 is a data-entry panel that is used when a user creates or updates a problem record.

Type **CREATE** in the **Create/inquiry** field, and press **Enter** twice.

Testing Your Panel Modifications

```
BLM8CT00                PANEL TEST ENTRY                PANEL TEST
Enter starting panel name; cursor placement or input line entry allowed.

1. Panel name.....<R> BLG0B100
2. Create/inquiry...<R> CREATE_

To begin the Panel Test dialog, press Enter without field modifications.

===>
```

The changed panel (BLG0B100) appears for you to test by entering a problem record.

Use this IRC to fill in the fields and press **Enter**:

1,bullock,14,open,23,this is a test,,

```
BLG0B100                PROBLEM REPORTER ENTRY                PROBLEM: _____
Enter problem reporter data; cursor placement or input line entry allowed.

1. Reported by.....<R> _____ 13. Problem type..... _____
2. Reporter dept....<R> _____ 14. Problem status....<R> _____
3. Reporter phone..... _____ 15. User problem number.. _____
4. Date occurred..... _____ 16. Initial priority..... _____
5. Time occurred..... _____ 17. Outage..... _____
6. Network name..... _____ 18. Network impact..... _____
7. System name..... _____ 19. System impact..... _____
8. Program name..... _____ 20. Program impact..... _____
9. Device name..... _____ 21. Device impact..... _____
10. Key item affected... _____ 22. Rerun time..... _____
11. Date fix required... _____
12. Time fix required... _____

23. Description.....<R> _____

When you finish, type END to save or CANCEL to discard any changes.

===> 1,bullock,14,open,23,this is a test,,
```

A message appears saying that all required fields were not filled in. That is because you made the **Reporter dept.** field a required field. Your change worked.

Notice that the **Description** field is filled in. You changed that field from number 25 to 23. This change worked, too.

Fill in the second field with another IRC and press **Enter**:

2,m29,,

```

BLG0B100                PROBLEM REPORTER ENTRY                PROBLEM: _____

Enter problem reporter data; cursor placement or input line entry allowed.

1. Reported by.....<R> BULLOCK_____ 13. Problem type..... _____
2. Reporter dept....<R> _____      14. Problem status...<R> OPEN__
3. Reporter phone..... _____      15. User problem number.. _____
4. Date occurred..... _____      16. Initial priority..... _
5. Time occurred..... _____      17. Outage..... _____
6. Network name..... _____      18. Network impact..... _____
7. System name..... _____      19. System impact..... _____
8. Program name..... _____      20. Program impact..... _____
9. Device name..... _____      21. Device impact..... _____
10. Key item affected... _____    22. Rerun time..... _____
11. Date fix required... _____
12. Time fix required... _____

23. Description.....<R> THIS IS A TEST_____

      When you finish, type END to save or CANCEL to discard any changes.

BLG04006W Information has not been entered in all required fields.
====> 2,m29,,

```

The Panel Test Entry panel appears. The test was successful. On the command line, type **end** and press **Enter**.

```

BLM8CT00                PANEL TEST ENTRY                PANEL TEST

Enter starting panel name; cursor placement or input line entry allowed.

      1. Panel name.....<R> BLG0B100
      2. Create/inquiry...<R> CREATE_

      To begin the Panel Test dialog, press Enter without field modifications.

====> end

```

The Data-Entry Panel Update panel appears. To return to the Panel Modification Facility options panel, type **end,end** and press **Enter**.

Testing Your Panel Modifications

```
+ BLM8CU70 ----- DATA ENTRY PANEL UPDATE ----- PMF-+
|
|  OPTIONS:
|
|      1. EXTERNALS...Modify visible text or control data.
|      2. COMMON.....Modify help and service information.
|      3. NULL REPLY..Modify null reply control information.
|      4. SUMMARY.....Display summary of control information.
|      5. TEST.....Display or process panel in test mode.
|      6. FILE.....Panel update is complete, store panel.
|
+----- SELECT OPTION -----+
```

```
==> end,end
```

You have now tested the changes you made to panel BLG0B100. The changed panel resides in your write panel data set. You must copy it to a read panel data set before anyone can use it. See “Copying and Deleting Panels” on page 179 for instructions on copying panels.

5

Creating Panels from Models

You can use PMF to create panels in two ways:

- Copy and then modify an existing panel
- Update a model panel provided by PMF

Consider the first method whenever you need a new panel, especially if an existing panel contains some of the same fields you want on the new panel. You can find out which existing panels are similar to the one you want to create by running the String Find report (see “Running PMF Reports” on page 227). Panel copy is described in “Copying and Deleting Panels” on page 179.

When you cannot copy an existing panel, you can create a new one by entering a unique panel name after you select **Panel update** from the Panel Modification Facility options panel. PMF then presents you with a model panel of the type you request. This method is described in the following pages.

Planning for a New Panel

Before actually creating the panel, you need to:

- Know where you want the new panel to fit in the sequence of the panel flow
- Identify the s-word and p-word indexes to be collected from the panel and add any new ones to the dictionary
- Define the names of target and calling panels for the new panel (either by identifying an existing panel or assigning a name for a new one).

If you have all the necessary information before you start, you can enter it all at one time.

Based on what you know initially about the data you want to gather from the panel, you can determine the information required for creating the panel. The following examples illustrate this point.

- If you think a field name similar to the one you want to create exists, review other panels to determine if another word is used (for example, “Problem reporter” and “Reported by”).
- If you know the field name used on an existing panel, you can identify panels containing that field in the String Find report.
- If you know the name of a panel that contains a field or selection you want to use, you can view its control information (such as s-word or p-word index or target panel) by printing the Panel Content report or by requesting the panel for update, selecting the **Externals/Abstract** option, and issuing the **CONTROL** command.

- If you know the s-word or p-word index for a field, you can identify panels that use the index in the S-Word or P-Word Cross-Reference report.
- If you know the prefix for a field, you can look at all its validation patterns by sorting the P-Word List report by word.
- If you know the target panel for a field or selection, you can identify all other panels that reference that panel in the Panel Cross-Reference report. This report is very useful for identifying panels that use the same assisted-entry panels.

You also need other, more specific, pieces of information to create a new panel. Those requirements are covered in the discussions of specific kinds of panels that appear in the rest of this chapter.

Naming the New Panel

If you are planning to create a series of panels, establish a panel-naming convention. With a well-defined naming scheme, you can maintain and control panels more easily, and you can use the PMF reports more efficiently to identify selected groups of panels.

The following panel-naming scheme is an example for you to consider. The variable *xxx* represents the 3-character application p-word and *yyy* (or *yyyy*) represents a unique panel identifier.

xxx0B yyy	Create, update, delete, and copy
xxx0E yyy	Inquiry
xxx1A yyy	Control panel
xxx0L yyy	Display panel
xxx6 yyyy	Assisted-entry panel
xxx2 yyyy	Help panel
xxx9 yyyy	Message panel
xxx4 yyyy	Help panel for a message
xxx1T yyy	Table panel
xxxL yyyy	List processor panel
xxxT yyyy	TSP panel

See “Naming Conventions for Panels” on page 389 for more help in establishing a naming convention.

Panel Flow for Creating Panels

Having selected **PMF** on the Management application Primary Options Menu and **Panel update** on the Panel Modification Facility options panel (see “Initial PMF Panel Flow” on page 95), the Panel Name Entry panel for panel update and create appears.

Enter a new value for **Panel name**. You need not fill in the **Data set definition label** field.


```

BLM8CU00          PANEL NAME ENTRY          UPDATE
Identify panel to be updated; cursor placement or input line entry allowed.

      1. Panel name.....<R> LDM0B205
      2. Data set definition label..... _____

To enter the panel update dialog, press Enter without field modifications.

====>
    
```

Next, select the type of panel you want to create. A model of that panel type appears on the screen. You modify the panel model just as if you were updating an existing panel.

```

+- BLM8CUA0 ----- PANEL TYPE ----- 1 of 1 ----+
|
| USE...Identify the type of panel that you wish to have created.
|
| 1.SELECTION.....Panel containing menu selections.
| 2.OPTIONS.....Panel containing dialog begin options.
| 3.HELP.....Panel for help or tutorial information.
| 4.MESSAGE.....Panel containing message information.
| 5.DATA ENTRY.....Panel allowing display or entry fields.
| 6.ASSISTED ENTRY.....Panel containing value definitions.
| 7.TABLE.....Panel allowing multiple columns or lines.
| 8.CONTROL.....Panel for testing flow, program invocation.
| 9.TERMINAL SIMULATOR.Panel for keystroke automation.
+----- SELECT ITEM -----+
|
|====>
    
```

Updating a Panel Model

The panel model shows the format of the type of panel you are creating. It is displayed within a template panel, BLM8CU n 1 (n represents the panel type). The general panel name for the model is BLM8CU n 9, which you replace with the name you give to the panel as you create it.

The first position in each line of the model panel contains a reserved attribute byte. You cannot type over this attribute. Reserved attribute bytes are included in the data-entry and table panel models because they use the full screen; for other panel types, the reserved attribute bytes are outside the areas you modify. In some models, attribute bytes are defined at other locations within the panel. To see the location of all attribute bytes, issue the **FIELD SHOW** command. For more information on attribute bytes and screen commands used to modify a panel model, see “Using PMF Commands” on page 80.

On data-entry and table panels, the lines above and below the command line (depending on whether the command line is on the top or bottom of the screen) are reserved for displaying messages and cannot be modified.

To create a panel from a model, you:

1. Modify the model's external characteristics:
 - a. Type over or delete the unnecessary information. You can use uppercase and lowercase letters.

Note: If you cannot type data into a position on the panel, an attribute byte probably exists in that position. Issue the **FIELD SHOW** command to verify that no control information is associated with the attribute byte (that is, a ? is present, not a %.) Issue the **FIELD OFF** command. Type **FIELD CLEAR** on the command line, move the cursor to the attribute byte, and press **Enter**. The attribute byte is gone, and you can type data in that position on the panel.
 - b. Use the **FIELD** command to add attribute bytes for designating fields and their lengths and to define the levels of highlighting.
2. Modify the model's control information:
 - a. Use the **CONTROL** command to enter control information for the appropriate fields, selections, or columns.
 - b. Select the appropriate update options to complete control information for the panel. For an explanation of specific fields that you must complete, see "Required Control Information" on page 52.

For a more detailed discussion of these steps, see "General Procedures for Updating Panels" on page 25.

When creating panels, you can temporarily interrupt the panel updates with the **SUSPEND** and **RESUME** commands. This technique is useful when you want to display or update entries in the dictionary or to display the external or control information of another panel.

Refer to existing panels, by selecting **Panel update** on the Panel Modification Facility options panel, for tips on:

- Defining attribute bytes
- Specifying target panel names, s-word, and p-word indexes
- Other control information

Creating Panels 132 Characters Wide

PMF allows you to create data-entry panels that are 132 characters wide. When you update a panel model and you type data into the area beyond column 80, the panel is automatically defined as a 132-character panel. Once a panel is defined as 132 characters wide, you cannot change it back to 80 characters wide. If your users can only see 80 characters on the screen, they will receive an error message when they attempt to use the wide panels.

To see where you are on a 132-character panel, use the **SRIGHT** and **SLEFT** screen commands to shift the panel to the right or left. You can also use the **MOVEA** command to move data into the area beyond column 80 on an 80-character screen. See "Using PMF Commands" on page 80 for a complete description of these screen commands and their use.

Note that the maximum number of lines allowed on a panel is 24, of which you can modify only 22, even when the panel is 132 characters wide.

The rest of this chapter describes, for each type of panel:

The model and its features	The prototype panel that you update when you are creating a new panel. The description explains fields that are unique to the particular panel type.
Intrapanel characteristics	Discusses the panel in and of itself and how the user views and interacts with it. These characteristics deal with the panel's appearance; they include, for example, highlighted fields and the placement of fields on the panel. Intrapanel characteristics are a subset of interpanel characteristics; consistency of intrapanel characteristics is essential to the overall ease of use of a set of panels.
Interpanel characteristics	Discusses the panel as part of a sequence or group, and the effects on the user when responding to one panel after another. Interpanel characteristics also include the overall consistency of functions, making sure, for example, that entering the UPDATE command presents a similar panel for each record type.
Data collected	The data that can be collected by this type of panel and how you, as the panel's creator, control the data collection.
General considerations	Hints and design considerations to keep in mind when creating panels.

Creating a Data-Entry Panel

A data-entry panel allows a user to enter data, display fields, and make selections. You can create a data-entry panel that contains:

- Input fields only
- Display fields only
- Selections only
- Any combination of the above three items

You can also use a data-entry panel as a selection or options panel, for example, if you want to use more than nine selection items. BLG0EN20 is an example of a data-entry panel used as an options panel. If you think that your panel might someday include more than nine selections or options, use a data-entry panel. Generally, however, use a data-entry panel when single-response fields are to be entered or displayed and the fields are not mutually exclusive.

A data-entry panel collects responses where the number of possibilities is limited, such as date occurred or reporter name. If the number of responses is open-ended, such as PTF numbers or module names, use a list processor table panel backed by an assisted-entry panel. You can use a selection panel, but a disadvantage to that method is that your users cannot see what they enter without performing a VIEW INTERNALS. A field on a data-entry panel is fixed in length; if the number of entries were limitless, the user might run out of room entering the replies.

Note: Do not change data-entry panels using the graphical user interface (GUI) mode in ISPF Version 4.1. Attribute bytes cannot be selected by the cursor, so PMF commands, such as AT and MOVEA, do not work correctly.

The Model and Its Features

The following model is the data-entry panel model. No matter what you want to include on your data-entry panel, begin with this model. “The Split-Function Data-Entry Panel” on page 146 includes information about creating data-entry panels that contain both display fields and selections. “The Data-Display Panel” on page 148 includes information about creating data-entry panels that contain only display fields.

This is the 80-character data-entry panel model.

```
BLM8CU79                TOP TITLE                RECORD: _____
Add purpose of panel, how the user interacts with panel, and other usage notes.

1. Field name 1..... _____          9. Field name 9..... _____
2. Field name 2..... _____          10. Field name 10..... _____
3. Field name 3..... _____          11. Field name 11..... _____
4. Field name 4..... _____          12. Field name 12..... _____
5. Field name 5..... _____          13. Field name 13..... _____
6. Field name 6..... _____          14. Field name 14..... _____
7. Field name 7..... _____          15. Field name 15..... _____
8. Field name 8..... _____          16. Field name 16..... _____

                BOTTOM TITLE

NOTE: You can modify this panel by using cursor movement keys and PMF
      screen commands. Change the visible text of the fields as needed.
      Type HELP on the command line for more information. Erase these
      four text lines by using the cursor movement and ERASE EOF keys.

====>
```

The name of the panel you are creating appears in the upper left corner of the panel model, where BLM8CU79 appears in this example. See “Example of a Naming Scheme” on page 393 for more information about naming the panels you create.

When you move data into the area beyond column 80, the panel is automatically defined as 132 characters wide. Once a panel is defined as 132 characters wide, you cannot change it back to 80 characters wide. A 132-character data-entry panel can only be displayed on a 132-character screen. If your users do not have a 132-character screen, when they attempt to display the panel, they receive an error message.

The following fields are of special interest:

- **Record** identifies the record being created, updated, or displayed. It is right-justified on the top line of the panel.
- The selection numbers are the 1- or 2-digit numbers assigned to the input fields. They allow the data-entry panel to be used for more than collecting data from a user. See the following discussions of intrapanel and interpanel characteristics for more information.

When you are deciding how many fields to include, you must consider the buffer size. When a user attempts to fill in all the fields using an IRC, the 512-byte buffer could be exceeded.

Interpanel Characteristics

Fields on display panels or input data-entry panels have control information associated with them in the form of s-word and p-word indexes that provides for the redisplay of the data. When a panel is filed, the s-words or p-words for those indexes are refreshed from the dictionary. See “Using the Dictionary” on page 183 for more information about s-words and p-words.

The s-word and p-word for a data-entry field must match those in the corresponding assisted-entry panel so that the correct data can be displayed on the data-entry panel. For a display-only field, the s-word or p-word must match those in the assisted-entry panel used to create the data or those in the control panels used to automatically add this data to the data-entry panel.

Intrapanel Characteristics

The following items about the general appearance of data-entry panels are of particular importance:

- **Full-width display.** The lines of the panel following the top line are extended to match the width of the displayed top line. Full-width displays are characteristic of all primary panels.
- **Blank lines.** Blank lines divide the panel into logical segments. Blank lines after the title and before the bottom title serve to frame the panel. This method allows the user to focus on the body of the panel.
- **Single-column display.** When your panel consists of 12 or fewer fields, put them in a single column and center the column on the panel. If a long field prevents centering the column on the panel, left justify all fields.

This is an example of the single-column layout on a data-entry panel.

```

BLM8CU1E                PANEL FLOW PROCESSING                PANEL: _____
Enter panel flow control data; cursor placement or input line entry allowed.

      1. Authorization code..... ____
      2. Null target (create).... _____
      3. Null target (inquiry)... _____
      4. Dialog end..... _____
      5. Override dialog target... ____
      6. Target is data-entry.... ____
      7. Force SRC generate end... ____
      8. Program exit symbol..... _____

When you finish, type END to save or CANCEL to discard any changes.

====>
    
```

- **Multicolumn display.** If your data-entry panel has more than 12 fields, arrange them into two or more columns.

This is an example of the multicolumn layout.

```
BLG0B300                PROBLEM CLOSE ENTRY                PROBLEM: _____

Enter problem closing data; cursor placement or input line entry allowed.

1. Resolved by.....<R> _____      10. Problem status.....<R> _____
2. Resolver dept..... _____         11. Cause code.....<R> _____
3. Resolver phone..... _____         12. Program name..... _____
4. Resolver class..... _____         13. Device name..... _____
5. Date closed.....<R> _____         14. Original prob. number.. _____
6. Time closed..... _____           15. Cause change number.... _____
7. Total time..... _____            16. Fix change number..... _____
8. Duplicate count.... _____         17. Date rep. notified..... _____
9. Outage..... _____                 18. Rerun time..... _____
                                           19. Vendor PD time..... _____

When you finish, type END to save or CANCEL to discard any changes.

===>
```

In the multicolumn layout, the columns are centered vertically with respect to the rest of the panel to draw your eyes to the center of the screen. Here are some guidelines for creating multicolumn data-entry panels:

- **Required fields.** Position required fields carefully. If possible, group them together, preferably on the left side of the panel because the input line is located on the left side of the screen. In addition, 3270-type terminals have a cursor-movement key that always positions the cursor at the left-most input field. If all the required fields are in the left column, the user can move quickly down the list by pressing this key. Another guideline, however, can take precedence; for example, grouping generically related fields or maintaining interpanel consistency.
- **Generically related fields.** Group fields that are related to each other together. In the example, the four fields dealing with the identity of the problem resolver are together.
- **Selection numbering.** Number from the top down as opposed to left-right. A top-to-bottom arrangement is easier on the user's eyes.
- **Field length.** Place fields that are too long to fit into a column after all other fields on the panel, aligned with the left-most column.
- **Column spacing.** Put enough blank space between columns to separate them clearly on the screen. Crowded columns make it difficult to tell which fields are contained within each column. Spacing also helps you divide the data into smaller, more meaningful segments.
- **Balanced columns.** Grouping shorter field names and larger fields to the left make clearer, more concise columns and provide left-right balance. Design columns to contain equal numbers of entries, if possible.
- **Interpanel field relationships.** If a particular field appears on several panels, put it in the same place on all panels.

Data Collected

Data-entry panels collect information during the record-entry and record-update processes. The information collected depends on the type of field.

- **Display-only field.** No data is collected for a display-only field. However, the control line associated with a display-only field contains either an s-word or p-word index that identifies the data to be displayed.
- **Selection without an input field.** The data collected for a selection without an input field depends on the s-word or function code index assigned to the selection. Generally, the s-word or function code index is the same as for a selection or options panel, and the key phrase is similarly identified for selection panels.
- **Data-entry field.** The s-word or p-word specified for a data-entry field is used mainly to control redisplay of data collected from the field's target assisted-entry panel. Only when the assisted-entry panel indicates use of the data-entry s-word is the value collected from this field. If the **Collect from caller** field for the associated assisted-entry panel contains **YES**, then the data-entry panel should provide an s-word. If the s-word field is blank and the **Collect from caller** field contains **YES**, results may be unreliable.
No visible phrase is collected for data-entry fields because a data-entry display panel redisplay data entered in the fields.

General Considerations

When you design data-entry panels, consider the following items:

- **Highlighting.** Use highlighting sparingly on these panels; it tends to focus the eyes on one area only. Too much highlighting leads to a loss of readability.
- **Bottom titles.** Be sure the words in the bottom title area accurately indicate how to leave the panel. For example, the following bottom title is used on all Tivoli-supplied data-entry panels:
When you finish, type **end** to save or **CANCEL** to discard any changes.
You can specify the actual words that appear in the bottom title, but be sure they are consistent across all data-entry panels.
- **Redisplay of underscores.** Fill characters indicate how much data can fit into a field. Data already entered in the field is displayed, followed by as many fill characters as necessary to fill the field to its complete length. You can use other fill characters besides underscores in data-entry fields. See “Using the CONTROL Command” on page 84 for more information about fill characters.
- **Message line.** Because data-entry panels usually contain many data items, the message area is compressed to a single line located at the top or bottom of the panel. This line can be overlooked when the system issues a message; therefore, messages are always highlighted.
- **Record ID.** Putting the record ID on a record-update panel identifies the record that is being accessed at the moment.
- **Required fields <R>.** Defining required fields on a data-entry panel ensures that specific items are entered before the user leaves the panel. To make data-entry easier for your users, put required fields on the left side of the screen.

Make a field required only if:

- Users must provide an answer to that field.
- The data collected by the field is critical for search and tracking purposes.

When a user leaves a data-entry panel with the END command or a null reply, Tivoli Information Management for z/OS tests that all required fields are filled in. The user cannot end the data-entry panel and save the completed fields if all required fields are

not filled in. Only an END command or null reply will activate this test. If you modify the panel to include another means of leaving it (for example, a selection field), the required field test is not performed, and a user can leave this panel without completing all required fields.

- **Field justification and character suppression.** You can choose to make a field justify to the left or right when the data is displayed to the user. You can also define a suppression character. For example, you might want to justify a numeric field on the right so the columns line up and specify a fill character of zero:

```
00945
03840
44991
00072
```

You can choose to suppress the 0s, so your columns would look like this:

```
 945
 3840
44991
 72
```

You can suppress any character, not just the fill character.

- **DBCS versus SBCS characters.** The following types of fields on data-entry panels must contain only SBCS characters:
 - Selection numbers
 - Periods following selection numbers and ends of visible phrases
 - Required field symbol <R>
 - Panel name ID.

See “Creating a Data-Entry Panel” on page 245 for more details on these and other aspects of data-entry panels.

The Split-Function Data-Entry Panel

The previous discussion described data-entry panels as they are used to create records. You can also use data-entry panels to display data. A data-entry panel that displays data fields and allows users to make selections is called a split-function panel. It is used most often in display mode and as the update summary panel for a record.

This is an example of a split-function data-entry panel.


```

BLG0BU00                PROBLEM SUMMARY                PROBLEM: 00013401

Reported by..... _____ Problem status..... _____
Assignee name..... _____ Current phase..... _____
Tracked by..... _____ Current priority..... _____
Network name..... _____ Owning priv. class..... _____
System name..... _____ Entry priv. class..... _____
Program name..... _____ Date entered..... _____
Device name..... _____ Time entered..... _____
Key item affected..... _____ Date last altered..... _____

Description..... _____

Select one of the following, type END to save your changes, or type CANCEL
to discard your changes.
    1. Reporter data.                6. Supplemental data.
    2. Status data.                 7. Synopsis data.
    3. Close data.                  8. Freeform text.
    4. Symptom data.                9. File record.
    5. Resolution data.             10. Create solution and file record.

====>
    
```

Intrapanel Characteristics

The following points about the general appearance of the split-function data-entry panels are of particular importance:

- **Full-width display.** The lines of the display following the top line can extend to match the width of the top line displayed. Full-width displays are characteristic of all primary panels.
- **Blank lines.** Blank lines serve to break the display into its distinct parts. Blank lines following the title and before the bottom title serve to box the display and allow the user to focus on the body of the panel.
- **Bottom title.** Unlike other primary panels, the bottom title of a split-function panel appears somewhere in the middle of the screen, where it divides the panel into two distinct parts. The bottom title and top title still serve to box the display items on the screen. However, the bottom title wording is used as a transition between the display items and the selectable items.
- **Multicolumn display.** This term refers to data-entry fields that appear as two or more columns. The columns are centered with respect to the rest of the panel to draw the eye to the center of the screen. Use a multicolumn display on split-function panels even when you have fewer than 12 items: you can group all the data items at the top of the panel, leaving room for the selection items at the bottom. For more information about multiple columns, see page 144.

General Considerations

When you design split-function panels, consider the following items:

- **Highlighting.** Use highlighting sparingly; it tends to focus the eye on a single area. Do highlight the bottom title, though, to aid the transition from another panel to this type of display.
- **Arranging fields.** Group shorter field names and larger fields to the left to give you clearer, more concise columns and provide left-right balancing. Put the same number of items in each column, if possible. If you have an unequal number of entries, make the leftmost column the longer.

The Split-Function Data-Entry Panel

- **Selection numbering.** The largest choice number you can use is 99 for a selection on a data-entry panel.
- **Using s-words.** Do not use the same s-word more than once on the same data-entry panel. Because s-words determine the display of data, each field in a record must have its own s-word. If an s-word occurs more than once in the same record, only the last occurrence is used for display. This can affect the display of records, report output, and history displays.

When you add a **File record** selection, you *must* use the s-word index 0CF1.

The Data-Display Panel

Data-display panels show single-entry, replaceable items of information. Use a data-display panel when you do not want the user to enter data or make selections.

This is an example of a data-display panel.

```
BLG0L400          PROBLEM SUPPLEMENTAL DISPLAY          PROBLEM: _____

Console output..... _____          Vendor status.....<H> _____
Output data..... _____          Vendor number..... _____
Input data..... _____          Vendor priority...<H> _____
Source listing..... _____          IPCS record number... _____
Source..... _____          APAR number..... _____
SMP listing..... _____          PTF number..... _____
Trace data..... _____          EC number..... _____
Graph/Log data..... _____          APAR/PTF status...<H> _____
Diagnostic output..... _____          Component APARed..... _____
Operator form..... _____          Data set type..... _____
                                          Vendor PMR number..... _____
                                          Probable cause..... _____

Dump data set..... _____
Resource types..... _____
Resource names..... _____

                To return to the Summary Display panel, type END or CANCEL.

===>
```

Intrapanel Characteristics

Three points about the general appearance of data-display panels are of particular importance:

- **Full-width display.** The lines of the display following the top line can extend to match the width of the top line displayed.
- **Single-column display.** This term refers to fields that are structured into a single-column format. Whether the data is centered depends on the length of the longest input field. If a long field precludes centering the column on the panel, left justify all the fields. Use the single-column layout when your panel shows 12 or fewer items. For more information on single-column display, see page 143.
- **Multicolumn display.** This term refers to fields that appear as two or more columns. The columns are centered with respect to the rest of the panel to draw the eye to the center of the panel. For more information on multicolumn display, see page 144.

General Considerations

The general considerations for this panel are the same as those described for the split-function data-entry panel; see “General Considerations” on page 147.

Creating an Assisted-Entry Panel

The assisted-entry panel helps the user enter data for a particular field. It also validates data entered on a data-entry, assisted-entry, or list processor table panel, and provides the internal representation for that data. Use assisted-entry panels when an application requires the collection of specific information for storing or retrieving data in a database. That is, they can be used in either create or inquiry mode.

If the information collected by an assisted-entry panel is limited (only a single response is valid, for example), a data-entry panel can display the information. Of course, the data-entry panel must contain the controls necessary to properly display the information collected by the assisted-entry panel.

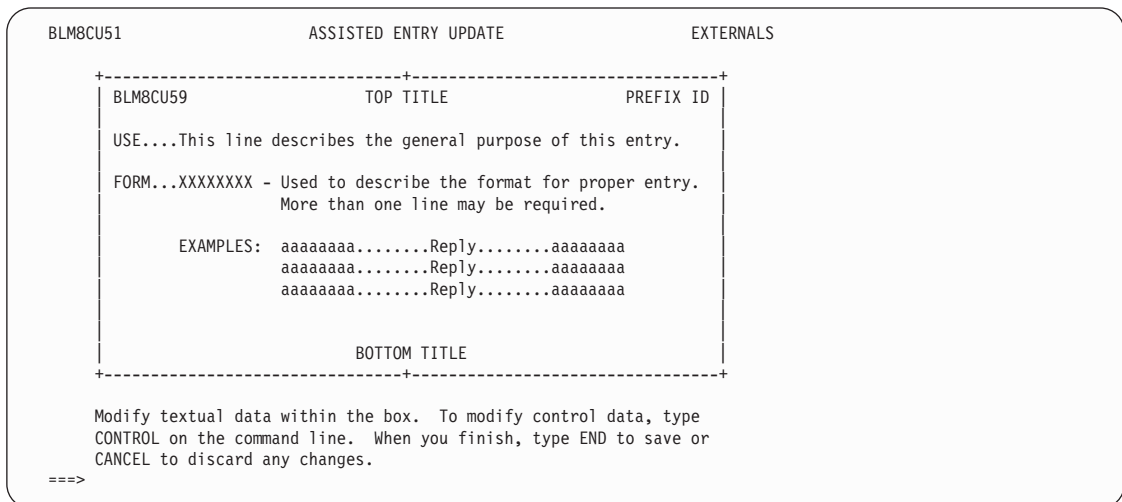
Assisted-entry panels can also collect information that is open ended, such as engineering change (EC) levels of a specific device or the modules fixed by a certain program temporary fix (PTF).

You can also use assisted-entry panels in conjunction with the list processor program exit and a table panel to collect an essentially unlimited number of responses.

You can use data attribute records to replace assisted-entry panels. See page 539 for more information about data attribute records.

The Model and Its Features

This is the assisted-entry panel model.



The name of the panel you are creating appears in the upper left corner of the panel model, where BLM8CU59 appears in this example. See “Naming Conventions for Panels” on page 389 for more information about naming the panels you create. Plus signs (+) mark the centers and corners of the top and bottom lines. The center plus signs appear only during PMF update.

The following panel-specific fields are of particular importance:

- The **panel name** is the one you enter on the Panel Name Entry panel as you begin to create the new panel.
- **Top title** usually corresponds to the field for which the assisted-entry panel is written.
- **Prefix ID** identifies the prefix to be attached to this value entry. The panel obtains the correct prefix from the control information. Showing the prefix on the assisted-entry panel helps users who are learning the system to associate prefixes with values, so they can eventually do prefixed or keyword searches on generically-related records.
- **Use** indicates the purpose of the assisted-entry panel and can take the form of a message to the user (“This field is not filled in correctly.”)
- **Form** corresponds to the key phrase for a selection on a selection panel; it answers the question: “What should this entry look like?” This line also shows the number of responses allowed for each reply to this panel. You might need more than one line to describe the format of acceptable responses; see “General Considerations” on page 151 for further details.
- **Examples** implies that this panel accepts many valid responses. Usually, three or more example lines follow the heading; they correspond to line-item definitions and other tutorial selections on a selection panel.

If the number of valid responses is few (such as **INITIAL**, **OPEN**, and **CLOSED**), use **Reply** instead of **Examples**, and list all the valid replies to the right of the heading. If you use the **REPLY** heading on the panel, omit the form line.

If your end users are using the graphical user interface (GUI) provided in ISPF Version 4.1 to display Tivoli Information Management for z/OS panels, consider delimiting valid values so your users can actually select a value from an assisted-entry panel using a graphical push button.

Intrapanel Characteristics

When you are creating an assisted-entry panel, you should consider the following:

- **Full-width display.** On assisted-entry panels, only the **Use...** and **Form...** lines are the full width of the inner box. Other lines, particularly in the central area of the display, are intentionally indented on both sides.
- **Void areas.** The left side of the panel, where selection numbers and phrases appear on selection panels, is left empty on assisted-entry panels. This is a particularly important characteristic for interpanel transition.
- **Example line.** This line guides the eye to the proper location to find examples of (or replies for) the expected entry.

What Data Is Collected

Assisted-entry panels collect information in either the record or search argument being created. This information can be identified as a searchable word in either process. The data collected depends on the panel’s control information:

- **S-Word.** An s-word is collected if it is identified in the control information. If an assisted-entry panel exists for a data-entry field, it must collect an s-word if the control information for that field has the **Use s-word for display** field set to **YES**. You can either have the same s-word index in the assisted-entry panel as in the data-entry field, or, more efficiently, set the **Collect from caller** field control information to **YES** for the assisted-entry panel. The effect of either method is to ensure the s-words are the same.

- **Prefixes and values.** Every user response that passes validation is collected. If a prefix is identified in the control information, the response is appended to the prefix. If the corresponding data-entry panel indicates that a prefix is to be used for redisplay (**Use s-word for display** field is **NO**), that prefix must match the one in the assisted-entry panel. An assisted-entry panel can collect more than one prefix by using the **Pattern type** field so that you can assign your own local prefixes without affecting Tivoli Information Management for z/OS functions.
- **Values.** If you do not identify a prefix in the control information, a user's responses on the assisted-entry panel are collected as entered. Avoid this practice because such data has no context defined for it. An example of this type of field is the description of a record.

General Considerations

If a valid response to your assisted-entry panel is also a Tivoli Information Management for z/OS command (for example, a valid component record status for your company is **ORDER**, but **ORDER** is also a Tivoli Information Management for z/OS command), consider setting the **Command is always data** field (in the common section) to **YES**.

The form line can be defined as follows:

- **NNNNN.** This form line indicates that a valid response is 5 numeric characters (0-9). The number of **N**s indicates the maximum length of the reply.
- **AAAAAA.** This form line indicates that a valid response is 6 alphabetic, numeric, or special characters: A-Z, 0-9, #, @, \$, /, & . The number of **A**'s indicates the maximum length of the reply.
- **BBBB.** This form line indicates that a valid response is a 4-digit binary number (0 and 1). The number of **B**'s indicates the maximum length of the reply.
- **XXXXX.** This form line indicates that a valid response is a 5-digit hexadecimal number (0-9 and A-F). The number of **X**'s indicates the maximum length of the reply.
- **ZZZ-ZZZ.** When a valid response can contain more characters than fit on the form line, use this form to indicate many characters or digits. For example, *NN-NN* implies many numeric digits. In this case, the form line description must say explicitly what the maximum length is. Generally, this format is used when the number of characters exceeds 8.

The following are content definitions you can use for the form line and the responses:

- **Automatic left-zero padding.** Indicates that if the user does not enter the maximum number of numerical characters allowed in the response, the response is automatically padded on the left with enough zeros to fill the proper length.
- **Number of words in a reply.** Indicates the total number of words allowed for the response. The implication is that more than one word is allowed. The phrase "Up to NN words per response" means that more than one word (but fewer than 100) is allowed. This is not the same as the number of characters allowed in a response, which addresses the length of the field.
- **Special instructions.** Refers to any extra instructions you provide to aid the user's thought processes when responding to the panel. Precede such instructions with the word **NOTE**:. This word and the data that follows it should be grouped to line up with the Form line (if one exists) or the Use line (if there is no Form line).

Creating an Assisted-Entry Panel

Your end users who use the graphical user interface from ISPF Version 4.1 will want to use selectable values from an assisted-entry panel. To provide these selectable values, make the delimited values appear as graphical push buttons by surrounding the valid values with < and > symbols. Also, include either a space or an attribute byte before the < symbol and after the > symbol. For example, the assisted-entry panel for the **Problem status** field (BLG6STAT) has three choices:

- INITIAL...The record has been entered.
- OPEN.....The record has been assigned or opened.
- CLOSED....The record has been closed or completed.

To enable the graphical user interface mode, add spaces and < and > symbols as follows:

- <INITIAL> ...The record has been entered.
- <OPEN>The record has been assigned or opened.
- <CLOSED>The record has been closed or completed.

See “Creating an Assisted-Entry Panel for an Input Field” on page 275 for more details on these and other aspects of assisted-entry panels.

Creating a Table Panel

A table panel displays application-generated data as full-screen text. The amount of data displayed depends on the size of the screen and the user’s profile. Because a table panel is controlled by the window-display interface, it is scrollable. You can use table panels as display or data-entry panels.

The Model and Its Features

This is the 80-character table panel model.

```
BLM8CU89                PANEL TITLE                LINE _ OF _
THIS AREA IS USED TO DEFINE THE TOP TITLE AREA OF THE PANEL.
-----
COLUMN
HEADING
-----
THIS AREA IS USED TO DEFINE THE BOTTOM TITLE AREA OF THE PANEL. UPDATE
PANEL BLG1TSRL FOR AN EXAMPLE OF BOTTOM TITLES.
-----
NOTE: You can modify the contents of each area by using cursor movement keys
and PMF screen commands. Type HELP on the command line for more infor-
mation. Type FIELD SHOW on the command line to locate all attribute
bytes on the panel.
====>
```

PMF lets you create table panels that are 132 characters wide. When you are updating a panel model and you enter data beyond column 80, the panel is automatically defined as a 132-character panel. If you are going to display this panel on a narrow screen (80 byte), the first attribute byte of the last column must occupy the next-to-last column on the right side of the screen.

To see where you are on a 132-character panel, use the SRIGHT and SLEFT screen commands to scroll the panel to the right or left. You can also use the MOVEA command to

move data into the area beyond column 80 on an 80-character-wide screen. See “Using PMF Commands” on page 80 for a complete description of these screen commands and their use.

Note that the maximum number of lines allowed on a panel is 22 even when the panel is 132 characters wide.

The following fields on the model panel are of particular interest:

- The **Top title area** can consist of zero to four lines. If you want any of the lines to remain as blank lines, you must put an attribute byte somewhere on the line. To blank out more than one line, put the attribute byte on the last line you want to be blank. To reduce the number of blank lines, put an attribute byte on the last line to be displayed and remove (**FIELD CLEAR**) the attribute bytes from the lines you want to eliminate.

The first line consists of:

- **Panel name.** The name of the panel, placed in the top left corner. The name is the one you enter on the Panel Name Entry panel as you begin to create the panel.
- **Panel title.** States the purpose for your table panel. Center the title on the top of the panel and highlight it.
- **Line _ of _.** Displays the current line number, relative to the beginning of the information being displayed, and the total number of lines of text in the panel. The blanks are filled in by the application that uses the table panel. When updating the model, define the beginning of the field with the **FIELD** command. Remember to put the attribute byte far enough to the left to allow for increasing length of the numbers; this area does not require an attribute byte to the right.
- **Line &L of &T.** Displays line numbers using the following variables:
 - &L is the current line number.
 - &T is the total number of lines to display.

You can use either **Line _ of _**, or **Line &L of &T**, but only one can be used for each table definition.

The **Top title area** can include an application block data area, which allows the application using the panel to add nonscrollable application-specific data to the table display. You cannot control the type of information displayed in this area, but you can control the number of lines available for the display. You can also access this data through the appropriate message **CSECT**, and you can suppress the display of application block data altogether by specifying zero lines for the area on the table’s General Update panel.

- The **column heading** area is for defining headings for each column. The area has up to four lines for the headings. If a heading line contains no text, you must put an attribute byte in it to keep it as a blank line. Follow the procedure described under the top title area on 153 to control the number of blank lines displayed.
- Following the column heading area is the **column data** area, where scrollable data appears. In general, each column heading you define has one column of data; however, column headings are not required.

A column on a table panel can contain either output (display) or input (entry) data. In addition, you can define line-command and sequence-number columns in this area. Use the **FIELD** and **CONTROL** commands to define the characteristics of each column.

The number of lines that appear in this area when the panel is processed depends on the application and on the size of the screen. For example, the search-results list is a table panel. If a search results in no hits, the data defined by the columns on the panel does not appear.

- **Bottom title** area is the last area on the visible part of a table panel. The text you define for this area appears at the bottom of each display of scrollable data. The bottom title can be up to four lines deep. If a line contains no text, you must put an attribute byte in it to keep it as a blank line. Follow the procedure described under the top title area on 153 to control the number of blank lines displayed.

This is an example of a commonly used table panel.

```
BLG1TSRL                SEARCH RESULTS LIST                LINE 1 OF 10

DATABASE: 5

RECORD ID      DESCRIPTION ABSTRACT
1. 00000007    SYSTEM INTERFACE FAILURE
2. 00000008    TOD CLOCK NOT UPDATED
3. 00000012    TOD CLOCK SET BACK INSTEAD OF FORWARD
4. 00000014    KEYBOARD LOCKED
5. 00000015    3820 PRINTER FAILURE
6. 00000016    COPIER HAS SCRATCHES ON GLASS
7. 00000017    PHONEMAIL NOT ACCEPTING USER RECORDING
8. 00000033    SYSTEM INTERFACE FAILURE
9. 00000034    3820 PRINTER DRAINED
10. 00000039   PHONEMAIL WILL NOT ACCEPT MESSAGES

Line Cmds: C=Copy D=Delete P=Print S=Select U=Update
Type DOWN or UP to scroll the panel, or type END to exit the panel.

====>
```

The line containing the database identifier is an example of application-generated data displayed in the application block data area. Three data columns are defined for this table panel: one for line commands and sequence numbers, one for the record ID, and one for the description abstract.

Intrapanel Considerations

The display of table panels is controlled by both the control information associated with the panel and by screen characteristics profile options such as maximum screen lines and fold output columns. Following are some suggested display techniques:

- **Line command area placement.** Always place the line-command area conveniently for cursor movement and always in the same part of the panel.
- **Column headings.** Define column headings for each unique column of information to be displayed. You can use more than one line to accurately describe the column. Note, however, that the lines for column headers reduce the amount of space available for dynamically constructed data.
- **Bottom titles.** Include bottom titles to instruct the user on how to respond to the panel. Leave a blank line between the last line of dynamically built data and the bottom title so the latter stands out from the contents of the table.
- **Permanent versus nonpermanent columns.** The placement of columns that can be scrolled horizontally can affect other columns in the table.

- **Column width.** The columns in a table display can have a maximum width and a current width. The maximum width is internal and is set in the control information for the column. It determines how wide the column is altogether. The current width is an external feature that determines how much data is displayed in the column at one time. For example, you can set a column's maximum width to 15 characters in the control line for the column, and then set the current width to 5 characters on the externals update panel and make the column scrollable. When an application uses the table to display data, it can put 15 characters of data in this column. The user, when displaying the table, will have to scroll the column to the right twice to see all 15 characters in the column. The current width is measured from the first attribute byte of the column to the position preceding the last attribute byte. It cannot exceed the maximum width for the column.
- **Folding columns.** If the last column on a table is too wide for the screen, the data in it can be either truncated or folded. The line is split, and the right-most section is moved under the left-most section. Users indicate whether columns can be folded in the Tivoli Information Management for z/OS screen control profile options.

Interpanel Considerations

Although the physical layout of a table panel does not change, the information dynamically displayed on it can move. Because the user proceeds through a table display using scroll commands and line commands, interpanel considerations are less important than they are for other types of panels.

What Data Is Collected

Table panels include control information that displays data from records in the columns of the table. When an s-word or p-word is used to define the information to be displayed in a column, the corresponding record information identified by that s-word or p-word is displayed. In most cases, these responses are assisted-entry panel responses.

Table panels are application dependent and generally are not used to add information to a record. However, data is collected for records on text table panels.

General Considerations

Keep the following in mind when you are working with table panels:

- **Column scrolling.** Use column scrolling when you must restrict a column to a certain width. Make sure to indicate on the table panel that the column can be scrolled. You must also make sure the current width does not exceed the maximum width allowed in the control information for the column.
- **Block data.** You can restrict the amount of display space for application block data if you need to allow more space for the display of other data on the screen.
- **Field justification and character suppression.** You can choose to make a field justify to the left or right when the data is displayed to the user. You can also define a suppression character. For example, you might want to justify a numeric field on the right so the columns line up and specify a fill character of zero:

```
00945
03840
44991
00072
```

You can choose to suppress the 0s, so your columns would look like this:

945
3840
44991
72

You can suppress any character, not just the fill character.

Table Panel Modifications

Most Tivoli Information Management for z/OS table panels are record or function dependent, so their control information cannot be modified. The externals of all table panels, however, can be changed. The charts on the following pages list all the table panels used in Tivoli Information Management for z/OS, except for the Integration Facility, and describe how to change them.

Search results list panels display data from records retrieved by a search of the database. You can change these panels to display any fields that are collected as part of a record. Other changes you can make to search results list panels are:

- Column reorder
- Column-width adjustment
- Column display authorization
- Search results sorting

Table 11 lists the search results list table panels. For some of them, you cannot sort results; their labels are followed by an asterisk (*).

Table 11. Search Results List Table Panels

Table Panel	Function
BLG1TADO	Down Component List
BLG1TAUP	Up Component List
BLG1TCAC	Activity Record List
BLG1TCFE	Feature Record List
BLG1TCMF	Model Hardware Feature Record List
BLG1TCOL	Connection Record List
BLG1TCON	Hardware Connection Record List
BLG1TCOS	Software Connection Record List
BLG1TESC	Escalation Rules Record List
BLG1TFEL	Related Record List
BLG1TMOD	Model Hardware Component List
BLG1TPCL	Privilege Class List
BLG1TPTH*	Component Path Display
BLG1TREL	Related Record List
BLG1TSFE	Feature Record List
BLG1TSMD	Model Software Component List
BLG1TSMF	Model Software Feature Record List
BLG1TSQL*	Sequential Record List
BLG1TSRC	SRC List Display
BLG1TSRL	Search Results List
BLG1TSRP	Search Results List with Logical Partition

Table 11. Search Results List Table Panels (continued)

Table Panel	Function
BLG1TSUB	Model Hardware Subcomponent List
BLG1TSYH*	Component Up/Down Connectivity Synopsis
BLM1YCCH	Child Record List
BTN1TADO	DOWN COMPONENT LIST
BTN1TPS1	PROBLEMS: TYPE/STATUS/ASSIGNEE DATA/DESCRIPTION
BTN1TSAD	PROBLEMS: STATUS/ASSIGNEE DATA/DESCRIPTION
BTN1TSAN	PROBLEMS: STATUS/ASSIGNEE DATA/ CAUSE/DESCRIPTION
BTN1TSC1	CHANGES: COMP/DATE ENTERED/STATUS/DESCRIPTION
BTN1TSC2	CHANGES: CATEGORY/STATUS/COMPONENT/DESCRIPTION
BTN1TSC3	CHANGES: TYPE/STATUS/ASSIGNEE DATA/DESCRIPTION
BTN1TSC4	CHANGES: CATEGORY/STATUS/COMP DATA/DESCRIPTION
BTN1TSF1	CONFIG: COMP/TYPE/SERIAL #/STATUS/NET NAME/DESCRIPTION
BTN1TSF2	CONFIG: COMP/MAINT/OWNER/PHONE/STATUS/DESCRIPTION
BTN1TSF3	CONFIG: PROGRAM/LIC BEG/TYPE VERSION/REL/DESCRIPTION
BTN1TSF4	SOFTWARE: PROGRAM/STATUS/REL/FIX LVL/SYS ID/DESCRIPTION
BTN1TSF5	PROBLEMS: STATUS/ASSIGNEE DATA/CAUSE/DESCRIPTION
BTN1TSF6	HARDWARE: COMP NAME/SEV/DATE & TIME DOWN/DESCRIPTION
BTN1TSN1	PERSON: ID/NAME/PHONE/LOCATION/ADDRESS
BTN1TSRN	PROBLEMS: COMP/RNID/DATE ENTERED & UPDATED/DESCRIPTION
BTN1TSSE	PROBLEMS: SEV/LAST UPDATE/ASSIGNEE/COMP/DESCRIPTION

Text table panels collect and display freeform text data. These panels contain two-column data areas and, in create mode, a line-command area. You can reorder the columns and adjust their widths. The first column data area displays the text control data (date, time, user identifier, and class) associated with the text entry. If the search does not retrieve the s-word for this column (s-word index 0DA1), the text control data does not appear. In addition, you can define the control information that does appear and the order in which it is presented by updating control panel BLG1ACTL.

The second column data area contains freeform text. If the s-word for this column (s-word index 0DA0) is not located, freeform text processing is canceled. Table 12 lists the text table panels.

Table 12. Text Table Panels

Table Panel	Function
BLG1TADD	Address Text Entry
BLG1TBAC	Backup Plan Text Entry
BLG1TDAD	Address Text Display
BLG1TDBA	Backup Plan Text Display
BLG1TDDE	Description Text Display
BLG1TDES	Description Text Entry
BLG1TDJU	Justification Text Display
BLG1TDNO	Notes Text Display

Table 12. Text Table Panels (continued)

Table Panel	Function
BLG1TDRE	Resolution Text Display
BLG1TDSR	SRC Text Response Display
BLG1TDST	Status Text Display
BLG1TJUS	Justification Text Entry
BLG1TNOT	Notes Text Entry
BLG1TRES	Resolution Text Entry
BLG1TSTT	Status Text Entry

Function-dependent table panels display application-generated data. This type of panel can be subdivided into two categories: those on which only the column widths can be changed and those on which you can control more aspects of the data display. The panels on which only the column widths can be changed are listed in Table 13.

The functions that use these panels depend on the specific column order defined in the panels. If the columns are reordered or removed, the results can be unpredictable.

Table 13. Function-Dependent Table Panels

Table Panel	Function
BLG1TARG	ARGUMENT Command Display
BLG1TCCD	CHANGE Command Display
BLG1TDSD	Detail Display
BLG1TGLD	Glossary Display
BLG1THLP	HELP STATUS Display
BLG1THVD	HELP VALIDATE Display
BLG1TMSG	Message Help
BLG1TTBL	TABLE Command Display
BLG1TVI1	First VIEW ON Display
BLG1TVI2	Second VIEW ON Display
BLG1TVID	VIEW INTERNALS Display
BLG1TVRD	Mismatch Begin/End Dialog Record View
BLG1TVCD	View Collected Data
BLG1T007	HELP Display
BLG1TTSA	Text Search Arguments Entry

User-controlled data display panels are those panels that you can control the data display. Table 14 lists those panels. The functions that use these panels determine whether to display a data column based on the presence of an s-word specifically associated with the column. If the s-word is not located, the display of that data is suppressed. In addition, you can reorder the columns on these panels and adjust their widths without adverse affects.

Table 14. User-Controlled Data Display Panels

Table Panel	Function
BLG1TSTA	Statistics Display
BLM1TDP0	Dictionary P-Word Update

Table 14. User-Controlled Data Display Panels (continued)

Table Panel	Function
BLM1TDP1	Dictionary P-Word Display
BLM1TDS0	Dictionary S-Word Update
BLM1TDS1	Dictionary S-Word Display
BLG1TDHD	History Display
BLG1T022	SRC Response Display

PMF table panels give you online summary displays of panel control information and format the Panel Content reports. You can reorder or change the data columns for these panels and adjust their widths. You can also display any data that is collected as control information on these panels by associating a data column with the appropriate s-word.

Panels BLM1T201 through BLM1T255 are used to create the PMF Panel Print reports. You can modify these panels to alter the contents and format of the Panel Print reports. Table 15 lists the PMF table panels.

Table 15. PMF Table Panels

Table Panel	Function
BLM1THSC	Help Control Summary
BLM1TPAL	Panel List Display
BLM1TPDS	Current Application
BLM1TSAC	P-Word & Content Validation
BLM1TSCU	Function Line Summary
BLM1TSU1	Select Panel Summary
BLM1TSU2	Options Panel Summary
BLM1TSU4	Help Panel Summary
BLM1TSU5	P-Word Data Summary
BLM1TSU6	Control Panel Summary
BLM1TSU7	Data-Entry Panel Summary
BLM1TSU8	Table Panel Summary
BLM1TSU9	TSP Panel Summary
BLM1TUCU	TSP Function Line Summary
BLM1T201	Selection Panel Report
BLM1T202	Options Panel Report
BLM1T204	Help Panel Report
BLM1T205	Assisted-Entry Report
BLM1T206	Control Panel Report
BLM1T207	Data-Entry Report
BLM1T208	Table Panel Report
BLM1T209	TSP Panel Report
BLM1T211	Selection Panel Report
BLM1T212	Options Panel Report
BLM1T217	Data-Entry Panel Report
BLM1T218	Table Panel Report

Table 15. PMF Table Panels (continued)

Table Panel	Function
BLM1T221	Common Section Report
BLM1T223	Common Section Report
BLM1T224	Common Section Report
BLM1T225	Common Section Report
BLM1T226	Common Section Report
BLM1T228	Common Section Report
BLM1T22A	TSP Panel Report
BLM1T22B	TSP Panel Report
BLM1T22C	TSP Panel Report
BLM1T229	Common Section Report
BLM1T253	Assisted-Entry Report
BLM1T255	Assisted-Entry Report

See “Creating a Table Panel” on page 293 for more details on these and other aspects of table panels.

Creating a Control Panel

A control panel is a multipurpose panel that performs a variety of functions. The only time you or anyone else sees a control panel is when you are creating or updating it. The control information on the panel is contained in control lines and target panel settings, which are run sequentially.

The general functions that you can do through a control panel are:

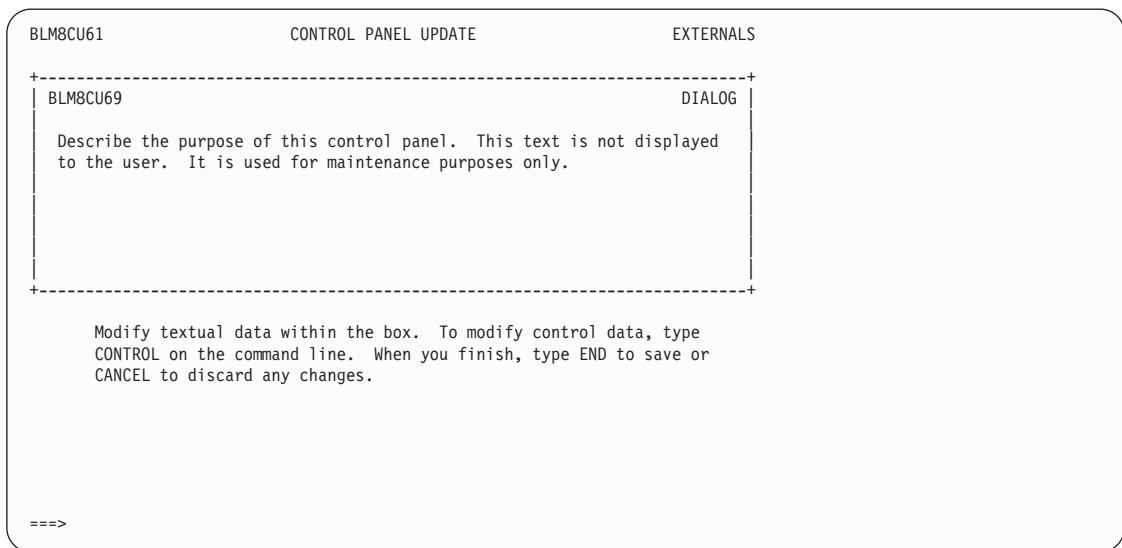
- **Add a reply.** You can add a reply automatically to the current record or search argument. You can add any data that is defined in the dictionary; be sure the data is defined as a specific value or as a default. For example, **Date last altered**, **Time last altered**, and **user last altered** are all automatically added by a control panel when a record is filed. For default values that you can add, see “Predefined Validation Patterns” on page 201.
- **Test for responses.** You can test for the presence or absence of an s-word, p-word, or authorization code in the record or search argument that is being created, and set a true or false target panel.
S-Words, authorization codes, prefixes, or prefixes with definitive values can be tested (for example, PRII/01). If the result is true (the data is found), the true target panel is set. If the result is false, the false target panel is set. See page 162 for further details.
- **Create, interrupt, or change the panel flow.** You can call a program exit or special panel processor function to create, interrupt, or change the panel flow. You can design the panel flow so that the flow automatically continues to another panel or calls special control panel processor functions, such as “test of SRC generate mode”. See “Function Code Indexes” on page 186 and “Program Exits for Use with Panels” on page 407 for additional information.
- **Store information for other functions.** Some control panels are used to determine which data should be processed or which panels should be used. These panels serve as a

repository for program-dependent data and are *no-op* (no operation) control panels. For example, the PMF Panel Content report uses a control panel to determine which type of information (like externals or common data) to print and which panels to use to format the specified data. See “Control Panels” on page 394 for other examples.

- **Display message panels.** These control panels display message panels that you created. When the control panel is exited (either by a function code or a new target), a message can be issued. These messages are warning, not informational, messages. As such, processing stops until the user responds to the message. For example, if the user enters an IRC, during which a warning message is issued, the IRC stops before it reaches the end of the chained responses.

The Model and Its Features

This is the control panel model.



The name of the panel you are creating appears in the upper left corner of the panel model, where BLM8CU69 appears in this example. See “Naming Conventions for Panels” on page 389 for more information about naming the panels you create.

This model panel is important primarily for what lies behind it: it is the update panel for the abstract of the control panel, and the panel from which you can access the controls of the control panel.

When you issue the CONTROL command from this panel, you see a Function Line Summary panel for the panel you want to create. You build control lines on this control panel to do the control panel functions.

A control panel can contain a variable number of control lines. Each control line represents one of the control functions already described. When the control panel is running, the control lines process sequentially until a target panel setting is reached. A target panel can be set in various ways, depending on the function called, on the presence of multiple begin and end testing, or on the program exits started. The following example shows the logical contents of four control lines for a control panel:

	Function	Data to Add	Target Panel
Control line 1	ADD	Z//TX/SI (s-word)	

Control line 2	ADD	Z//TS/XC (s-word)	
Control line 3	ADD	Z//TS/SE (s-word)	
Control line 4	FLOW		BXYZSR20

The last control line in this example contains a target panel, which is the next panel to be processed by the panel processors; it causes an exit from the control panel. If the target were in control line 1, control lines 2 through 4 would not be processed.

Types of Control Lines

You can use three types of control lines in a control panel: **ADD**, **TEST**, and **FLOW**.

- **ADD.** The ADD control line automatically adds data to the current record or search argument in the form of an s-word or p-word. You can use a single control line to add either the p-word, the s-word, or both. As an example, all PMF control line defaults are added using this technique. The function-code index must be 0000 in an ADD control line. In addition, if a true target panel is set for an **ADD** line, it causes an exit from the control panel.

Note: You cannot use the control panel **ADD** control line to add list processor data to a record. You *can* use a TSP or TSX to add list processor data to a record.

- **TEST.** The TEST control line enables you to test previously collected data (in the current record or search argument) for the presence or absence of s-words, prefixes, prefixes with literal data, literal data, or authorization codes for the user's privilege class. The true and false target panels can determine the result of the test either by setting a different panel target based on the result of the test or by causing the control panel processor to process the next control line. The test control line works successfully only with s-words that are associated with data fields. If the s-word is related to freeform text data, the control line always tests false.

Because of the confusion inherent in dealing with true and false tests, using the TEST control line can be tricky. Following are some notes and a truth table to help clarify this.

- If the test is for an s-word and that s-word is found in the current record or search argument being created, the true target panel is set. If the s-word is not found, the false target panel is set. The same is true for a test of a value or a prefix and a value. In addition:
 - If the true target is blank and the test is true, control passes to the next control line. The same is true for the false target. However, if the true target is blank in a multiple test group, the line following the end of the multiple test group is processed next. If a false target is blank in a multiple test group and the test is false, control is passed to the next control line.
 - If, when you update a control panel, you specify **YES** in the **Apply NOT logic** field, the false target is set if the data is found, and the true target is set if the data is not found. Within a multiple test, control is passed to the next control line if the data is found, and to the control line following the end of the multiple test if it is not found.
 - If the control line is part of a multiple test, control passes to the control line following the end of the multiple test if the test is true. This, in turn, can be overridden by setting a target panel for either the true or false target within the multiple test group, in which case the control panel is exited.

- In the following truth table, the first five columns list field settings for your control line. The next column indicates whether the test results are true or false. The remaining columns show the results of using a control line with the preceding conditions.

Table 16. Control Panel Truth Table

In Multiple Test Groups	Apply NOT logic	True Target	False Target	Msg Panel	Test Results	Goes to True Target	Goes to False Target	Msg Shown	Goes to Line After Multiple Test End	Goes to Next Line in Control Panel	Error Condition
In Mult Test Grps	Apply NOT logic	True Tgt	False Tgt	Msg Pnl	Test Rslts	Goes to True Tgt	Goes to False Tgt	Msg Shwn	Goes to Line After Mult Test End	Goes to Next Line in Ctrl Pnl	Err Cond
Y	Y	Y	Y	Y	T		X	X			
Y	Y	Y	Y	Y	F	X		X			
Y	Y	Y	Y	N	T		X				
Y	Y	Y	Y	N	F	X					
Y	Y	Y	N	Y	T					X	
Y	Y	Y	N	Y	F	X		X			
Y	Y	Y	N	N	T					X	
Y	Y	Y	N	N	F	X					
Y	Y	N	Y	Y	T		X	X			
Y	Y	N	Y	Y	F				X		
Y	Y	N	Y	N	T		X				
Y	Y	N	Y	N	F				X		
Y	Y	N	N	Y	T						X
Y	Y	N	N	Y	F						X
Y	Y	N	N	N	T					X	
Y	Y	N	N	N	F				X		
Y	N	Y	Y	Y	T	X		X			
Y	N	Y	Y	Y	F		X	X			
Y	N	Y	Y	N	T	X					
Y	N	Y	Y	N	F		X				
Y	N	Y	N	Y	T	X		X			
Y	N	Y	N	Y	F					X	
Y	N	Y	N	N	T	X					
Y	N	Y	N	N	F					X	
Y	N	N	Y	Y	T				X		
Y	N	N	Y	Y	F		X	X			
Y	N	N	Y	N	T				X		

Creating a Control Panel

Table 16. Control Panel Truth Table (continued)

In Multiple Test Groups	Apply NOT logic	True Target	False Target	Msg Panel	Test Results	Goes to True Target	Goes to False Target	Msg Shown	Goes to Line After Multiple Test End	Goes to Next Line in Control Panel	Error Condition
In Mult Test Grps	Apply NOT logic	True Tgt	False Tgt	Msg Pnl	Test Rslt	Goes to True Tgt	Goes to False Tgt	Msg Shwn	Goes to Line After Mult Test End	Goes to Next Line in Ctrl Pnl	Err Cond
Y	N	N	Y	N	F		X				
Y	N	N	N	Y	T						X
Y	N	N	N	Y	F						X
Y	N	N	N	N	T				X		
Y	N	N	N	N	F					X	
N	Y	Y	Y	Y	T		X	X			
N	Y	Y	Y	Y	F	X		X			
N	Y	Y	Y	N	T		X				
N	Y	Y	Y	N	F	X					
N	Y	Y	N	Y	T					X	
N	Y	Y	N	Y	F	X		X			
N	Y	Y	N	N	T					X	
N	Y	Y	N	N	F	X					
N	Y	N	Y	Y	T		X	X			
N	Y	N	Y	Y	F					X	
N	Y	N	Y	N	T		X				
N	Y	N	Y	N	F					X	
N	Y	N	N	Y	T						X
N	Y	N	N	Y	F						X
N	Y	N	N	N	T					X	
N	Y	N	N	N	F					X	
N	N	Y	Y	Y	T	X		X			
N	N	Y	Y	Y	F		X	X			
N	N	Y	Y	N	T	X					
N	N	Y	Y	N	F		X				
N	N	Y	N	Y	T	X		X			
N	N	Y	N	Y	F					X	
N	N	Y	N	N	T	X					
N	N	Y	N	N	F					X	
N	N	N	Y	Y	T					X	
N	N	N	Y	Y	F		X	X			

Table 16. Control Panel Truth Table (continued)

In Multiple Test Groups	Apply NOT logic	True Target	False Target	Msg Panel	Test Results	Goes to True Target	Goes to False Target	Msg Shown	Goes to Line After Multiple Test End	Goes to Next Line in Control Panel	Error Condition
In Mult Test Grps	Apply NOT logic	True Tgt	False Tgt	Msg Pnl	Test Rslts	Goes to True Tgt	Goes to False Tgt	Msg Shwn	Goes to Line After Mult Test End	Goes to Next Line in Ctrl Pnl	Err Cond
N	N	N	Y	N	T					X	
N	N	N	Y	N	F		X				
N	N	N	N	Y	T						X
N	N	N	N	Y	F						X
N	N	N	N	N	T					X	
N	N	N	N	N	F					X	

- Putting ADD or FLOW control lines within a multiple test group can alter the multiple test processing. See “Creating a Multiple Test Group” on page 314 for more information about multiple test begin and end indicators.
- Other considerations:
 - If the last control line does not contain or set a target panel (through a function code, such as 0003 or 000D), PMF does not let you file the panel.
 - When you test for both the s-word and prefix, the same processing occurs as just described. However, the s-word is used to locate the data, and then the value associated with the control line is used as a further comparison. For example, if you want to test for a value of YES in a specified profile panel, no prefix exists to determine the appropriate field. Therefore, the s-word can be used to locate the proper response, defining the context, and then the prefix index value (YES) can be used to determine if the response is YES. This method permits testing of both prefixed and nonprefixed values, or prefixes that are common to several fields, such as DATX/, but have different context-defining words.
 - Prefix data added or tested for should have a definitive or default value because the value is used literally for ADD and TEST processing. See the following table for several examples of this literal processing.

Table 17. Using Prefixes with ADD and TEST control processing

Prefix	Validation pattern	Result for ADD and TEST control lines
PERA/	<.>	PERA/. This adds a period to the PERA/ field or tests for anything present in the PERA/ field.
PERS/	<BULLOCK>	PERS/BULLOCK This adds or tests for the name BULLOCK in the PERS/ field.
DATE/	=DATE	DATE/=DATE The current date is added or tested for in the DATE/ field. Note: The =DATE is translated into the current date before processing.

Table 17. Using Prefixes with ADD and TEST control processing (continued)

Prefix	Validation pattern	Result for ADD and TEST control lines
LOCC/	CCV7	LOCC/CCV7 This adds or tests for the characters CCV7 in the LOCC/ field. It does <i>not</i> look for a validation pattern of CCV7; it actually looks for the characters CCV7.
STAC/	<S.>	STAC/S. This adds the letter S and a period to the STAC/ field or tests for anything in the STAC/ field that begins with the letter S.
STAC/	<S>CR4	STAC/SCR4 This adds or tests for the characters SCR4 in the STAC/ field.

- If a control line tests for a literal value and that value happens to be prefixed in the record, the test result is false even though the value is present in the record.
 - If the test you want to run is a program-generated test (X'002A' function code index test), you cannot use a TEST control line. You must use a FLOW control line instead. See page 188 for more information about using the X'002A' function code index test.
 - If you enter a prefix index on any line in a control panel, the prefix index must have validation criteria defined. This includes control panels that are used by program exits.
- **FLOW.** A FLOW control line calls special panel functions (defined by the function code index) or program exits. When you specify FLOW on a control line, the panel processors ignore any ADD or TEST data for that control line, so the data can be used by a program exit for its processing.

In addition, you can specify FLOW with a function code of 000D for control lines that contain information or define target panels, such as for Panel Set, and the target panel fields identify the panels used. Then, if this panel is accidentally started during processing, the dialog is canceled immediately.

What Data Is Collected

Control panels containing an ADD control line can cause information to be collected during either record or search-argument entry. Based on the information contained in the control line, you can collect different information.

- If the control line contains an s-word index, the associated s-word is collected.
- If the control line contains a prefix index, a prefix and/or value is collected depending on the corresponding data in the p-word record.

Both kinds of data can be in the same control line.

General Considerations

Control panels are the most flexible and the most complex of all the Tivoli Information Management for z/OS panels. Exercise considerable caution when using them. For example:

- Avoid having two control panels call each other. An endless loop can occur when the control panels are run.
- Use additional control panels rather than trying to perform many functions in only a few panels. Problems are much easier to correct when you build control panels on a per-function basis.

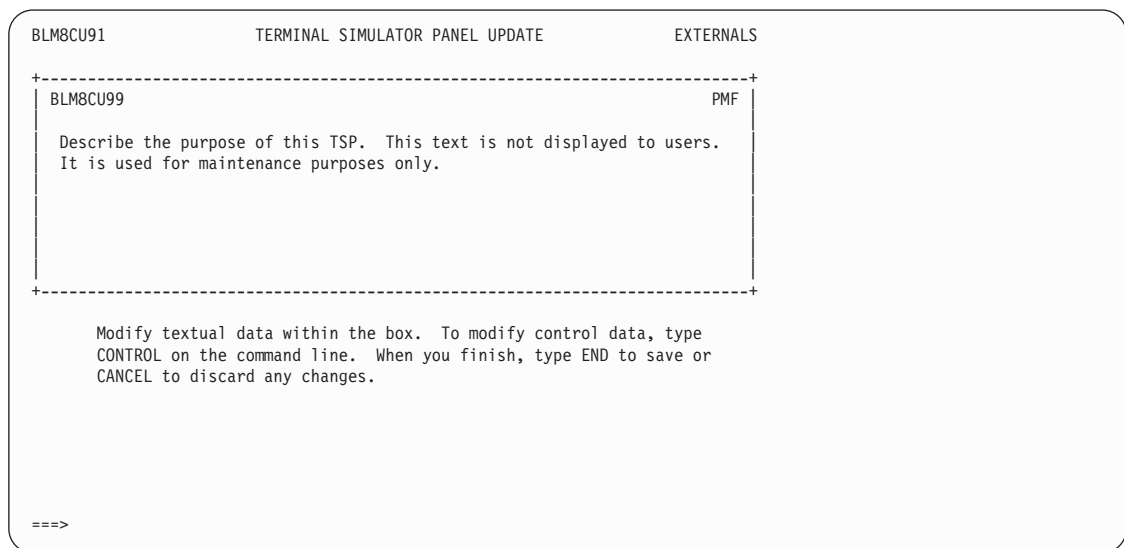
See “Creating a Control Panel That Adds Data” on page 307 and “Creating a Control Panel That Tests for Data” on page 310 for more details on these and other aspects of control panels.

Creating a TSP

A TSP looks like a control panel. You build a TSP the same way you create any other control panel, but it uses a different set of control lines. You can also perform TSP functions by using a terminal simulator EXEC (TSX) which allows you to perform terminal simulator functions using the REXX programming language. The *Tivoli Information Management for z/OS Terminal Simulator Guide and Reference* contains complete instructions on building and tailoring TSPs and TSXs for your Tivoli Information Management for z/OS applications.

The Model and Its Features

This is a terminal simulator panel model.



The name of the panel you are creating appears in the upper left corner of the panel model, where BLM8CU99 appears in this example. See “Naming Conventions for Panels” on page 389 for more information about naming the panels you create.

You issue the CONTROL command from this panel to access TSP control lines.

This is an example of the panel on which you can create and update TSP control lines. The mechanics of updating this summary panel are the same as for a control line summary.

```

BLM1TUCU                FUNCTION LINE SUMMARY                LINE 1 OF 1

  FUNCTION   LABEL   LITERAL                                GET APPLY   FIELD
  NAME      NAME    DATA                                VAR  NOT    NAME

0. ***** ***** ***** ***** ***** *****
1. LABEL    TSPPANEL
*** ***** ***** ***** ***** ***** *****

Line Cnds: A=After C=Copy D=Delete I=Insert M=Move R=Repeat U=Update
Type DOWN or UP to scroll the panel, or type END to exit.

===>

```

Refer to the *Tivoli Information Management for z/OS Terminal Simulator Guide and Reference* for detailed instructions on creating a TSP.

Creating a Selection Panel

A selection panel is a menu panel. It can present up to nine items that serve to define the context of information being entered or searched. This panel directs the Tivoli Information Management for z/OS user through a dialog by providing alternatives, or it collects databased on the user’s selection without requiring the entry of specific values.

The Model and Its Features

This is the selection panel model.

```

BLM8CU11                SELECTION PANEL UPDATE                EXTERNALS

+-----+-----+
| BLM8CU19                TOP TITLE                DIALOG NAME |
| USE....This line describes the general purpose of the panel. |
| 1. KEY PHRASE.....Provide additional description of keywords. |
| 2. KEY PHRASE.....Provide additional description of keywords. |
| 3. KEY PHRASE.....Provide additional description of keywords. |
| 4. KEY PHRASE.....Provide additional description of keywords. |
| 5. KEY PHRASE.....Provide additional description of keywords. |
| 6. KEY PHRASE.....Provide additional description of keywords. |
|-----+-----+
|                                BOTTOM TITLE          |
+-----+-----+

Modify textual data within the box. To modify control data, type
CONTROL on the command line. When you finish, type END to save or
CANCEL to discard any changes.

===>

```

The name of the panel you are creating appears in the upper left corner of the panel model, where BLM8CU19 appears in this example. See “Naming Conventions for Panels” on page 389 for more information about naming the panels you create.

Each **Key phrase** is preceded by a selection number that the user can choose when that item applies. The selection number and key phrase are followed by the line-item description of the selection item.

The key phrase consists of two parts: a descriptor and a selection name. These parts are separated by an equal sign (=) (for example, RECS=PROBLEM). An option in the Tivoli Information Management for z/OS user profile controls whether the entire key phrase or only the selection name appears on the selection panel. The key phrase is also known as the *visible phrase*. The **Use line** (at the top of the panel) provides information the user needs before considering the data offered. The **Bottom title** provides information on how to respond after making a selection. Center the bottom title and separate it from the selections by at least one blank line.

Plus signs (+) mark the center and corners of the top and bottom lines. The center plus signs appear only during PMF update.

Intrapanel Characteristics

Three characteristics of the general appearance of selection panels are of particular importance:

- **Box enclosure.** The top and bottom titles are part of the box that encloses a selection panel. The full width within the box (except column 1) is available to you.
- **Vertical columns.** Each successive line (or group of lines when required) represents a logical structuring of information items. List items based on such predefined criteria as:
 - Most-often-used fields presented first
 - Generic categories listed one after another.
- **Panel size.** The size of a selection panel, and the number of selections you place on one, are based on the following considerations:
 - The amount of data displayed on the panel
 - The number of selections offered simultaneously for consideration (maximum of nine)
 - The complexity of the information being requested.

Note: If you might ever need more than nine selections on a panel, a data-entry panel is a better choice than a selection panel.

What Data Is Collected

When a user chooses a selection, information is collected in either the record or search argument being created. You can identify this information as a searchable word in either process by associating one s-word index with each selection and indicating that the item is to be cognized. The s-word index is used to read the s-word from the dictionary. You can also use a special set of s-words, called function code indexes. See “Function Codes” on page 66 for more information.

When the user selects an item, the key phrase associated with it is collected. The key phrase is used for display purposes only. Because it is not used as part of a search argument, you can update this phrase whenever you want. The phrase does become part of the record being created, however, and it can be viewed by the ARGUMENT, VIEW, or DISPLAY command. It indicates which path and what information were entered. The visible phrase collected consists of the words between the period following the selection number and the next period found.

General Considerations

To enhance your users' understanding of the information presented on a selection panel, consider the contents and other characteristics of the panel presentation:

- **Use of highlighting.** The box (including the top and bottom titles) is highlighted to draw the user's eyes to the main portion of the screen. Highlighting the top and bottom title also serves to answer the questions "How do I read this panel?" and "How do I respond to this panel?"
- **Bottom title phrase.** You can choose from among several standard bottom titles or write one of your own.
 - **SELECT ITEM**
Use this phrase as the bottom title on selection panels on which the user must choose an item from the list. It serves as an indicator that this panel is a separate entity within the current prompting sequence and that a selection is required. This bottom title implies that a null reply is not allowed.
 - **COMPLETE REPLY END OR CANCEL**
Use this phrase on the last panel of a set of generically related panels. END saves the user's data, and CANCEL ignores the user's data. This is the exit panel from this particular sequence of panels.

See "Creating a Selection or Options Panel" on page 331 for more details on these and other aspects of selection panels.

The following features on the selection panel must contain only SBCS characters:

- Selection numbers
- Visible phrase
- Periods following selection numbers and the end of visible phrases.

Creating an Options Panel

An options panel indicates what types of functions can be performed or where in the prompting sequence the next activity is performed. Except for its appearance and its ability to start a dialog, an options panel is the same as a selection panel. Options panels are used in a dialog to start a new dialog, end a dialog, or provide current available functions. Options panels can also be used in create or inquiry mode.

The Model and Its Features

This is the options panel model.


```

BLM8CU21          OPTION PANEL UPDATE          EXTERNALS
+-----+-----+
| BLM8CU29          TOP TITLE          DIALOG NAME |
| THIS LINE DESCRIBES PURPOSE OF PANEL (OPTIONAL) |
| OPTIONS: |
| 1. KEY PHRASE....Provide a description of this option. |
| 2. KEY PHRASE....Provide a description of this option. |
| 3. KEY PHRASE....Provide a description of this option. |
| 4. KEY PHRASE....Provide a description of this option. |
| 5. KEY PHRASE....Provide a description of this option. |
|          BOTTOM TITLE |
+-----+-----+

Modify textual data within the box. To modify control data, type
CONTROL on the command line. When you finish, type END to save or
CANCEL to discard any changes.

====>
    
```

The name of the panel you are creating appears in the upper left corner of the panel model, where BLM8CU29 appears in this example. See “Naming Conventions for Panels” on page 389 for more information about naming the panels you create.

An options panel can contain up to nine numbered items. A selection number precedes each item. Following each selection number is a key phrase, followed by a line-item description. The line description describes the option more fully or identifies the full form of the key phrase. The key phrase is also called the *visible phrase*.

The information line above the list of items describes the purpose of the panel, giving information about the type of dialog entered. The information line is in uppercase letters without the word “USE” to help the user distinguish the options panel from a selection panel.

Plus signs (+) mark the center and corners of the top and bottom lines. The center plus signs appear up only during PMF update.

Intrapanel Characteristics

An options panel directs the user’s thought process and provides a transition between functions or dialogs.

Three characteristics of the general appearance of options panels are of particular importance:

- **Top title.** The top title serves to label the panel appropriately.
- **Body.** The body contains the options and their descriptions, and the reason for the panel.
- **Margin.** The margin, balanced on the left and right to achieve symmetry, serves the following purposes:
 - It helps the user distinguish the options panel from other panels.
 - It gives sharp contrast to the word **OPTIONS**, making it easier to see and recognize quickly.

Note: If you might ever need more than nine options on a panel, a data-entry panel is a better choice than an options panel.

What Data Is Collected

When a user selects an option, information is collected in either the record or search argument being created. You can identify this information as a searchable word in either process by associating one s-word index with each option and indicating that it is to be cognized. The s-word index is used to read the s-word from the dictionary. You can also use a special set of s-words, called function code indexes. See “Function Codes” on page 66 for more information.

When the user chooses an option, the key phrase associated with it is collected. The key phrase is used for display purposes only. Because it is not used as part of a search argument, you can update this phrase whenever necessary. The phrase does become part of the record being created, however, and can be viewed by the ARGUMENT, VIEW, or DISPLAY command. It shows the user which path and what information were entered. The visible phrase collected consists of the words between the period following the option number and the next period found.

General Considerations

To enhance your users’ understanding of the information on an options panel, consider both the content and other characteristics of the panel presentation:

- **Bottom title.** The bottom title, SELECT OPTION, implies that the user must make a selection from the panel. No null reply is allowed.
- **Command names.** An options panel presented at the logical end of a dialog can contain the names of commands as selections. For example, an options panel at the end of a dialog or in inquiry mode could contain a selection for the END or SEARCH command. The use of commands on panels relieves the inexperienced user from having to recall the proper command at that time.

Note the differences in appearance between an options panel and a selection panel. For options panels:

- The information line is indented and capitalized and lacks the introductory “USE...”.
- Key phrases are indented below the heading “OPTIONS.”
- The key phrases lack a description, such as DATA=. This enables the user to distinguish options from selections, when they are presented, in response to the ARGUMENT, VIEW, or DISPLAY command.

The main internal difference between an options panel and a selection panel is that you can specify a dialog begin on an options panel.

The following features on the option panel must contain only SBCS characters:

- Option numbers
- Visible phrase
- Periods following option numbers and the end of visible phrases.

See “Creating a Selection or Options Panel” on page 331 for more details on these and other aspects of options panels.

Creating a Message Panel

Message panels inform the user about error conditions or processing status. Depending on the type of panel currently on the screen when a message is triggered and on the nature of the triggering condition, a message panel can be a 1-line message or a full-screen panel.

Message panels can be displayed by applications or by control panels. When you create a new message panel, you can use either a control panel or the MESSAGE control line in a TSP to display it. See “Creating a Control Panel” on page 160 for a detailed description of control panels.

The Model and Its Features

This is the message panel model.

```

BLM8CU31          MESSAGE PANEL UPDATE          EXTERNALS
+-----+-----+
| BLM9C039          TOP TITLE          DIALOG NAME |
| MESSAGE ID - Provide a 1- or 2-line description of the message. |
| Describe in additional detail why the message was issued, variable |
| conditions, and what the user can do to resolve the problem.      |
|          BOTTOM TITLE          |
+-----+-----+

Modify textual data within the box. To modify control data, type
CONTROL on the command line. When you finish, type END to save or
CANCEL to discard any changes.

====>
    
```

5. Creating Panels from Models

The name of the panel you are creating appears in the upper left corner of the panel model, where BLM9C039 appears in this example. See “Naming Conventions for Panels” on page 389 for more information about naming the panels you create.

The following fields are of special interest:

- **Message identifier.** The 9-character name of the message itself, as described in “Message Assignments” on page 174.
- **Message text.** A concise description of the condition. Any inserted data or text is displayed in these lines.
- **Additional detail.** An explanation of the condition that triggered the message. If possible, it should include actions the user can take to correct an error condition. This text only appears if the message appears on an assisted-entry, selection, or options panel and the message is the only one issued.
- **Bottom title.** Tells the user what to do to remove the message display; for example, TO LEAVE THIS PANEL PRESS ENTER, or CORRECT THE REPLY THEN PRESS ENTER.

The communication of unexpected conditions detected in user replies depends not on panel type, but on panel format. For messages reflecting all but severe error conditions, the message panel appears as follows:

- If the current panel is framed (selection and options panels, for example), the message and accompanying text appear in lines 15 through 22 (or lines 17 through 24, if the user’s command line is at the top) of the screen.

- If the current panel takes up the entire screen, the first nonblank line following the top title of the message panel (the single-line description) is displayed as a 1-line message below the command line (or above it, if the user's command line is at the top).

Intrapanel Characteristics

Only the message number and as much of the message text as will fit on a single line appear on full-screen panels (data-entry and table panels, for example). To see the rest of the message, the user must issue the HELP command. The message line is highlighted to attract the user's eye. You can highlight the message itself as well as the explanation text on a message panel. The appropriate intensity is displayed when the message panel appears. If you highlight any part of the message text, when the message appears as a single-line message, the highlighting attributes you identified appear as dots. For example, in the message panel just shown, if you choose to highlight the words "1- or 2-line" in the message text, it appears like this:

```
MESSAGE ID - Provide a.1- or 2-line.description of the message.
```

Framed displays (on selection and options panels, for example) take up 14 lines of the screen. The entire message panel can be displayed in lines 15 through 22 (or 17 through 24). The message panel includes both the entire description of the condition and the explanation.

If more messages are pending, the single-line message appears alone, preceded by a plus (+) sign.

If the user issues the HELP command, a help panel appears. Make sure the explanatory text on the message panel and the introductory text on the help panel are similar if not the same.

Message Assignments

When you create a message panel, create a help panel to go with it. PMF assumes you will do this, and automatically generates a help panel name based on the ID of the message you put on the message panel. Because each existing message has an associated help panel, Tivoli Information Management for z/OS follows conventions for defining message panel names and message identifiers. You need not follow the convention for new message panel names, but you must follow the one for message IDs.

Message Panel Names

The format for the names of Tivoli Information Management for z/OS message panels is *axx9cxxx*, where:

axx

Represents the issuing component (BLG is for the System application, BLM is for the Management application, BTN is for the Integration Facility, and BLX is for Information Services). The first character must be alphabetic, and the others are alphanumeric or national.

9 Identifies the panel as a message panel.

c Is an alphabetic character that is used as part of the help panel name generated for this message panel.

xxx

Is an alphanumeric (or national) identifier.

You are not limited to this naming convention for your message panel names; however, it is recommended that you follow it.

Message Identifiers

The format for all message identifiers is *axnnnxxxxt*, where:

axx

Represents the issuing component (same as for message panel name). The first character must be alphabetic, and the second and third characters must be alphanumeric or national.

nn Is a numeric value, 01-26. This number is translated to its corresponding alphabetic character and used in the generation of the help panel name for the message.

xxx

Is a unique alphanumeric or national suffix identifier.

t Is the type code, such as I for an information message.

When you create a message panel, PMF scans for the first line that contains nonblank characters following the top title and validates the first 8 characters in the line as the message identifier. All lowercase characters are translated to uppercase before validation. This validation means that you must make sure the message ID is in the first eight positions of your description and that it conforms to the expected format.

After PMF validates the identifier, it saves it in the panel. It then generates a help panel name to correspond to the message ID and stores it as control information in the message panel.

Help Panels for Messages

The format of the name for a help panel for messages is *axx4cxxx*, where:

axx

Represents the issuing component and corresponds to the first 3 characters of the message ID.

4 Identifies the panel as a message help panel.

c Is the alphabetic character that corresponds to the nn value defined in the message ID.

xxx

Is the suffix identifier of the corresponding message ID

When you create a message panel, always create the corresponding help panel for the message, using the system-generated name. This ensures that when users issue the HELP command after receiving a message, they can get further information about the message and the condition that triggered it. If you do not create a help panel for a message panel, then when the user issues HELP, a panel appears that says the help panel was not found.

The following table illustrates how Tivoli Information Management for z/OS converts message numbers to message and help panel numbers.

Table 18. Message Number Conversion Table

Message Number	Message Panel	Help Panel
xxx01yyy	xxx9Ayyy	xxx4Ayyy
xxx02yyy	xxx9Byyy	xxx4Byyy

Table 18. Message Number Conversion Table (continued)

Message Number	Message Panel	Help Panel
xxx03yyy	xxx9Cyyy	xxx4Cyyy
xxx04yyy	xxx9Dyyy	xxx4Dyyy
...
xxx26yyy	xxx9Zyyy	xxx4Zyyy

What Data Is Collected

No information is collected when the user responds to a message panel. When a message appears, any response is treated as a response to the primary panel, the panel with which the message appears. See “Creating a Message Panel” on page 341 for more details on these and other aspects of message panels.

Creating a Help Panel

A help panel provides the user with scrollable text that describes a product, clarifies data on a panel, or gives additional information about a message. A help panel presents text in full-screen format; the amount displayed depends on the size of the screen and the user’s profile.

The Model and Its Features

This is the help panel model.

```
'' BLM4C049                HELP INFORMATION                LINE _ OF _
'
'
' This is an example of help information. Help information should
' consist of precise text that will assist the user when a specific
' panel is displayed, or when a specific function is attempted.
'
' PMF uses the freeform text function for updating help panel text.
' This means that all freeform text line commands may be used to
' update help panel information. In addition, the CONTROL command
' and the FIELD command may be used to define control information
' and to modify the panel externals.
'
'           1. View mainline tutorial (example)
'           2. Cancel tutorial display (example)
'
'
'**** ** BOTTOM OF DATA **
Line Cmds: A=After C=Copy D=Delete I=Insert M=Move R=Repeat U=Update
Type DOWN or UP to scroll the panel, or type END to exit.

===>
```

The name of the panel you are creating appears in the upper left corner of the panel model, where BLM4C09 appears in this example. See “Naming Conventions for Panels” on page 389 for more information about naming the panels you create.

The following panel fields are of special interest:

- **Panel name.** If this is a help panel for a message, the panel name is generated for you when you create the message panel. See “Creating a Message Panel” on page 341 for more about message help panels. For other help panels, you supply the name yourself.

- **Line _ of _.** Displays the current line number, relative to the beginning of the information being displayed, and the total number of lines of text in the panel. When updating the model, define the beginning of the field with the FIELD command. Remember to put the attribute byte far enough to the left to allow for increasing length of the numbers; this area does not require an attribute byte to the right.
- **Line &L of &T.** Displays line numbers using the following variables:
 - &L is the current line number.
 - &T is the total number of lines to display.

You can use either **Line _ of _** or **Line &L of &T**, but only one can be used for each table definition.

- **Bottom title.** The bottom title shown on the model panel is not part of the help panel; it is part of the table panel that is used by window display to display help panels. If you need to change the bottom title that window display provides for your help panels, you must use table panel update.

Intrapanel Characteristics

Help panels provide additional information for messages and tutorial information when the HELP command is issued or called through a selection. Help panels do not collect information during the record entry or retrieval process.

Two notable characteristics of help panels are:

- **Full-screen display.** The entire length of the screen is used to display lines.
- **Scrollable.** Because the display of help panels is controlled by the window display function, all scroll commands are available.

Interpanel Characteristics

The information on a help panel must be as concise as possible. When you use the help panel to provide tutorial information, structure the help panel in much the same way as a dialog. Generally, one screen of help information followed by selections to obtain additional information about specific subjects is a good technique to follow. Selections can be used to end a single help dialog or all help dialogs.

Note: Interpanel characteristics apply to tutorial help panels only. When you use the help panel to provide additional information for a message, include all of the additional information in the help panel itself.

General Considerations

Both when they are displayed to the user and when they are displayed to you during panel update, help panels appear courtesy of the window display function. Window display moves the text of a help panel into a table panel, which then appears on the screen. This method of interface allows the use of the FIND command as well as scroll commands. You can change the table panel through table panel update; however, keep in mind that changes made to the table panel are reflected in all help displays.

Data Collected

No information is collected as part of the record or inquiry entry when the user proceeds through a series of help panels.

See “Creating a Help Panel” on page 345 for more details on these and other aspects of help panels.

6

Copying and Deleting Panels

This chapter tells you how to copy and delete Tivoli Information Management for z/OS panels.

Copying a Panel

The panel copy function of PMF lets you copy a panel from one data set to the same or a different data set. The two major reasons for doing this are:

- After you file a new panel or modify an existing one, you must copy it from the write panel data set to the appropriate read panel data set to make it available to the system and your users. Usually you copy the panel to your own read panel data set. (Do not copy a modified panel to the master panel data set unless you know *exactly* what you are doing. You might destroy the original panel.)
- To create a new panel, you can copy and modify an existing one. In this case, you copy a panel that closely resembles the one you want to create, give it a new name, and then update it. If you can find a panel that requires very little modification to fit your purpose, you save time and avoid the need to reenter control information for your panel. More importantly, you minimize errors.

To locate the panels that contain specific fields, selections, s-words, or p-words, run the appropriate PMF report. See “Running PMF Reports” on page 227 for details.

See “Getting a List of Current Panels and Panel Data Sets” on page 215 for an alternative method of copying panels.

Note: Before you start, make sure your privilege class includes panel-copy authority; PMF will not let you use Panel Copy without this level of authority.

Copying a Panel

After you select **PMF** from the Management application Primary Options Menu and **Panel copy** from the PMF options panel, the Panel Name Entry panel (BLM8CC00) appears.

Type the name of the panel you want copied and the data set definition label of the data set where it currently resides. You can also type the new panel name, a different data set definition label, and whether this panel replaces a current panel. Then press **Enter**.

BLM8CC00	PANEL NAME ENTRY	PANEL COPY
Enter panel name to be copied; cursor placement or input line entry allowed.		
1. From panel name.....<R> _____		
2. From data set definition label..<R> _____		
3. To panel name..... _____		
4. To data set definition label..... _____		
5. Replace panel..... _____		
To copy the panel, press Enter without field modifications.		
===>		

Deleting a Panel

The panel delete function of PMF lets you delete a panel from a specified panel data set. Be cautious about deleting panels. You are *not* prompted to verify the deletion of panels. To begin, run a Panel Cross-Reference report to identify other panels that reference the one you are planning to delete. (See “Running PMF Reports” on page 227 for instructions.) Other panels will probably require modification.

To delete a panel, your privilege class must have panel-delete authority.

Note: Refer to “Getting a List of Current Panels and Panel Data Sets” on page 215 for an alternative method of deleting panels.

After you select **PMF** on the Management application Primary Options Menu, and **Panel delete** on the PMF options panel, the Panel Name Entry panel (BLMCD00) appears. Type the panel name and its data set definition label (from BLGPARMS). Then press **Enter**.

BLM8CD00	PANEL NAME ENTRY	PANEL DELETE
Enter panel name to be deleted; cursor placement or input line entry allowed.		
1. Panel name.....<R> _____ 2. Data set definition label..<R> _____		
To delete the panel, press Enter without field modifications.		
====>		

7

Using the Dictionary

This chapter tells you how to display and modify information in the Tivoli Information Management for z/OS dictionary data set.

The dictionary provides a central place for creating and updating s-word and p-word definitions. It is the source for s-word and p-word data retrieved during panel update. Before an s-word or p-word can be referred to on a panel, it must be defined in the dictionary.

S-Words and p-words are grouped separately in the dictionary. Each entry is a record that is uniquely identified by a key, called its *index*.

- An s-word record contains the index, the s-word, a word acronym, a program-use reference, and a general comment.
- A p-word record contains the index, the prefix, data validation criteria, a program-use reference, and a general comment.

The dictionary is further divided, for both s-words and p-words, as follows:

- Indexes below X'8000' are reserved for Tivoli-defined s-words and p-words. These indexes, s-words, and p-words cannot be modified. However, the associated fields (word acronym, validation criteria, program used, and general comment) can be modified and filed.
- Indexes between X'8000' and X'FFFF' are available for your installation to create its own s-words and p-words.

CAUTION:

If you modify dictionary entries below X'8000', a dictionary refresh (distributed periodically by Tivoli) will overlay your changes. A refresh does not affect dictionary entries with indexes of X'8000' or higher. Refer to the *Tivoli Information Management for z/OS Operation and Maintenance Reference* for more information about dictionary maintenance.

Before creating your own dictionary entries, see the appropriate section: “Understanding the Philosophy Behind S-Words” on page 190 or “Understanding the Philosophy Behind P-Words” on page 202.

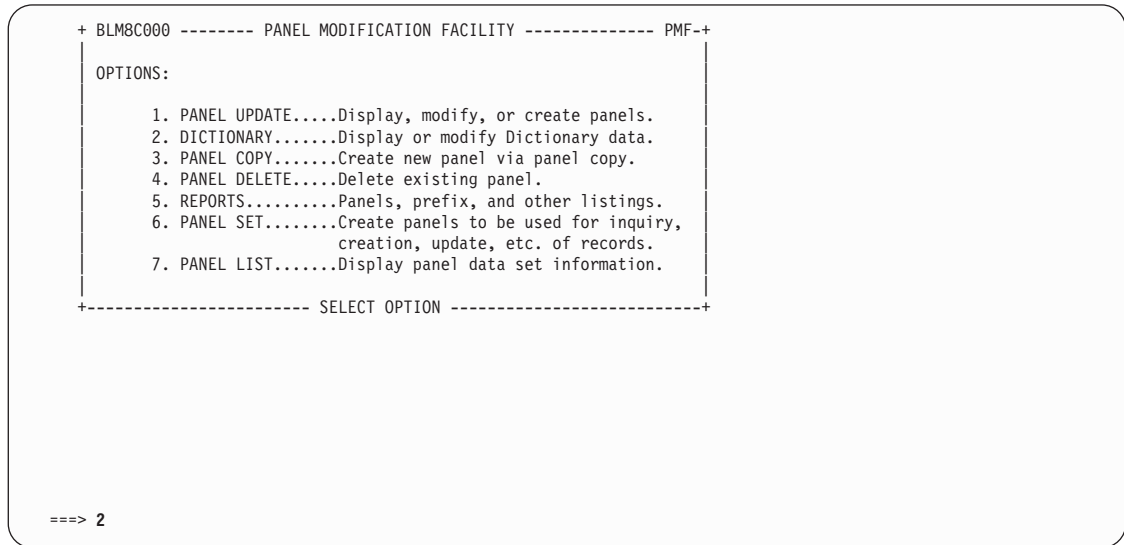
With dictionary update authority, you can display, update, add, and delete s-word and p-word records. With dictionary display authority, you can display s-words and p-words, even if the dictionary is currently being updated. Because only one user at a time can update s-word data or p-word data, use dictionary display unless you are updating the data set's contents.

Panel Flow for Displaying and Modifying the Dictionary

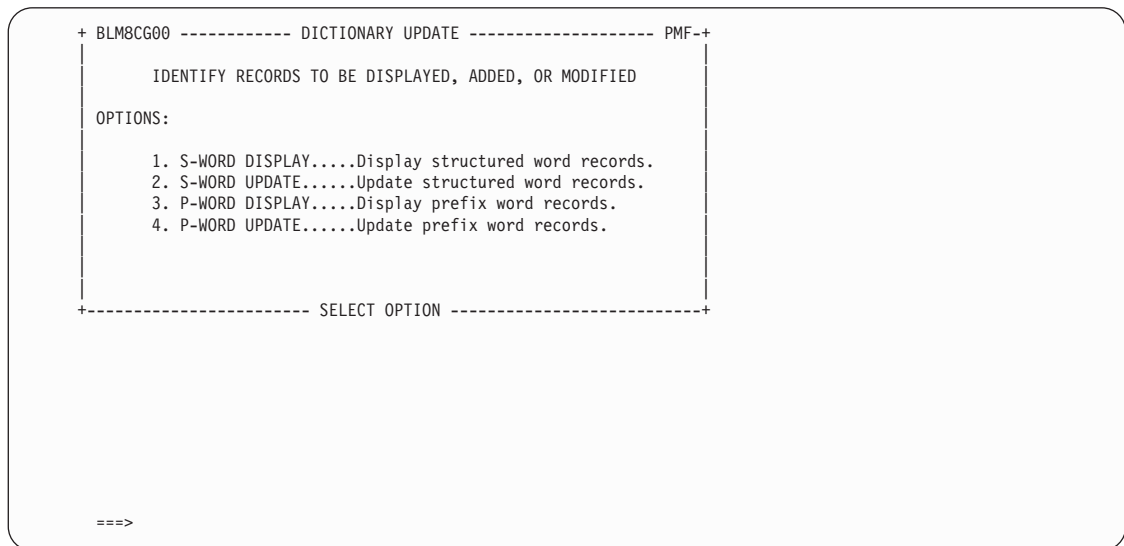
As in all PMF tasks, you start by selecting **PMF** from BLG0EN20, the Tivoli Information Management for z/OS Primary Options Menu.

Select **Dictionary** from the Panel Modification Facility options panel.

Type **2** and press Enter.



On the Dictionary Update panel, select the item you want.



S-Word display

Browse s-word records.

S-Word update

Add, modify, or delete s-word records.

P-Word display

Browse p-word records.

P-Word update

Add, modify, or delete p-word records.

The pages that follow contain a detailed discussion of s-words. A similar discussion of p-words can be found in “Displaying and Modifying P-Words” on page 198.

Displaying and Modifying S-Words

This is an example of a Dictionary Display panel for s-words.

BLM1TDS1		DICTIONARY DISPLAY			STRUCTURED WORDS
WORD INDEX	STRUCTURED WORD	WORD ACRONYM	PGM USED	GENERAL COMMENT	
0B32		RESERVED	NO	RESERVED.	
0B33	XIM00NPC01	IM = 1ST SHIFT	NO	ADMINISTRATIVE - FIRST SHIFT PHONE N	
0B34	XIM00NPC02	IM = 2ND SHIFT	NO	ADMINISTRATIVE - SECOND SHIFT PHONE	
0B35	XIM00NPC03	IM = 3ND SHIFT	NO	ADMINISTRATIVE - THIRD SHIFT PHONE N	
0B36	XIM00NPC04	IM = OFF SHIFT	NO	ADMINISTRATIVE - OFF SHIFT TELEPHONE	
0B37	XIM00NPC05	IM = EMER PHON	NO	ADMINISTRATIVE - EMERGENCY PHONE NUM	
0B38	XIM00NPC06	IM = HDW REP	NO	ADMINISTRATIVE - HARDWARE REPRESENTA	
0B39	XIM00NPC07	IM = SFW REP	NO	ADMINISTRATIVE - SOFTWARE REPRESENTA	
0B3A	XIM00NPC08	IM = SYS PGM	NO	ADMINISTRATIVE - SYSTEM PROGRAMMER P	
0B3B	XIM00NPC09	IM = MKT REP	NO	ADMINISTRATIVE - MARKETING REPRESENT	
0B3C	XIM00NPC0A	IM = SALES REP	NO	ADMINISTRATIVE - SALESPERSON PHONE N	
0B3D	XIM00NPC0B	IM = SPEC PHON	NO	ADMINISTRATIVE - SPECIALIST PHONE NU	
0B3E	XIM00NPC0C	IM = SERV PHON	NO	ADMINISTRATIVE - SERVICE PHONE NUMBE	

Type DOWN, UP, LEFT, or RIGHT to scroll the panel, or type END to exit.

====>

The Dictionary Display of s-words is a table panel that presents the s-word data in the dictionary data set.

Use the DOWN and UP commands to view all the s-word records. Use the FIND command to locate data in any column and to see a specific s-word record. Use the LEFT and RIGHT commands to scroll the entire display. Use the LEFT COL and RIGHT COL commands to scroll the **Word Acronym** and **General Comment** columns. (Type **LEFT COL** or **RIGHT COL** on the command line, position the cursor on the column you want to scroll, and press Enter.) The LEFT COL and RIGHT COL commands are only available when the folding option in your profile is set to NO.

Note: If the **Program Used** column contains a YES, do *not* change the s-word.

To leave the panel, type **end** and press **Enter**. You return to BLM8CG00, the Dictionary Update options panel.

This is an example of a Dictionary Update panel for s-words.

BLM1TDS0		DICTIONARY UPDATE		STRUCTURED WORDS	
WORD INDEX	STRUCTURED WORD	WORD ACRONYM	PGM USED	GENERAL COMMENT	
''	0B32	RESERVED	NO	RESERVED.	
''	0B33	XIM00NPC01	IM = 1ST SHIFT	NO	ADMINISTRATIVE - FIRST SHIFT PHO
''	0B34	XIM00NPC02	IM = 2ND SHIFT	NO	ADMINISTRATIVE - SECOND SHIFT PH
''	0B35	XIM00NPC03	IM = 3ND SHIFT	NO	ADMINISTRATIVE - THIRD SHIFT PHO
''	0B36	XIM00NPC04	IM = OFF SHIFT	NO	ADMINISTRATIVE - OFF SHIFT TELEP
''	0B37	XIM00NPC05	IM = EMER PHON	NO	ADMINISTRATIVE - EMERGENCY PHONE
''	0B38	XIM00NPC06	IM = HDW REP	NO	ADMINISTRATIVE - HARDWARE REPRES
''	0B39	XIM00NPC07	IM = SFW REP	NO	ADMINISTRATIVE - SOFTWARE REPRES
''	0B3A	XIM00NPC08	IM = SYS PGM	NO	ADMINISTRATIVE - SYSTEM PROGRAMM
''	0B3B	XIM00NPC09	IM = MKT REP	NO	ADMINISTRATIVE - MARKETING REPRES
''	0B3C	XIM00NPC0A	IM = SALES REP	NO	ADMINISTRATIVE - SALESPERSON PHO
''	0B3D	XIM00NPC0B	IM = SPEC PHON	NO	ADMINISTRATIVE - SPECIALIST PHON
''	0B3E	XIM00NPC0C	IM = SERV PHON	NO	ADMINISTRATIVE - SERVICE PHONE N

Line Cnds: A=Add D=Delete R=Repeat
Type DOWN, UP, LEFT, or RIGHT to scroll the panel, or type END to exit.

====>

On this panel you can add, delete, and modify s-word records in the dictionary. To update s-word records, type the new values directly in the fields on the panel. Use the DELETE line command to delete all columns within a record except the s-word index. You cannot delete s-words with indexes below X'8000'.

Use the ADD line command to add s-words to the dictionary. Issue the DOWN MAX command to get to the last line of the display, then, on the last line, type **A** and follow it with a number from 1 through 99. This adds as many new s-word indexes as you specify. Each index is followed by a blank line, in which you can type the new s-words and accompanying information. After you file the changes, the new s-word records are added to the dictionary data set.

Use the REPEAT line command to repeat the last s-word in the dictionary. Issue the DOWN MAX command to get to the last line of the display, then, on the last line, type **R** and follow it with a number from 1 through 99. This action repeats the last line as many times as you specify. After you file the changes, the new s-word records are added to the dictionary data set.

To leave the panel, type **end** and press **Enter** to save all changes you made on the panel, or type **CANCEL** and press **Enter** to ignore your changes. You return to BLM8CG00, the Dictionary Update options panel.

Function Code Indexes

S-Word indexes X'0000' through X'002B' act as *function codes*, so that you can request certain kinds of processing. Function codes let you start various panel processing functions, such as FILE, and commands, such as SEARCH, HELP, or INITIALIZE, through selections on panels and through control panels. By using function codes that run commands, you can add selections on panels where you want commands and eliminate the time it takes the user to type in the commands. You can use the following function codes as you create and modify Tivoli Information Management for z/OS panels:

X'0000' Indicates a no-op (no operation) function for the corresponding selection. During panel development, it normally prevents entry into panel paths not yet complete.

X'0002'	Its corresponding selection starts the HELP command processor. The target panel associated with the selection identifies the Help panel. Use 0002 in conjunction with the 0007 index.
X'0003'	Its corresponding selection starts the BACK PROCESSED command. Use it when you present options that let the user return to a previous panel.
X'0004'	<p>Its corresponding selection files the record (in create mode) or initiates a search (in inquiry mode).</p> <p>In create mode, if the BLG01050 program exit (a create-mode processor) was called in the panel flow, 0004 indicates that an attempt should be made to complete all dialogs and, if successful, the current record should be filed. If you want to use 0004 for this purpose, you must specify a control panel in the (create) Target panel field for the selection. This control (record-access) panel is required for subsequent retrieval of fields for update and display. Design the control panel to contain at least two 002A-code control lines: one that tests for a DISPLAY function and sets the appropriate DISPLAY panel, and one that tests for a DELETE function and sets the appropriate DELETE verification panel. See “Record Processing” on page 394 for the list of control panels used for record access.</p> <p>In inquiry mode, 0004 has the same effect as the SEARCH command. If you specify a target panel with this selection (Inquiry target on selection and options panels, Target panel on data-entry panels, and True target on control panels), the target panel will be used to format and display the search results list. This gives you the flexibility of defining a different search results list panel. If you do not specify a target panel, the search results appear on the standard search results list panel.</p>
X'0005'	Its corresponding selection starts the ARGUMENT command.
X'0006'	Its corresponding selection starts the detail display.
X'0007'	Its corresponding selection cancels HELP displays for help and tutorial panels, but not for message help panels. Use this index in conjunction with the 0002 index.
X'0008'	Its corresponding selection starts the INITIALIZE command.
X'000A'	Its corresponding selection should be processed and recorded. Use 000A whenever you want a selection to guide the user through a dialog and an s-word is not required.
X'000B'	Indicates that a program exit is called. The mere presence of a program exit symbol calls the exit when the control line is run.
X'000C'	This function code is reserved.
X'000D'	Its corresponding selection starts the CANCEL command.
X'000E'	Indicates a test for the current application. This function code can only be used with control panels. The control line that contains this function code must also specify, in the Prefix validation field, the name of the application being tested for. If the current application is the same as the application name in the validation field, the true target panel is set; otherwise, the false target panel is set.
X'000F'	Its corresponding selection starts the CHANGE command.

Displaying and Modifying S-Words

- X'0009'** This function code is reserved.
- X'0010'** Indicates that an END command will allow the user to leave a panel, but a null reply redisplay the current panel. When you use this function code, the END command is treated as a CANCEL; that is, no responses are saved. You can use this function code in a null-reply control line only.
- X'0011'** This function code is reserved.
- X'0012'- X'001A'** These function codes are reserved.
- X'001B'** Indicates the name of a TSP or a terminal simulator EXEC (TSX) on any control panel to initialize if the current record is successfully filed. The TSP or TSX never runs if the record stops before being filed or if the user is in inquiry mode when the function code index is found. You can specify this function code with a TSP name or a TSX name on any control panel in a record create or update sequence. Instead of the name of the TSP or TSX, you can specify the ALIAS of the TSP or TSX, if an ALIAS record was created. Information on creating ALIAS records can be found in the *Tivoli Information Management for z/OS Program Administration Guide and Reference*. The use of TSXs as an alternative to TSPs is described in *Tivoli Information Management for z/OS Terminal Simulator Guide and Reference*.
- X'001C'- X'0029'** These function codes are reserved.
- X'002A'** Indicates that a specific program-generated test is to be performed. This index controls all access to records and can be used for control panels only. The control line that contains this function code must also specify in the **P-Word validation** field the condition that is being tested. If the tested condition is true, the true target panel is set; otherwise the false target panel is set. You can use this function code to test for the conditions shown in Table 19.

Table 19. P-Word Indexes to Test for Certain Conditions.

Function	P-Word Index	Description
<CHANGE>	0564	Determines whether the change command is being processed.
<COPY>	0307	Determines whether the current record is being copied.
<DELETALL>	033A	Determines whether a verify of multiple deletes has been selected.
<DELETE>	031A	Determines whether the current record is being deleted.
<DISPLAY>	0335	Determines whether the current record is being displayed.
<EXTEST>	0565	Determines whether an SRC is being run.
<FEATTEST>	0336	Determines which Tivoli Information Management for z/OS application is available. It uses the last character of the s-word in the control line as the numeric application index and tests whether that application is installed. The defined indexes are: 1 System application 2 Management application
<GENTEST>	0349	Determines whether an SRC is being generated.
<INTEGRAT>	0570	Determines whether the Tivoli Information Management for z/OS Integration Facility is in control.

Table 19. P-Word Indexes to Test for Certain Conditions. (continued)

Function	P-Word Index	Description
<MULTDEL>	0339	Determines whether multiple deletes have been requested from a search results list.
<PRINT>	056F	Determines whether the current record is being printed.
<QUICK>	056D	Determines whether the user's profile setting for quick search panels is YES or NO.
<RECUPDAT>	0561	Determines whether the current record has been updated since it was brought in for update.
<TSPTEST>	0452	Determines whether a TSP is currently being run.
<UPDATE>	0331	Determines whether the current record is being updated.

X'002B' Initializes and runs a TSP or TSX. When you specify the name of a TSP or TSX in a control line with the 002B function code, the TSP or TSX is initialized, and any data remaining in the reply buffer is saved. The TSP or TSX begins processing when Tivoli Information Management for z/OS next attempts to perform I/O to the terminal. This occurs after processing to the panel from which the 002B function code is entered finishes unless the target of that panel is a control panel. The reply buffer is restored when the TSP or TSX finishes processing. This function code can be used only from a FLOW control line on a control panel. Refer to the *Tivoli Information Management for z/OS Terminal Simulator Guide and Reference* for more information about creating and using TSPs. Instead of the name of the TSP or TSX, you can specify the ALIAS of the TSP or TSX, if an ALIAS record was created. Information on creating ALIAS records can be found in the *Tivoli Information Management for z/OS Program Administration Guide and Reference*.

Note: All other remaining s-word indexes between X'0000' and X'002B' are reserved.

Using Function Code Indexes

You can use function codes on five types of panels:

- Selection
- Options
- Data-entry
- Help
- Control

However, not all function codes can be used on each panel type. Table 20 identifies the panel types and the corresponding valid function codes.

Table 20. Panel Types and Function Codes

Function Code	Selection		Options		Data-Entry		Help	Control
	Item	Null	Item	Null	Item	Null		
0000	X	X	X	X	X	X		
0002	X	X	X	X	X	X	X	
0003	X	X	X	X	X	X		X
0004	X	X	X	X	X	X		X

Table 20. Panel Types and Function Codes (continued)

Function Code	Selection		Options		Data-Entry		Help	Control
	Item	Null	Item	Null	Item	Null		
0005	X	X	X	X	X	X		X
0006	X	X	X	X	X	X		X
0007						X		
0008	X	X	X	X	X	X		X
000A	X	X	X	X	X	X		X
000B	X	X	X	X	X	X		X
000D	X	X	X	X	X	X	X	X
000E							X	
000F	X	X	X	X	X	X		X
0010		X		X		X		
001B							X	
002A							X	
002B							X	

Understanding the Philosophy Behind S-Words

If you understand the philosophy behind s-words, you can make effective use of them. This section provides conceptual as well as practical information about s-words.

S-Words are used to define intended meaning when information is entered or subsequently retrieved from Tivoli Information Management for z/OS databases.

Note: Before continuing, be sure you understand the format of the Tivoli Information Management for z/OS databases and how s-words and p-words are stored in the SDIDS for database retrieval. Review these topics in “How Tivoli Information Management for z/OS Works” on page 4, if necessary.

Generally, anyone using or having knowledge of one language recognizes that other languages represent alternate vehicles for communication. Unfortunately, most spoken languages have a number of attributes that make them less than ideal for effective information retrieval. Frequently, alternative methods of expression are used in an attempt to achieve precise meaning.

Retrieval techniques vary in form and in their degree of success; they include languages as keys for locating the contents of indexed and direct access files, publication indexes, yellow pages of the telephone book, and the like. Without these alternative methods of information retrieval, users are constantly faced with the literal inconsistencies apparent in spoken languages: things like synonyms, homonyms, colloquialisms, and acronyms.

Two examples of literal inconsistencies in our own language follow. Example 1 shows various ways in which users describe the “abnormal rate” symptom of a system, application, or device when consistent entry is not enforced. Example 2 describes the “abnormal result” symptom.

Example 1: Abnormal-rate keywords

Running slow, hung, waiting, looping, not responding to inputs, enabled waits, disabled waits, halts, halted, ceased, input inhibited, hang, hanging, performance degradation, limbo, dormant, unable to start, unable to stop, terminal hung, terminal hang, console hung, console hanging, lines not enabled when started, stopped, extra CPU cycles obtained, and other variations of the same.

Example 2: Abnormal-result keywords

Incorrect data, incorrect, incorrect printing, clobbered records, wrong output, bad output, garbled data, duplicate records, duplicate data, records printed twice, data repeated, duplicate segments, truncated messages, garbled messages, flickering screen, stickman, thunderbolt, missing fields, incorrect fields, bad fields, and other variations of entry.

The intent and design of s-words are to prevent such problems as those illustrated here by providing a precise method for the retrieval of information. Controlled database entry is the goal of the creation of structured descriptions for data.

Dialog Interface

Dialogs are easy to use as an interface device, and they simplify retrieval of previously entered data. Dialogs help users recognize what is wanted, rather than leaving them to recall some word or phrase. A user's selections are collected internally as s-words. S-Words are especially effective when the intended meanings are hierarchically structured as selections presented in a dialog.

Example:

Rather than allowing a freeform description of the abnormal rate or abnormal result (as shown in the previous examples), the user is presented with a panel containing the selections:

- 1) SYMPTOM=ABNORMAL RATE
- 2) SYMPTOM=ABNORMAL RESULT

The user need not memorize or guess how to describe the problem to retrieve it.

S-Words coupled with a dialog interface offer the advantage of significantly reducing confusion that detracts from the more purposeful thought processes directed toward task achievement. Together, they streamline intercommunication between the user and the retrieval system.

Another advantage of a dialog interface is the flexibility of changing the dialog. When the database uses s-words (rather than visible terminology), the visible terminology on the panels can always be changed (for multiple languages, clarity, or changing requirements) without disturbing the internal description of the data. Effective retrieval depends only on the presence or absence of s-words and not on visible terminology.

Scope of Meaning

S-Words provide additional flexibility to searchers or interfacing programs, such as report generators. An s-word can be designed so that each character position can vary the scope of meaning within which information can be retrieved. The meaning is provided by the position of a unique character or these special characters:

Asterisk (*) The position is ignored. That is, any character is accepted in this position when retrieving data. This character is sometimes referred to as the "wildcard" character.

Period (.) Abbreviates or limits the search. That is, where a period appears in a trailing position, every item is accepted whose s-word, of equal or greater length, is identical to this s-word up to the period.

The * and . (in their SBCS forms) can be used in inquiry mode only. Table 21 illustrates the scope of meaning with a list of generically related elements. It shows the selection (Subject Item), the way the item is perceived (Viewpoint Descriptive), and the s-word.

Table 21. Scope of Meaning of Generically Related Elements

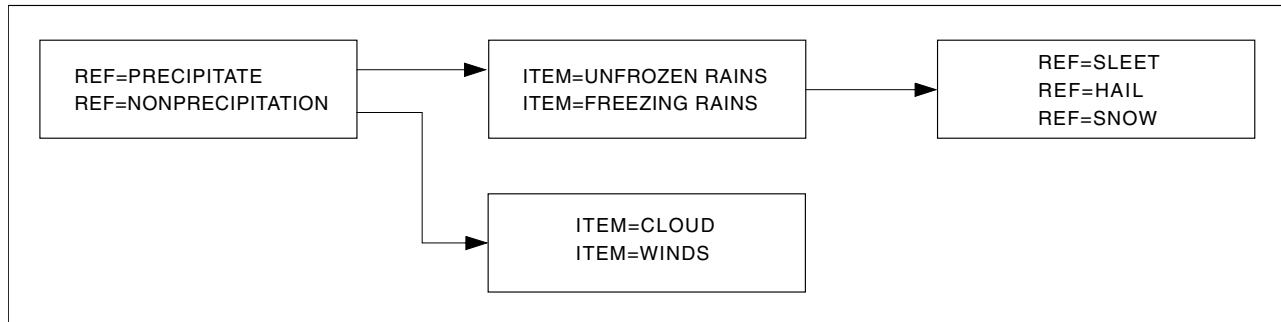
Subject Item	Viewpoint Descriptive	S-Word
1. Type=Rain	unfrozen	X001
2. Type=Sleet	frozen	X0020
3. Type=Snow	frozen	X0021
4. Type=Hail	frozen	X0022
5. Type=Frozen+	frozen	X002*
6. Type=Precip++	either	X00*.
7. Type=Clouds	.	X0100
8. Type=Winds	.	X0110
9. Type=Non-Precip+	.	X01*0

Items 1, 2, 3, 4, 7, and 8 have neither asterisks nor periods in their s-words. They are unique s-words that are used when a record is entered. However, the s-word for item 5 has an asterisk (*). The + following the selection Frozen indicates that its scope of meaning includes preceding items in the list. Selecting item 5 when defining an inquiry allows retrieval of all records that contain s-words equivalent to Sleet, Snow, and Hail (those with root value 'X002').

Using the asterisk or period to modify the scope of meaning in retrieval is called *vertical shadowing*. Item 6 shows a second level (or degree) of vertical shadowing. Though still restrictive, it shadows in more than one group of otherwise exclusive elements. Note that its root (X00) limits the scope of retrieval to records containing some form of precipitation. But unlike item 5, the asterisk in the fourth position followed by a period allows retrieval of all records that contain the s-word for Rain as well as Sleet, Snow, and Hail. Thus, item 6 includes Precipitation, frozen or unfrozen.

Item 9 collects a unique subset, items 7 and 8, thus limiting its scope of retrieval to records meaning Non-Precipitation. The root X01 excludes items 1-6 (X00), thus contrasting it to any items included under Precipitation.

Use of asterisks and periods for vertical shadowing does more than allow collective meaning to be expressed as a single search argument. It also reduces the number of menu panels required to build a search argument. To obtain equivalent results of collective meaning without using vertical shadowing requires sequential menus as shown in the following diagram.



In this diagram, the same panel sequence must be presented during record entry and inquiry. Rather than being expressed by shadowing, the scope of meaning is determined by where the user stops in the prompting sequence and issues the SEARCH command. (This method places the burden on the user.) The user's ability to consider all related items at the same time is lost, creating a psychological impact sometimes called *tunnel vision*.

A closer look at the preceding diagram shows how the design of s-words can be derived from the panel-to-panel flow. When the panels (and selections or fields) are graphically represented, the elements that must correspond to (or shadow) previous selections should become apparent. See "S-Word Authorization Codes" on page 74 for a partial list of authorization s-words.

From the previous discussions and examples, it appears that the design of s-words and their scope of meaning is left to the designer's imagination and retrieval requirements. However, a note of caution: if you do not carefully consider the design of s-words, you can inadvertently adopt an s-word that includes meanings other than your intended meaning. This problem, referred to as *contextual ambiguity*, is discussed in more detail in the next section.

Assigning S-Words

In constructing s-words, consider two general characteristics:

- S-Word lengths
- Character position assignments

Consistently observed, guidelines for these characteristics cannot only allow a fair degree of expression, but can also avoid restricting your ability to later include other, related meanings. Each designer must adopt and observe some discipline in construction to avoid inadvertently adopting an s-word notation that can include meanings other than those intended: for example, assigning the same s-word for two meanings not generically related. Should that occur, some irrelevant records would be retrieved. This kind of retrieval is contextual ambiguity.

S-Word Length

The length of an s-word has no noticeable effect on the speed of retrieval unless the asterisk or period is used in a high-order position of the s-word.

For example, assume the following s-words exist in the SDIDS:

```

X10001
X20001
X30001
X40001
X50001
  
```

X60001
X*0001

In the list, notice that s-word X*0001 shadows s-words X10001 through X60001. If this s-word were used in inquiry mode, six reads of the SDIDS would be required to ensure proper retrieval. Compare the above with the following set of s-words:

X00011
X00051
X00222
X00333
X00444
X00663
X000*1

In this list, s-word X000*1 shadows s-words X00011 and X00051. If this s-word were used in inquiry mode, only two reads of the SDIDS would be required to ensure proper retrieval. In this example, search performance is improved 300 percent because the asterisk is moved to a low-order position. This example shows only six s-words. In many applications, the number of s-words is several hundred.

Character-Position Assignments

Try to assign the same high-order positional values in s-words for groups of generically related items. Using short s-words for selections that begin major forks for unique paths through a dialog is a good practice, particularly if the s-words are unique in high-order positions and are not found in lists of other subjects or items. Table 22 presents s-words that illustrate categorizing by high-order designations.

Table 22. S-Words by High-Order Designations

Subject Category	S-Word Root
Groups	XIM0I0G
Class	XIM0I0C
Dates	XIM00SD
Intervals	XIM00SI
Numeric identities	XIM00NN0
Persons	XIM0I0P
Phone numbers	XIM00NP
Documentation	XIM0LD
Financial data	XIM0FD
Record references	XIM00NR
Report assignments	XIM0RP
Times	XIM00ST

The example shows the following:

- XIM designates s-words.
- The remaining characters of the root, such as 0I0G, define the various types of information.
- The last characters of the s-word are unique for individual assignments, such as XIM0I0G000, XIM0I0G001, and XIM0I0G002.

Adding a period (.) to the end of each root results in a shadowed s-word for that category.

To see the relationship and a complete list of s-words, run the S-Word List report, sorted by s-words. See “Running PMF Reports” on page 227 for instructions and more information.

Note: The s-words for the change detail, problem symptom, and problem resolution dialogs do not always adhere to these guidelines because the list processor collects these s-words.

Guidelines for assigning s-word positional values can be derived once you define the type of information to be collected. Requirements for proper shadowing and mutual exclusivity become apparent. You need only make sure that the shortest form used, particularly if a period (.) is in the last position, does not inadvertently shadow logically unrelated s-words.

Table 23 shows the s-word assignments for person names.

Table 23. S-Words for Person Names

Index	S-Word	Word Acronym
0B59	XIM0I0PS00	IM = SUBM PERSON
0B5A	XIM0I0PA00	IM = ASSN PERSON
0B5B	XIM0I0PR00	IM = RESL PERSON
0B5C	XIM0I0PC00	IM = CORD PERSON
0B5D	XIM0I0PO00	IM = OWNR PERSON
0B5F	XIM0I0P001	IM = MKT REP
0B60	XIM0I0P002	IM = SYS PGM
0B61	XIM0I0P003	IM = SYS SPEC
0B62	XIM0I0P004	IM = HDW REP
0B63	XIM0I0P005	IM = SFW REP
0B6E	XIM0I0PM01	IM = OPER MGR
0B6F	XIM0I0PM02	IM = 1ST SHIFT MGR
0B70	XIM0I0PM03	IM = 2ND SHIFT MGR
0B71	XIM0I0PM04	IM = 3RD SHIFT MGR
0B82	XIM0I0PM**	IM = ALL MGT+
0B83	XIM0I0P***	IM = ALL PERSONS++
151F	XIM0I0PX00	IM = PERSON FU

For the most part, assigning high-level s-word positions for major paths, followed by sublevel categories, minimizes the possibility of constructing s-words that produce contextual ambiguity (for more information on contextual ambiguity, see page 193).

The s-words you use on a list processor panel must be no more than 8 characters in length, and they cannot end with a period (.) or asterisk (*). For more information about using s-words with list panels, see “BLG01396 - List Processor Program Exit” on page 446.

Multiple Use of S-Words

Another helpful technique, when designing new applications requiring s-words, is to reuse existing s-words. This technique is especially useful if the information being requested by the application is generically the same as information requested by another application. For

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example, the same s-word can be used for both the Problem and Change submitter, as long as a preceding s-word (for example, Record type) protects the contextual integrity of subsequent s-words within the record, as shown in the following figures.

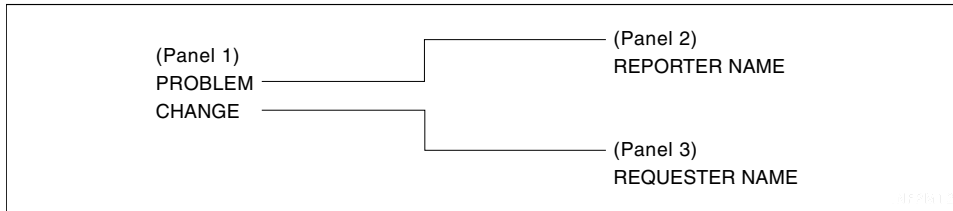


Figure 7. External Panel Flow

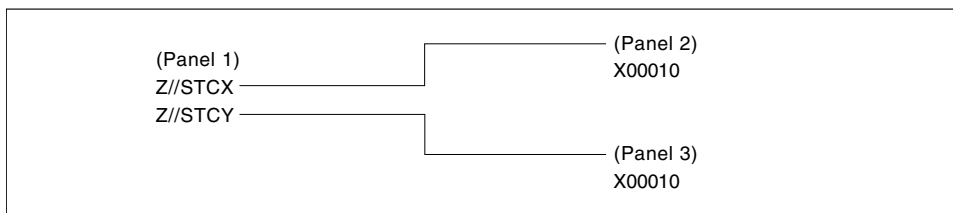


Figure 8. Internal Panel Flow with S-Words

The same s-word is used for both Reporter and Requester names. However, the s-words preceding the submitter panels are unique. If the panel flow for record entry prevents mutually exclusive s-words from being entered in the same record and this control is placed early in the flow, subsequent s-words can be the same. In inquiry mode, if a similar set of panels is provided, selection of either problem or change immediately limits the scope of the search to records containing the item selected.

Tivoli Information Management for z/OS uses this technique quite often. Generally, the entire s-word set for the fields associated with the Problem reporter, Status, and Close panels is the same as the set for the fields associated with the Change requester, Status, and Close panels. This is possible because the s-words associated with the preceding panel (Problem, Change, and so on) are mutually exclusive and cannot coexist in the same record.

Note: If different s-words that have the same p-words are collected in the same record, contextual ambiguity results, which makes searching difficult and results in the loss of history data.

Defining S-Words for Privilege-Class Authorization

Privilege-class authorizations are controlled through s-words. The authorization code is the last four positions of the s-word.

You can modify and create authorities with PMF. Each panel allows specification of an authorization code that is used by the panel processor when a response is entered. When an authorization code is specified in a panel, it must also exist in the current privilege class (except the master privilege class) so that the selection, field, or assisted-entry panel response is valid. Authorization s-words are assigned as shown in Table 24 on page 197.

Table 24. Authorization of S-Words

Type	Root	Identifier	Code
Problem	XIMRA	P	01xx
Change	XIMRA	C	02xx
Configuration	XIMRA	I	03xx
Rules	XIMRA	R	09xx
Financial	XIMRA	F	05xx
Class	XIMRA	H	04xx
PMF	XIMRA	M	07xx
SRC	XIMRA	S	08xx
DBADMIN	XIMRA	D	0AAx
Person	XIMRA	D	0Bxx
People	XIMRA	J	0Axx

Type	Describes the generic authorization s-word for each record type.
Root	Identifies that s-word as an authorization indicator. Any installation-defined authority must begin with this root.
Identifier	Indicates the type of record associated with this authorization code. This identifier is used in inquiry mode to identify in one search all authorities associated with a record type. It is not used to check authorization.
Code	Four hexadecimal characters that uniquely identify the authorization code. The code is specified in the panels associated with the selection, field, column, or assisted-entry reply for which authorization is required. This code is also used in inquiry mode.

When you create an authorization s-word, use the watermark character X'BC': authorization s-words X'BC' IMRA*8000 through X'BC' IMRA*FFFF (* can be any SBCS character) are reserved for your installation's use; Tivoli does not use these values when creating s-words.

A complete list of authorization s-words is included in "S-Word Authorization Codes" on page 74.

Removing an Authorization Code

To remove an authorization code from a panel:

1. Locate all panels containing the authorization code to be removed.
2. Request each panel for PMF update and enter zeros or blanks in the **Authorization code** field.
3. Test the changed panels.
4. Copy them from the write panel data set to the appropriate read panel data set.

See "Checklists for Modifying Authority" on page 353 for detailed instructions on removing authorization from panels.

Adding a New Authorization Code

To add a new authorization code to a panel:

1. Use the P-Word and S-Word Cross-Reference Reports to locate all panels that contain the selection or field you want to restrict.

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2. Add a new s-word to the dictionary. The hexadecimal authorization code must be unique.
3. Update the appropriate privilege class panel to define the authority.
4. Update each panel identified in step 1 by inserting the authorization code in the control information for the appropriate selection or field.
5. Update a privilege class to contain the new authority so you can test the modification.

Note: You cannot test the change if you are running in the MASTER privilege class.

6. Test the panel authorization with PMF panel test.
7. Copy the updated panels from the write panel data set to the appropriate read panel data set.
8. Update the appropriate privilege class records to contain the new authority.

See “Checklists for Modifying Authority” on page 353 for detailed instructions on adding authorization to a panel.

No PMF report collects the panels that reference a specific authorization code. Therefore, if you add authorization codes to panels, use the Change Management facility (detail section) to keep track of the panels affected.

Displaying and Modifying P-Words

This is an example of a Dictionary Display panel for p-words.

BLM1TDP1		DICTIONARY DISPLAY		PREFIX WORDS
PWORD INDEX	PREFIX	PWORD VALIDATION	PGM USED	GENERAL COMMENT
0076	CL**/	ACV7	YES	COMMON - ANY PRIVILEGE CLASS NAME.
0077	CL**/	=CLASS	YES	COMMON - ANY PRIVILEGE CLASS NAME.
0078		<MESSAGE>	YES	PMF - TSP FUNCTION NAME.
0079	CLAE/	ACV7	YES	COMMON - ENTRY PRIVILEGE CLASS.
007A	CLAE/	=CLASS	YES	COMMON - ENTRY PRIVILEGE CLASS.
007B	CLAN/	ACV7	YES	COMMON - PRIVILEGE CLASS NAME.
007D	CLAO/	ACV7	YES	COMMON - OWNING PRIVILEGE CLASS.
007E	CLAO/	=CLASS	YES	COMMON - OWNING PRIVILEGE CLASS.
007F	CLAR/	ACV7	YES	COMMON - RESOLVER PRIVILEGE CLASS.
0080	CLAR/	=CLASS	YES	COMMON - RESOLVER PRIVILEGE CLASS.
0081	CLAT/		YES	COMMON - TRANSFER PRIVILEGE CLASS.
0082	CLAT/	ACV7	YES	COMMON - TRANSFER PRIVILEGE CLASS.
0083	CLAT/	=CLASS	YES	COMMON - TRANSFER PRIVILEGE CLASS.

Type DOWN, UP, LEFT, or RIGHT to scroll the panel, or type END to exit.

====>

The Dictionary Display of p-words is a table panel that presents the prefix data in the dictionary data set.

Use the DOWN and UP commands to view all of the prefix data. Use the FIND command to locate data in any column and to see specific prefix data. Use the LEFT and RIGHT commands to shift the entire display. Use the LEFT COL and RIGHT COL commands to scroll the **General Comment** column. (Type **left col** or **right col** on the command line, position the cursor on the **General Comment** column, and press **Enter**.)

To leave the panel, type **end** and press Enter. You return to BLM8CG00, the Dictionary Update options panel.

This is an example of a Dictionary Update panel for p-words.

```

BLM1TDP0          DICTIONARY UPDATE          PREFIX WORDS

      PREFIX  PREFIX  DATA          PGM  GENERAL
      INDEX  WORD   VALIDATION     USED COMMENT

'' 0076 CL**/  ACV7          YES  COMMON - ANY PRIVILEGE CLASS NA
'' 0077 CL**/  =CLASS         YES  COMMON - ANY PRIVILEGE CLASS NA
'' 0078      <MESSAGE>     YES  PMF - TSP FUNCTION NAME.
'' 0079 CLAE/  ACV7          YES  COMMON - ENTRY PRIVILEGE CLASS.
'' 007A CLAE/  =CLASS         YES  COMMON - ENTRY PRIVILEGE CLASS.
'' 007B CLAN/  ACV7          YES  COMMON - PRIVILEGE CLASS NAME.
'' 007D CLAO/  ACV7          YES  COMMON - OWNING PRIVILEGE CLASS
'' 007E CLAO/  =CLASS         YES  COMMON - OWNING PRIVILEGE CLASS
'' 007F CLAR/  ACV7          YES  COMMON - RESOLVER PRIVILEGE CLA
'' 0080 CLAR/  =CLASS         YES  COMMON - RESOLVER PRIVILEGE CLA
'' 0081 CLAT/          YES  COMMON - TRANSFER PRIVILEGE CLA
'' 0082 CLAT/  ACV7          YES  COMMON - TRANSFER PRIVILEGE CLA
'' 0083 CLAT/  =CLASS         YES  COMMON - TRANSFER PRIVILEGE CLA

Line Cmds: A=Add D=Delete R=Repeat
Type DOWN, UP, LEFT, or RIGHT to scroll the panel, or type END to exit.

===>
    
```

On this panel you can add, delete, and modify prefix data in the dictionary.

Prefix data does not require a prefix. For example, assisted-entry panels associated with a user's profile and PMF itself do not contain prefixes, but they do have a prefix index and specific validation patterns.

To update prefix records, type the new values directly in the fields on the panel. Use the DELETE line command to delete all columns within a record except the p-word index. You cannot delete prefix records with indexes below X'8000'.

Use the ADD line command to add prefix records to the dictionary. Issue the DOWN MAX command to get to the last line of the display, then type, on the last line, **A** and follow it with a number from 1 through 99. This adds as many new prefix indexes as you specify. Each index is followed by a blank line, in which you can type the new p-words and accompanying information. After you file the changes, the new prefix data is added to the dictionary data set.

Use the REPEAT line command to repeat the last prefix record in the dictionary. Issue the DOWN MAX command to get to the last line of the display, then, on the last line, type **R** and follow it with a number from 1 through 99. This action repeats the last line as many times as you specify. After you file the changes, the new prefix data is added to the dictionary data set.

To leave the panel, type **end** and press **Enter** to save all changes you made on the panel, or type **cancel** and press **Enter** to ignore your changes. You return to BLM8CG00, the Dictionary Update options panel.

Validating Data

The validation pattern contained in the **Data Validation** field of a p-word either verifies that a response on an assisted-entry panel is correct or provides data for a control panel.

You can specify numerous validation patterns; however, each pattern that you want on the assisted-entry panel should have a unique prefix index in the dictionary.

Data Validation Characters

Using PMF, you can define the format, length, and character-verification elements of the validation pattern for a response. Table 25 lists the characters you use to create validation patterns.

Table 25. Characters Used to Create Validation Patterns

Character	Definition
A	Indicates that the response must be an uppercase alphabetic character (A-Z). If you use DBCS data, this indicates that the response must be either an SBCS uppercase alphabetic character (A-Z) or any byte of a DBCS portion of the field (SO, SI, or a component byte of a DBCS character).
B	Indicates that the response must be binary data (0 or 1).
C	Indicates that the response must be either SBCS alphanumeric (A-Z or 0-9), an SBCS character (#, @, \$, & or /), or any byte of a DBCS portion of the field (SO, SI or a component byte of a DBCS character).
I	Indicates that the response must be either an SBCS character between X'40' and X'FF', or any byte of a DBCS portion of the field (SO, SI or a component byte of a DBCS character). This is the only validation character that accepts SBCS Katakana characters.
L	Indicates automatic padding on the left of the response with zeros to the specified length if fewer characters are entered. L is allowed with a variable length (Vnn) only.
N	Indicates that the response must be a decimal number, 0-9.
Rnn	Signifies that the preceding character is repeated nn times where nn is a maximum of 64. An A, B, C, I, N, S, or X character must precede the R.
S	Indicates that the response must be an SBCS alphanumeric character (A-Z or 0-9), an SBCS national character (@, #, \$), or any byte of a DBCS portion of the field (SO, SI or a component byte of a DBCS character).
Vnn	V signifies that the preceding pattern character can vary in length from 0 to nn characters, where nn is a maximum of 63. (When L is part of the pattern, the maximum is 12.) An A, C, I, N, S, or X must precede the V, and only L can follow V.
X	Indicates that the response must be hexadecimal data (0-9 and A-F).
<	Begins a specific character string that is an accepted response.
>	Ends a specific character string that is an accepted response.
Note: Validation patterns A, C, I, S, < and > do not validate DBCS characters, but they do recognize and allow the presence of DBCS characters.	

Use these characters to form a validation pattern. The length of the pattern for the assisted-entry panel reply must be from 1 to 32 characters. The length of data allowed is from 1 to 64 characters, including the prefix. To force at least a 1-character reply when you specify V (a variable length), at least 1 character must precede the V. For example, a name field that is 1 to 15 alphanumeric characters is specified as CCV14.

Even though a response can be up to 64 characters long, only the first 16 or 32 characters (including the p-word) can be cognized and therefore searchable. If the first 16 or 32 characters are not distinctive, the response cannot be uniquely cognized.

When you use the V pattern to define a variable length field, the data stored is the length of the response. If, however, you have specified an L character with the V, the response is padded on the left with zeros to a maximum length of 12. This means that the response plus the padded zeros can only total 12 characters. If the response is greater than 12 characters and the L character is included in the validation pattern, an error will result.

The validation character L uses SBCS zeros to left pad data when the data type is SBCS (S) or mixed (M). The data type DBCS (D) will cause the validation character L to left pad with 42 zeros.

Pattern characters operate on a byte-for-byte basis. One pattern character can accept 1 SO or SI character. Two pattern characters are required to accept a DBCS character.

The following examples illustrate how to use the characters in Table 25 on page 200 to create validation patterns:

Validation Pattern	Valid Response
AR4	4 alphabetic characters, or 1 DBCS character
CCV3	1 to 4 alphanumeric or special characters, or 1 DBCS character
<OPEN>	The word OPEN
CR8	8 alphanumeric or special characters, or 3 DBCS characters
XX	2 hexadecimal digits
NN<:>NN	2 decimal digits, followed by a colon and 2 more decimal digits
NNV7L	1 to 8 decimal digits, which will be padded on the left with zeros
<DEPT>SSSS	The word DEPT followed by 4 alphanumeric or national characters, or 1 DBCS character

Predefined Validation Patterns

In addition to the validation characters listed in Table 25 on page 200, you can enter predefined patterns in the dictionary that permit the use of an equal sign (=) in the data-entry field or on the assisted-entry panel, or on control panels. An = automatically adds the default value and its p-word to a record or the search argument. For example,

Pattern	Replaces = with the:
=DATE	Current date
=TIME	Current time
=NAME	User name specified in the user's profile
=DEPT	Department specified in the user's profile
=PHONE	Phone number specified in the user's profile
=CLASS	User's current privilege class
=USER	Current user ID
=PRIM	Returns the current Primary Partition Name.
=GLOB	Returns the current Global Partition Name. If a Global Partition Name is not defined, the current Primary Partition Name is returned.

You can also create user-defined patterns that use an =. For more information, refer to “Creating User-Defined Profile Variables” on page 207.

When you use a pattern of this type, you must specify a validation pattern as well. The predefined pattern must be specified first. The predefined pattern retrieves the default data, but the data must still be validated by a subsequent pattern.

In addition, you can use these predefined patterns in ADD and TEST control lines on control panels. When the ADD control line is processed, it adds the p-word and corresponding default value to the current record or search argument. When the TEST control line is processed, it tests for the presence of the p-word and corresponding default value in the current record or search argument.

Note: If authorization codes are used for predefined validation patterns, the authorization code must be specified for both the predefined pattern and the subsequent validation pattern. When you enter a predefined validation pattern in a control panel line, the pattern uses only 32 bytes. These 32 bytes include the brackets that enclose the pattern.

Verifying Your Validation Patterns

The validation patterns described allow extensive modifications. To ensure the integrity of the database and interfacing functions, specific validation processing takes place when you file a new or modified panel that uses installation-defined validation patterns.

The **Collect as string data** field implies that no validation is performed; the entire field is collected in the SDDS as entered. When you specify YES in the **Collect as string data** field:

- The assisted-entry panel does not accept validation patterns.
- If a p-word is contained in a validation line, the **Reply meaning** field must be WORDS and the **Reply value** field must be 1.
- If the **Cognize response** field is YES, all characters other than A-Z, 0-9, and &, \$, #, @, and * are translated to blanks, and each item is written to the SDIDS separately. For example, if you create a record that contains the phrase NOT REQUIRED, the SDIDS will contain two entries, NOT and REQUIRED.

Note: If non-Latin alphabet tables are installed, all characters are translated to themselves and are written to the SDIDS as entered. Refer to the *Tivoli Information Management for z/OS Planning and Installation Guide and Reference* for more information on non-Latin alphabet tables.

Understanding the Philosophy Behind P-Words

A p-word defines the context associated with a character string entered by the user on assisted-entry panels. It is also used to locate and display user responses on data-entry or table panels. A p-word in the dictionary does not require that a prefix be entered. Specific validation patterns, such as in profile or PMF assisted-entry panels, do not always have a prefix. Generally, whenever you want the data stored in the database as searchable, use a prefix.

Note: You can specify a p-word in the dictionary with no validation pattern; however, expect unpredictable results if you collect the p-word without collecting any associated data.

Dialog Interface

P-Words, like s-words, are especially effective when presented through a dialog. The user's response is concatenated with the prefix. However, unlike s-words, p-words and their associated values can be entered using the ARGUMENT or SEARCH commands, which requires the user to memorize both the p-word and the validation pattern for the data record. P-Words coupled with s-words offer the user various methods of data retrieval. The method chosen depends on the requirements of the installation and user.

Because p-words are displayed to the user, unlike s-words, limiting your modification of p-words avoids the need for additional education of your users. You can, of course, update existing records in the database to include the new p-words.

Scope of Meaning

P-Words also provide additional flexibility to searchers or interfacing programs, such as report generators. A p-word can be designed so that each character position can vary the scope in which information can be retrieved. The meaning is provided by the position of a unique character or a special character (the SBCS asterisk (*)).

As with s-words, the asterisk in a p-word means that the search routine can accept any character in this position when retrieving data; that is, the position that contains the asterisk is ignored during a search. The asterisk is used in defining p-words in inquiry mode only.

You cannot use the period to define a p-word search because a period is interpreted as the abbreviated search operator in the last position of a keyword, and the p-word is followed by data. However, more than one asterisk can be used to expand the scope of meaning. Table 26 illustrates the scope of meaning with p-words assigned to persons.

Table 26. Scope of Meaning with P-Words Assigned to Persons

Subject Item	Viewpoint	P-Word
1. PERSON=SUBMITTER	Submitter	PERS/
2. PERSON=ASSIGNED	Assignee	PERA/
3. PERSON=CLOSER	Resolver	PERR/
4. PERSON=TRACKER	Contact	PERC/
5. PERSON=ALL+	any	PER*/

Notice that items 1, 2, 3, and 4 do not contain asterisks in their p-words. These unique p-words are used when a record is entered. However, the p-word for item 5 has an asterisk (*). Selecting item 5 when defining an inquiry allows retrieval of all records that contain a person's name regardless of how it was entered. Using the asterisk to modify the scope in retrieval is called vertical shadowing.

As with s-words, a note of caution: if you do not carefully consider the design of prefixes, you could inadvertently adopt a prefix that includes meanings other than you intend. This problem is called *contextual ambiguity*, and it is discussed in more detail in "S-Word Length" on page 193.

Assigning Prefixes

In constructing prefixes, consider two general characteristics:

- Prefix lengths
- Character position assignments

Consistently observed, guidelines for these characteristics not only allow a fair degree of expression, but also prevent the restriction of your ability to later include other related meanings. As with s-words, each designer must adopt and observe some discipline in construction to avoid inadvertently adopting a prefix notation that includes meanings other than that intended; for example, by assigning the same prefix for two meanings not generically related.

Prefix Length

The length of a prefix has no noticeable effect on the speed of retrieval unless the asterisk is used in a high-order position of the prefix. However, the SDIDS key length is 16 or 32, so this is the largest any searchable item can be. The longer the prefix is, the fewer characters that are left for your actual data.

Character-Position Assignments

Assign the same high-order positional values in prefixes for groups of generically related items. Your user can easily search generic categories of information. Table 27 shows examples of the way Tivoli Information Management for z/OS uses prefixes to group generically related items.

Table 27. High-Order Prefix Positions for Generically Related Items

Subject Category	Prefix Root
Groups	GRO*/
Class	CLA*/
Dates	DAT*/
Numeric identities	NUM*/
Persons	PER*/
Record references	RN**/
Times	TIM*/

Special Prefix Characters

Certain p-words and their prefixed characters are used by the program exits; do not change their meanings when you create your own p-words. The characters are often used in an abbreviated form for internal search operations, so using as few as the first 2 characters in a new p-word can cause unexpected results during record create and retrieval. These reserved p-word characters are:

- CL** These characters designate privilege classes. Using them for any other purpose can affect the integrity of the authorization system.
- DAT** Use these characters only for fields designated as **Date** fields.
- RN** These characters designate record identifiers, and Tivoli Information Management for z/OS uses them for its own control purposes. Giving the characters a different meaning can result in incorrect processing by Tivoli Information Management for z/OS.
- SP, SR, SA** These characters in p-words designate approver status in change records.

(For example, SP**/ or SA01/.) Change Management uses them to determine the approval status for a record. If you use these characters in p-words for other fields in change records, it can result in erroneous status information for those records.

TIM Use these characters only for fields designated as **Time** fields.

Multiple Use of P-Words

Another helpful technique when designing new applications requiring p-words is to reuse existing p-words. This technique is especially useful if the information being requested by the application is generically the same as information requested by another application. For example, you can use the same p-word for both problem and change submitter, as long as a preceding s-word (for example, record type) protects the contextual integrity of subsequent p-words, as shown in the following diagrams.

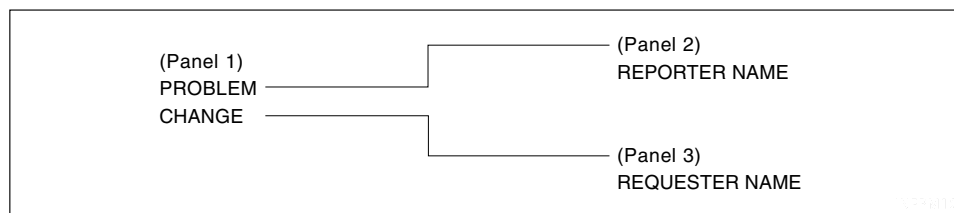


Figure 9. External Panel Flow

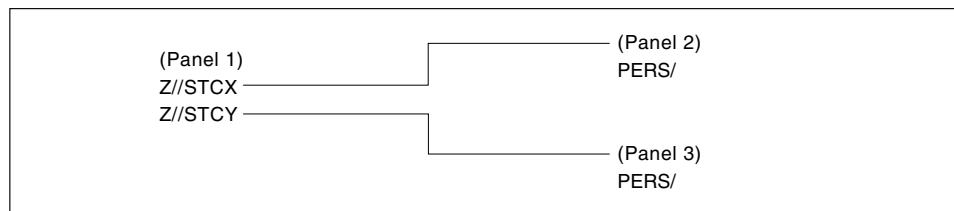


Figure 10. Internal Panel Flow with P-Words

The same prefix is used for both reporter and requester names. The s-words preceding the submitter panels are unique. If the panel flow for record entry prevents mutually exclusive prefixes from being entered in the same record and this control is placed early in the panel flow, subsequent prefixes can be the same. In inquiry mode, if a similar set of panels is provided, selection of either problem or change immediately limits the scope of records to those containing the item selected.

Tivoli Information Management for z/OS uses this technique quite often. Generally, all the prefixes for the fields associated with the problem reporter, status, and close panels are the same for the fields associated with the change requester, status, and close panels. This reuse is possible because the s-words associated with the preceding panel are mutually exclusive and cannot coexist in the same record.

P-Words versus S-Words

P-Words and s-words perform similar but not identical functions. Both p-words and s-words can be used to represent data and provide flexibility in retrieving that data from the database.

P-Words provide a direct method of searching the database by use of keywords. A p-word identifies data as belonging to a specific field or data category. It is attached to the user's response after it has passed validation. P-Words do not validate the user's response. Therefore, prefixes are not required when you define a p-word to validate a field only. Validation patterns are associated with the p-word index.

S-Words provide uniqueness in searching, displaying, and defining the context of data. S-Words cannot be typed as can p-words. When s-words are specified within panels, they are collected automatically into the record or search argument as they are selected. With a few exceptions, s-words are defined for each field. They are also defined to represent selections and to display columns.

You can choose to cognize only the p-word for a field. When you choose not to cognize both the p-word and s-word, you reduce the amount of SDIDS activity and, therefore, improve performance in filing and searching for records. (See "Cognize Only P-Word" on page 60 for more information about cognizing only p-words.)

S-Words and p-words are used as follows for each panel type:

- Selection and options panels use only s-words.
- Data-entry, table, and assisted-entry panels permit both s-words and p-words. For data-entry and table panels, s-words are preferred for displaying data because of their uniqueness. For an assisted-entry panel, use a p-word index only for validation; use an s-word index to define the context of the data collected. In most Tivoli Information Management for z/OS panels, both are used.
- Control panels can use either or both s-words or p-words depending on the purpose of the panel.

In addition, consider the following differences in building search arguments:

- With p-words, a user must know the content of the field, whereas s-words are independent of field content.
- With p-words, a user must know the p-word and sometimes the validation pattern before doing a search; with s-words, the user simply selects from a list.
- S-Words provide uniqueness to data because of their one-to-one relationship. The method by which this uniqueness is achieved is transparent to the user. Providing the same uniqueness with p-words is possible, but it complicates the usage of p-words. And the user must learn an even larger set of p-words and their specific meanings to search the data.

S-Words coupled with p-words are more appropriate for entering variable data and unlimited numbers of responses using selection and assisted-entry panels.

8

Creating User-Defined Profile Variables

You can define as many profile variables as necessary for your installation. This allows users to enter an equal sign (=) into a data-entry field and get information that is saved in their profile. You can either supplement the Tivoli-supplied profile variables, or you can replace them if they are not specific enough for your needs.

Four steps are involved in creating these user-defined profile variables:

1. Update the BLGPVARS ISPF panel.
2. Add the user-defined variables to the Tivoli Information Management for z/OS dictionary.
3. Update all affected assisted-entry panels.
4. Update the affected help panels.

Updating the BLGPVARS Panel

You must create the user-defined profile variables on an ISPF panel, BLGPVARS. Modify this panel to contain the list of user-defined profile variables that you need. Each variable must be added to the ISPF profile pool. Because BLGPVARS is not a Tivoli Information Management for z/OS panel, you cannot use PMF to modify it. Modify it as you would any other ISPF panel.

Complete information about what to include on the BLGPVARS panel is included in the *Tivoli Information Management for z/OS Program Administration Guide and Reference*.

Adding the Variables to the Dictionary

To use a user-defined profile variable, you must add a p-word entry to the dictionary. For example, if a location field is added to panel BLGPVARS with a variable name of LOCATE, a p-word entry must also be added to the dictionary with a validation pattern of =LOCATE and a prefix of LOCC/, which is the prefix that identifies the location.

Updating the Affected Assisted-Entry Panels

For a user to use the user-defined profile variable on a given panel, you must add the new prefix index to the validation patterns for the assisted-entry panels. To do this, choose **Prefix and content validation** on the assisted-entry Summary panels. Once you have added the new prefix index, users can enter = into that field and get the information saved in their profile. If the profile has no data, the user receives an error message.

To find all the assisted-entry panels that have the s-word for the location field, you can run an S-Word Cross-Reference report for that s-word index. Once you have a list of panels, you can update them to include the new p-word.

Updating the Assisted-Entry Panels

Insert the new validation pattern *before* any existing validations. It must appear ahead of any other validation patterns.

Updating the Affected Help Panels

When you define new profile variables, update the following help panels as well:

- BLG2THVD
- BLM2FD17
- BLG4P017

These help panels list the profile variables as shipped by Tivoli. Add your user-defined profile variables to these lists.

9

Creating a Panel Set

If your installation requires a different Tivoli Information Management for z/OS application for tracking data, you can create a new set of panels that can be modified to collect the necessary information. With such a set of panels, you can do all the things Tivoli Information Management for z/OS panels do: create, display, copy, delete, print, and update records.

You can create two types of panel sets using PMF: a basic panel set to process a single record type, or a parent/child panel set to process two related record types.

To create a panel set, your privilege class must have PMF panel-update authority.

Panel Flow for Creating a Panel Set

After you select **PMF** from the Management application Primary Options Menu and **Panel set** on the PMF options panel, the Panel Set Create panel (BLM8CCA0) appears.

After you fill in all the fields, press **Enter** to create the panel set. The panel set is written to your write panel data set. When you finish the create function, a one-line message appears. To return to the PMF options panel, type **end** or **CANCEL** and press **Enter**.

```
BLM8CCA0                PANEL SET CREATE                PMF
Enter name of new panel set; cursor placement or input line entry allowed.

1. Panel set prefix.....<R> ABV
2. From data set definition label..<R> BASE_____
3. Panel set type.....<R> SIMPLE_

To begin program execution, press Enter without field modifications.

BLM04081I The panel set was written to the WRITE panel data set.
===>
```

Identify the panel set you want to create by providing the following information about it:

1. A 3-character prefix to use in naming the panels in the new set
2. The label of the data set that contains the panels to be copied to create the new set

3. The type of panel set you are creating: **SIMPLE** indicates a basic panel set; **COMPLEX** indicates a parent/child panel set.

At this point, run a PMF Panel Content Report (specifying the panel set prefix as the range) to identify the names and control information for panels within the set. You are now ready to tailor, delete, or add panels as needed. Each panel in the panel set can be modified as required using the PMF update functions.

Creating a Simple Panel Set

To create a simple panel set, enter **SIMPLE** as the panel set type on the Panel Set Create panel. A simple panel set consists of 63 panels; a control panel is used to name the source panels from which these 63 panels are created. See “PMF Panel Identification” on page 396 for more information about this panel.

The simple panel set consists of the following:

Primary Options Menu	Similar to BLG0EN10, the System application Primary Options Menu.
Create-mode panels	Used to create a new record type. The panels are modeled after a combination of the problem and service record types, and include: <ul style="list-style-type: none">■ Entry options panel■ Data-entry panel■ Assisted-entry panels for data-entry fields■ Summary update panel■ Text-entry options panel■ Delete verification panels■ Control panels for record access
Inquiry-mode panels	Used to define search arguments for the new records. The panels are modeled after a combination of the problem and service records; they include: <ul style="list-style-type: none">■ Inquiry entry options panel■ Selection panels for the corresponding create-mode entries
Display panels:	Used to display the new records. The panels include: <ul style="list-style-type: none">■ Summary table panel■ Display-only data-entry panel■ Text-display options panel
Help panels	Used to create help panels for the new panel set.

Creating a Parent/Child Panel Set

To create a parent/child panel set, enter **COMPLEX** as the panel set type on the Panel Set Create panel. A parent/child panel set consists of 111 panels; a control panel is used to name the source panels from which these panels are created. (See “PMF Panel Identification” on page 396 for more information about this panel.)

The parent/child panel set consists of the following:

Primary Options Menu	Similar to BLG0EN10, the System application Primary Options Menu
Create-mode panels	Used to create a new record type. The panels are modeled after change and activity records, and include: <ul style="list-style-type: none"> ■ Entry options panel ■ Parent data-entry panel ■ Child data-entry panel ■ Assisted-entry panels for data-entry fields ■ Parent summary update panel ■ Parent summary update panel that allows creation of child records ■ Child summary update panel ■ Parent text-entry options panel ■ Child text-entry options panel ■ Delete verification panels for parent and child records ■ Control panels for access to parent and child records
Inquiry-mode panels	Used to define search arguments for the new records. The panels are modeled after change and activity records; they include: <ul style="list-style-type: none"> ■ Inquiry entry options panel ■ Selection panels for corresponding create-mode entries
Display panels	Used to display the new parent and child records. The panels include: <ul style="list-style-type: none"> ■ Summary panel ■ Text-display options panel ■ Display-only data-entry panel
Help panels	Used to create help panels for the new panel set

Modifying Your Panel Set

After you create a new panel set, run a Panel Content report of the panels that begin with the 3-character prefix you used for the new panel set. You can now tailor, delete, or add panels as needed. Every panel in the panel set can be modified using PMF.

In addition to any changes you identify during your own planning, you must also make modifications to call the new panels. These modifications depend on whether you want to keep the new Primary Options Menu you just created.

If you prefer to use the new Primary Options Menu, you must identify the panel set as a new application with a record type. If you do not want the new Primary Options Menu, identify a new record type, and you can use the current Primary Options Menu with your panel set. The following sections describe the changes you must make for each of these situations.

Panel Set Modifications for a New Primary Options Menu

You must make these modifications to call your new panels if you want to keep the new Primary Options Menu. In this case, you are defining your set of panels as a new application with its own record type.

1. Dictionary

Add a p-word record (with data validation only) for the visible application name. Define the validation to the exact value to be specified as the new application keyword phrase on the application selection panel (described in item 2).

You must also add two new s-words:

- The first s-word designates the new application type and must be of the format XISSCPR*02, where * is any character except X'00' - X'3F'.
- The second s-word defines the new record type; examine the s-words in panel BLG00000 for examples of record-type s-words.

2. Application Selection panel

Modify the Application Selection panel to enable the selection of the new application name you put in the p-word record in the dictionary. The Application Selection panel appears when the user selects **Application** from a Primary Options Menu. (BLG00030 is the Application Selection panel). The keyword phrase for the new selection must match the validation pattern specified in the p-word record. Be sure the control information for this new application selection contains the primary control panel (BLG0ENTR is the primary control panel) as the target panel, and the new application s-word.

3. Primary control panel

Modify the primary control panel (BLG0ENTR) to test for the new application name. The new control line should perform an application test (function code 000E) for the new p-word index; the true target of the application test should be the name of the new Primary Options Menu. In addition, the control line should contain the new application s-word.

4. Primary Options Menu

Modify your new Primary Options Menu to contain the new record-type s-word for the **Entry** and **Inquiry** selections. Panel xxx0YE00 is the Primary Options Menu for SIMPLE panel sets and xxx0YE50 is the Primary Options Menu for COMPLEX panel sets, where xxx is the 3-character prefix you specified for the panel set.

5. Child record file control panel.

For COMPLEX panel sets only, insert two **ADD** control lines in panel xxx1Y641. The first adds the new application s-word; the second adds the new record-type s-word.

If you want to change the profile panel (BLG6PRNA) to allow the new application as an invocation application default, the new application name must be 1 to 10 alphanumeric characters, and you must also change the profile valid-value CSECT BLGPRVVC. The CSECT source for BLGPRVVC is in BLM.V6R2M0.SBLMSRC1.

After completing these modifications to the new panel set, test the panel flow. You can display the panels by selecting the new application from the new Primary Options Menu.

After you have thoroughly tested the new panels, copy them to a read panel data set so that they are available for normal processing. Copy your newly created panels as well as your modified panels.

Panel Set Modifications for the Current Primary Options Menu

If you want to use an existing Primary Options Menu instead of the one you created, you must make the following modifications. In this case, you are identifying a new record type.

1. Dictionary

You must add a new s-word to represent the new record type. Examine the s-words in panel BLG00000 for examples of record-type s-words.

2. System or Management Application entry panel
Modify panel BLG00000 (Management application entry) or BLG00010 (System application entry) to allow the selection of the new record type for record entry. The new selection control line should have a create target set to the target defined in the **Entry** selection of the current Primary Options Menu. Set the s-word for the new selection to the new record-type s-word. Panel *xxx0YE00* is the Primary Options Menu for SIMPLE panel sets and *xxx0YE50* is the primary options menu for COMPLEX panel sets, where *xxx* is the 3-character prefix you specified for the panel set.
3. System or Management Application inquiry panels
Modify BLG00001 (the Management application Inquiry panel) or BLG00011 (the System application Inquiry panel) to allow the selection of the new record type for record inquiry. Be sure the new selection control line has an inquiry target set to the target defined in the **Inquiry** selection of the current Primary Options Menu. Set the s-word for the new selection to the new record-type s-word. Panel *xxx0YE00* is the Primary Options Menu for SIMPLE panel sets and *xxx0YE50* is the Primary Options Menu for COMPLEX panel sets, where *xxx* is the 3-character prefix you specified for the panel set.
4. Child record file control panel
For COMPLEX panel sets only, you must insert an **ADD** control line in control panel *xxx1Y641*. The new control line adds the new record-type s-word to the child record.

After completing these modifications to your new panel set, test the panel flow. You can display the panels by selecting the new record type from BLG00010 or BLG00011 (System application Create or Inquiry panel).

After you thoroughly test the new panels, copy them to a read panel data set so that they are available for normal processing. Copy each newly created panel and any other panels you have modified.

10

Getting a List of Current Panels and Panel Data Sets

The panel list function of PMF allows you to view the panels and panel data sets associated with the current session-parameters member. You can obtain a list of the current panel data sets that contains the actual panel data set names as well as the associated data set definition labels by which panel data sets are referenced throughout the PMF dialogs. The order of the panel data set concatenation is also displayed.

You can select any of the displayed panel data set names to see which panels are part of that panel data set. You can then perform any of the existing PMF panel functions (print, copy, update, delete) on one or more of the panels in the list. These PMF panel functions operate the same in the panel list function as they do in the existing PMF dialogs.

If you use any of the PMF line commands, review “Using PMF Line Commands” on page 92 for the use of these line commands. Any activity performed on the panels in the data set is displayed on the panel data set list in the form of a status indicator.

Obtaining Panel Lists

After you select **PMF** on the Management application Primary Options Menu and **Panel list** on the PMF options panel, the Panel Data Set Selection List (BLMITPDS) appears. This panel displays the list of panel data sets for the current session-parameters member.

```

BLMITPDS          PANEL DATA SET SELECTION LIST          DATA SETS

      DATA SET  TYPE  DATA SET NAME
      LABEL

1.  WRITE      WRITE  CASTOR.WRITE.WPANELS
2.  READ       READ   CASTOR.READ.RPANELS
3.  BASE       READ   TIVOLI.INFOMAN.SHARE.BASE.PANELS

Line Cnds: S=Select
Type DOWN or UP to scroll the panel, or type END to exit the panel.

===>

```

To view the list of panels in a particular data set, enter the **SELECT** line command for the panel data set, or enter the number of the data set on the command line and press Enter.

Obtaining Panel Lists

If you select a panel data set that is empty, a message to that effect appears, and the panel BLM1TPDS remains. If you select a panel data set that is not empty, panel BLM1TPAL, the Panel List Display panel, appears. You can use any of the available line commands from this panel, or you can **end** or **cancel** to return to the Panel Data Set Selection List panel.

```
BLM1TPAL                PANEL LIST DISPLAY                PANEL 1 OF 28
                        CASTOR.WRITE.PANELS
                        ST  PANEL      ST  PANEL      ST  PANEL      ST  PANEL
                        NAME          NAME          NAME          NAME
1.  BLGAPI05
2.  BLM1TPAL
3.  EYM4M500
4.  UPDATEPQ
5.  UPDATEPR

Line Cnds: C=Copy D=Delete P=Print U=Update
Type DOWN or UP to scroll the panel, or type END to exit the panel.
====>
```

From this panel, you can select another (or the same) panel data set, or enter **end** again to stop the Panel List function entirely. For more information on line commands, see “Using PMF Line Commands” on page 92.

The panel names vary depending on the contents of the panel data set.

If you issue the UPDATE line command, the usual PMF panel update dialog appears. The PRINT line command prints a Panel Content report for the panel selected. When you issue the PRINT and DELETE line commands, you receive a message that the line command was or was not able to run.

Note: If you print multiple panels, update the Report output destination field in your profile to save you from being prompted for each panel. Also, if you are printing to a data set, specify a disposition of MOD to append later print requests to the first request rather than overlaying it.

Once you enter the appropriate information and press Enter twice, the COPY is performed.

If you type **yes** in the **Copy all panels?** field, all the panels you requested are copied without further prompting. If you type **NO** in that field, you are asked to verify whether you want to copy each panel.

```

BLM8CC10                PANEL COPY SPECIFICATION                PANEL: _____

Enter 'TO' data set below; cursor placement or input line entry allowed.

      1. To panel name..... _____
      2. To data set definition label...<R> _____
      3. Replace panel..... _____
      4. Copy all panels?..... _____

To start the COPY function, press Enter without field modifications.

====>

```

Obtaining a List of Panels to Use with BLGUT6F

The BLGUT6F utility enables you to specify a specific panel name prefix (for example, BLG0L) and the utility finds all the panels that begin with those characters.

Another way to use the BLGUT6F utility is by creating a SYSIN sequential data set. For complete information about the BLGUT6F utility, refer to the *Tivoli Information Management for z/OS Operation and Maintenance Reference*.

To create a SYSIN sequential data set, you can use the PMF Panel List function. The steps required are:

1. Make sure your profile is set to print to a data set.
2. Remove the column headings and the bottom title lines from the Panel List Display panel.
3. Change the **Repeat count** field to 0.
4. Using PMF Panel Test, choose the panel data set you want and print the list of panels it contains.
5. Close and free the output data set by using the FREE PRINT command.
6. Cancel the panel update so you do not change the Panel List Display panel in your panel set.
7. Edit the output data set and move the panel names to begin in column 1, and delete the panels you do not want included when you run BLGUT6F.

A detailed panel flow of this procedure is contained on the next few pages.

On the Management application Primary Options Menu, BLG0EN20, issue the **profile** command.

```

BLG0EN20          --- PRIMARY OPTIONS MENU ---      APPLICATION: MANAGEMENT

OPTIONS:

  1. OVERVIEW.....Display general information and product enhancements.
  2. PROFILE.....Display or alter invocation or session defaults.
  3. APPLICATION....Change application, list available applications.
  4. CLASS.....Change current class, list available classes.
  5. ENTRY.....Create a record.
  6. INQUIRY.....Search for records.
  7. UTILITY.....Copy, display, print, delete, and update records.
  8. GLOSSARY.....Display a list of searchable words in the database.
  9. PMF.....Modify or create panels.

      Select an option, enter a command, or type QUIT to exit.

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====> profile
    
```

Verify that the **Print output destination** field is defined as DSNAME. If, as in this example, it is not, then on the command line, type this IRC and press Enter:

```
1,31,DSNAME,,4,2,1,UT6F.INPUT,2,NEW,,9
```

Note: In this example, the data set name is UT6F.INPUT.

```

BLG0PU00          PROFILE SUMMARY                  USER ID: AVA

Invocation application..... MANAGEMENT  PF key data location.... SUFFIX
Invocation class..... MASTER           Recall stack depth..... 25
Command detection..... DATA           Scroll up/down amount... PAGE
Back command operation..... PROCESSED  Scroll left/right amount. PAGE
Print output destination..... SYSOUT   Fold output columns..... NO
Standard report destination... _____ Maximum screen lines.... 024
Draw report destination..... _____ Recall command operation. CMDLINE
Database..... 5                       Date last altered..... 07/09/1998
Logical files..... *                   Time last altered..... 20:31

OPTIONS:

  1. Session control defaults.          7. Data definition defaults.
  2. Screen control defaults.          8. Reset profile and end.
  3. Report control defaults.          9. Temporary profile end.
  4. Print output destination.         10. Permanent profile end.
  5. Standard report destination.      11. Draw report destination.
  6. Data definition defaults.         12. User-defined profile values.

====> 1,31,dsname,,4,2,1,ut6f.input,2,new,,9
    
```

This IRC temporarily changes your profile to create and print output to a new data set.

On BLG0EN20, type this IRC and press Enter:

```
9,1,1,BLMITPAL,,1
```



```

BLG0EN20          --- PRIMARY OPTIONS MENU ---      APPLICATION: MANAGEMENT

OPTIONS:

  1. OVERVIEW.....Display general information and product enhancements.
  2. PROFILE.....Display or alter invocation or session defaults.
  3. APPLICATION...Change application, list available applications.
  4. CLASS.....Change current class, list available classes.
  5. ENTRY.....Create a record.
  6. INQUIRY.....Search for records.
  7. UTILITY.....Copy, display, print, delete, and update records.
  8. GLOSSARY.....Display a list of searchable words in the database.
  9. PMF.....Modify or create panels.

      Select an option, enter a command, or type QUIT to exit.

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BLG16510I The profile update was temporarily saved.
====> 9,1,1,blm1tpal,,1

```

The Panel List Display panel appears with 2 lines of column headings and 2 lines of bottom title text.

```

BLM1TPAL          PANEL LIST DISPLAY          PANEL _ OF _

-----

  ST  PANEL
     NAME

-----

Line Cnds: C=Copy D=Delete P=Print U=Update
Type DOWN or UP to scroll the panel, or type END to exit the panel.

-----

NOTE: You can modify the contents of each area by using cursor movement keys
and PMF screen commands. Type HELP on the command line for more infor-
mation. Type FIELD SHOW on the command line to locate all attribute
bytes on the panel.

====>

```

Delete the 2 lines of column headings and 2 lines of bottom title text by spacing over the existing words and type **end** and press Enter to end the panel externals update.

```
BLM1TPAL                PANEL LIST DISPLAY                PANEL _ OF _  
  
-----  
  
-----  
  
-----  
  
NOTE: You can modify the contents of each area by using cursor movement keys  
and PMF screen commands. Type HELP on the command line for more infor-  
mation. Type FIELD SHOW on the command line to locate all attribute  
bytes on the panel.  
  
====> end
```

On BLM8CU80, choose the **General** option.

```
+ BLM8CU80 ----- TABLE PANEL UPDATE ----- PMF-+  
|  
|  OPTIONS:  |  
|           |  
|  1. EXTERNALS.....Modify visible text or control data.  
|  2. COMMON.....Modify help and service information.  
|  3. GENERAL.....Sort data, repeat column information.  
|  4. SUMMARY.....Summary of control information.  
|  5. TEST.....Display/process panel in test mode.  
|  6. FILE.....Panel update is complete, store panel.  
|           |  
+----- SELECT OPTION -----+  
  
====> 3
```

On BLM8CU85, change the **Repeat count** field to **0**, and type **end** and press Enter.

```

BLM8CU85                GENERAL UPDATE                PANEL: BLMITPAL

Enter general panel control data; cursor placement or input line entry allowed.

1. Sort option..... NO_      (Search only)
2. Sort field index..... 0000 (Search only) Prefix word... _____
3. Sort order..... DESCEND (Search only)
4. Repeat count..... 0_
5. Repeat spacing..... 2_
6. Repeat delimiter..... _
7. Block data line count.... 1
8. Last column not foldable.. NO_
9. Maximum row count..... _____ (List Processor only)

      When you finish, type END to save or CANCEL to discard any changes.

====> end

```

On the command line of BLM8CU80, type this IRC and press Enter:

5,1,BLG0EN20,2,INQUIRY,,

```

+ BLM8CU80 ----- TABLE PANEL UPDATE ----- PMF--+
|
|  OPTIONS:
|
|      1. EXTERNALS.....Modify visible text or control data.
|      2. COMMON.....Modify help and service information.
|      3. GENERAL.....Sort data, repeat column information.
|      4. SUMMARY.....Summary of control information.
|      5. TEST.....Display/process panel in test mode.
|      6. FILE.....Panel update is complete, store panel.
|
+----- SELECT OPTION -----+

====> 5,1,b1g0en20,2,inquiry,,

```

Panels to Use with BLGUT6F

Remember, you are in Panel Test mode now. Next, you must choose which panel data set you want to use with BLGUT6F.

To go to PMF Panel List, type on the command line and press Enter.

```
BLG0EN20          --- PRIMARY OPTIONS MENU ---      APPLICATION: MANAGEMENT

OPTIONS:

  1. OVERVIEW.....Display general information and product enhancements.
  2. PROFILE.....Display or alter invocation or session defaults.
  3. APPLICATION....Change application, list available applications.
  4. CLASS.....Change current class, list available classes.
  5. ENTRY.....Create a record.
  6. INQUIRY.....Search for records.
  7. UTILITY.....Copy, display, print, delete, and update records.
  8. GLOSSARY.....Display a list of searchable words in the database.
  9. PMF.....Modify or create panels.

      Select an option, enter a command, or type QUIT to exit.

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====> 9,7
```

Choose the panel data set you want, type that number on the command line, and press Enter.

```
BLM1TPDS          CURRENT ALLOCATION          DATA SETS

  LOGICAL   TYPE   DATA SET NAME
  NAME

  1. WRITE   WRITE  SERVDESK.WRITE.PANELS
  2. READ    READ   SERVDESK.READ.PANELS
  3. BASE    READ   SERVDESK.VN.PANELS
  4. SPANEL1 READ   SERVDESK.EXTRA.PANELS

      Line Cmds: S=Select
      Type DOWN or UP to scroll the panel, or type END to exit the panel.

====> 4
```

The Panel List Display shows all the panels that are in the panel data set you selected. On the command line, type **print all** and press Enter.

```
BLM1TPAL                PANEL LIST DISPLAY                PANEL 1 OF 64
                        SERVDESK.EXTRA.PANELS

1.  BLGISPFH
2.  BLG0AAE0
3.  BLG4C054
4.  BLG4C055
5.  BLG4C056
6.  BLG4C057
7.  BLG6ALTD
8.  BLG6ASSD
9.  BLG6CDFR
10. BLG6CDTO
11. BLG6CMPD
12. BLG6CPED
13. BLG6CPSD
14. BLG6CPUR
15. BLG6CRDT

====> print all
```

The panel list is now saved in the UT6F.INPUT data set that you specified earlier. To close the data set so you can use it, issue the **free print** command.

```
BLM1TPAL                PANEL LIST DISPLAY                PANEL 1 OF 64
                        SERVDESK.EXTRA.PANELS

1.  BLGISPFH
2.  BLG0AAE0
3.  BLG4C054
4.  BLG4C055
5.  BLG4C056
6.  BLG4C057
7.  BLG6ALTD
8.  BLG6ASSD
9.  BLG6CDFR
10. BLG6CDTO
11. BLG6CMPD
12. BLG6CPED
13. BLG6CPSD
14. BLG6CPUR
15. BLG6CRDT
BLG23503I The PRINT ALL function completed successfully.
====> free print
```

The message you receive indicates that the print data set was closed and freed.

You must now cancel the panel update activity you performed. To do this, issue the **initialize** command twice. (Because you are in the PMF Panel Test environment, one **initialize** command only returns you to the PMF main panel.)

```
BLM1TPAL                PANEL LIST DISPLAY                PANEL 1 OF 64
                        SERVDESK.EXTRA.PANELS

1.  BLGISPFH
2.  BLG0AAE0
3.  BLG4C054
4.  BLG4C055
5.  BLG4C056
6.  BLG4C057
7.  BLG6ALTD
8.  BLG6ASSD
9.  BLG6CDFR
10. BLG6CDTO
11. BLG6CMPD
12. BLG6CPED
13. BLG6CPSD
14. BLG6CPUR
15. BLG6CRDT
BLG03049I The PRINT file has been closed and freed.
====> ;init;init
```

BLG0EN20 appears with a message letting you know that your panel modifications were not saved.

```
BLG0EN20                --- PRIMARY OPTIONS MENU ---      APPLICATION: MANAGEMENT

OPTIONS:

1. OVERVIEW.....Display general information and product enhancements.
2. PROFILE.....Display or alter invocation or session defaults.
3. APPLICATION....Change application, list available applications.
4. CLASS.....Change current class, list available classes.
5. ENTRY.....Create a record.
6. INQUIRY.....Search for records.
7. UTILITY.....Copy, display, print, delete, and update records.
8. GLOSSARY.....Display a list of searchable words in the database.
9. PMF.....Modify or create panels.

        Select an option, enter a command, or type QUIT to exit.

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+ BLM04050I Panel BLM1TPAL was not updated.
====>
```

The next step is to edit the UT6F.INPUT data set. When you open the data set, it appears in this format:

```
EDIT ---- UT6F.INPUT ----- COLUMNS 001 072
COMMAND ==> SCROLL ==> PAGE
000002 BLM1TPAL PANEL LIST DISPLAY PANE
000003
000004 INFO.EXTRA.PANELS
000005
000006
000007
000008
000009 1. BLGISPFH
000010 2. BLG0AAE0
000011 3. BLG4C054
000012 4. BLG4C055
000013 5. BLG4C056
000014 6. BLG4C057
000015 7. BLG6ALTD
000016 8. BLG6ASSD
000017 9. BLG6CDFR
000018 10. BLG6CDT0
000019 11. BLG6CMPD
000020 12. BLG6CPED
000021 13. BLG6CPSD
000022 14. BLG6CPUR
000023 15. BLG6CRDT
```

Panels to Use with BLGUT6F

Delete the heading information, all the blank lines, and the page numbers. Then shift the panel to the left so that the panel names begin in column 1. If there are any panels listed in the data set that you do not want to include in the input file for BLGUT6F, delete those panel names.

When you finish, file your changes, and the UT6F.INPUT data set is ready for you to use with the BLGUT6F utility.

```
EDIT ---- UT6F.INPUT ----- COLUMNS 001 072
COMMAND ==> SCROLL ==> PAGE
000001  BLGISPFH
000002  BLG0AAE0
000003  BLG4C054
000004  BLG4C055
000005  BLG4C056
000006  BLG4C057
000007  BLG6ALTD
000008  BLG6CPED
000009  BLG6CPSD
000010  BLG6CPUR
000011  BLG6CRDT
000012  BLG6DATX
000013  BLG6DNOT
000014  BLG6DSTA
000015  BLG6EDSW
000016  BLG6INSD
000017  BLG6NPED
000018  BLG6NPSD
000019  BLG6OCCD
000020  BLG6PPED
000021  BLG6PPSD
000022  BLG6PURD
```


11

Running PMF Reports

Using PMF, you can print external and control information from panels to help you create and update the panels more easily. To print one of the PMF reports, your privilege class must have PMF-report authority. PMF provides a varied group of reports to get you started.

For example, if you want to change a panel, the first step is to identify all other panels that reference it. The Panel Cross-Reference report gives you that information. Or, if you want to change the validation of a p-word, the first step is to locate all panels that reference the p-word. The P-Word Cross-Reference report gives you that information.

In addition, you can use PMF reports to maintain consistency of word usage in panel externals. For example, if you want to change the word *reporter* to another language, or to a synonym such as *submitter*, the first step is to locate all panels that contain the word *reporter*. You use the String Find report to locate all the occurrences of *reporter*.

You can also use PMF reports to gather TSP information. For example, the Panel Cross-Reference report can be used to retrieve LINK control-line references and references to TSPs named with the 002B function code.

All reports are sent to the standard reports destination specified in your profile.

Search Parameters for PMF Reports

After you select **PMF** on the Management application Primary Options Menu and **Reports** on the PMF options panel, the PMF Reports panel (BLM8CL00) appears.

This is the PMF Reports options panel.

```
+ BLM8CL00 ----- PMF REPORTS ----- 1 OF 1-+
|
| OPTIONS:
|
| 1. PANEL CONTENT.....Print of panel contents.
| 2. S-WORD LIST.....List of structured words.
| 3. P-WORD LIST.....List of prefixes and validation.
| 4. PANEL XREF.....Panel-to-panel cross reference.
| 5. S-WORD XREF.....Structured word-to-panel xref.
| 6. P-WORD XREF.....Prefix-to-panel cross reference.
| 7. STRING FIND.....Locate panels containing a string.
| 8. PANEL SUMMARY.....Audit, service, help data summary.
|
+----- SELECT OPTION -----+
|
|====>
```

When you select a report type from this panel, a data-entry panel appears on which you can specify more information about the report you want to print. Here is a brief description of each report; complete descriptions and examples follow.

Panel Content	Shows the external and control information of the specified panels.
S-Word List	Shows all the s-words contained in the dictionary data set.
P-Word List	Shows all the p-words contained in the dictionary data set.
Panel Xref	Lists all panels that reference the specified panels. In addition, this report lists all panels that reference Tivoli Information Management for z/OS program exits.
S-Word Xref	Lists all the s-words contained in the specified s-word index and panel range, and the names of the panels within the range that contain each s-word.
P-Word Xref	Lists all the p-words contained in the specified p-word index and panel range, and the names of the panels within the range that contain each p-word.
String Find	Lists all the panels in the specified panel range that contain a specified character string.
Panel Summary	Shows a one-line summary of the audit, service, and help information for each panel. This includes: <ul style="list-style-type: none">■ Panel name■ Associated help panel name■ Date of last modification■ Time of last modification■ User making last modification■ User service level■ FMID/APAR level

For each report option, you are prompted for additional information based on the report type. After you enter the necessary information and press **Enter**, the report is generated. The output goes to the standard report destination specified in your profile.

Search Parameters for Specific Report Types

When using the Panel Content, Panel Xref, S-Word Xref, P-Word Xref, or String Find report types, you can also use other panel fields to further restrict what reports are produced. For example, you can search on panel range, service level, the user who last modified the panel, a date range, a time range, or specify a panel type.

Remember that the **Data set definition label** is a required field. You must specify the panel data set against which you want to run the report. To list your panel data sets, select **Panel list** on the Panel Modification Facility options menu (BLM8C000).

Searching by Panel Range

For certain types of reports, you can specify a range of panels to be searched and printed. The range can be a single panel name or an abbreviation that identifies a set of panels (for example, if all panels for your modified problem management application are named PRBXXXXXX, you can enter **PRB** to limit the report to that set of panels). If you do not specify a panel range, the report includes all panels.

Searching by Service Level

You can restrict your panel reports by specifying the Tivoli FMID/APAR service level. Only panels with a user service level of the specified value will be included in the report. Note that the use of a wild card character is not supported.

Searching by User ID

You can restrict your panel reports to a search by user ID. Only panels with the last modified user ID equal to the specified value will be included in the report. Note that the use of a wild card character is not supported.

Searching by Date or by Time

You can restrict your panel reports to a search by date or by time that the panels were modified. The FROM DATE and TO DATE represents a range of dates that you can specify; the FROM TIME and TO TIME represents a range of times that you can specify. For example, you can specify

From Date 05/01/1998 To Date 05/15/1998

to search on panel reports from May 1 to May 15 or

From Time 00:00 To Time 17:00

to search on panel reports from 00:00 to 5:00 p.m..

Searching by Panel Type

You can restrict your panel reports by selecting panel types to appear in your panel report. If you leave all of these fields blank, or enter an **S** in each of these fields, your report will be run against the entire panel data set. **Enter** an **S** next to the panel types you wish to select. Those panel type without an **S** will be omitted (remember that leaving **all** the fields blank is the same as entering an **S** in each of the fields).

Panel Content Report

The Panel Content report shows the external and control information of the panels you specify. It is also called the PMF panel print function.

Selecting **Panel content** on the PMF Reports panel (BLM8CL00) causes the Panel Name Entry panel (BLM8CL10) for PMF reports to appear.

After you fill in the fields on this panel, press **Enter**. Then specify the output destination for the report. Once completed, the report is created, and a message on BLM8CL10 states that the report completed successfully.

```
BLM8CL10                PANEL NAME ENTRY                PMF REPORTS

Enter information to describe the panels to include in the report.

  1. Panel range..... _____
  2. Data set definition label.<R> WRITE _____
  3. User service level..... _____
  4. Last modified by (userid).... _____
  -----Last modified date/time range-----
  5. From Date.... _____ 7. To Date.... _____
  6. From Time.... _____ 8. To Time.... _____

Enter S to select desired panel types. If none are selected, all are included.

11. Assisted entry... _   14. Help..... _   17. Selection... _
12. Control..... _      15. Message... _  18. Table..... _
13. Data entry..... _   16. Options... _  19. TSP..... _

      To create the report, press Enter without field modifications.

BLM04011I The PANEL PRINT function completed successfully.
====>
```

The panel type determines the fields and column headings that appear in the report. For each panel, the following information is presented if it applies:

- The visible data panel as you would see it on the screen
- One line of common control data
- One line of null-reply control data or general line-control data
- A line of data for each field, selection, or column containing all the control information that applies to each.

This is an example of a Panel Content report:

DATE 09/14/2000
TIME 17:31

PMF PANEL CONTENT REPORT

PANELS: BLG00000
DATA SET LABEL: BPANELS

PANEL NAME: BLG00000 TYPE: SELECTION

```

+-----+
| BLG00000          ENTRY          1 OF 1 |
+-----+
| USE...Identify the type of description (record) to be entered. |
| 1.RECS=PROBLEM.....Enter data processing problem description. |
| 2.RECS=CHANGE.....Enter change request for system/procedure.  |
| 3.RECS=CONFIG.....Enter description of system configuration,    |
|                   financial data, or service organization.    |
| 4.RECS=RULES.....Enter description of escalation rules.        |
| 5.RECS=DATA MODEL...Enter description of a data model.         |
| 6.RECS=PEOPLE.....Enter description of a person.              |
| 7.SOLUTION.....Enter solution record.                          |
|                                                                    |
|                   SELECT ITEM                                    |
+-----+
    
```

CONTROL LINES FOR EACH SELECTION

SELECTION PHRASE	CREATE TARGET	INQUIRY TARGET	SWORD INDEX	STRUCTURED WORD	BRANCH & LINK	AUTH CODE	DIAG END	STOP SRC	TARG DE	OVER RIDE	COGN RESP	REPL RESP	APPLY NOT	PROGRAM EXIT
1.RECS=PROBLEM	BLG1A110		0032	Z//S/TXS	NO	0110	NO	NO	NO	NO	YES	NO	NO	
2.RECS=CHANGE	BLG1A120		0B06	Z//S/TRSM	NO	0210	NO	NO	NO	NO	YES	NO	NO	
3.RECS=CONFIG	BLG0D000		0B0B	Z//S/TRSC	NO	0000	NO	NO	NO	NO	YES	NO	NO	
4.RECS=RULES	BLG1A410		0120	Z//S/TRSR	NO	0910	NO	NO	NO	NO	YES	YES	NO	
5.RECS=DATA MO	BLG00040		000A		NO	0AA1	NO	NO	NO	NO	NO	NO	NO	
6.RECS=PEOPLE	BLM1B010		0031	Z//S/TXSR	NO	0A10	NO	NO	NO	NO	YES	NO	NO	
7.RECS=SOLUTIO	BLH1S011		0B05	Z//S/TXS0	NO	0C10	NO	NO	NO	NO	YES	YES	NO	

NULL REPLY CONTROL LINE DOES NOT EXIST FOR THIS PANEL

DATE 09/14/2000
TIME 17:31

PMF PANEL CONTENT REPORT

PANELS: BLG00000
DATA SET LABEL: BPANELS

COMMON CONTROL LINE INFORMATION

HELP TARGET	CHANGE ALLOWED	COMPLETE	NAME CHANGED	PANELS ADDED	DELETED	PANEL MODIFIED	ALLOW DIVERT	COMM PANEL	DIALOG SECTION	LEVEL USER	REL PTF	FMID/APAR	LAST ALTERED DATE	TIME	USER
BLG20000	NO	NO	NO	NO	NO	NO	NO	NO	00	21 00		JOYB103	03/30/2000	17:10	NLEAVEL

TOTAL NUMBER OF PANELS PROCESSED: 1

S-Word List Report

The S-Word List shows all s-word records contained in the dictionary data set. Each record consists of an s-word index, the s-word itself, a word acronym, a program reference, and any associated comments.

Selecting **S-Word list** on the PMF Reports panel (BLM8CL00) causes the Dictionary Print panel (BLM8CL30) to appear.

Press **Enter**. Then specify the output destination for the report. Once completed, the report is created, and a message on BLM8CL30 states that the report completed successfully.

S-Word List Report

```
BLM8CL30          DICTIONARY PRINT          PMF REPORTS
Enter sort keyword for print; cursor placement or input line entry allowed.

1. Sort keyword..... _____

To begin program execution, press Enter without field modifications.

BLM04011I The STRUCTURED WORD PRINT function completed successfully.
===>
```

The data in the report is sorted by s-word index. If you want the data sorted by s-word instead, enter **WORD** in the **Sort keyword** field.

The following example illustrates an S-Word List report sorted by s-word index.

INDEX VALUE	STRUCTURED WORD	WORD ACRONYM	PGM USED	GENERAL COMMENT
S0C35	XIM00SDM00	IM = LAST MODIFIED	YES	ADMINISTRATIVE-DATE-DAT
S0C36	XIM00SDS00	IM = REQN DATE	NO	ADMINISTRATIVE-DATE-DAT
S0C37	XIM00SDA00	IM = STAT/ASSN DATE	NO	ADMINISTRATIVE-DATE-ASS
S0C38	XIM00SDR00	IM = RESL DATE	NO	ADMINISTRATIVE-DATE-RES
S0C39	RESERVED		NO	RESERVED.
S0C3A	RESERVED		NO	RESERVED.
S0C3B	RESERVED		NO	RESERVED.
S0C3C	RESERVED		NO	RESERVED.
S0C3D	XIM00SD001	IM = DATE OCCURRED	NO	ADMINISTRATIVE-DATE-PRO
S0C3E	XIM00SD002	IM = DATE STAT CHAN	NO	ADMINISTRATIVE-DATE-PRO
S0C3F	XIM00SD003	IM = DATE ARRIVED	NO	ADMINISTRATIVE-DATE-ASS
S0C40	XIM00SD004	IM = DATE FINISHED	NO	ADMINISTRATIVE-DATE-ASS
S0C41	XIM00SD005	IM = DATE PLAN START	NO	ADMINISTRATIVE-DATE-PLA
S0C42	XIM00SD006	IM = DATE PLAN END	NO	ADMINISTRATIVE-DATE-PLA
S0C43	XIM00SD007	IM = DATE ACT START	NO	ADMINISTRATIVE-DATE-ACT
S0C44	XIM00SD008	IM = DATE ACT END	NO	ADMINISTRATIVE-DATE-ACT
S0C45	XIM00SD009	IM = DATE SHIPPED	NO	ADMINISTRATIVE-DATE-SHI

P-Word List Report

The P-Word List report shows all p-word records contained in the dictionary data set. Each record includes a prefix index, the prefix, validation criteria, a program reference, and any associated comments.

Selecting **P-Word list** on the PMF Reports panel (BLM8CL00) causes the Dictionary Print panel (BLM8CL30) to appear.

Press **Enter**. Then specify the output destination for the report. Once completed, the report is created, and a message on BLM8CL30 states that the report completed successfully.

```

BLM8CL30                DICTIONARY PRINT                PMF REPORTS
Enter sort keyword for print; cursor placement or input line entry allowed.

1. Sort keyword..... _____

To begin program execution, press Enter without field modifications.

BLM04011I The PREFIX WORD PRINT function completed successfully.
===>
    
```

The data in the report is sorted by prefix index.

If you specify **WORD** in the **Sort keyword** field, the report is sorted using the prefix word as the primary sort criterion and the data validation as the second sort criterion. This is an example of such a sort.

PREFIX INDEX	PREFIX WORD	DATA VALIDATION	PGM USED	GENERAL DESCRIPTION
P055E	CDCA/	<ASIS>	NO	DATA COLLECTION - AS IS
P055C	CDCA/	<FIRST>	NO	DATA COLLECTION - FIRST UPPER
P055B	CDCA/	<LOWER>	NO	DATA COLLECTION - LOWER CASE
P055D	CDCA/	<PATTERN>	NO	DATA COLLECTION - PATTERN
P055A	CDCA/	<UPPER>	NO	DATA COLLECTION - UPPER CASE
P063F	CDES/	IIV31	NO	INVENTORY - CONFIG CHANGE DESCRIPTION
P0640	CDRM/	IIV63	NO	INVENTORY - CDROM DRIVE ID
P0593	CGMX/	<NO>	YES	AE/DAR - MIXED CASE COGNIZE
P0592	CGMX/	<YES>	YES	AE/DAR - MIXED CASE COGNIZE
P05B2	CHKO/		YES	API TIME LIMIT - RECORD CHECKOUT.
P06BA	CHTM/	IIV31	NO	INVENTORY - CONFIG CHANGE TIME
P06B4	CHTP/	CCV11	NO	INVENTORY - CONFIG CHANGE TYPE
P06EB	CITY/		YES	PEOPLE - CITY
P0077	CL**/	=CLASS	YES	COMMON - ANY PRIVILEGE CLASS NAME.
P0076	CL**/	ACV7	YES	COMMON - ANY PRIVILEGE CLASS NAME.
P7F95	CLAE/	<NPDA>	NO	RECORD ENTERED FROM NETVIEW
P7F96	CLAE/	<SAMID>	NO	RECORD ENTERED FROM SAM
P007A	CLAE/	=CLASS	YES	COMMON - ENTRY PRIVILEGE CLASS.
P0079	CLAE/	ACV7	YES	COMMON - ENTRY PRIVILEGE CLASS.
P007B	CLAN/	ACV7	YES	COMMON - PRIVILEGE CLASS NAME.
P007E	CLAO/	=CLASS	YES	COMMON - OWNING PRIVILEGE CLASS.
P007D	CLAO/	ACV7	YES	COMMON - OWNING PRIVILEGE CLASS.

Cross-Reference Reports

PMF provides three XREF (cross-reference) reports:

- Panel (panel-to-panel)
- S-Word (s-word-to-panel)
- P-Word (p-word-to-panel)

Cross-Reference Reports

Selecting one of the **XREF** options on the PMF Reports panel (BLM8CL00) causes the Panel Name Entry panel to appear (BLM8CL10 for Panel XREF, BLM8CL50 for S-Word XREF, and BLG8CL60 for P-Word XREF). The following example uses panel BLM8CL10.

After you fill in the fields, press **Enter**. Then specify the output destination for the report. Once completed, the report is created, and a message on the Panel Name Entry panel states that the report completed successfully.

```

BLM8CL10                PANEL NAME ENTRY                PMF REPORTS

Enter information to describe the panels to include in the report.

  1. Panel range..... _____
  2. Data set definition label..<R> WRITE_____
  3. User service level..... _____
  4. Last modified by (userid).... _____
  -----Last modified date/time range-----
  5. From Date.... _____ 7. To Date.... _____
  6. From Time.... _____ 8. To Time.... _____

Enter S to select desired panel types.  If none are selected, all are included.

11. Assisted entry... _   14. Help..... _   17. Selection... _
12. Control..... _      15. Message... _  18. Table..... _
13. Data entry..... _   16. Options... _  19. TSP..... _

        To create the report, press Enter without field modifications.

BLM04011I The PANEL PRINT function completed successfully.
====>

```

Panel Cross-Reference Report

Select **Panel XREF** on the PMF Reports panel (BLM8CL00) to obtain the Panel Cross-Reference report. On the Panel Name Entry panel (BLM8CL10), enter the target panel name as the range. It can be a specific name or an abbreviation of the name. The report identifies all panels that refer to the target panels.

The report contains the date and time on which the report was run and the data set name. This is an example of the report.

```

02/02/2000                DATA SET LABEL: WRITE                PANEL RANGE:                PAGE 1
                           DATA SET NAME:  DEWRIG.TEST1.WRITE

WORD      STRUCTURED
INDEX     WORD  |----- PANEL NAMES REFERENCING STRUCTURED WORD -----|
S0004                                BLG1A611
S000B                                BLG1A611
S002A                                BLG1A611
S0B59      XIM0I0PS00                WORDFIX9
S0BDE      XIMS0RSS00                HELMUT00
S0BEE      XIMS0SSC00                WORDFIXB
S0C3D      XIM00SD001                WFDELETE
S0CCF      XIM00NR001                ADDSDATP
S0E0F      XIM0TXCA00                XLT1ASRL
S1029      XDCFCC1029                BLG6TBSW
S1114      XDCFUP1114                BLGLTBDK  BLGLTBDL  XLT1ASRL
S1741      XDVTBLNM                  BLGLTBDD  BLGLTBDK  BLGLTBDL
S1742      XDVTBLID                  BLGLTBDD  BLGLTBDK  BLGLTBDL
S1743      XDVTBLRX                  BLGLTBDD  BLGLTBDK  BLGLTBDL

```


S1744	XDVTBLRW	BLGLTBDD	BLGLTBDK	BLGLTBDL
S1745	XDVTBLDS	BLGLTBDD	BLGLTBDK	BLGLTBDL
S8025	XIM0JTDE	BLG6TBDE		

Note: One use of this report is to determine all the panels that reference program exits. First generate a Panel Cross-Reference report for the panel range BLG01, then one for BLG02, to cover all the program exits in Tivoli Information Management for z/OS.

S-Word Cross-Reference Report

Select **S-Word XREF** on the PMF Reports panel (BLM8CL00) to get the S-Word Cross-Reference report. On the Panel Name Entry panel (BLM8CL50), you can enter the **Panel range** and **Structured word index**, or one without the other if you want. Notice that the **Data set definition label** is required.

Depending on which search parameters you specified on panel BLM8CL10 (page 230), this report will identify all the s-words that satisfy those search parameters. For example, if you specified a panel range, this report identifies all the s-words contained in that range and shows the panel names that reference those s-words. If you specified an s-word index, this report identifies all the panels that contain the s-word. If you specified both a panel range and an s-word index, the report identifies those panels in the panel range that contain the specified s-word. If you only specified the data set, this report identifies all the s-words in the dictionary and lists all the panels in the specified data set that contain each s-word.

The information in the report is presented in ascending order by s-word index, as shown in the following figure.

WORD INDEX	STRUCTURED WORD	|--- PANEL NAMES REFERENCING STRUCTURED WORD -----|		
S0054	Z/SIIQQL	BLG1B239	BLG1B819	BLG1B839
S0055	Z/SIIQQT	BLG1B239	BLG1B819	BLG1B839
S0056	Z/SUXXE	BLG1B404		
S0057	Z/SUXXQ	BLG1B404		
S005E	Z/SIIQQL.	BLG1A012	BLG1BS73	BLG1B273
S0063	Z/SIIQQT.	BLG1BS73	BLG1B273	
S0068	Z/SUXXE.	BLG1B502		
S006C	Z/SUXXQ.	BLG1B502		
S006D	Z/SUXVSE	BLG1B404	BLG1B502	
S0076	Z/SOQLDILO	BLG1B730	BLG1B731	BLG1B732

P-Word Cross-Reference Report

Select **P-Word XREF** on the PMF Reports panel (BLM8CL00) to obtain the P-Word Cross-Reference report. On the Panel Name Entry panel (BLM8CL60), you can enter the **Panel range** and **Prefix word index**, or one without the other if you want. Notice that the **Data set definition label** is required.

Depending on which search parameters you specified on panel BLM8CL10 (page 230), this report will identify all the p-words that satisfy those search parameters. For example, if you specified a panel range, this report identifies all the p-words contained in that range and shows the panel names that reference the listed p-words. If you specified a p-word index, this report identifies all the panels that contain the p-word. If you specified both a panel range and a p-word index, the report identifies those panels in the panel range that contain the specified p-word. If you only specified the data set, this report identifies all the p-words in the dictionary and lists all the panels in the specified data set that contain each p-word.

Cross-Reference Reports

Note: In the case of TSPs, the P-Word Cross-Reference report shows only the p-word indexes, not p-words entered as literal data in control lines.

The report is presented in ascending order by p-word index, as shown in the following example.

```
DATA SET LABEL: UREAD2    PANEL RANGE: BLG1A                                PAGE 1

PREFIX PREFIX  DATA
INDEX      VALIDATION |---- PANEL NAMES REFERENCING PREFIX WORD ----|

P0072 AUTH/  <YES>      BLG1AJ00 BLG1AJ01 BLG1AJ20 BLG1AJ21
P007A CLAE/  =CLASS      BLG1A1A1 BLG1A1B1 BLG1A1C1 BLG1A1D1
                                BLG1A151 BLG1A161 BLG1A171 BLG1A181
P0085 CLAX/  =CLASS      BLG1A082
P00D8 DATE/  =DATE      BLG1A1A1 BLG1A1B1 BLG1A1C1 BLG1A1D1
                                BLG1A151 BLG1A161 BLG1A171 BLG1A181
P00DF DATM/  =DATE      BLG1ACTL BLG1A1A1 BLG1A1B1 BLG1A1C1
                                BLG1A141 BLG1A151 BLG1A161 BLG1A171
P015C INFO/  <ACCESS>    BLG1A096
P015D INFO/  <SYSTEM>    BLG1A095
P015E INFO/  <MANAGEMENT> BLG1A097
```

String Find Report

The String Find report lists all the panels within the range you specify that contain the character string you specify. It searches only the **Abstract** or **Externals** portion of the panel, not the control lines that form the panel's control information.

For example, your organization has a **Severity** field on many panels. You are asked to change the word *Severity* to *Priority*. The best way to be sure you find all the panels that require changing is by running a String Find report.

Selecting **String find** on BLM8CL00, the PMF Reports panel, causes the String Find panel, BLM8CL20, to appear.

After you fill in the fields on this panel, press **Enter**. Then specify the output destination for the report. Once completed, the report is created, and a message on the String Find panel states that the report completed successfully.

```

BLM8CL20                STRING FIND                PMF REPORTS

Enter character string to locate; cursor placement or input line entry allowed.

1. Character string.....<R> SEVERITY_____
2. Panel range....._____
3. Data set definition label..<R> BASE_____
4. User service level....._____
5. Last modified by (userid)...._____
-----Last modified date/time range-----
6. From Date...._____ 8. To Date...._____
7. From Time...._____ 9. To Time...._____

Enter S to select desired panel types.  If none are selected, all are included.

11. Assisted entry... _   14. Help..... _   17. Selection... _
12. Control..... _      15. Message... _  18. Table..... _
13. Data entry..... _   16. Options... _  19. TSP..... _

        To create the report, press Enter without field modifications.

====>

```

You can specify up to 25 characters in the **Character string** field, including blanks. Case does not matter because both the string and panel text are translated to uppercase before the comparison is performed.

You can use various means to restrict your string-find reports by panel types, date or time modified, last user altered, and modification or service level. These were described in “Search Parameters for PMF Reports” on page 227.

An example of the String Find report follows:

```
DATA SET LABEL: BASE    PANEL RANGE:      PAGE 1
```

```
CHARACTER STRING: SEVERITY
```

```

|----- PANEL NAMES CONTAINING SEARCH STRING -----|

BLG1A004  BLG1A1A1  BLG1A1B1  BLG1A1B8  BLG1A1C1  BLG1A1D1  BLG1A100
BLG1A101  BLG1A107  BLG1A111  BLG1A121  BLG1A141  BLG1A151  BLG1A171
BLG1A191  BLG4C006  BLG4C021  BLG4C024  BLG4C077  BLG4C086  BLG4C087
BLG4C088  BLG4F005  BLG4F006  BLG4I008  BLG4S505  BLG9C077  BLG9C088
BLG9F005  BLG9F006  BLG9I008  BLM1AC04  BLM1Y111  BLM1Y116  BLM1Y611
BLM2FD14  BLM2FD45  BLM2PC01  BLM2PC08  BLM2PT08  BLM4C069  BLM4C070
BLM4D080  BLM4D083  BLM4D105  BLM4D112  BLM4D125  BLM4D133  BLM4D134
BLM4D136  BLM4D137  BLM4I007  BLM6C011  BLM6PREX  BLM8CU1A  BLM8CU1E
BLM8CU12  BLM8CU13  BLM8CU2A  BLM8CU2E  BLM8CU22  BLM8CU23  BLM8CU5A
BLM8CU53  BLM8CU55  BLM8CU6A  BLM8CU63  BLM8CU7A  BLM8CU7E  BLM8CU72
BLM8CU73  BLM9D083  BLM9D125

```

Panel Summary

The Panel Summary report displays a line for each panel. The columns display the following:

- Panel name
- Associated help panel name
- Date of last modification
- Time of last modification
- User making last modification

Panel Summary

- User service level
- FMID/APAR level

The report is presented in ascending order by panel name, as shown in this example:

```
-----  
      PANEL   ----- LAST ALTERED -----      LEVEL -----      HELP  
      NAME     DATE      TIME   USER      USER  REL  PTF  FMID/APAR  TARGET  
-----  
BLG0AC12 05/29/1998 08:48 CASTOR   IDAS   06  00  JOY6307  
BLG1ATBL 06/12/1998 15:39 CASTOR   IDAS   06  00  JOY6207  
BLG1TSRP 06/12/1998 15:46 POLLUX           00  00  
BLG2ZUSE 06/16/1998 13:54 HELEN           06  00  JOY6307  
TOTAL NUMBER OF PANELS PROCESSED: 4  
-----
```

12

Using the PMF Checklists

The next several chapters contain checklists that you can follow as you create and modify Tivoli Information Management for z/OS panels. Each checklist provides detailed information for planning, and general guidance in modifying and testing. In some cases, the decisions you must make when making modifications will depend on your installation needs; the checklist offers assistance about what to consider when making the decision.

Checklist Formats

Each checklist is in the following format:

Planning Addresses many possible consequences of modifying panels in an application including:

- Effects on panels (directly or indirectly related to this task)
- Effects on reports
- Information needed for performing the task
- Other considerations, such as SRCs and the end user
- Methods for gathering needed information, such as running or consulting reports

Modifications Describes the mechanics of making various panel changes, updating the dictionary, and copying panels.

Whenever a checklist step tells you to *enter* a screen command (AT, MOVEA, FIELD, or CONTROL, for example), it means to do the following, in this order:

1. Type the command on the command line.
2. Move the cursor to the position indicated.
3. Press Enter.

If your workstation has program function (PF) keys, you can set them to issue these commands so that you need not move the cursor from the field or panel to type a command. For more information about the screen commands and how you use them, see “Using PMF Commands” on page 80.

Testing Modifications

Describes how to test the panel changes you make

The checklists are written with the assumption that you are familiar with PMF terms and concepts. The modification steps begin after you have chosen **PMF** from the Management application Primary Options Menu (BLG0EN20). In many cases, the first step in the checklist is “Request the panel for update”. Follow these steps to request a panel for update:

1. Select **Panel update** on the PMF options panel (BLM8C000).
2. Type a panel name on the Panel Name Entry panel (BLM8CU00).
3. Press Enter again without changing any fields.

The checklists also mention create and inquiry modes. These are the two ways a user can access records in the database.

- In create mode, a user can create a new record or add data (update) to an existing one.
- In inquiry mode, the user can search the database for the record and display the data it contains.

Refer to the *Tivoli Information Management for z/OS Problem, Change, and Configuration Management* manual for more information about the various modes of record access.

13

Checklist for Highlighting a Field

This checklist describes the steps required to highlight a field. Highlighting (increasing brightness or changing color) of information on a panel is a technique used for directing the user's eyes to a specific location. To accomplish this task, identify the panels that contain the field you want to emphasize and use the FIELD HIGH and FIELD LOW screen commands to highlight the field.

Highlighting a Field

See "Using the FIELD Command" on page 80 for more information about the FIELD command.

Planning **Panels.** If you want a phrase or keyword highlighted, consider highlighting it on all panels where it appears.

Reports. Not affected.

Data Required. None.

Gathering Information. To locate all panels that may be affected, examine a panel that contains the field to be highlighted to determine the p-word or s-word index. Then, run the s-word or p-word XREF report.

Other Considerations. The two major considerations when using highlighting are overuse and multiple use. It is easy to highlight too much. To use this form of emphasis sparingly and effectively, you must think through how you want a field or panel used, and highlight its elements accordingly.

Similarly, make sure you use highlighting consistently within a panel and among panels. You can confuse your users by emphasizing two or more items that are either not related or not of equal importance.

Modifications

1. Request the panel for update.
2. Select **Externals**.
3. Issue the FIELD ACTIVATE command. This enables you to see the highlighted fields as you go through the following steps.
4. Type **field high** on the command line.
5. Move the cursor to the space just before the beginning of the field to be highlighted.
6. Press **Enter**. (The data is highlighted immediately.)

Highlighting a Field

7. If you want to remove highlighting from the field, use the FIELD LOW command in place of FIELD HIGH, and repeat steps 4 on page 241 through 6 on page 241.
8. Type **end** on the command line and press **Enter**.
9. File the panel.

Testing Modifications

No testing is required.

14

Checklists for Copying and Deleting Panels

Use the following checklists when you copy and delete Tivoli Information Management for z/OS panels.

Copying a Panel

This checklist describes the steps required to copy any panel type.

Planning

Panels. Run a PMF report to identify the panel to be copied.

Reports. Not affected.

Data Required.

- The data set definition labels for the “from” and “to” data sets. To find these labels, examine the session parameters member of the load library or TEXTLIB for the BLGPARMs macro.
- Name of the new panel.

Gathering Information. Run the Panel Content report to locate the panel to be copied.

Other Considerations.

- For message panels, see Table 18 on page 175 for the message-to-help-panel naming convention that message panels must conform to. Copying a message panel implies that you are calling the new message panel from a control panel or TSP. In this case, you must also modify the control panel or TSP after you copy the message panel.
- For naming panels, follow a panel-naming convention so that panels can be identified easily for printing. For an example, see “Naming Conventions for Panels” on page 389.

Modifications

1. Select **Panel copy** on the Panel Modification Facility options panel.
2. On BLM8CC00, enter:
 - The name of the panel to be copied
 - Its data set definition label (copy from this panel data set)
 - The new panel name
 - The data set definition label of the data set to which the panel is to be copied (copy to this panel data set).

Checklist for Copying a Panel

3. If the panel already exists in the “to” data set, and you want to overlay it, enter **yes** in the **Replace panel** field.
4. Press **Enter** twice. The panel is now copied.
5. Type **end** and press **Enter**.
A single-line message appears saying that the panel was copied.

A copy of the original panel now exists. If you are going to modify it to make a new panel, examine the panel to determine what changes you must make. Then select **Panel update** to make the necessary modifications.

Testing Modifications

No changes were made to the panel, so nothing requires testing.

Deleting a Panel

This checklist describes the steps required to delete a panel from a panel data set.

Planning **Panels.** Identify the panels that target the panel to be deleted. If no panels target the panel, you need only delete the panel. If panels do target the panel to be deleted, each one must be modified to target a different panel.

Reports. Not affected, unless the panel being deleted collects information used by reports. Examine the panel to be deleted and locate the s-words or p-words it uses. Then examine the RFTs to determine whether the panel targets the s-words or p-words. If so, you must modify the RFT, too. Refer to the *Tivoli Information Management for z/OS Data Reporting User's Guide* manual for details.

Data Required. Data set definition label of the panel to be deleted.

Gathering Information. Run the Panel XREF report to locate all panels that target the panel to be deleted.

Other Considerations. The s-words or p-words used by the panel being deleted can be used by other program exits or functions, or tested by control panels. Check the dictionary to determine whether they are used by other Tivoli Information Management for z/OS code. Use the S-Word and P-Word XREF reports to determine whether they are tested by control panels.

Modifications

1. From the Panel Modification Facility options panel, select **Panel delete**.
2. On BLM8CD00, enter the name of the panel to be deleted and its data set definition label.
3. Press **Enter**.
4. *You are **not** prompted to verify the deletion of the panel, so be sure you specified the correct panel before you press Enter again.* Press **Enter** again to delete the panel.

A single-line message appears stating that a panel was deleted.

Testing Modifications

No testing is required.

15

Checklists for Data-Entry Panels

A data-entry panel allows a user to enter data and display fields. It can also function as a selection panel if you need more than nine selections. Generally, however, a data-entry panel is used when single-response fields are to be entered or displayed and the fields on the panel are not mutually exclusive.

For detailed information about the contents of data-entry panels, see “Creating a Data-Entry Panel” on page 141.

Creating a Data-Entry Panel

This checklist describes the steps required to create a new data-entry panel by updating a model panel.

Because of the complexity of this type of panel and the amount of preparation necessary to create a panel from a model, you might prefer to create new data-entry panels by copying and then modifying existing ones.

Planning

Panels. Consider these items before creating a new panel:

- The purpose and placement of the panel
- The information to be collected or displayed
- The fields that are required
- The readability and aesthetics of the panel

Because a data-entry panel is used to collect information, the corresponding assisted-entry panels, the s-words or p-words, and the calling panels must be identified. Use the S-Word and P-Word XREF reports to get the s-word and prefix indexes and the name of the assisted-entry panel for each field. The s-word and prefix indexes are necessary especially if you plan to use this panel to display information. In addition, you might need to create a new s-word or prefix index for a new field.

Use the Panel XREF report to determine from which panels to call the new one. Modify the control information in the calling panels to make the new panel a target panel.

All of these panel considerations enter into your planning and design decisions; they can be grouped in three general categories:

- Flow considerations. Why is this panel being created? Where in the prompting sequence should it be placed? Should dialog begin and end be considered?

- **Data collection considerations.** What data do you want to collect through this panel? How is this data going to be displayed? Do any fields require authorization? Should the data be recorded in the journal?
- **Presentation Considerations.** As you design the panel, consider how it will look. It should fit in with the rest of the panels in its sequence, and the entire sequence should fit in with the rest of the externals of the Tivoli Information Management for z/OS product.

Flow Considerations. When should this panel be presented to the user? Another panel must be changed to point to this panel. Where should the user go when finished with this panel? These questions imply that a hierarchy of panels must exist prior to the creation of a data-entry panel. Thus, by default, a data-entry panel requires a calling panel and an exit panel (they can be the same). In addition, if this data-entry panel coexists with other data-entry panels in the same sequence, how the user returns to this panel to change fields must be considered. What all this means is that a structure of panels (prompting sequence) is usually required and must be designed on paper before you create the data-entry panel.

Other items to consider in the placement of the data-entry panel in a sequence of panels are:

1. A locally developed panel naming scheme should be used.
2. Should a null reply end a dialog? If so, the calling panel (or one of the calling panels) should begin a dialog.
3. How does the user return to the data-entry panel to change the fields?
4. How does the user display this data when the record is displayed?
5. Should you provide a help panel?
6. The Panel XREF report.

Data Collection Considerations. Data-entry panels containing input fields are supported only in create mode (when a user enters a record).

Some items to consider are:

1. Does any field to be entered or displayed require authorization?
2. How long should each field be?
3. Should the data be redisplayed based on an s-word or p-word?
4. Has an assisted-entry panel been developed for each input field? Each assisted-entry panel should be constructed, or at least assigned a name, before you start creating the data-entry panel.
5. Are there fields that would be better presented as static or dynamic lists of valid values for users to choose from rather than presenting the assisted-entry panel?
6. Should this data be journalized? Should this data be searchable (cognized)? Remember that searches are performed by both users and Tivoli Information Management for z/OS report functions. If you want

to cognize or journalize data on a data-entry panel field, you must define that on the assisted-entry panel. You cannot cognize or journalize a field on the data-entry panel.

7. Use the XREF reports and S-Word and P-Word List reports to track the use of s-words and p-words.
8. If you use new p-words or s-words (or add a validation pattern to an existing p-word), you must update the dictionary to define them before you can put them in the panel. See the checklists in “Using the Dictionary” on page 183 for instructions.
9. Do you want all of the data that is entered to be processed at once or do you want some of the data that is entered to be processed before some of the other data? See “Data Collection Processing” on page 45 for information on controlling the sequence in which input on a data-entry panel is processed.
10. How do you want the date and time to be displayed? You can have the date and time specified as the user’s local time or you can specify a parameter by which users anywhere in the world can work with records in their own local time. See “Data Collection Processing” on page 45 for information on controlling the sequence in which input on a data-entry panel is processed.

Presentation Considerations. Before you build the data-entry panel, consider how the panel is to be presented. Look at the format of existing data-entry panels, noting the techniques used to list field items, indicate required fields, and leave the panel.

If you have followed the steps in the preceding lists of preparatory activities and considerations, you should now have or be aware of the information you need to build a data-entry panel.

Reports. If the data-entry panel collects new information, you must update the RFTs to reflect this information.

Data Required. The following data is required:

- Name of the new data-entry panel
- Calling panel name
- Help target panel name
- Panel title
- Use line
- Bottom title
- Exit (null-reply target) panel
- Dialog considerations (dialog begin or end)
- Fields:
 - S-Word or prefix indexes
 - Field lengths
 - Assisted-Entry target panels for input fields
 - Target panels for selections
 - Required fields

Checklist for Creating a Data-Entry Panel

Gathering Information. Use the PMF reports (as appropriate) to gather the data. See also the lists on the preceding pages.

One method for creating a new data-entry panel follows. It creates the panel shown in the following figure.

```

XXXXXXXXX          SERVICE ENTRY          RECORD: _____

Enter service organization; cursor placement or input line entry allowed.

1. Service name..... _____
2. Service org name... _____
3. Service phone..... _____
4. Off-shift phone... _____
5. Transfer-to-class.. _____
6. User service ID... _____
7. Hardware rep..... _____
8. Rep phone..... _____
9. Software rep..... _____
10. Rep phone..... _____
11. Description.....<R> _____

      When you finish, type END to save or CANCEL to discard any changes.

====>

```

Assume you have completed all the preparatory work; that is, you have gathered all the information in Table 28. Use this information as you update the fields on the panel in this example.

Table 28. Field Name Information

Field Name	Length	S-Word Index	Target Panel	Prefix Index	Response Required
Service name	8	0CA7	BLG6SERN		
Service org name	11	0BA5	BLG6SV0R		
Service phone	13	0B3E	BLG6PHON		
Off-shift phone	13	0B36	BLG6PHON		
Transfer-to class	8	000A	BLG6PTRF	0081	
User service ID	8	0CCF	BLG6URN0		
Hardware rep	15	0B62	BLG6PERS		
Rep phone	13	0B38	BLG6PHON		
Software rep	15	0B63	BLG6PERS		
Rep phone	13	0B39	BLG6PHON		
Description	45	0E0F	BLG6DSAB		Yes
Help target			BLG2ZDAT		
Record	8	0000		01E9	

Modifications

1. Select **Panel update** on BLM8C000, the Panel Modification Facility options panel.

2. On BLM8CU00, enter the name of the panel to be created (XXXXXXXX) and press **Enter**.
3. Select **Data-Entry** on BLM8CUA0, the Panel Type selection panel. The following model panel is displayed:

```

XXXXXXXX                TOP TITLE                RECORD: _____
Add purpose of panel, how the user interacts with panel, and other usage notes.

1. Field name 1..... _____      9. Field name 9..... _____
2. Field name 2..... _____      10. Field name 10..... _____
3. Field name 3..... _____      11. Field name 11..... _____
4. Field name 4..... _____      12. Field name 12..... _____
5. Field name 5..... _____      13. Field name 13..... _____
6. Field name 6..... _____      14. Field name 14..... _____
7. Field name 7..... _____      15. Field name 15..... _____
8. Field name 8..... _____      16. Field name 16..... _____

                BOTTOM TITLE

NOTE: You can modify this panel by using cursor movement keys and PMF
      screen commands. Change the visible text of the fields as needed.
      Type HELP on the command line for more information. Erase these
      four text lines by using the cursor movement and ERASE EOF keys.

====>
    
```

4. Type the **Top title** and **Use line**.
5. Type **end** and press **Enter**.
6. Select **Common** on BLM8CU70.
7. On BLM8CU77, enter the **Help target** panel name, or leave the default name.
8. Type **end** and press **Enter**.
9. Select **File** on BLM8CU70 to save the changes you have made so far.
10. Press **Enter** twice.
11. Select **Externals** on BLM8CU70. The model should be displayed with the top title and use line that you created. The input fields are defined with default attributes.
12. In this example, the data-entry panel requires 11 fields. Move the cursor to the position just preceding field 12 and enter the **AT** command.
13. Move the cursor to the blank following the end of the last field for the last selection (16) and enter the **AT** command again.
14. Enter the **BLANKA** command. Blanks replace selections 12 through 16.
15. Move the cursor to the second position preceding selection 9 and enter the **AT** command.
16. Move the cursor to the last character following the last underscore for field 11 and enter the **AT** command again.

Checklist for Creating a Data-Entry Panel

17. Move the cursor to field 8, then down one line and to the left two positions and enter the **MOVEA** command. The fields should be moved to the location you defined. If not, see “Using PMF Commands” on page 80 for more information.
18. If necessary, erase the **Bottom title** and replace it with your own instructions.
19. When you finish, type **end** and press **Enter**.
20. Select **File** on BLM8CU70.
21. Press **Enter** twice.
22. Select **Externals** on BLM8CU70.
23. Using the input information for the panel and field data in Table 28 on page 248, set the appropriate field lengths for each field.
 - a. Position the cursor on the attribute byte following the last underscore for the first field. (If you issue **FIELD SHOW**, you can see this attribute byte marked by a ?. Issue **FIELD OFF** before going to the next step.)
 - b. Enter the **FIELD CLEAR** command.
 - c. Type underscores for the length of the field as shown in the previously displayed panel (for example, Service Org name is 11 characters long).
 - d. Enter the **FIELD PROTECT** command after the last underscore.
 - e. Repeat this operation for each field requiring modification.
24. Enter the **FIELD ACTIVATE** command to activate all attribute bytes.
25. Move the cursor to each field and type past the end of the field to test the attribute bytes. (Note: the data you enter is not saved.)
26. Enter the **FIELD OFF** command to exit field activate.
27. Rename the fields as shown in the previously displayed panel. Move the input fields to the right or left for proper alignment. To do so, use the **AT** command, positioning the cursor at the first input field attribute byte (the blank space between the dot and underscore for field 1). Then move the cursor to the end of the last field and enter the **AT** command again. Move the cursor back to field 1 but to the right or left as many positions as you want, and enter the **MOVEA** command.

Note: When you move rectangular areas of the screen, the **ATs** must include the entire field and any associated attribute bytes.

Until you acquire skill in using **AT** and **MOVEA**, you may want to save what has been completed up to this step by entering the following IRC: **end,6,,1**. This returns you to the Externals panel, but it saves all your changes. If you make an error while moving a field, you can issue the **CANCEL** command without losing your previous work.

28. Enter **end**.
29. To define the control lines, select **Summary** on BLM8CU70.

- a. On BLM1TSU7, the Control Line Summary, issue the **UPDATE** line command for fields 1 through 11. (If you see only 10 fields, enter the **DOWN** command for the last one.)
- b. Select **Panel flow processing**.

Note: When updating the control line for the **Description** field, make it a required field by changing the **Response required** field to **YES**. See “Making an Optional Data-Entry Field Required” on page 258 for more information.
- c. Change the target panel to the field’s defined assisted-entry panel.
- d. Enter **end**.
- e. On BLM8CU73, select **Data collection processing**. In Table 28 on page 248, the **Transfer-to class** field uses a prefix index. When you update this field, use the prefix index from the table. An s-word index is not necessary for this field, so change the **Use s-word for display** field to **NO**.
- f. Delete the s-word index.
- g. Enter **end,end**. The next control line is displayed for update. If you don’t want to step through the entire sequence for each field, enter the following IRC on BLM1TSU7:
1,3,blg6xxxx,,2,1,ssss,,,recall

where BLG6xxxx is the name of the assisted-entry panel that is the target for the field, and ssss is the s-word index for the field.

After all selections and fields are completed, the Control Line Summary panel is redisplayed. Be sure each line has an s-word index, a p-word index, and a target panel for assisted-entry.

30. On BLM1TSU7, issue the **UPDATE** line command for the field **RECORD**.
31. Select **Data collection processing**.
 - a. Clear the **S-Word index** field.
 - b. Enter the record prefix index.
 - c. Change the **Use s-word for display** field to **NO**.
32. Enter **end,end,end**.
33. Select **File** on BLM8CU70.

Testing Modifications

This panel requires thorough testing before you copy it to a read panel data set. The kind of test you do depends on the type of data the panel is to collect.

1. Select **Test** on BLM8CU70.
2. On BLMCT000, enter **create** in the **Create/inquiry** field.
3. Press **Enter**.
4. Test all fields and their assisted-entry targets. You can use a number of ways to do this test; here is one method:

Checklist for Creating a Data-Entry Panel

- a. Power type uppercase special characters (such as the !, @, and so on) through all input fields, and press **Enter**. Each time a validation error is detected the assisted-entry panel is displayed.
- b. Respond as directed on the assisted-entry panel, and press **Enter**. After you have made all the corrections, your data-entry panel should appear with all its fields filled in.
- c. Move the cursor and press Erase EOF for each input field, and then press **Enter**. The panel should reappear with all fields cleared.
- d. Move the cursor to each field and type in field names that match the requested data (such as *name1* for the first field requesting a name). Press **Enter**. All fields should be redisplayed appropriately. If an error occurs during any of these steps (such as data not displaying correctly), make sure the s-words and p-words match.
- e. Still on the new panel, enter the **change** command. No data should be displayed.
- f. When the panel operates correctly, copy it to a read panel data set and incorporate it into a panel flow by making it the target of its preceding panel.
- g. Repeat all but the last of the preceding steps, this time creating a record using the new panel.
- h. Display the record and issue the **view internals** command. Make sure that the record has only one occurrence of each field. If a field shows multiple values, the **Replace** field on BLM8CU73 for that field was not set to **yes**.
- i. Create a search argument with every field collected and issue the **search** command. The record should be located. If not, the **Cognize response** field on BLM8CU73 for one of the fields is set to **NO**.

Modifying a Data-Entry Panel

The checklists that follow illustrate different kinds of data-entry panel modifications:

- Changing the name of a field
- Changing the length of a field
- Justifying a field and suppressing a character
- Making an optional data-entry field required
- Making a required field optional
- Changing the required field symbol
- Defining a conditionally required field
- Moving a field on a panel
- Adding an input field
- Adding a display-only field
- Adding a selection to a data-entry panel
- Allowing a null reply

Changing the Name of a Field

This checklist describes the steps required to change the name of a field on a data-entry panel. See “Changing a Field Name” on page 97 for an example of this kind of modification.

Planning Panels. Identify all panels that contain the field.

The data-entry field to be changed is displayed on various panels in create, display, and inquiry modes. These panels include data-entry, selection, assisted-entry, and help panels.

Reports. Examine existing reports to determine where the field name is included.

Data Required. None.

Gathering Information. To identify all panels that must be changed:

- Run the String Find report to locate all panels that contain the field name to be modified. This report examines all panel types.
- Determine the s-word index or prefix index for the field either by examining the panel in update mode, or by printing the panel in the Panel Content report. Then run the S-Word or P-Word XREF report to make sure that all panels were located.

To determine whether any reports are affected, use the s-word or prefix index when examining the RFT.

Other Considerations. When changing field names, remember that your users have various educational backgrounds, time with the company, and so on. Make sure the new field names are easy to understand. In addition, you might want to use Change Management to inform users of the panel changes and how to use the new field.

Modifications

1. Select **Panel update** on the Panel Modification Facility options panel.
2. Enter the name of the panel on BLM8CU00.
3. On BLM8CU70, select **Externals**. The panel you requested is displayed in update mode.
4. Change the field name as required.
5. Enter **end**.
6. On BLM8CU70, select **File**.

Testing Modifications

Because this modification changes only externals, testing it involves making sure that all panels were changed and that no typing errors were made. The simplest method is to use the PMF String Find report to search for the new field name. You should locate the same number of panels as before.

Changing the Length of a Field

This checklist describes the steps required to change the length of a field on a data-entry panel. Underscores (or the defined fill character) represent the field length on data-entry panels. The validation criteria defines the field length on assisted-entry panels.

Planning **Panels.** Identify all panels in create, display, and inquiry modes that must be changed. These panels include data-entry, assisted-entry, and possibly help panels.

Reports. Examine existing reports to determine whether the new length affects them.

Data Required. Validation pattern for the new length.

Gathering Information. To identify panels that depict the field length:

- Determine the s-word or prefix index of the field to be changed. If you do not know the s-word or prefix index, either print a data-entry panel that contains the field, or examine the data-entry panel in update mode, then select **Externals**, and issue the CONTROL command for the field.
- Determine the prefix indexes of all the validation patterns for this field. These patterns are contained in the target assisted-entry panel for the field.
- Print an S-Word or P-Word XREF report to identify all panels that refer to the index of the field to be changed and the indexes of the validation patterns.
- Use the String Find report to locate any help panels that describe the length of the field.

To determine if the field appears on a report, look at the report itself or examine the RFT using the s-word or prefix index.

Other Considerations.

- The p-word validation pattern must be changed to check the new length. To do this, update the validation in the dictionary and file the assisted-entry panel. If more than one panel uses the p-word validation pattern, creating a new entry in the dictionary for the new pattern is the preferred method because the validation for other panels is not affected. Be sure to add new p-words and s-words starting at index 8000. Tivoli sends out periodic maintenance updates to the dictionary that, when installed, will overlay any entries below the 8000 index that you have modified.
- One additional consideration for changing the assisted-entry panel is to note whether the **Reply value meaning** field is set to LENGTH. This indicates that a reply cannot exceed the reply value in its total length. In this case, the validation pattern is used to check the length of each word in the reply, but the overall response length is controlled by the value specified in the control information for the panel. You might not need to update the dictionary pattern for this type of panel; a change to the panel itself might be enough.
- Display-only data-entry panels need not be changed when you change the length of an input field: if the field does not fit in the space provided, it is truncated. (For example, a reporter name of LINDSEYTHOMPSON is displayed as LIND if the data-entry panel allows only 4 characters.) This property lets you shorten a field's length without changing fields previously entered in the database.

Modifications The chronological order for modifying most fields in a data-entry panel is as follows:

- Update the validation patterns specified in the dictionary
- Change the assisted-entry panels to contain the new field validation criteria

- Modify the data-entry (nondisplay) panels
- Modify the display data-entry panels
- Modify any help panels

Updating the Dictionary:

1. On BLM8C000, select **Dictionary**.
2. On BLM8CG00, select **P-Word Update**.
3. Locate the prefix index that corresponds to the field that you want to change, or scroll to the bottom to add your new p-word at index 8000 or beyond.
4. To enter the new length:
 - a. If you are adding a new p-word record, use the ADD line command to add the new index, and complete the p-word and validation pattern to reflect the p-word that is collected with this panel and the new length.
 - b. If you want to change the length of a p-word record that already exists in the Tivoli part of the dictionary, add a new index instead. If you are changing a p-word in the user part of the dictionary, change the validation to reflect the new length.
5. End the update of the dictionary.

Updating an Assisted-Entry Panel:

1. Type the name of the assisted-entry panel for update on BLM8CU00.
2. On BLM8CU50, select **Externals**. The panel you requested is displayed in update mode.
3. On BLM8CU51, modify the format of the reply and the examples to reflect the new field length.
4. Do one of the following:
 - a. If no changes were made to the dictionary or you changed a p-word record that already exists, enter the CONTROL command and go to step 12.
 - b. If you added a new p-word record, continue with the next step.
5. On BLM8CU51, enter the **CONTROL** command.
6. On BLM8CU53, select **Prefix & content validation**.
7. On BLM1TSAC, type the **UPDATE** line command on the line next to the validation pattern field that you want to modify and press **Enter**.
8. On BLMCU5I, type the new prefix index and press **Enter**.
9. Type **end,end** and press **Enter**.
10. If the reply value is being changed because this panel has a reply value meaning of LENGTH, do the next steps; otherwise, type **end,end** and press **Enter** and go to step 14.
11. On BLM8CU53, select **Response processing**.

Checklist for Modifying a Data-Entry Panel

12. On BLM8CU5D, change the reply value to reflect the new length (in both create and inquiry mode).
13. Type **end,end,end** and press **Enter**.
14. On BLM8CU50, select **File**.

Updating a Data-Entry Panel:

1. Select **Panel update** on the Panel Modification Facility options panel.
2. Enter the name of the data-entry panel for update on BLM8CU00.
3. On BLM8CU70, select **Externals**. The panel you requested is displayed in update mode.
4. Use the FIELD CLEAR command to clear the attribute byte that delimits the length of the field. You need not clear the attribute byte that indicates the beginning of the field. (Use the FIELD SHOW command to locate the attribute byte, if necessary; use the FIELD OFF command before going to next step.)
5. Remove or add the necessary underscores (or other character defined to depict field length).
6. Enter the FIELD PROTECT command with the cursor following the last modifiable character of the field and type **end** and press **Enter**.
7. On BLM8CU70, select **File**.

Updating a Help Panel:

1. Select **Panel update** on the Panel Modification Facility options panel.
2. On BLM8CU10, enter the name of the help panel for update.
3. On BLM8CU40, select **Externals**. The panel you requested is displayed in update mode.
4. Describe the new length in the panel text area and type **end** and press **Enter**.
5. On BLM8CU40, select **File**.

Testing Modifications

1. Enter the name of the panel on BLM8CU00.
2. Select **Test**.
3. In the **Panel name** field on BLM8CT00 type the name of the data-entry panel that contains the modified field as the starting panel, and **create** in the **Create/inquiry** field.
4. Press **Enter**.
5. On the data-entry panel, select the number associated with the modified field.
6. Respond to the assisted-entry panel using the new length. (If the old length was longer, the old length should now fail validation.)

7. Make sure the response is displayed correctly on the data-entry panel. If the data is not displayed, the prefix index used for display is incorrect.
8. End panel test.

Justifying a Field and Suppressing a Character

This checklist describes the steps required to change the justification of a field on a data-entry panel. It also describes how to suppress a character in a field on a data-entry panel.

Planning **Panels.** Identify all panels in create, display, and inquiry modes that must be changed.

Reports. None.

Data Required. None.

Gathering Information. Run the String Find report to locate all panels that contain the field to be modified.

Other Considerations. Decide whether you want to left justify or right justify the field. (Left justification is the default when you create a new panel.) Also decide what character, if any, you want to suppress.

Modifications

1. Select **Panel update** on the Panel Modification Facility options panel.
2. Enter the name of the data-entry panel for update on BLM8CU00.
3. On BLM8CU70, select **Summary**.
4. On BLM1TSU7, the Control Line Summary panel, issue the UPDATE line command for the field you want to justify or suppress a character.
5. Select **Data collection processing**.
6. Change the **Field justification** to RIGHT for right justification or to LEFT for left justification. If you also want to suppress a character, type that character in the **Suppress character** field.
7. End **end,end,end**
8. File the panel.

Testing Modifications

1. Enter the name of the panel on BLM8CU00.
2. Select **Test**.
3. In the **Panel name** field on BLM8CT00 type the name of the data-entry panel that contains the modified field as the starting panel, and CREATE in the **Create/inquiry** field, and press **Enter**.
4. On the data-entry panel, type valid data in the field, and press **Enter**.
5. Make sure the field is justified as you specified.
6. Type the character you identified as the suppression character in the data-entry field with valid data. Press **Enter**.

7. Make sure only the valid data appears in the field; the suppression character should not appear.
8. End panel test.

Making an Optional Data-Entry Field Required

This checklist describes the steps involved in changing an optional field to a required field. A required field (designated on Tivoli-supplied panels by <R>) is a data-entry field that must be filled in before a user can leave the panel. See panel BLG0B100 on page 108 for an example of this kind of modification.

Planning

Panels. Identify all data-entry panels that contain the field and that must be changed. Is this change applicable across applications? Does it also apply to another field with a similar meaning or purpose?

Making a field required assumes that the user always knows a valid response for the field. You might want to modify the assisted-entry panel to allow the user to enter a default when a response is not known.

Reports. You might want to consider including the required field in an existing report.

Data Required. None.

Gathering Information. To identify all panels that must be changed:

- Determine the s-word or prefix index of the field that you are making required. If you do not know the s-word or prefix index, either print a data-entry panel that contains the field, or request the data-entry panel for PMF update, then select **Externals** and issue the CONTROL command for the field.
- Print an S-Word or P-Word XREF report to identify all panels that refer to the index.

Review the panels and choose those data-entry panels that require changing. Only panels used in create mode should be modified.

Other Considerations.

- Making a field required forces the user to respond to the field whenever a record is created. The need for the data should be balanced against the increased time required to enter a record.
- The required field is missing from previously created SRCs that include the data-entry panel until they are also changed.
- Update user documentation, as appropriate.

Modifications

1. Select **Panel update** on the Panel Modification Facility options panel.
2. Enter the name of the panel on BLM8CU00.
3. On BLM8CU70, select **Externals**. The panel you requested is displayed in update mode.
4. Issue the CONTROL command for the input area of the field.
5. On BLM8CU73, select **Panel flow processing** from the summary.

6. On BLM8CU7A, type **yes** in the **Response required** field.
7. Enter **end,end**.
8. On the original panel, type **<R>** before the input area for the field.
9. Enter **end**.
10. On BLM8CU70, select **File**.

Testing Modifications

1. Type the name of the panel on BLM8CU00.
2. On BLM8CU70, select **Test**.
3. Type CREATE in the **Function** field on BLM8CT00.
4. Press **Enter**. Your updated panel is displayed.
5. Type data in all the required fields except the new one, and try to leave the panel. You should receive a message that all required fields have not been entered.
6. Type the data for the required field and then leave the panel.
7. End panel test.

Making a Required Field Optional

This checklist describes the steps involved in changing a required field to an optional field. A required field (designated by **<R>** in Tivoli-supplied panels) is a data-entry field that must be filled in before a user can leave the panel.

Planning

Panels. Identify all data-entry panels that contain the field and that must be changed. Is this change applicable across applications? Does it also apply to another field with a similar meaning or purpose?

If a control panel tests for the presence of the field, the control panel might require changing.

Examine the dictionary to determine whether any program refers to the s-word or prefix index. If it does, making the field not required can interfere with Tivoli Information Management for z/OS processing or reports.

Reports. Determine whether any RFT uses the s-word or prefix index. The RFT might require changing. In addition, certain fields, such as **Status**, are required because they are part of the report's record selection criteria. For a list of fields that are used for report processing, see "Fields Whose Modification Affects Tivoli Information Management for z/OS Reports" on page 398.

Data Required. None.

Gathering Information. To identify all panels that must be changed:

1. Determine the s-word or prefix index of the field that you are making not required. If you do not know the s-word or prefix index, either print a data-entry panel that contains the field, or request the data-entry panel for PMF update, then select **Externals** and issue the CONTROL command for the field.

Checklist for Modifying a Data-Entry Panel

2. Display or print the s-words or p-words from the dictionary to identify all panels that refer to the index.
Review the panels to determine which data-entry panels to change. Only panels used in create-mode should be modified.

Modifications

1. Select **Panel update** on the Panel Modification Facility options panel.
2. Enter the name of the panel on BLM8CU00.
3. On BLM8CU70, select **Externals**. The panel you requested is displayed in update mode.
4. Issue the CONTROL command for the input area of the field.
5. On BLM8CU73, select **Panel flow processing**.
6. On BLM8CU7A, enter **NO** in the **Response required** field.
7. Enter **end**.
8. Remove **<R>** from the data-entry field.
9. End the update of Externals.
10. File the panel.

Testing Modifications

1. Enter the name of the panel on BLM8CU00.
2. On BLM8CU70, select **Test**.
3. On BLM8CT00, type **create** in the **Create/inquiry** field.
4. Press **Enter**.
5. Fill in the required fields only, and try to leave the panel. You should be able to leave the panel.
6. End panel test.

Changing the Required Field Symbol

This checklist describes the steps involved in changing the required field symbol from **<R>** to your installation-defined character or symbol.

Planning **Panels.** The **<R>** symbol usually is displayed only on data-entry panels; it might also appear on some general help panels.

Reports. Reports are not affected by this change.

Data Required. None.

Gathering Information. Run the String Find report to locate all panels requiring the change. Note that using this report assumes that all required fields are identified with the **<R>** symbol.

Other Considerations. Update user documentation, as appropriate.

Modifications

1. Select **Panel update** on the Panel Modification Facility options panel.
2. Enter the name of the panel on BLM8CU00.

3. On BLM8CU70, select **Externals**. The panel you requested is displayed in update mode.
4. On the original panel replace the <R> symbol with a new symbol.
5. End the update of Externals.
6. On BLM8CU70, select **File**.

Testing Modifications

Because this task changes only externals, testing the panel really means making sure that all panels were changed and that no typing errors were made. The simplest method is to use the String Find report to locate the symbol <R>; no panels should contain the symbol. Or, use the String Find report to find the new symbol. You should find the same number of panels as the original String Find report for <R>.

Defining a Conditionally Required Field

This checklist describes the steps involved in dynamically requiring completion of a field based on previous user responses. For example, the **Component affected** field is not a required field, but can become one if the user sets the **Priority** field to 01.

Planning Panels.

- Identify the data-entry panels to be changed based on the value to be tested.
- Identify the functions to be performed by the control panel. In this case, the function is Test previous reply. You can test the following: s-words, p-words, or prefixes and values.
The method used to test the panels varies depending on the quantity of the information to be checked. For example, you might want to test for the presence or absence of multiple fields on a panel, and then make sure that other fields are also present. Fields that can be used for this purpose are the **Apply not logic**, **Begin multiple test**, **End multiple test** and the **Message panel** fields. Look at control panels that perform the tests you want to do. One panel that uses all of these fields is BLM1AD05.
- The only change you must make to the data-entry panel itself is to the **Null reply target panel** field (see “Allowing a Null Reply” on page 272). However, you can adopt an installation-defined scheme to designate conditionally required fields. For example, to make certain related fields required based on whether one of them is filled in, the fields displayed on the data-entry panel can be followed by *group numbers* in parentheses, with each group assigned a unique character. Here are two such schemes:
 - Priority (a)
 - Component affected (a)
 - Assignee name (b)
 - Assignee dept (b)
 - Assignee phone (b)

In this case, the **Component affected** field becomes required if a **Priority** is entered. Likewise, all the (b) fields become required if the **Assignee name** is entered.

- If you want to issue a message when a user must complete the conditionally required field, you must create a supporting message panel and a help panel.

Reports. You can change the output of the reports based on the information you are making required. Refer to the *Tivoli Information Management for z/OS Data Reporting User's Guide* for instructions on modifying the standard reports.

Data Required.

- The s-word or prefix index for the data to be tested. If a specific value is the trigger (for example, initial priority 01), a new prefix index might be required. For example:
8001 PRII/ <01> NO To test for initial priority of 01
- The name of the data-entry panel and field to be changed.
- The name of the control panel to perform the test.
- The name of the message panel that is issued if the required field is not filled in.

Gathering Information. Identify the data-entry panel you want to change, and specify names for the control and message panels.

Other Considerations.

- Review control panels that perform this function (for example, BLG1AJ20, BLG1AJ21, BLG1AJ30, BLG1AJ40). Note how the control lines are built. Consider copying one of these panels as a model and then changing and deleting lines as appropriate.
- Be aware of the effect that introducing a conditionally required field can have on existing SRCs that use the panels involved. A user can enter a dialog begun by a conditional response while running an SRC that did not use the conditional flow when it was generated. In that event, the SRC will end and display an error message. The SRC, in such a case, requires a standard panel flow; that is, the use of the conditional panel flow can result in flow changes that the SRC cannot recognize and deal with.
- Conditionally required fields are the basis for dynamic paths (dynamic panel flow sequencing). Your testing of a field can affect an established dynamic panel flow, setting up a path that you did not expect. You must consider the structure and contents of any dynamic panel flow sequence when you make fields conditionally required. See “Dynamic Panel Flow Sequencing” on page 65 for some discussion of this.

Modifications

1. Select **Panel update** on the Panel Modification Facility options panel.
2. Enter the name of the data-entry panel on BLM8CU00.

3. Using the **Control** command or the **Summary** update option, look at the Field Control Summary (control panel) for the field you want to modify. If none exists, you can copy and modify the control panel for a similar field, or you can create a new one. See “Creating a Control Panel” on page 160 for detailed instructions.
4. On the control panel, modify the control lines to test for the presence of data and to issue a message. See “Data Test and Message Display” on page 319 for detailed instructions.
5. Identify the control panel as the null-reply target for the data-entry panel. See “Allowing a Null Reply” on page 272.
6. Create or modify a message panel and its accompanying help panel to reflect the newly required field.

Testing Modifications

After you have made the necessary changes and have filed the panels, you can test the interaction of all the changes.

1. Starting at the Primary Options Menu (BLG0EN10 for the System application, BLG0EN20 for the Management application), request the data-entry panel for update.
2. Select **Test**.
3. Type **create** in the **Create/inquiry** field.
4. Press **Enter**.
5. On the data-entry panel, fill in all the required fields and type a value in the prerequisite field. Press **Enter** twice to force a null reply. The new message is displayed, indicating that the conditionally required field was not filled in. If the message does not appear, go to step 7.
6. Complete all the conditionally required fields and enter a null reply. You should be able to leave the data-entry panel.
7. If an error occurs in steps 5 or 6, such as the wrong panel is displayed or no message is displayed, do the following:
 - a. Before you press **Enter** after filling in the field, issue the **view internals** command. Record the s-words and p-words of the data you entered.
 - b. Make sure the null-reply target is the control panel being tested.
 - c. Check the dialog end setting for the null control line. Remember that dialog end resets the panel to the one from which the dialog began. If you are ending a dialog, the **Override dialog target** field must be **YES**, and the target panel must be the new control panel.
 - d. Examine the control panel and make sure the information being tested is accurate.
 - e. Check the **Apply NOT logic** field setting to make sure it is set correctly. (**NO** is the default.)
 - f. Check the target panels for true and false tests.

8. End panel test.

Moving a Field on a Panel

This checklist describes the steps required to move a field on a data-entry panel. See “Moving, Deleting, and Requiring Fields” on page 100 for an example of this kind of modification.

Planning **Panels.** To maintain consistency across panels, move the field on every panel where it is displayed.

Reports. Change the page and detail reports that include this field, if appropriate.

Data Required. None.

Gathering Information. To identify all panels to be changed, use the S-Word or P-Word XREF report.

Other Considerations.

- Group items on panels with some consistency. Some techniques that can be used are:
 - Group generically related fields together.
 - Place fields that appear on multiple panels in the same general location.
 - List short fields first, followed by long fields.
 - List all required fields first.
 - Consider single-column versus multiple-column format.
- Renumbering fields can affect SRCs if no s-words are associated with the fields: an SRC uses the field number when there is no s-word.

Modifications

1. Select **Panel update** on the Panel Modification Facility options panel.
2. Enter the name of the panel on BLM8CU00.
3. On BLM8CU70, select **Externals**. The panel you requested is displayed in update mode.
4. Use the **field show** command to display the attribute bytes.
5. If you do not want data at the new location overlaid, use AT and MOVEA to move it to a temporary location (include the attribute bytes in the AT specifications). Follow steps 5 through 9 below, then restart at step 5.
6. Type **at** on the command line.
7. Move the cursor to the byte before the beginning of the field name for a display-only field, or before the unit's digit for an input field or a selection. (On a selection field, the % attribute byte must be moved with the field.) Press **Enter**.
8. Move the cursor to the byte following the input (or display-only) field and enter the **AT** command again.
9. Type **movea** on the command line.

10. Move the cursor to the location where you want the field and press **Enter**.
11. Use **at** and **movea** to move the data you temporarily moved to its final location.
12. Issue **field off** and renumber the fields on the panel.
13. Issue **field activate**.
14. Move the cursor to each field, testing the location of all attribute bytes. Because data entered on this panel during field activate is not saved, you might want to power type continuously through each field. If you make an error, enter the CANCEL command to leave the Externals and try again.
15. Enter **end**.
16. On BLM8CU70, select **File**.

Testing Modifications

1. Type the name of the panel on BLM8CU00.
2. On BLM8CU70, select **Test**.
3. Type **create** in the **Create/inquiry** field.
4. Press **Enter**.
5. Select the field you moved and make sure that the correct assisted-entry panel is displayed.
6. If you renumbered other selections, make sure that the appropriate target panels are displayed.
7. End panel test.

Adding an Input Field

This checklist describes the steps required to add an input field on a data-entry panel. An input field is one in which the user can type information directly. It requires an assisted-entry panel to validate the user's response.

Planning

Panels. The following panels might require changing:

- Data-entry panel to which the input field is added.
- Data-entry panels for displaying the field. Several panels might require modification (display mode, display summary, and update and delete verification summaries).
- Data-entry panels that contain a field that is common across functions or dialogs (such as the **Status field**). Again, you must add the field to several panels.
- Assisted-entry panel to validate the field.
- Help panel to describe the field.
- Inquiry mode panel to allow a search for the new data.

To simplify this process, one approach is to use an existing field that is similar to the field you are adding. This means that the assisted-entry panel already exists, the s-word index exists, and the inquiry panels contain the field.

Reports. When you add a new field, it is usually because you want to see this data in a report. Therefore, modify the appropriate RFT to contain the new field.

Data Required.

- Panels: assisted-entry, data-entry, selection, display, and help
- S-Word and prefix indexes for the new field.

Gathering Information. Examine the dictionary to determine whether an existing s-word index can be used. Then, run the S-Word List report to determine how the index is used elsewhere.

As an alternative, obtain the control information by running the Panel Content report for the data-entry panel and assisted-entry panel that contain the field that uses the indexes.

Other Considerations. If a new field is being added, the database does not contain data for it. Therefore, you must modify the inquiry-mode panels at a later time to allow records to be created in the database.

Note: Even though you must specify field numbers when adding input fields, a user might not be able to see these field numbers, depending on how a screen control value is set in their user profile. The *Tivoli Information Management for z/OS User's Guide* contains more information about user profile options.

Modifications

1. Select **Panel update** on the Panel Modification Facility options panel.
2. Enter the name of the panel on BLM8CU00.
3. On BLM8CU10, select **Externals**. The panel you requested is displayed in update mode.
4. Use the **movea** and **at** commands to move existing fields to make room for the new field.
5. Type the new field number and name as required.
6. Renumber the fields if necessary.
7. Issue **field protect** for the attribute byte before the item number.
8. Issue **field unprotect** for the attribute byte immediately before the beginning of the input area.
9. Type the fill character (usually an underscore) for the length of the field.
10. Issue **field protect** for the byte following the last underscore.
11. Optionally, issue **field show** to display the attribute bytes for the panel.

12. Issue **CONTROL** for the input area of the field.
13. On BLM8CU73, select **Panel flow processing**.
14. On BLM8CU7A, type the assisted-entry panel name in the **Target panel** field.
15. Enter **end**.
16. On BLM8CU73, select **Data collection processing**.
17. On BLM8CU7B, enter the s-word index for the new field.

Note: You can use a prefix index instead, but it is not recommended. If you must use a prefix index, make sure the **Use s-word for display** field is **NO**. You cannot use both indexes for the same field.

You can also specify a value for **Processing order**. Fields specified with a value of **normal** are processed first; then in a second pass, fields specified with a value of **last** are processed.

You can also specify how you want date and time values formatted by specifying one of these:

ULOCAL

Specifying ULOCAL will return the time in the current user's local time zone and the date in the external date format. ULOCAL is the default.

OLOCAL

Specifying OLOCAL will return the original local date or time (internal format).

UT Specifying UT will return the universal time date or time (internal format).

A thorough description of these time choices can be found in the *Tivoli Information Management for z/OS Planning and Installation Guide and Reference*.

18. Enter **end,end,end**.
19. On BLM8CU70, select **File**.

Modify the display-mode data-entry, assisted-entry, help, and inquiry panels, as appropriate. If this is a new field, you must create an assisted-entry panel for it (unless it can use a common assisted-entry panel, such as BLG6PHON for phone number).

Testing Modifications

The assisted-entry panel must exist before you can test the data-entry panel.

1. Type the name of the panel on BLM8CU00.
2. On BLM8CU70, select **Test**.
3. Type **create** in the **Create/inquiry** field on BLM8CT00.
4. Press **Enter**. Your updated panel is displayed.

5. Select the new field. The new assisted-entry panel is displayed.
6. Enter **back**. The data-entry panel is displayed.
7. Type data in the field.
8. Make sure the data is displayed. If it is not, then either the s-word or prefix index is incorrect in either the assisted-entry or data-entry panel.
9. End panel test.
10. Copy all changed panels to a read data set, create a record, and make sure that search, display, copy, and print functions work properly.

Adding a Display-Only Field

This checklist describes the steps required to add a display-only field on a data-entry panel. A display-only field presents data on the panel, but the user cannot modify its contents.

Planning

Panels. Only the data-entry panels on which the display-only field is to appear must be changed. If you plan to add the field to a summary panel (update, display, and two delete verification panels), update each panel. Change, component, and SRC records have two update summary panels each.

Reports. Change the page and detail reports, if appropriate.

Data Required. S-Word or prefix index.

Gathering Information.

- Determine the s-word or prefix index of the field that you want displayed. If you do not know the s-word or prefix index, either print a data-entry panel that contains the field, or request the data-entry panel for PMF update, then select **Externals** and issue the **control** command for the field.
- To identify the summary panels to be changed, run the P-Word XREF report and determine all panels that contain the prefix index for RNID/01E9, which is used for all display panels. The report includes update and display summary panels.

Other Considerations.

- Add display-only fields only if the information is important and is usually available.
- Give special consideration to the use of the **Replace previous reply** field for the assisted-entry panel associated with this new field. When the record is being created or updated, **Replace previous reply=YES** makes sure that only the last-entered response for the field is saved and stored in the database. Panel display processing always looks for the last response for a field, but report processing uses the first (oldest) response for a field unless **Replace previous reply** is **YES**. Otherwise, both the previous entry and the current entry are saved, but only the last value entered is displayed. Because all previously entered values are saved, subsequent searches and reports produces totally misleading or confusing results. See the discussion of **Replace previous reply** on page “Replace Previous Reply” on page 57 for more information.

Modifications

1. Select **Panel update** on the Panel Modification Facility options panel.
2. Enter the name of the panel on BLM8CU00.
3. On BLM8CU70, select **Externals**. The panel you requested is displayed in update mode.
4. If required, use the **movea** and **at** commands to move existing fields to make room for the new field.
5. Issue the **field protect** command for the beginning of the display area for the field.
6. Type the fill character (usually an underscore) for the length of the field.
7. Issue the **field protect** command for the end of the display area for the field.
8. Optionally, type the new field name.
9. Optionally, issue **field show** to see the attribute bytes for the panel.
10. Issue the **control** command with the cursor within the display area.
11. On BLM8CU73, select **Panel flow processing**.
 - a. On BLM8CU7A, clear the **Target panel** field.
 - b. Type **NO** in the **Branch and link** field.
 - c. Change the field type to **DISPLAY**.
 - d. Type **end**.
12. On BLM8CU73, select **Data collection processing**.
 - a. On BLM8CU7B, change the s-word index to the one associated with the field you want to display.
 - b. Type either **YES** or **NO** in the **Replace previous reply** field. See “Other Considerations” on page 268.
 - c. Type **NO** in the **Cognize response** field.
 - d. Specify a value for **Processing order**. Fields specified with a value of **normal** are processed first; then in a second pass, fields specified with a value of **last** are processed.
 - e. Specify how you want date and time values formatted by specifying one of these:
 - ULocal**
 Specifying ULOCAL will return the time in the current user’s local time zone and the date in the external date format. ULOCAL is the default.
 - OLOCAL**
 Specifying OLOCAL will return the original local date or time (internal format).
 - UT** Specifying UT will return the universal time date or time (internal format).

Checklist for Modifying a Data-Entry Panel

A thorough description of these time choices can be found in the *Tivoli Information Management for z/OS Planning and Installation Guide and Reference*.

13. Enter **end,end**.
14. On BLM8CU70, select **File**.

Testing Modifications

Test all panels that contain the display-only field (create and display mode). If a panel is used during display mode, a record must be displayed after you start panel test.

1. Type the name of the panel on BLM8CU00.
2. On BLM8CU70, select **Test**.
3. Type the name of the Primary Options Menu (BLG0EN10 for the System application, BLG0EN20 for the Management application), and type either **create** or **inquiry** in the **Create/inquiry** field on BLM8CT00.
4. Press **Enter**. The Primary Options Menu that you requested is displayed.
5. Go through the dialog to display a record that uses your updated panel and contains the display-only field.
6. Make sure the data is displayed. If it is not displayed, either the s-word index is incorrect or the record does not contain the field.
7. End panel test.

Adding a Selection to a Data-Entry Panel

This checklist describes the steps required to add a selection on a data-entry panel. Adding a selection to a data-entry panel implies that a target panel exists (unless the selection sets dialog end or uses a function code to call a panel processor function or a program exit).

Planning

Panels. Depending on the purpose of the selection, you must perform different steps. If the selection calls a function code, minimal information is required. If the selection goes to another panel that returns to the panel with the new selection, the target panel might also require modification.

The only panels that require modification are the panels associated with the selection being added, and possibly help panels.

Reports. No report modifications are required. However, if the new selection goes to a new panel that collects additional information, examine the appropriate reports to determine whether to add the new information to the reports.

Data Required.

- You must know or supply one of the following:
 - A function code or program exit symbol
 - The name of a target panel. If you are not using an existing panel as the target, create the target panel first so that you can test the new selection. Or, if you prefer, use a model panel for the testing.
- You must identify the beginning and ending of the dialog if you are using a shared target panel.

Gathering Information.

- If this selection calls a program exit, examine other data-entry panels that use the same exit to go to the target panel. (Use PMF Panel Update or an XREF report.)
- If you are adding a selection that sets a target, use the Panel XREF report to identify any panel that can also reference the target panel. If you locate another panel that references the target, examine it to determine if it sets a dialog begin. If so, the new selection must also start a dialog, because the target, or one of its targets, sets the dialog end function.

Other Considerations. Determine whether this selection requires a new dialog. Most selections from data-entry panels (without associated input fields) begin new dialogs. Thus, when the user issues the **end** or **cancel** command after making this selection, the user returns to the panel from which the dialog was entered.

Modifications

1. Select **Panel update** on the Panel Modification Facility options panel.
2. Enter the name of the panel on BLM8CU00.
3. On BLM8CU70, select **Externals**. The panel you requested is displayed in update mode.
4. If required, use the **movea** and **at** commands to move existing fields to make room for the new field.
5. Type the new selection number and description.
6. Renumber the selections as required.
7. Issue the **field protect** command in front of the selection number.
8. Issue the **control** command from the selection.
9. On BLM8CU73, select **Panel flow processing**.
 - a. On BLM8CU7A, enter the new target panel (if required).
 - b. Change the field type to selection.
 - c. If a new dialog is required, enter **YES** in the **Dialog begin** field.
 - d. If you want to stop the generation of an SRC, enter **YES** in the **Force SRC generate end** field.
 - e. Enter **end**.
10. On BLM8CU73, select **Data collection processing**.
 - a. On BLM8CU7B, change the s-word index as required. If no s-word is to be collected, type function code 000A (branch and record).
 - b. Type **NO** in the **Use s-word for display** field.
 - c. If you want s-word collection, enter **YES** in the **Cognize response** field.

Checklist for Modifying a Data-Entry Panel

d. Specify a value for **Processing order**. Fields specified with a value of **normal** are processed; then in a second pass, fields specified with a value of **last** are processed.

e. Specify how you want date and time values formatted by specifying one of these:

ULOCAL

Specifying ULOCAL will return the time in the current user's local time zone and the date in the external date format. ULOCAL is the default.

OLOCAL

Specifying OLOCAL will return the original local date or time (internal format).

UT Specifying UT will return the universal time date or time (internal format).

A thorough description of these time choices can be found in the *Tivoli Information Management for z/OS Planning and Installation Guide and Reference*.

11. Enter **end,end,end**.

12. On BLM8CU70, select **File**.

Testing Modifications

If the panel is used in display mode, a record must be displayed after panel test is entered.

1. Type the name of the panel on BLM8CU00.
2. On BLM8CU70, select **Test**.
3. Type the name of the Primary Options Menu (BLG0EN10 for the System application, BLG0EN20 for the Management application), and type either **create** or **inquiry** in the **Create/inquiry** field on BLM8CT00.
4. Press **Enter**. The primary options menu you requested is displayed.
5. Display a record that uses the panel containing the new selection.
6. Select the item and make sure that the target panel is displayed or the function you indicated is performed.
7. If the selection begins a new dialog, enter **end** or **cancel**, and make sure that the panel being tested is redisplayed.
8. Select the item again. To make sure the user is stepped backward through the dialog, enter the **back** command twice to make sure that the selection's calling panel reappears.
9. If any selections were renumbered, verify that they still work correctly.
10. End panel test.

Allowing a Null Reply

This checklist describes the steps required to allow a null reply to either a panel that does not currently allow a null reply or to a new panel being created.

Planning **Panels.** The only panel that requires modification is the one being updated.
Reports. None.

Data Required.

- S-Word index: 000A (Branch and record)
- Target panel, if a null reply does not end the dialog.

Gathering Information. None.

Modifications

1. Select **Panel update** on the Panel Modification Facility options panel.
2. Enter the name of the panel on BLM8CU00.
3. On BLM8CU70, select **Null reply**.
4. On BLM8CU72, select **Panel flow processing**.
5. On BLM8CU73, type the name of the target panel, if required. If a null reply ends a dialog, a target panel is not required. Change the **Dialog end** field to **YES**.
 If a dialog end is required, change **Dialog end** and **Override Dialog Target** to **YES**.
6. Enter **end**.
7. On BLM8CU72, select **Data collection processing**.
8. Make sure the **function code index** is 000A, and **Replace previous reply** is set to **YES**.
9. Enter **end,end**.
10. On BLM8CU70, select **File**.

Testing Modifications

If the data-entry panel is used in display mode, a record must be displayed during the panel test to test the null reply.

1. Type the name of the panel on BLM8CU00.
2. On BLM8CU70, select **Test**.
3. Type the name of the Primary Options Menu (BLG0EN10 for the System application, BLG0EN20 for the Management application), and type either **end** or **inquiry** in the **Create/inquiry** field on BLM8CT00.
4. Press **Enter**. The primary options menu you requested is displayed.
5. Display a record that uses the modified panel.
6. Make sure the proper panel is displayed. If the null reply ends a dialog, the panel that began the dialog is displayed when you leave your panel.
7. End panel test.

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Checklists for Assisted-Entry Panels

Checklists for Assisted-Entry Panels An assisted-entry panel helps the user enter the correct data for a particular field, validates a data item entered on a data-entry panel or assisted-entry panel, and provides the internal representation of data.

Use assisted-entry panels when an application requires the collection of definitive information for database entry or retrieval; you can use assisted-entry panels in either create or inquiry mode. For information about the contents of an assisted-entry panel, see “Creating an Assisted-Entry Panel” on page 149.

You can also create lists of valid values for data-entry fields for your users to choose from. You can define these lists to be always the same choices, or you can define them as dynamic lists. To display a list instead of the assisted-entry panel, you modify the assisted-entry panel. (For a detailed example, see “Creating Selectable Lists” on page 112.)

Creating an Assisted-Entry Panel for an Input Field

This checklist describes the steps required to create a new assisted-entry panel by updating a model panel.

Planning **Panels.** Identify all data-entry panels that will call this panel. You must also know which field this assisted-entry panel is for and each data type, s-word, or p-word you want to associate with this field. Look in the dictionary to identify or add s-words as required. Use the S-Word and P-Word XREF reports to identify these panels.

Data Type. If you use an assisted-entry panel for more than one data field and different data types are required, create an assisted-entry panel for each field.

Reports. If the assisted-entry panel indicates that the response is to be cognized or journalized, the newly collected data can affect your reports.

Data Required. The following data is required:

- S-Word index
- prefix index or indexes
- The data-entry panels that will call this assisted-entry panel.

Gathering Information. Use the PMF reports to find panels that contain the s-words and calling panels you want to use.

Modifications

1. Select **Panel update** from the Panel Modification Facility options panel.
2. On BLM8CU00, type in the name of the new assisted-entry panel.

Checklist for Creating an Assisted-Entry Panel

3. Select **Assisted-Entry** on BLM8CUA0.
4. On the model panel, type the **Top title**, **Use line**, and **Bottom title**. Type the EXAMPLES of correct responses or REPLY. To delimit valid values as push buttons for users of the graphical user interface provided by ISPF Version 4.1, surround the valid value with < and > symbols. For example: <INITIAL> Also, include either a space or an attribute byte before the < symbol and after the > symbol.
5. Issue CONTROL to update the panel's control information.
6. Select **Structured word collection** on BLM8CU53.
7. On BLM8CU5B, type the **s-word index**. Type **NO** in the **Collect from caller** field (unless multiple fields will use this panel, for example, BLG6PHON).
8. Type **end** and press **Enter**.
9. Select **Response Processing** on BLM8CU53. On BLM8CU5D, specify the data type:
 - M (Mixed)
 - S (SBCS)
 - D (DBCS)
10. Type **end** and press **Enter**.
11. Select **Prefix and content validation** on BLM8CU53. On BLM1TSAC, the Prefix and Content Validation panel, the default control line contains the p-word PERS/ and its prefix index and validation pattern. If your panel does not use this p-word, update the line to contain your own panel's p-word information.
12. To add a new control line, type the **INSERT** command on the command line.
13. Type the prefix index. When you press **Enter**, the corresponding p-word and validation pattern appear.
14. Type **end,end,end** and press **Enter** to return to your new panel.
15. Type **end** and press **Enter** to return to the Assisted-Entry Update Options panel.
16. If you want a unique HELP panel, perform steps 17 through 19; otherwise, proceed to step 20.
17. Select **Common** on BLM8CU50.
18. Type the name of the **Help target** panel, or leave the default target.
19. Type **end** and press **Enter**.
20. Select **File**.

Testing Modifications

1. Select **Panel update** on the Panel Modification Facility options panel.
2. On BLM8CU00, type in the name of your new panel.
3. On BLM8CU50, select **Test**.

4. On the Test Data-Entry panel, enter the name of the application's Primary Options Menu (BLG0EN10 for the System application, BLG0EN20 for the Management application). Enter **CREATE** in the **Create/inquiry** field.
5. Go through the dialog until you reach a data-entry panel that calls your new assisted-entry panel. Type an incorrect response; the assisted-entry panel appears with an error message.
6. On that panel, type **;HELP**. The help panel for the message will appear.
7. Go back to the assisted-entry panel and press **Enter** to clear the message. Then type **;HELP** again to view the help panel for the assisted-entry panel. Make sure the information is relevant to the field in question.
8. Then, type in valid data. If you enabled the assisted-entry panel for users of the graphical user interface provided by ISPF Version 4.1, select one of the values. Make sure that the response returns you to the original data-entry panel.
9. End PMF panel test.
10. Copy the new panels to a read panel data set. See "Copying and Deleting Panels" on page 179 for more information.

Modifying Assisted-Entry Panels

The checklists that follow illustrate different kinds of assisted-entry panel modifications:

- Changing the validation length
- Defining a journal field
- Adding a new validation pattern
- Collecting multiple p-words
- Deleting a validation pattern
- Changing the validation for a field
- Presenting a list of valid values to choose from
- Changing the data type for a field
- Allowing a null reply.

Changing the Validation Length

This checklist describes the steps required to change the validation length for an assisted-entry panel field. "Length" is included in the dictionary as part of the validation pattern.

Planning

Panels. Identify the panels that require changing. Changing the length of the assisted-entry panel field can also affect data-entry (create or display) or table panels. To identify create-mode data-entry panels, run the:

- Panel XREF report to determine panels that reference the assisted-entry panel
- P-Word and S-Word XREF reports to locate the display data-entry panels.

To identify table panels, run the P-Word and S-Word XREF reports and check the **Maximum width** field and external width for the column.

Reports. Changing a field length can affect report output. Examine the RFTs to determine whether the s-word index or p-word is used (prefix indexes are not used in reports).

Data Required. Prefix index for the validation pattern being changed.

Gathering Information. Run the S-Word or P-Word XREF report to locate all panels that reference the field. The output of this report identifies all panels containing the index. Data-entry panels (create and display mode) are included. However, display panels need not be modified; data is truncated on the display, if necessary.

Modifications See “Changing the Length of a Field” on page 253 for the steps involved in modifying this aspect of a validation pattern.

Testing Modifications

1. Request the assisted-entry panel for update.
2. Select **Test** on BLM8CU70.
3. Type the name of the calling panel (either a data-entry or selection panel) and press **Enter**. The Panel XREF report locates these panels.
4. Type the appropriate mode (CREATE for data-entry or INQUIRY for selection) in the **Create/inquiry** field.
5. Press **Enter** without modifying any fields.
6. Use the old length in your response to the panel. If the old length was longer, the old length fails validation now.
7. Use the new length in response to the panel. This response is accepted.
8. End panel test.

Defining a Journal Field

This checklist describes the steps required to define a field as *journalized*, meaning that the data is tagged as history (<H>) data.

Planning Panels.

1. Identify all panels that must be changed.
 - You specify journalizing in the assisted-entry panel, and it occurs only when you are creating or updating a record. Update all create-mode assisted-entry panels that contain the field.
 - Update display panels that contain the journal field to include the symbol <H>. This is a Tivoli Information Management for z/OS convention to indicate journal fields.
 - If you are journalizing data as sequence FIRST, modify the history table panels that display the data to contain a column to display the data.
2. When you enter data in a field on the modified panel, journalizing of that data begins. Data that you previously entered is not recorded.

Reports.

- Update the page and detail reports to denote (with an *) that this is a journal field. Also, include this field in the history section of the detail report.
- Update any user-written reports that could be affected.

Data Required.

- Journal reply: YES
- Journal sequence: ORDER

Gathering Information. To identify all panels that must be changed:

1. Determine the s-word index of the field that you want to journalize. If you do not know the s-word index, either print a data-entry panel that contains the field, or request the data-entry panel for PMF update; then select **Externals** and issue the CONTROL command for the field.
2. Print an S-Word XREF report to identify all panels that refer to the index.
3. Review the panels and choose the assisted-entry panels, display mode (data-entry) panels, and history panels (if journalizing sequence first) that you must change.

Other Considerations. Journalizing occurs only for fields that are cognized. Therefore, when you define a field as journalized, make sure that **Cognize response** is **YES**. Also, because journalizing only occurs for cognized fields, only the first 32 characters of data are stored.

Data journalized as sequence FIRST can only appear on the history table panel in a column that identifies the s-word or p-word of the data.

Modifications Updating an Assisted-Entry Panel:

1. Select **Panel update** on the Panel Modification Facility options panel.
2. Type the name of the panel on BLM8CU00.
3. On BLM8CU50, select **Externals**.
4. On BLM8CU51, type **CONTROL** and press **Enter**.
5. On BLM8CU53, select **Response processing**.
6. On BLM8CU5D, type **YES** in the **Journal reply** field.
7. Make sure ORDER is specified in the **Journal sequence** field.
8. Make sure the **Cognize response** field is **YES**.
9. End the update of control information.
10. Type **end,end,end** and press **Enter**.
11. On BLM8CU50, select **File**.
12. Copy the assisted-entry panel to a read panel data set.

Updating a Display-Mode Data-Entry Panel:

1. Request the data-entry panel for update.
2. Select **Externals**.

3. Type <H> next to the display area for the field.
4. End the update of Externals.
5. File the panel.

Testing Modifications

A journal field cannot be tested through the **Test** selection on the Panel Modification Facility options panel. However, you can test the assisted-entry panel:

1. Use the prompting sequence to create or update a record.
2. Update the field you have just defined as a journal field.
3. File the record.
4. Display the record and then its history. The date, time, and your user ID appears with the data you entered in the journal field. If you updated the record earlier today, only the time appears with the data.

Adding a New Validation Pattern

This checklist describes the steps required for adding a new validation pattern for a field on an assisted-entry panel.

Planning

Panels. The panels affected depend on the type of validation pattern change. For example, if the length is being changed, the data-entry, table, and assisted-entry panels require change. If the new pattern does not affect the length of a field, only the appropriate assisted-entry panels require modification.

Reports. No reports are affected unless the length of a field is changed, with the exception of certain patterns such as status. Refer to the *Tivoli Information Management for z/OS Data Reporting User's Guide* for the affected report.

Data Required. The dictionary must be updated to include the new validation.

Gathering Information. Run the S-Word or P-Word XREF report to locate all panels that require modification. Also see "Changing the Length of a Field" on page 253.

Other Considerations. If changing the validation affects previous records, copy the panel for inquiry mode and add the new pattern. This enables you to search both ways. New validation patterns must be consistent with the data type contained in the assisted-entry panel. See "Changing the Data Type for a Field" on page 289 for more details.

Modifications

Updating the Dictionary:

1. From the Panel Modification Facility options panel, select **Dictionary**.
2. From the Dictionary Options panel, select **P-Word update**.
3. Issue the FIND command to check whether the validation pattern already exists in the dictionary. If not located, proceed to the next step.
4. Type **DOWN MAX** to display the last p-word entry.

5. Use the ADD line command at the last entry to get a new line for entry (the index key is added automatically).
6. Type the appropriate p-word, validation data, and comment.
7. Write down the prefix index for later use.
8. End the dictionary update.

Updating the Assisted-Entry Panel:

1. Select **Panel update** on the Panel Modification Facility options panel.
2. Request the panel for update.
3. Select **Externals**.
4. Modify the form line and examples (if necessary) to reflect the new validation criteria. To delimit valid values as push buttons for users of the graphical user interface provided by ISPF Version 4.1, surround the valid value with < and > symbols. For example: <INITIAL> Also, include either a space or an attribute byte before the < symbol and after the > symbol.
5. Modify the p-word in the upper right-hand corner (if necessary).
6. Issue the CONTROL command for the panel.
7. Select **Prefix & content validation**.
8. Use the INSERT line command to add the new control line.

Note: If you are changing the validation (rather than adding a new one), enter the UPDATE line command instead of INSERT. If the assisted-entry panel contains multiple p-words (indicated by an M), you must add or change each of them.

9. Type the prefix index (the p-word and validation pattern are automatically entered when you press **Enter**).
10. Repeat steps 8 and 9 for each validation entry.
11. End the update of Prefix & content validation.
12. End the update of control information.
13. End the update of Externals.
14. File the panel.

If you changed the length of a field, you must change the data-entry panel as well, if appropriate, by adjusting the length of the input field. Also, an s-word probably ties the data to the data-entry panel for display purposes. If this is the case, run the S-Word XREF report to locate all data-entry panels requiring change. Selection panels need not be modified.

Testing Modifications

Test the panel to make sure that all the specified validations are accepted.

1. Request the assisted-entry panel for update.
2. On BLM8CU50, select **Test**.

Checklist for Modifying Assisted-Entry Panels

3. Type the name of the calling panel (either a data-entry or selection panel) and press **Enter**. The Panel XREF report locates these panels.
4. Type the appropriate mode (CREATE for data-entry or INQUIRY for selection) in the **Create/inquiry** field.
5. Press **Enter**.
6. Select the field or item that uses the assisted-entry panel to collect the data.
7. Respond with both valid and erroneous responses. If you enabled the assisted-entry panel for users of the graphical user interface provided by ISPF Version 4.1, select one of the values.
Either the correct panel or an appropriate error message appears.
8. Issue the HELP VALIDATE command to find out the valid replies to an assisted-entry panel.
9. Issue the VIEW INTERNALS command to make sure that the information is collected as specified.
10. If you receive an unexpected message, or the validation does not check out, do the following:
 - a. Examine the panel to make sure that a program exit is not overriding the validation pattern entered. If a program exit performs additional validation, remove the program exit or use a new assisted-entry panel.
 - b. Examine the **Reply value meaning** and **Reply value** fields to make sure they are set properly.
 - c. Examine the patterns to make sure they are correct for the externals.
11. End panel test.

Collecting Multiple P-Words

This checklist describes the steps required to add multiple p-words to an assisted-entry panel response. Generally, adding multiple p-words (rather than a single p-word, such as for the **Status** field) is a technique you can use to assign your own p-words to fields that are used by Tivoli Information Management for z/OS functions.

Planning **Panels.** Identify all panels that must be changed.

Reports. Not affected.

Data Required. The prefix index associated with the new p-word.

Gathering Information. Use the P-Word XREF report to identify panels.

Other Considerations.

- Make the p-words that you add shadow each other when appropriate.
- Also, to improve the search performance, create a different assisted-entry panel for inquiry mode when it requires only one of the p-words used in create mode. Remember, however, that previous records do not contain both p-words, so wait until the database is current before making this change.

Modifications **Updating the Dictionary:**

1. Select **Dictionary** from the Panel Modification Facility options panel.
2. Select **P-Word update**.
3. Type **DOWN MAX** to scroll to the last line.
4. Issue the ADD line command.
5. Type the new p-word and validation. Be sure the validation is the same as the validation for the existing prefix index in the panel.
6. End the update of the dictionary.

Updating an Assisted-Entry Panel:

1. Select **Panel update** on the Panel Modification Facility options panel.
2. Request the assisted-entry panel for update.
3. Select **Externals**.
4. Issue CONTROL.
5. Select **Prefix & content validation**.
6. Issue the INSERT line command on the appropriate line.
7. Type the new prefix index and **M** in the **Pattern type** field.
8. Type **end** and press **Enter**.
9. Issue the UPDATE line command for the last p-word control line of the multiple group. If necessary, change the **Pattern** field to L.
10. Type **end,end** and press **Enter**.
11. File the panel.

Testing Modifications

1. Request the panel for update.
2. Select **Test** on BLM8CU50.
3. Type the name of the calling panel (either data-entry or selection) and press **Enter**. The Panel XREF report shows these panels.
4. Type the appropriate mode (**CREATE** for data-entry or **INQUIRY** for selection) in the **Create/inquiry** field.
5. Press **Enter**.
6. Select or respond to the field that was modified.
7. After entering a value, such as OPEN for status, type the VIEW INTERNALS command on the command line and press **Enter**. The system displays both p-words and values. If they are not displayed, make sure that the assisted-entry panel that collected the response was changed.
8. End panel test.
9. Copy the modified panels to a read panel data set.
10. Create a record and enter data for the assisted-entry panel that collects two p-words.

11. Perform a search using the new p-word followed by the value entered. The search results list has one record.

Deleting a Validation Pattern

This checklist describes the steps required to delete a validation pattern from an assisted-entry panel.

Planning

Panels. Before deleting the validation line, identify all panels that reference the p-word and validation to be deleted. If other panels reference this validation pattern, you might want to delete the pattern from them too.

Reports. The p-word and validation can be referenced by reports, such as STAC/OPEN. Check the RFTs to determine if the prefix index and validation are referenced. Refer to the *Tivoli Information Management for z/OS Data Reporting User's Guide*.

Data Required. You must know the names of the panels requiring modification.

Gathering Information. Run the P-Word XREF report to identify the panels to be changed.

Other Considerations. Control panels or program exits can use the p-word and validation you are deleting. Check the dictionary to make sure that the prefix index and validation are not being used. Removing a validation pattern can affect your search capability.

Modifications Validation patterns can be used in two panel types: control and assisted-entry.

1. Select **Panel update** on the Panel Modification Facility options panel.
2. Request the panel for update.
3. Issue the CONTROL command for the panel.
 - a. For control panels, type the DELETE line command for the control line that refers to the prefix index and press **Enter**. (If this deleted control line interfaces with a multiple begin control line, multiple end control line, or target panel control line, those control lines require modification.)
 - b. For assisted-entry panels, select **Prefix & content validation**, and enter the DELETE line command for the validation line.
4. File the panel.

Testing Modifications

1. Request the panel for update.
2. Select **Test** on BLM8CU50.
3. Type the name of the calling panel. The Panel XREF report shows these panels.
4. Type the appropriate mode (CREATE for data-entry or INQUIRY for selection) in the **Create/inquiry** field.
5. Press **Enter**.

6. Respond with the old validation pattern. The system should treat the response as incorrect. If you changed a control panel, proceed through the panel flow until the control panel is processed. If the control line tests for data, make sure the old validation is not valid and the new validation is correct by using VIEW INTERNALS.
7. End panel test.

Changing the Validation for a Field

This checklist discusses the planning activities required to change the validation criteria for a field. The basic difference between changing and adding a validation pattern is that, in the first instance, a pattern already exists so the impact of changing it must be considered. See “Adding a New Validation Pattern” on page 280 for modification and testing steps.

Planning

Panels. If you are going to change the validation for a field, you must change it everywhere. If you are changing the validation length you probably have to change data-entry panels containing the field. If you are changing the validation of a prefix index from what was supplied by Tivoli to a new validation pattern, delete the old Tivoli-supplied validation prefix index from BLMITSAC, the Prefix & Content Validation panel (not from the dictionary). See the checklist for “Changing the Length of a Field” on page 253 for more information.

- The field can be referenced on various panels. To make sure that the validation is changed for each panel, run a P-Word XREF report to locate all panels that reference the p-word. The simplest method for identifying the p-word is to print the associated assisted-entry panel and locate the prefix index.
- Alternatively, request the panel for PMF update, select **Externals**, and issue the CONTROL command for the assisted-entry panel containing the validation to be changed. You can identify the assisted-entry panel from the calling data-entry panel. Each data-entry field requires an assisted-entry panel that performs the field validation. Often the same assisted-entry panels are used in inquiry mode. After the index is obtained, the appropriate cross-reference report can be used to locate all panels referencing the prefix index.
- Changing the field validation can affect Tivoli Information Management for z/OS processing or reports. Check the dictionary to determine whether a program uses this prefix index. If so, assess the effect of changing the validation.
- Check the RFTs to determine whether any reports use the prefix index (for example, the **Status** field).

To modify the validation criteria, you must know the p-word index and new validation pattern so that you can change the current one in the dictionary.

If more than one panel uses the prefix index you do not want the change to apply to all panels, create a new p-word record.

Make sure that the new validation pattern is consistent with the data type for the assisted-entry panel. See “Changing the Data Type for a Field” on page 289 for more details.

Modifications See “Adding a New Validation Pattern” on page 280 for modification and testing steps.

Presenting a List of Valid Values From Which To Choose

This checklist describes the steps required to present a list of valid values for a data-entry field rather than displaying the assisted-entry panel. The changes are made to the assisted-entry panel, not to the data-entry panel. You must also create a validation record for each list you want to present.

For a detailed example of creating a validation record see “Creating Selectable Lists” on page 112.

You must have database administration authority to work with validation records.

You can also use data attribute records to replace assisted-entry panels; see page 539 for more information about data attribute records.

Important!

Do not change the Validation Data panel (BLGLVSEL).

Planning

Panels. Identify the panel that requires changing. This is the assisted-entry panel you want to bypass and, instead, display a list for your users to choose from.

Data Required. Assisted-entry panel name, and optionally, either the validation record name, the s-word index for the data-entry field, or the validation data s-word index. (The s-word must be 8 characters or fewer.)

Other Considerations.

- You can create either static or dynamic lists of valid values. If the valid values are always the same, a static list is what you want. (Static, meaning the list is not based on another field; the values are valid no matter what other data is provided in the record.)
If the valid values change based on another data-entry field, you probably want to use a dynamic list.
- The MODELDB keyword on the BLGPARMS macro allows you to specify the name of the database that contains the data model records. The default is database 5.
- You might already have a list table that contains the information you want to use as the validation list. You can point to that list table rather than having to keep two copies of the same list.
- You must still have an assisted-entry panel for each data-entry field even if you display a list of valid values unless you use data attribute records. The p-word for the validation record is taken from the first validation data entry on the assisted-entry panel. Also, if no validation data is found in the validation record, the user sees the assisted-entry panel rather than an empty list.

- Because Tivoli Information Management for z/OS goes through the assisted-entry panel to find the validation list, if you enter anything other than a valid value at the same time you select a field that has a validation list, you receive an error. The command line is processed in its entirety before the validation list is accessed. For example, you have a validation record for the **System name** field that contains 20 valid choices. On the Problem Reporter Entry panel (BLG0B100), if you select the **System name** field by entering 7 on the command line, you see the Validation Data panel (BLGLVSEL). If you instead enter a valid value with the field number, such as 7,CARVML1, you see BLG0B100 with the **System name** field containing a value of CARVML1.

However, if you enter a value that is not valid with the field number, such as 7,CARY, you see the Validation Data panel with an error message telling you your response is not valid. You can choose to sort the list and have the list scrolled to the closest entry that matches your response. Likewise, if you enter a command with the field number, such as 7,;FIND CARMVS, you see the Validation Data panel with an error message telling you your command is not valid on this panel. The error occurred on the assisted-entry panel, not on the validation list panel.

- Validation lists recognize special validation patterns in the same way as do assisted-entry panels. The following patterns are supported for validation list equal sign processing:
 - =NAME
 - =DEPT
 - =PHONE
 - =CLASS
 - =USER
 - =DATE
 - =TIME

To use equal processing with a validation record, the record must be updated to include the predefined validation pattern. This predefined pattern must be the first entry in the validation data list. For example, if you have a validation record defined for the department name, then =DEPT must be the first value in the list of valid entries for that record. This pattern retrieves the default department information from the profile; this department value must also be in the list of valid entries in the validation record. Even though =DEPT is defined in the list of valid values, the value is not displayed to the user during data-entry processing. You may also choose to define your own patterns for equal sign processing.

Note: If you specify **Sort validation data** as **YES** in the validation record and have a predefined pattern in the validation data list, then **Sort order** must be **ASCEND**. If you specify **DESCEND**, the predefined pattern will be at the end of the list and it will be treated like a literal value.

- If you specify **Sort validation data** as **YES**, only the values in the Validation Entry column are sorted. If all of your validation data is

Checklist for Modifying Assisted-Entry Panels

entered in the Validation Pattern column, then you can sort this data yourself before you file the record. On panel BLGLVLST, type **SORT 3** on the command line.

Note: If you have a combination of validation data in both the Validation Pattern and Validation Entry columns, then the list cannot be sorted.

- Tivoli Information Management for z/OS APIs can use assisted-entry panels (processed with BLGUT8), validation records, and data attribute records.

Modifications

1. Create a validation record for the list of values. From BLG0EN20, type **5,5**. Provide the required information, and type **end**. Select **Validation data** and type the valid values and their descriptions on the Validation Data Entry panel. Validation data can be from 1 to 30 alphanumeric characters. You can have up to 5000 entries on each list of valid values. When you are finished, type **end** and file the record.
2. Enter PMF.
3. Type the name of the assisted-entry panel on BLM8CU00.
4. On BLM8CU50, select **Externals**.
5. On BLM8CU51, enter **CONTROL**.
6. On BLM8CU53, select **Structured word and validation collection**.
7. On BLM8CU5B:
 - a. If you are specifying a static list of values, change the **Validation record name** to the name of the validation record you just created for the list of values.
 - b. If you are specifying a dynamic list of values to be based on another field on the data-entry panel, change the **Validation record s-word index** to the s-word index of that field.
 - c. If you are specifying a list of values that are in an existing list processor record, change the **Validation record name** to the name of that list processor record. Also change the **Validation data s-word index** to the s-word index for the specific column of data that you want to use from the list processor record.
8. End the update of control information by typing **end, end, end**.
9. File the panel.
10. Copy the assisted-entry panel to a read panel data set.

Testing Modifications

Presenting a list of valid choices cannot be tested through the **Test** selection on the PMF primary options panel. To test the changes:

1. Use the prompting sequence to create or update a record.
2. On the command line, type the selection number for the field that you defined with a list.

3. The Validation Data panel will appear with a list of valid values to choose from. Choose a valid value.
4. Now change the field that you defined with a list to a value that is not valid.
5. The Validation Data panel will appear with a list of valid values to choose from. Choose a valid value.

Changing the Data Type for a Field

This checklist describes the steps required to change the data type field for an assisted-entry panel.

Planning

Panels. Identify the assisted-entry panel to be altered. Verify that the validation patterns are acceptable to the data type you enter.

Reports. Not affected.

Data Required. Assisted-entry panel name, validation patterns for all fields.

Gathering Information. None.

Other Considerations. The data type determines the type of data that is accepted as a response to an assisted-entry panel. Although SBCS or mixed data are allowed, other factors do impose restrictions. Some workstations do not support DBCS characters, so DBCS responses to assisted-entry panels that allow mixed or DBCS data types are not accepted.

The data type that you choose for the assisted-entry panel can be a major factor in determining your validation pattern. When you choose the new validation pattern, make sure that the characters support your chosen data type. For example, validation character X (hexadecimal character) does not support DBCS; therefore, you cannot use it with a DBCS data type.

Modifications Updating an Assisted-Entry Panel:

1. Type the name of the panel on BLM8CU00.
2. On BLM8CU50, select **Externals**.
3. On BLM8CU51, type **CONTROL** and press **Enter**.
4. On BLM8CU53, select **Response processing**.
5. On BLM8CU5D, type the appropriate data type field value (**M**, **S**, or **D**).
6. End the update of control information.
7. Type **end, end, end** and press **Enter**.
8. File the panel.
9. Copy the assisted-entry panel to a read panel data set.

Testing Modifications

A data type field cannot be tested through the **Test** selection on the PMF primary options panel. To test the assisted-entry panel:

1. Use the prompting sequence to create or update a record.
2. Change the field that you defined to have the appropriate data type value.

3. Enter sample information.
4. Make sure that the data is accepted or rejected correctly based on the new data type.

Allowing a Null Reply

This checklist describes the steps required to allow a null reply for an assisted-entry panel.

Planning

Panels. Identify the name of the panel to go to when the user presses the **Enter** key without responding to the panel.

Reports. See the following “Other Considerations” section.

Data Required.

- Null-reply target panel
- A create or inquiry target panel name.

Gathering Information. None.

Other Considerations. Some major considerations involve the database and the user when a null reply is allowed in create mode:

- The null reply has the lowest priority in the flow processing hierarchy of assisted-entry panels. If a dialog end (highest priority) or return to caller (second priority) is specified in addition to the null reply, the null reply is allowed; however, the return is made back to the caller or to dialog begin rather than proceeding to the null target.
- Each preceding selection normally collects an s-word that states, “This generic type of field has been entered; the specific type of data follows.” Allowing a null reply in create mode enables the user to provide a partial response (an s-word with no definitive value). This contradiction can affect searches done during the inquiry (or report) process.
- Many program exits search on the s-word to determine whether the generic category of data exists in the record.

Note: The s-word is used rather than an abbreviated p-word for performance reasons.

- The basic reason for allowing a null reply is to let the user see two assisted-entry panels in sequence. For example, in inquiry mode, if you want to allow the entry of either A or B, the user should be able to bypass the first panel (A) to see the second panel (B). Thus, the first and second panels allow a null reply. This is especially useful in inquiry mode when you want to allow specification of A or B.

Modifications

1. Select **Panel update** on the Panel Modification Facility options panel.
2. Type the name of the first assisted-entry panel on BLM8CU00.
3. On BLM8CU50, select **Null reply**. The panel you requested appears in update mode.
4. On BLM8CU5E, enter the name of the target assisted-entry panel in the **Null reply target** field.
5. Type **end** and press **Enter**.

6. On BLM8CU50, select **Summary**.
7. On BLM1TSU5, type the **UPDATE** line command at **ENTRY LINE**.
8. On BLM8CU55, select **Panel flow processing**.
9. On BLM8CU5A, type **NO** in the **Return to caller** field to override the target panel.
10. Type a target panel name in the **Create target** field. This panel appears if a user enters data on the assisted-entry panel. Because the **Return to caller** field is changed to **NO**, you must specify a target panel. When the user enters data instead of a null reply, the target panel is displayed next.
11. Type **end,end,end** and press **Enter**.
12. On BLM8CU50, select **File**.

Testing Modifications

1. Request the panel for update.
2. Select **Test**.
3. Type **INQUIRY** in the **Create/inquiry** field and press **Enter**.
4. Press **Enter**.
5. The panel is displayed. Press **Enter**. A null reply should be allowed, and the specified null target should be displayed.
6. End panel test.

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Checklists for Table Panels

See “Creating a Table Panel” on page 152 for a discussion on table panels.

Creating a Table Panel

This checklist describes the steps required to create a new table panel by updating a model panel.

Planning

Panels. The only panel requiring change is the table panel itself, unless you want to create a help panel for a column.

Reports. Not affected.

Data Required. The following data is required:

- The s-word index or prefix index that is associated with the fields to be displayed
- The maximum width of the fields.

Gathering Information. To find the s-word index or prefix index for a field, examine an existing panel that contains the same field, or follow the procedure in “Determining the Characteristics of Fields on Tivoli Information Management for z/OS Panels” on page 403.

Other considerations. Keep in mind that table panels have the following characteristics:

- They are application-dependent and called only by functions that use window display.
- The entire screen is used to display data.
- When displayed, tables allow the use of all scroll commands (up, down, left, right).

To conserve space on the table display, you can set the current column width to be less than the maximum width allowed in the control information. Data that exceeds the column width can then be viewed by scrolling the column.

Note: If you are going to display this panel on a narrow screen (80-byte) workstation, the first attribute byte of the last column must occupy the next-to-last column on the right side of the screen.

Modifications

1. Select **Panel update**, on the Panel Modification Facility options panel.
2. On BLM8CU00, type the name of the new panel you are creating.

3. On BLM8CUA0, select **Table**.
4. On the model table panel, set up the top title area the way you want it. If you want blank lines between the top title and the column headings, put attribute bytes in the first position of each line that is to be blank.
5. Type the column headings and define attribute bytes at the beginning of any intervening blank lines and at the beginning and end of the columns.
6. Then, for each column:
 - a. Position the cursor in the area you want to work in and enter **CONTROL**.
 - b. On BLM8CU83, the Column Control Summary, select **Data display processing**.
 - c. On BLM8CU8B, type the maximum field width.
 - d. Type either an s-word index or a prefix index. If the new column is positioned to the right of a nonpermanent column, change the **Permanent column** field to **NO**.
 - e. Type **end,end** and press Enter.
7. When all the control information is in place, type **end** and press Enter.
8. On BLM8CU80, select **File**.

Testing Modifications

1. Type the new table panel name on BLM8CU00.
2. Select **Test** on BLM8CU80.
3. On BLM8CT00, type the name of the application's Primary Options Menu (**BLG0EN10** for the System application, **BLG0EN20** for the Management application). Type **INQUIRY** in the **Create/inquiry** field.
4. Use a **SEARCH** command to display the new table panel. Examine the table panel to make sure that the data is displayed correctly. Failure to display data could be because of incorrect s-word or prefix indexes.
5. End PMF panel test.
6. Copy the new table panel to a read panel data set. See "Copying and Deleting Panels" on page 179 for more information.

Modifying Table Panels

The checklists that follow illustrate different kinds of table panel modifications:

- Adding a new column
- Adding lists of data
- Sorting the Search Results List
- Changing column width
- Removing a column
- Justifying a field and suppressing a character

Adding a New Column

This checklist describes the steps required to add a new column to a table panel. Some table panels cannot be modified to add new columns. See “Creating a Table Panel” on page 152 before making this modification.

Planning

Panels. The only panel requiring modification is the table panel, unless a help panel exists that describes the columns. Determine this by examining the table panel to find the help panel name, and then review the help panel text.

Reports. Not affected.

Data Required.

- The s-word index or prefix index associated with the field to be displayed.
- Maximum width of field.

Gathering Information. Determine the s-word index or prefix index that displays the data by examining a panel that contains the field.

Other Considerations. Because columns take up space on a panel, only data most often needed, required, or entered (such as status, date changed, and so on) should be displayed. To conserve space, the column width can be less than the maximum width of the field. Data that exceeds the column width can then be viewed by scrolling the column.

Note: A data-entry panel that is 132 characters wide can only be displayed on a 132-character workstation. If your users do not have 132-character workstations, they receive an error message.

Modifications

1. Select **Panel update** on the Panel Modification Facility options panel.
2. Type the name of the panel on BLM8CU00.
3. On BLM8CU80, select **Externals**. The panel you requested appears in update mode.
4. If the new column takes up too much space on the table panel, shorten or rename an existing column. To rename a column, you must change its control information.
5. Use the **FIELD** command (**PROTECT** or **UNPROTECT**, depending on the type of panel) to set the attribute bytes that define the left and right limits of the column.
6. Issue **CONTROL** for the column to be added.
7. On BLM8CU83, select **Data display processing**.
8. On BLM8CU8B, type the maximum field width. This value must be equal to or greater than the actual width of the column on the panel.
9. Still on BLM8CU8B, specify how you want date and time values formatted by specifying one of these:

Checklist for Modifying Table Panels

ULOCAL

Specifying ULOCAL will return the time in the current user's local time zone and the date in the external date format. ULOCAL is the default.

OLOCAL

Specifying OLOCAL will return the original local date or time (internal format).

UT Specifying UT will return the universal time date or time (internal format).

A thorough description of these time choices can be found in the *Tivoli Information Management for z/OS Planning and Installation Guide and Reference*.

10. Change either the s-word index or prefix index as required.
11. If the new column is to the right of a nonpermanent column, change **Permanent column** field to **NO**.
12. Type **end,end** and press **Enter**.
13. Change the column headings as required.
14. Type **end** and press **Enter**.
15. On BLM8CU80, select **File**.

Testing Modifications

Testing depends on which table panel is being updated. Generally, the following steps are required.

1. Type the name of the panel on **BLM8CU00**.
2. On BLM8CU80, select **Test**.
3. On BLM8CT00, change the panel name to that of the panel calling the table panel or the Primary Options Menu (**BLG0EN10** for the System application, **BLG0EN20** for the Management application).
4. Enter either **CREATE** or **INQUIRY** in the **Create/inquiry** field.
5. Press **Enter**.
6. On BLG0EN10, enter a function that displays the table panel (such as the **SEARCH** command).
7. Examine the table panel to make sure the data is displayed. (If the data is not displayed, either the prefix index or s-word index is not correct, or the record does not contain data.)
8. End panel test.

Adding Lists of Data

Sometimes you need multiple occurrences of the same type of data in the same record. The data can be a single item repeated several times, such as eligible users in a privilege class, or the data can be multiple items repeated several times, such as a list of MVS users and their associated user IDs.

You might not know how many occurrences of the data you need. Also, you might not want to add the data to a data-entry panel because it requires you to enter many s-words to the dictionary. To solve these problems, you can use program exit BLG01396 to display to a user a table panel with a list of entries that the user can scroll and expand. For more complete information on program exit BLG01396, see “BLG01396 - List Processor Program Exit” on page 446.

The default value for a list processor list size is 19 274. However, you can limit the size of a list processor list by specifying a value on the table panel used to process the list. In order to limit the size of a list processor list, specify the maximum number of rows that the list processor list should contain in **Maximum row count** field on panel BLM8CU85. The value that you specify on the table panel applies to all lists on the table panel. If a table panel is used to update a list that already has more rows than the specified maximum, the entire list will be processed, but no functions that result in rows being added (for example, from an INSERT or COPY command) are permitted until enough lines are deleted to reduce the size of the list below the maximum.

Note: The smallest reasonable value for **Maximum row count** is somewhere around 20. Tivoli Information Management for z/OS must display all the rows that will fit on the first “page” of the table panel without scrolling forward, even if the number of lines is greater than the **Maximum row count**. Factors such as your screen size, whether you are displaying PF keys, whether you are using the basic or the enhanced panel style, and the number of rows used for column headings affect the minimum number of lines displayed on the panel. Therefore, avoid specifying a **Maximum row count** that is less than 20.

This checklist describes the steps required to build a table panel that can collect a list of data.

Planning Panels. You need to build a table panel to handle the data. The table panel can:

- Contain as many columns as can fit on the panel
- Contain both display-only and entry fields
- Use authorization codes to prevent unauthorized users from displaying data
- Contain a line command area. If the table panel does not contain a line command area, the user cannot expand the number of entries in the list. If the table panel has a line command column, it must be the first column.

You must build an assisted-entry panel for each column that contains data-entry fields and display-only fields that have the **Repeat/delete/move protected** field set to **YES**.

Reports. Not affected.

Data Required. An s-word index for each column of data. Each s-word index must have an associated root s-word that is up to 8 characters long.

Other Considerations. For special processing, you can define up to 204 line commands. To define line commands, enter a generic TSP name in the **Program target panel** field of the line command control line of the table panel. If the user enters a line command that the list processor does not

recognize, the list processor tries to call a TSP whose last one or two characters match the 1- or 2-character line command the user entered.

The TSP names for the line commands must follow these guidelines:

- If you are defining TSPs for 1-character line commands only, or for both 1- and 2-character line commands, the first 7 characters of the TSP names must be the same. Otherwise, the first 6 characters of the TSP names must be the same.
- The TSP name for a 1-character line command must end with that character. The 1-character line command cannot be A, B, C, D, E, I, L, M, or R because these line commands are reserved for the list processor.
- The TSP name for a 2-character line command must end with the two characters that make up the line command. The 2-character line command cannot begin with A, B, C, D, E, I, L, M, or R because these line commands are reserved for the list processor.

For additional information, refer to page 452.

For example, if you enter the name **USRTSPXX** in the **Program target panel** field of the line command control line, and the user enters **TT** in the line command area, the list processor tries to call TSP USRTSPTT. Similarly, if the user enters **Y** in the line command area, the list processor tries to call TSP USRTSPXY. If the TSP does not exist, the list processor issues a message saying that the line command is not valid.

Modifications

1. Follow the instructions in “Creating an Assisted-Entry Panel for an Input Field” on page 275 to create an assisted-entry panel for each new column that contains input fields or that contains display-only fields where the **Repeat/delete/move protected** field is set to YES. Each assisted-entry panel must have the following characteristics:
 - **Replace previous reply** must be YES.
 - **Return to caller** must be NO.
 - **Dialog end** must be YES if there is no **Create target** specified.
 - **Inquiry target** and **Null target** must be blank.
 - **Program exit symbol** must be blank or contain BLG01051 or BLG01052.
 - If **Collect from caller** is NO, then the s-word must match the s-word in the associated table panel control line for that field.
2. If you want to define your own line commands for this table panel, create a TSP for each line command.
3. On BLM8C000, select **Dictionary**.
4. On BLG8CG00, select **S-Word update**.
5. Enter a root s-word for each new column that contains input fields.
6. Type **end,end** and press **Enter**.
7. On the Panel Modification Facility options panel, select **Panel update**.
8. On BLM8CU00, enter the name of the table panel that you want to create.

9. On BLM8CUA0, select **Table** to create a table panel. The panel you requested appears in update mode.
10. If you want a line command area, move the existing column of data to the right to make room for the line command area. Make sure that the line command area has a beginning attribute byte of **UNPROTECT** and that you defined the field as a line command area (on panel BLM8CU8B).
11. If you want only one column of data, change the control information for the existing column.
12. For each column, do the following:
 - a. Use the **FIELD** command (**PROTECT** or **UNPROTECT**, depending on the type of data immediately following it) to set the attribute bytes that define the left and right sides of the new column.
 - b. Fill in the field with the data fill character that you want to use for blank list entries. Do not use a blank for the data fill character; if you do, the user will not know where the field begins or ends, or how long the field is.
 - c. With the cursor positioned within the field boundaries, issue **CONTROL** for the column to be added.
 - d. On BLM8CU83, select **Panel flow processing**.
 - e. On BLM8CU8A, do the following:
 - 1) Define an authorization code, if necessary.
 - 2) Enter the name of the assisted-entry panel that performs the validation for this column. If this is a display-only field and you are not setting the **Repeat/delete/move protected** field to **YES**, you can leave the field blank.
 - 3) Type **end** and press **Enter**.
 - f. On BLM8CU83, select **Data display processing**.
 - g. On BLM8CU8B, do the following:
 - 1) Enter the maximum field width.

Note: This value must be greater than or equal to the actual width of the column on the panel.
 - 2) Change the s-word index to be one of the root s-words that you added to the dictionary in step 5 on page 298
 - 3) Determine whether you want this column of data to remain on the screen when this panel is displayed and the user scrolls left or right. If the data is important (for example, the line command area), set the value of the **Permanent column** field to **YES**. If any columns to the left of this one have the **Permanent column** field set to **NO**, then this column must also have the **Permanent column** field set to **NO**.
 - 4) If this field is protected (you used the **FIELD PROTECT** command to set the attribute byte), determine whether you want

this column of data to be deleted or repeated when the user enters the **DELETE** or **REPEAT** line command. If you want the data to be deleted or repeated, set the **Repeat/delete/move protected** field to **YES**.

- 5) Still on BLM8CU8B, specify how you want date and time values formatted by specifying one of these:

ULOCAL

Specifying ULOCAL will return the time in the current user's local time zone and the date in the external date format. ULOCAL is the default.

OLOCAL

Specifying OLOCAL will return the original local date or time (internal format).

UT Specifying UT will return the universal time date or time (internal format).

A thorough description of these time choices can be found in the *Tivoli Information Management for z/OS Planning and Installation Guide and Reference*.

- 6) Type **end,end** and press **Enter**.

h. Change the column headings as required.

i. Type **end** and press **Enter**.

j. On BLM8CU80, select **General**.

k. On BLM8CU85, enter **1** for the **Block data line count** so that the record ID is displayed when the list processor is called.

l. If you want to limit the size of the list processor list, enter a value in the **Maximum row count** field, specifying the maximum number of rows that the list processor list should contain.

m. Type **end** and press **Enter**.

n. On BLM8CU80, select **File**.

o. Update the panel that calls the list processor with the following data:

- **Function code index=000B**
- **False target panel**=the name of the table panel you just built
- **Program exit/TSP name**=BLG01396

Note: It is not necessary to set **Dialog begin=YES** because the list processor handles its own dialogs.

Testing Modifications

Testing depends on which table panel is being updated. Generally, the following steps are required.

1. Type the name of the panel on BLM8CU00.
2. On BLM8CU80, select **Test**.

3. On BLM8CT00, change the panel name to the Primary Options Menu (BLG0EN10 for the System application, BLG0EN20 for the Management application).
4. Type **CREATE** in the **Create/inquiry** field.
5. Press **Enter**.
6. On BLG0EN10 or BLG0EN20, start a function that displays the table panel.
7. Examine the table panel for the new columns.
8. If you defined any line commands, enter them in the line command area and verify that they work properly.
9. Verify that you can enter data in the entry fields.
10. End panel test.

Sorting the Search Results List

You can sort a search results list either by **Prefix** or by **Database**. Displaying records in Database order can be especially useful when your database is ordered by system-assigned RNID. The default sort specification is **Database**. The *Tivoli Information Management for z/OS Program Administration Guide and Reference* and the *Tivoli Information Management for z/OS Operation and Maintenance Reference* contain additional information on reordering your database and keeping it in system-assigned RNID order.

Note: Sorting on **Prefix** can *significantly* degrade performance during the search process; use this technique only when its benefits outweigh the potential cost in performance. Refer to the *Tivoli Information Management for z/OS Planning and Installation Guide and Reference* for use of SORTPFX in your session-parameters member to minimize the performance degradation. Displaying records in ascending or descending database order does not degrade performance, because no sort is performed.

Planning Panels. The two search results list table panels are BLG1TMSR and BLG1TSRL. Several other search results list panels provide information that can be sorted; see “Table Panel Modifications” on page 156 for a complete list.

Reports. Not affected.

Data Required. The prefix index used for the sort.

Gathering Information. See “Determining the Characteristics of Fields on Tivoli Information Management for z/OS Panels” on page 403 for procedures to follow to obtain the prefix index.

Other Considerations when Using the PREFIX sort option.

- The data on which you want to sort need not appear on the search results list panel, but it must be cognized data. If the data is not cognized, it cannot be sorted.
- Sorting the search results list slows performance. Before making this panel available to all users, you might want to test the system performance.
- If you do not perform a sort, the search results list is shown in the order the records exist in the SDDS.

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- It is best not to sort on a p-word used multiple times in a record. If you do, you will lose some records off the search results list. When a search results list is created, it contains a set number of records. When you sort on a p-word used more than once in a record, that record then shows up multiple times in the sorted list. But because the list can only contain the original number of items found, some records are dropped from the list. For example, your search argument finds 5 records and builds this search results list:

RECORD ID	DESCRIPTION ABSTRACT
1. 00000017	SOURCE RECORD
2. 00560212	BACKUP SYSTEMS BEFORE OUTAGE
3. 00005313	INSTALL NEW PRINTER
4. 00036320	BACKUP SYSTEMS BEFORE POWER SHUT DOWN
5. 00007038	NOTIFY CUSTOMERS OF POWER OUTAGE FOR A DAY

You decide to sort the list in ascending order based on the PH/ p-word. The phone numbers associated with each record are:

Record ID	Phone Numbers in Record
00009017	213-253-5678 <i>and</i> 213-253-5939
00560212	510-342-3048
00005313	254-402-4901
00036320	314-528-0882 <i>and</i> 314-528-3992
00007038	914-254-3559

Both records 00000017 and 00006320 have two phone numbers associated with the PH/ p-word. That means they appear twice in the sorted list, which also means that you lose two records, 00560212 and 00007038, from the list. The outcome of your ascending sort is this:

RECORD ID	DESCRIPTION ABSTRACT
1. 00009017	SOURCE RECORD
2. 00009017	SOURCE RECORD
3. 00005313	INSTALL NEW PRINTER
4. 00036320	BACKUP SYSTEMS BEFORE POWER SHUT DOWN
5. 00036320	BACKUP SYSTEMS BEFORE POWER SHUT DOWN

Modifications

1. Type the name of the panel on BLM8CU00.
2. On BLM8CU80, select **General**.
3. On BLM8CU85, enter **PREFIX** in the **Sort** option field.
4. Type the prefix index for the field that defines the sort criteria.
5. Make sure the **Sort order** field contains the appropriate entry, ASCEND or DESCEND.
6. Type **end** and press **Enter**.
7. On BLM8CU80, select **File**.

Testing Modifications

1. Type the name of the panel on BLM8CU00.
2. On BLM8CU80, select **Test**.

3. On BLM8CT00, change the panel name to the Primary Options Menu (BLG0EN10 for the System application or BLG0EN20 for Management application).
4. Type **INQUIRY** in the **Create/inquiry** field.
5. Press **Enter**.
6. On the Primary Options Menu, start a function that displays the table panel (such as the **SEARCH** command).
7. Examine the table for the new sort order. If the data is not sorted correctly, the prefix index might not be correct; or the data is not contained in the record and cannot be sorted on.
8. End panel test.

Changing Column Width

This checklist describes the steps required to increase or decrease the width of a column. The **Column width** field on the table-panel update display defines how much data is visible on a table panel.

This task has two parts:

- Changing the physical column width
- Changing the maximum data length that can be displayed in the column.

Set the column width less than or equal to the maximum field width specified in the control information for the column. If the column width is less than the maximum field width, the remaining data can be displayed by folding or column scrolling.

Planning **Panels.** The only panel affected is the table panel being modified.

Reports. Not affected.

Data Required. Maximum field width of the column being changed.

Gathering Information. To determine the maximum field width, examine the table panel or the assisted-entry panel for the field represented by the column.

Modifications

1. Select **Panel update** on the Panel Modification Facility options panel.
2. Type the name of the panel on BLM8CU00.
3. On BLM8CU80, select **Externals**. The panel you requested appears in update mode.
4. Issue the **FIELD SHOW** command to display the attribute bytes. The control information for each column is contained in the attribute byte indicated by a **%** on the left side of the column.
5. Issue **AT** twice at the same location (left or right side of the column).
6. Move the cursor to the left or right to change the column width.
7. Issue **MOVEA**.
8. Issue the **CONTROL** command for the column.
9. On BLM8CU83, select **Data collection processing**.

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10. Change the maximum field width for the field being displayed, if necessary. It must be equal to or greater than the actual width of the column on the panel.
11. Use the **MOVEA** and **AT** commands to rearrange the remaining columns and headings as required.
12. Type **end,end,end** and press **Enter**.
13. On BLM8CU80, select **File**.

Testing Modifications

1. Type the name of the panel on BLM8CU00.
2. On BLM8CU80, select **Test**.
3. On BLM8CT00, change the panel name to that of the panel calling the table panel or to the name of the Primary Options Menu (**BLG0EN10** for the System application, **BLG0EN20** for the Management application).
4. Type **CREATE** or **INQUIRY** in the **Create/inquiry** field.
5. Press **Enter**.
6. On the Primary Options Menu or other calling panel, start a function that displays the table panel (such as the **SEARCH** command).
7. Verify the display on the table panel (using scrolling or folding, if needed).
8. End panel test.

Removing a Column

This checklist describes the steps required to remove a column from a table panel.

Planning **Panels.** Identify the table panel that is to be modified.

Reports. Not affected.

Data Required. None.

Gathering Information. None.

Modifications

1. Select **Panel update** on the Panel Modification Facility options panel.
2. Type the name of the panel on BLM8CU00.
3. On BLM8CU80, select **Externals**. The panel you requested appears in update mode.
4. Issue **FIELD SHOW** to display the attribute bytes for the panel.
5. Move the cursor to the attribute byte indicated by a **%** on the left side of the column to be removed and issue **AT**.
6. Move the cursor to the attribute byte on the right side of the column to be removed and issue **AT**.
7. Issue the **BLANKA** command to clear the column and delete control information.

8. Issue **FIELD OFF**.
9. Use the **MOVEA** and **AT** commands to rearrange the remaining columns and headings as required.
10. Type **end** and **Enter**.
11. On BLM8CU00, select **File**.

Testing Modifications

Testing depends on which kind of table panel you update. Generally, the following steps are required.

1. Type the name of the panel on BLM8CU00.
2. On BLM8CU80, select **Test**.
3. On BLM8CT00, change the panel name to that of the panel calling the table panel or to the name of the Primary Options Menu (BLG0EN10 for the System application, BLG0EN20 for the Management application).
4. Type either **CREATE** or **INQUIRY** in the **Create/inquiry** field.
5. Press **Enter**.
6. On the Primary Options Menu or other calling panel, start a function that displays the table panel (such as the **SEARCH** command).
7. Verify that the table panel no longer contains the column removed.
8. End panel test.

Justifying a Field and Suppressing a Character

This checklist describes the steps required to change the justification of a field on a table panel. It also describes how to suppress a character in a field on a table panel.

Planning **Panels.** The only panel affected is the table panel being modified.

Reports. Not affected.

Data Required. None.

Gathering Information. None.

Other Considerations. Decide whether you want to left justify or right justify the field. (Left justification is the default when you create a new panel.) Also decide what character you want to suppress.

Modifications

1. Select **Panel update** on the Panel Modification Facility options panel.
2. Enter the name of the table panel for update on BLM8CU00.
3. On BLM8CU70, select **Summary**.
4. On BLM1TSU8, the Control Line Summary panel, issue the **UPDATE** line command for the field you want to justify or suppress a character.
5. Select **Data display processing**.
6. Change the **Column justification** to **RIGHT** for right justification or to **LEFT** for left justification.

Checklist for Modifying Table Panels

7. If you also want to suppress a character, type that character in the **Suppress character** field.
8. Type **end,end,end** and press **Enter**.
9. File the panel.

Testing Modifications

1. Enter the name of the panel on BLM8CU00.
2. Select **Test**.
3. In the **Panel name** field on BLM8CT00, change the panel name to that of the panel calling the table panel or to the name of the Primary Options Menu (**BLG0EN10** for the System application, **BLG0EN20** for the Management application).
4. Enter **CREATE** in the **Create/inquiry** field.
5. Press **Enter**.
6. On the Primary Options Menu or other calling panel, start a function that displays the table panel for update.
7. Type valid data in the field you changed, and press **Enter**.
8. Make sure the field is justified as you indicated.
9. Type the character you identified as the suppression character in the field with valid data. Press **Enter**.
10. Make sure only the valid data appears in the field; the suppression character should not appear.
11. End panel test.

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Checklists for Control Panels

Because control panels are used so many different ways, they are often part of the modification of other kinds of panels. The checklists presented here represent both straightforward modifications to control panels themselves and more elaborate tasks involving several different kinds of panels, including control panels. See “Creating a Control Panel” on page 160 for an introduction to control panels.

Creating a Control Panel That Adds Data

You can add data to a record as it is created or to a search argument as it is built. Both tasks involve creating a control panel that identifies the data to be added and adds it to the record or search argument automatically (as part of file processing, for example).

This checklist describes the steps required to automatically add data to a record. You can use either of two techniques to accomplish this task:

1. Use a program exit to add data from another record (see “Moving Data from One Record to Another” on page 374).
2. Use a control panel to add up to 30 bytes of data to a record.

This checklist demonstrates adding data by means of a control panel rather than a program exit.

The data you can add to a record or search argument includes s-words, p-words, and values, or predefined patterns that represent data in the user’s profile. (For the list of predefined patterns, see “Predefined Validation Patterns” on page 201.)

Note: Although a validation pattern for a data-entry field can allow up to 64 bytes of data including a p-word, the cognizing process only deals with the first 16 or 32 bytes of data. For example, if a user enters more than 16 or 32 characters in the **Reported by** field, only the first 16 or 32 characters are cognized in the record. The validation pattern in the control panel can only be up to 14 or 30 characters in length, including the brackets used to enclose it.

Planning

Panels. You need the following panels:

- The control panel
- A panel that calls the control panel
- A message panel (optional) and associated help panel

Reports. Not affected.

Data Required. The following data is required:

- The s-word index and prefix index of the data to be added

- A name for the control panel
- The name of the calling panel
- The name of a target panel

Gathering Information. Refer to the panel flows to determine where to call the control panel. Control panels that add data are called wherever the File option can be selected for records. You can modify one of these control panels, or you can copy one of these control panels rather than create a new one. A control panel is used for various purposes. In this task, it adds data; therefore, each control line in the panel should be an **ADD** line, except the last. The last control line, which sets the target panel to the next panel in the flow and calls one of the panel processor function codes, is a **FLOW** control line.

Other Considerations. You can change the inquiry panels so that the user can search on the data added to the record. The information to be added must be defined in the dictionary. If you are adding specific values (such as **STAC/OPEN**), you might have to update the dictionary before proceeding; you must determine and define the s-word and p-word indexes to be added before building the control panel.

Modifications

1. Select **Panel update** on the Panel Modification Facility options panel.
2. Type the name of your new control panel on BLM8CU00.
3. On BLM8CU60, select **Abstract**.
4. On BLM8CU61, issue the **CONTROL** command.
5. Type the **INSERT** line command for the appropriate control line and press **Enter**. When you create a new control panel, the default control line is a FLOW line. This control line belongs at the end of the control panel, so be sure to insert a new line above the FLOW line.
6. On BLM8CU63, select **Control flow processing**.
 - a. On BLM8CU6A, make sure the **Target panel** fields are blank if you want the control lines following this control line to be run. Otherwise, set the **True target panel** field to the next panel in the flow.
 - b. If this control line ends a dialog, type **YES** in the **Dialog end** field.
 - c. Type **ADD** in the **Control line type** field.
 - d. Delete the Function code index.
 - e. Type **end** and press **Enter**.
7. On BLM8CU63, select **Control flow processing**.
 - a. On BLM8CU6B, type the s-word index, the prefix index, or both, of the data to be added.
 - b. Type **YES** in the Cognize response field if you want this data to be searchable.

- c. Type **end,end** and press **Enter**. The Function Line Summary (BLM1TSCU) reappears.
8. Type the **INSERT** line command again to add more control lines, repeating steps 6 and 7 for each line you add. When you reach the last ADD control line, type the **UPDATE** line command for the last control line (which should be a FLOW). Change the name of the target panel from the default to the name of the panel you identified as the target.
9. Type **end,end** and press **Enter**.
10. On BLM8CU60 select **File**.

For a new control panel, you must modify the panel that calls the control panel.

1. Type the name of the panel on BLM8CU00.
2. Select **Externals**.
3. Issue the **CONTROL** command for the field or selection.
4. Select **Panel flow processing**.
5. Change the **Target panel** field to the name of the control panel.
6. Check other panel flow processing fields to see if you are altering other processing, such as dialogs. You must reflect these changes in the control panel you are creating.
7. Type **end,end,end** and press
8. File the panel

If you want to issue a message when the data is added to the record, you can create a new message panel. See “Creating a Message Panel” on page 341 for detailed instructions. Note that a message panel should have a help panel associated with it.

Testing Modifications

1. Type the control panel name on BLM8CU00.
2. On BLM8CU60, select **Test**.
3. Type the name of the panel calling the control panel.
4. Type either **CREATE** or **INQUIRY** in the **Create/inquiry** field.
5. Call the control panel by replying to the panels.
6. Make sure the proper panel is displayed.
7. Issue the **VIEW INTERNALS** command to determine whether the data was added correctly. If data was not added correctly:
 - a. Make sure the control panel is called. Name a message panel on the last control line that sets the target, then restart the test. If the message is not issued, the control panel is not being called. Check the calling panel to make sure that the control panel is set as the target and that any other Panel flow processing field is not overriding the target panel.

- b. If the control panel is being called and the data is not being added, make sure the control line types are **ADD**. Issue **VIEW INTERNALS** before returning to the Panel Test Entry panel. Remember that dialog end returns to that panel, if necessary. Once you return, the information collected during panel test is gone.
8. End panel test.
9. If a message panel was added to the last control line for testing, remember to remove its name from the control panel.
10. When ready, copy the modified panels to a read panel data set for subsequent testing. Create a record that contains the data to add. If the field is cognized, you can search the record and retrieve the data. If not, check the control panel to make sure the **Cognize response** field is **YES**.

If you want to create a record that contains all fields, then request the record for display and issue the **VIEW INTERNALS** command. Make sure the s-words and p-words are not used elsewhere in the record.

Creating a Control Panel That Tests for Data

This checklist describes the steps required to create a control panel that tests for the presence of data in the current record. The checklist presents a fairly straightforward situation. See “Creating a Control Panel” on page 160 for an introduction to creating control panels.

Planning

Panels. You need the following panels:

- The control panel
- A panel that calls the control panel
- A message panel (optional) and associated help panel

Reports. Not affected.

Data Required. The names of the following panels are required:

- Control panel
- True target
- False target
- Panel to be changed to call the control panel
- Message panel, if you use one

In addition, the s-word or p-word indexes to be tested are required.

Gathering Information. Examine the panel flows to determine where to place the control panel. Also, examine the panel containing the data to be tested (field name) to determine the s-word or prefix index.

Other Considerations. To test for a specific value (such as **PRII/01**), you might need to add the p-word and validation to the dictionary. In the dictionary, enter the **FIND** command for the p-word to be tested to determine whether the data to be tested already exists. If it does not, you must add the p-word and value to the dictionary before beginning this change. See “Using the Dictionary” on page 183.

Modifications

1. Select **Panel update**, from the Panel Modification Facility options panel.
2. On BLM8CU00, type the name of the new control panel to be created.
3. On BLM8CUA0, select **Control**.
4. Fill in the abstract information on the model panel and issue the **CONTROL** command.
5. On BLM1TSCU, enter the **INSERT** line command above the default FLOW control line to add your own control line.
6. On BLM8CU63, select **Control flow processing**.
7. On BLM8CU6A, do the following:
 - a. Change the **Control line type** to **TEST**.
 - b. If this panel ends a dialog, set the **Dialog end** field to **YES**.
 - c. Type the true or false target panel names, or both, if applicable.
 - d. If you want to end a dialog if the test is true, and not end it if the test is false, you need two control lines.
 - e. Clear the **Function code index** field.
 - f. If you want to issue a message for either the true or false test result, type the name of the message panel.

Note: If you specify a message panel along with both true and false target panels, the message appears on the panel that gets control next. If you want the message to appear on only the true or false target panel, you need two control lines.

- g. Type **end** and press **Enter**.
- h. On BLM8CU63, select **Test data processing**.
- i. Type the s-word index, the prefix index, or both, to be tested. If you specify both, the s-word is tested for first. If it is found, the test is true even if the p-word is not present.

Note: Repeat steps 5 through 9 for each line. On the last line, use the **UPDATE** line command on the default **FLOW** control line to specify the panel to be displayed or processed next.

- j. Type **end,end,end** and press **Enter**.
- k. File the panel.

Testing Modifications

1. On BLM8CU00, type the new control panel name.
2. On BLM8CU60, select **Test**.
3. On BLM8CT00, enter the application's Primary Options Menu name (**BLG0EN10** for the System application, **BLG0EN20** for the Management application). Enter **INQUIRY** in the **Create/inquiry** field.
4. Respond to the panels until the data to be tested is entered. Proceed through the panels until the control panel is called.

5. Enter the **VIEW INTERNALS** command to make sure you are testing for the right data.
6. Type **end** and press **Enter**.
7. Copy the new table panel to a read panel data set. See “Copying and Deleting Panels” on page 179 for more information.

Creating a Control Panel That Calls a TSP

This checklist describes the steps required to create a control panel that calls a TSP. The checklist presents a fairly straightforward situation. See “Creating a Control Panel” on page 160 for an introduction to creating control panels. Refer to the *Tivoli Information Management for z/OS Terminal Simulator Guide and Reference* for complete information about TSPs.

Planning **Panels.** The only panel requiring change is the control panel itself.

Reports. Not affected.

Data Required. The names of the following panels are required:

- Control panel
- The TSP that this control panel calls
- True target that calls this control panel

Gathering Information. Function code **002B** calls a TSP.

Other Considerations. None.

Modifications

1. Select **Panel update**, from the Panel Modification Facility options panel.
2. On BLM8CU00, type the name of the new control panel to be created.
3. On BLM8CUA0, select **Control**.
4. Fill in the abstract information on the model panel and issue the **CONTROL** command.
5. On BLM1TSCU, enter the **UPDATE** line command on the default FLOW control line.
6. On BLM8CU63, select **Control flow processing**.
7. On BLM8CU6A, do the following:
 - a. Change the **Function code index** to 002B.
 - b. Type the name of the panel that calls this control panel in the **True target panel** field.
 - c. Type the name of the TSP in the **Program exit/TSP name** field.
 - d. Type **end,end,end,end** and press **Enter**.
 - e. File the panel.

Testing Modification

1. On BLM8CU00, type the name of the new control panel name.
2. On BLM8CUA0, select **Test**.

3. On BLM8CT00, type the application's Primary Options Menu name (**BLG0EN10** for the System application, **BLG0EN20** for the Management application). Type **Inquiry** in the **Create/Inquiry** field.
4. Respond to the panels until the data to be tested is entered. Proceed through the panels until the control panel and TSP are called.
5. Type the **VIEW INTERNALS** command to make sure you are testing for the right data.
6. Type **end** and press **Enter**.
7. Copy the new table panel to a read panel data set. See "Copying and Deleting Panels" on page 179 for more information.

Modifying Control Panels

The checklists that follow illustrate different kinds of control panel modifications:

- Deleting a control line
- Creating a multiple test group
- Changing the panel flow based on authorization
- Data test and subsequent add
- Data test and message display
- Modifying a control panel for conditionally required fields

Deleting a Control Line

This checklist describes the steps required to delete a control line from a control panel.

Planning

Panels. Identify the control panel to be modified. If the control line to be deleted is the only reference to the target panel (if specified), you might want to delete the target panel.

Reports. Not affected, unless a set of panels that collects information used by reports is deleted.

Data Required. The name of the control panel to be modified.

Gathering Information. Run the Panel Content report to print the control panel before you start this task.

Other Considerations.

- If the control line begins or ends a multiple test group, set the multiple test indicators in the previous or subsequent control line.
- Deleting a control line from a control panel can cause unpredictable results, depending on the purpose of the control line being deleted; for example:
 - If the control line type is **ADD**, the information associated with it is no longer added. A function such as parent/child record processing might require the information being added. Refer to the dictionary to determine whether processing code refers to the s-word or p-word being deleted.
 - If the control line type is **TEST**, make sure that subsequent control lines are not affected. In addition, check the target panels referenced by the **TEST** to determine if they call a function. Remember that,

when you delete a control line that does a **TEST** and sets a target panel, you might be creating an orphan panel (a panel that is no longer referenced).

- If the control line type is **FLOW**, make sure that subsequent control lines are not affected. In addition, check the target panels referenced to determine if they call a function. Changing the panel flow for **TEST** control lines, could create an orphan panel.

Modifications

1. Select **Panel update** on the Panel Modification Facility options panel.
2. Type the name of the panel on BLM8CU00.
3. On BLM8CU60, select **Abstract**.
4. On BLM8CU61, issue the **CONTROL** command.
5. On BLM1TSCU, issue the **DELETE** line command for the control line to be deleted.
6. Check Multiple test begin and end, and make any necessary adjustments to remaining control lines.
7. If the control line you have deleted was the last line in the panel, make sure the previous control line sets a target panel.
8. Type **end,end** and press **Enter**.
9. On BLM8CU60 select **File**.

Testing Modifications

1. Request the panel for update.
2. Select **Test**.
3. Enter the name of the panel that calls the control panel. If the control panel does a test, begin a dialog that allows collection of the data to be tested.
4. Make sure the control panel still runs properly based on the purpose of the control panel (test, add data, and so on).
5. End panel test.

Creating a Multiple Test Group

This checklist describes the steps required to set up a multiple test group. Read the checklist for “Creating a Control Panel That Tests for Data” on page 310 and the description of control panels in “Creating a Control Panel” on page 160 before you begin this task.

Planning

Panels. Identify the target panels to be set for the tested data, as well as the control panel to be updated.

Reports. Not affected.

Data Required.

- The control panel to be updated
- The s–word or prefix indexes to be tested
- The target panels for test results
- The calling panel, if you are using a new control panel

Gathering Information. Refer to the panel flows to determine where to add a new control panel and the panels to be set when the tests are performed.

Other Considerations.

1. As soon as a target panel is set, you leave the multiple test group.
2. As soon as a true condition is found, you leave the multiple test group. A true condition can occur as a result of a test, a TSP running, or a return code of zero from a program exit. If you want to remain in the multiple test group after a true condition is set, set **Apply Not Logic** to **YES** for the appropriate control line.

Also, see “Creating a Control Panel That Tests for Data” on page 310.

Modifications

1. Select **Panel update** on the Panel Modification Facility options panel.
2. Type the name of the panel on BLM8CU00.
3. On BLM8CU60, select **Abstract**.
4. Type **CONTROL**.
5. On BLM1TSCU, issue the **UPDATE** or **INSERT** line command depending on the control panel being updated and the requirements of the multiple test group.
6. On BLM8CU63:
 - a. Fill in fields as indicated in “Creating a Control Panel That Tests for Data” on page 310 for Control flow processing.
 - b. Select **Test data processing**.
7. On BLM8CU64, if this is the first control line of a multiple test, type **YES** in the **Begin multiple test** field. If it is the last, type **YES** in the **End multiple test** field.
8. Enter **end,end,end**.
9. On BLM8CU60 select **File**.

Testing Modifications

See “Creating a Control Panel That Tests for Data” on page 310.

Changing the Panel Flow Based on Authorization

When an authorization code is associated with a selection or field on a panel, the Tivoli Information Management for z/OS panel processor checks to make sure the user’s privilege-class record includes that authorization code. If it does not, the user is not allowed to use that selection or field.

You can set up a control panel to test authorization codes and change the panel flow based on the authority level of the user’s privilege class. Add a control panel (or update an existing one) to perform multiple tests, and set a target panel according to the results of the tests.

This checklist describes the steps required to change the panel flow based on whether a user’s privilege class includes the authorization code associated with a field or selection.

Planning

Panels. Identify any control panels to be modified and the target panels to be tested for an authority code.

Reports. Not affected.

Data Required.

- The control panel to be updated, if you are modifying existing controls
- The name of the calling panel, if you are creating a new control panel
- The authorization codes to be verified
- The target panel for the results of the test.

Gathering Information.

- Refer to the panel flows to determine where to insert a new control panel and the panels you want to set as targets when the tests are performed.
- Locate the authorization codes by displaying the Control Line Summary for the panel you are concerned with.

Other Considerations. None.

Modifications

1. Select **Panel update** on the Panel Modification Facility options panel.
2. Type the name of the control panel on BLM8CU00.
3. On BLM8CU60 select **Abstract**.
4. On the Externals update panel, type or update the abstract for the control panel, and issue the **CONTROL** command.
5. On BLM1TSCU, use the **INSERT** line command to create a new control line.
6. On BLM8CU63, select **Control flow processing**.
7. On BLM8CU6A, do the following:
 - a. Change the new control lines type from **FLOW** to **TEST**.
 - b. Clear the **True** and **False target panel** fields and the **Function code** field.
 - c. Type the authorization code to be tested for.
 - d. Enter **end**.
8. On BLM8CU63, select **Test data processing**.
9. On BLM8CU64, type **YES** in the **Begin multiple test** field.
10. Type **YES** in the **Apply NOT logic** field to skip the next **FLOW** control line if the user is not authorized to use it. You apply NOT logic because, when the target panel is blank, the control panel processor normally keeps control within the multiple test group until it finds a true condition. You want control to pass to the **FLOW** line following the multiple test group on a false condition. See “Creating a Control Panel” on page 160 for further discussion of the logic of multiple test groups.
11. Type **end,end** and press **Enter**.

12. On BLM1TSCU, issue the **INSERT** line command next to the **TEST** control line to create a new **FLOW** control line.
13. On BLM8CU63, select **Control flow processing**.
14. On BLM8CU6A, enter control flow information for a true test result, as follows:
 - a. In the **True target panel** field, type the name of the panel you want to display when the user is authorized.
 - b. Name a program exit to do additional processing, if any.
 - c. Type **end** and press **Enter**.
15. If you are testing for only one authorization code, type **YES** in the **End multiple test** field before entering **end**. Otherwise, repeat steps 5 on page 316 through 14 (omit the **YES** in the **Begin multiple test** field) for each authorization code to be tested. For the last **FLOW** control line, type **YES** in the **End multiple test** field on BLM8CU6A.
16. Enter **end**.
17. On BLM1TSCU, issue the **UPDATE** line command by the default **FLOW** control line.
18. On BLM8CU63, select **Control flow processing**.
19. On BLM8CU6A, in the **True target panel** field, type the name of the panel you want to display when the user is not authorized.
20. Type **end,end,end** and press **Enter**.
21. On BLM1TSCU, insert one more **FLOW** control line that contains the 000D function code and has no target panels. This cancels the dialog if anything goes wrong.
22. Type **end,end,end** and press **Enter**.
23. File the panel.

Testing Modifications

1. Select **Test** on BLM8CU60, and start your test at the application's Primary Options Menu (**BLG0EN10** for the System application, **BLG0EN20** for the Management application).
2. Make sure that all panel flows based on the authorization codes your control line tests for complete as expected.

Data Test and Subsequent Add

This checklist describes the steps required to test for the presence or absence of data and, depending on the test results, subsequently add data. This function enables the user to add unique data to a record when a specific condition is found.

In this checklist, the first control line performs a test, the subsequent control lines add data, and the last control line directs the flow.

Planning See "Creating a Control Panel That Adds Data" on page 307 and "Creating a Control Panel That Tests for Data" on page 310 for planning information.

Other Considerations.

- The type of information added depends on the purpose of the data being tested. For example, you can test for a status of OPEN, and priority 01. If these conditions are met, the record can be automatically assigned to a specific person when the record is filed. Or, if the status is CLOSED the record can be assigned to a specific person, such as a change management coordinator, for review.
- A control panel can contain a variable number of control lines, with each control line designed to perform a specific function, such as an ADD or TEST. In effect, one control line can prevent subsequent control lines from being processed or can ensure that subsequent control lines are processed. Thus, the first line of a control panel can perform a TEST, and if true or false either cause an exit from the control panel (by setting a true or false target) or pass control to a subsequent control line.

Modifications

1. Select **Panel update** on the Panel Modification Facility options panel.
2. Type the name of the panel on BLM8CU00.
3. On BLM8CU60, select **Abstract**.
4. On BLM8CU61, enter the **CONTROL** command.
5. On BLM1TSCU, follow the steps for “Creating a Control Panel That Tests for Data” on page 310 for a TEST control line. Set the false target to leave the panel if the data is not located.
6. Follow the steps for “Creating a Control Panel That Adds Data” on page 307 or “Defining a Conditionally Required Field” on page 261, for an ADD control line and FLOW control line.
7. Type **end,end** and press **Enter**.
8. On BLM8CU60, select **File**.

If this is a new control panel, you must update a panel to call the control panel. The panel to update depends on the function of the control panel and when you want the information added.

Testing Modifications

Only one method for testing this modification is described here. These steps can vary based on the purpose and design of the control panel. For the purpose of illustration, the control panel being tested is called when a **File** selection is made and checks a record for priority 01. If that priority has been entered, a specific person is automatically assigned.

1. Copy the control panel to a read panel data set. If a panel was changed to call the control panel, make sure it is also copied to a read panel data set.
2. Make sure that the control panel is called at the appropriate time. This depends on where the panel is used. In our example, it is called when the record is filed.
3. Create a record with a status of OPEN and a priority of 01.

4. File the record.
5. Display the record.
6. Issue **VIEW INTERNALS** to make sure the data was added properly. In our example, the assignee name appears. If the data is not added:
 - a. Record the s-word index associated with the **Priority** field.
 - b. Request the control panel for update and display the control line that performs the test. Make sure the s-word index is the same.
 - c. Check the target panels for this control line and make sure a program exit is not started when the data is located.
 - d. Check subsequent control lines and make sure that one adds the assignee name. Also, make sure that the assignee name s-word and prefix indexes are correct.

Data Test and Message Display

This checklist describes the steps required to modify a control panel to test for the presence of data in the current record and to issue a message. Control panels let you display a message when a target panel is set.

This task is part of “Defining a Conditionally Required Field” on page 261; see that checklist before beginning this task.

Planning

Panels. You need the names of the control panel to be changed, the true and false target panels, and the message panel. If you are not using an existing message, see “Creating a Message Panel” on page 172 for information on creating a message panel.

Reports. Not affected.

Data Required.

- Names of the following panels:
 - Control panel
 - True target
 - False target
 - Message panel
 - Panel to be changed to call the control panel (if this is a new control panel)
- The s-word index or prefix index for the data element to be tested. This function does not support s-words associated with freeform text entries.

Gathering Information.

- Examine the panel flows to determine where to add the control panel (if new).
- Examine the panel containing the data (field name) to be tested to determine the s-word index or prefix index.

Other Considerations. To test for a specific value, such as **PRII/01**, you might need to add the p-word and validation pattern to the dictionary. Use the **FIND** command to determine whether it already exists. For example, add

a validation pattern for **PRII/01** to the dictionary as a p-word of **PRII/** and a validation pattern of **<01>**. The p-word and validation pattern must be added before beginning this modification.

Modifications **Modifying the Control Panel:**

1. Copy an existing control panel or create a control panel.
2. Select **Panel update** on the Panel Modification Facility options panel.
3. Type the name of the panel on BLM8CU00.
4. On BLM8CU60, select **Abstract**.
5. On BLM8CU61, enter the **CONTROL** command.
6. On BLM1TSCU, enter either the **UPDATE** or **INSERT** line command on the appropriate control line, depending on the current control panel contents.
7. On BLM8CU63, select **Test data processing**.
8. On BLM8CU64, type the s-word or prefix index that is to be tested.
9. Type **end** and press **Enter**.
10. On BLM8CU63, select **Control flow processing**. Repeat the following steps for each control line or test. Follow these steps, too, to add a FLOW control line for the test that does not lead to the message.
 - a. Make sure the control line type is TEST and the function code is 0000.
 - b. Type the names of true and false target panels according to the logic you have set up for the tests. (If you want to display the message for a true or false condition but not for both, create two control lines and name the message panel in the one you have chosen to display it.)
 - c. Add the name of the message panel.
 - d. Type **end,end,end** and press **Enter**.
11. On BLM8CU60, select **File**.

Modifying the Panel That Calls the Control Panel:

1. Request the panel for update.
2. Select **Externals**.
3. Issue **CONTROL** for the appropriate field or selection.
4. Specify the control panel name in the target panel.
5. Type **end,end** and press **Enter**.
6. File the panel.

Testing Modifications

1. Request the panel for update.
2. Select **Test**.

3. Type the name of the panel that collects the data to be tested or a panel prior to that panel, such as the Primary Options Menu (**BLG0EN10** for the System application, **BLG0EN20** for the Management application).
4. Respond to the panel sequence until you enter the data to be tested.
5. Proceed through the panels until the control panel is called.
6. Depending on what you tested and what was entered, one of two panels appears. If the incorrect panel appears, check the s-word index or prefix index by issuing the **VIEW INTERNALS** command (to make sure you are testing for the right data). Then, check the control panel to make sure you are testing for the right data.
7. A message appears if you set up a message for the panel.
8. End panel test.

Modifying a Control Panel for Conditionally Required Fields (I)

This checklist describes the steps to modify a control panel that requires one or more fields to be filled in after a specific data-entry field is filled in. Two specific cases are involved when dealing with data-entry panels that use conditionally required field processing.

- The first case deals with data-entry panel flow where the user is always returned from the data-entry panel to the panel on which the dialog was begun.
- The second case deals with data-entry panels that can return the user to a panel other than the one on which the dialog was begun. See “Modifying a Control Panel for Conditionally Required Fields (II)” on page 326 for an example checklist covering this case.

The unique data-entry control information that dictates the first case is as follows:

- Dialog end: **NO**
- Dialog end override: **NO**
- Target panel is specified

This example defines a scenario that states that if the **Tracked by** field has data in the Problem Status panel, the **Tracker phone** and **Tracker department** fields are required. The panel might have other required fields, as well; however, they should be unaffected by this modification.

In this example, the Problem Status dialog always begins on panel BLG0BU00, the Problem Summary panel. When the dialog is ended, the user is always returned to the Problem Summary panel. There is no need to cause an override of the dialog target, as you are always going to end up on the panel that started the dialog. When one or more conditionally required fields are not satisfied on the data-entry panel for status entry (BLG0B200), the user remains on that panel until all conditionally required fields are entered. If no conditionally required fields are entered, then the dialog is ended and the user moves on to panel BLG0BU00.

Planning **Panels.** The panels required for this change are:

- The data-entry panel containing the fields. In this example, it is BLG0B200.
- A control panel, locally assigned. In this example, it is a new panel named TESTTEST.

- A message panel, locally assigned. In this example, it is a new panel named MSG9AG01.

Reports. Not affected.

Data Required. The s-words associated with the fields to be tested. Normally, you look at the control information for the fields in question by issuing the **CONTROL** command from the Externals Update panel for the data-entry panel.

For this example, the s-word indexes are:

- 0B5C - Tracked by
- 0B30 - Tracker phone
- 0B9E - Tracker department.

Gathering Information. None, for this example.

Other Considerations. None, for this example.

Modifications The panel modifications fall into separate subtasks:

- Creating a message panel (and a help panel to back it up)
- Modifying the data-entry panel
- Creating a control panel.

Creating the Message Panel:

1. Select **Panel update** on the Panel Modification Facility options panel.
2. Type the name of the new panel (**MES9AG01**) on BLM8CU00.
3. On BLM8CUA0, select **Message**.
4. Update the text of the model message panel.
5. Type **end** and press **Enter**.
6. File the panel.

See “Creating a Message Panel” on page 172 for more information about creating a message panel, and about the need for a help panel as well.

Modifying the Data-Entry Panel:

1. Select **Panel update** on the Panel Modification Facility options panel.
2. Type the name of the panel (**BLG0B200**) on BLM8CU00.
3. On BLM8CU70, select **Null reply**.
4. Select **Panel flow processing**.
5. Note that the **Dialog end** field is set to **YES**.
6. Type the name of the control panel (**TESTTEST**) as the **Null target** field, and change **Dialog end** to **NO**.
7. Type **end,end** and press **Enter**.
8. File the panel.

Creating the Control Panel:

1. Select **Panel update** on the Panel Modification Facility options panel.
2. Enter the new panel name (**TESTTEST**) on BLM8CU00.
3. On BLM8CUA0, select **Control**.
4. Type over the abstract text on the model panel, supplying a description of the new panel and its purpose. The basic flow for this example is as follows:
 - a. Test for the presence of data in the **Tracked by** field. If found, go to the next control line. If not found, end the dialog and set the target panel to BLG0BU00.
 - b. Test for the presence of data in the **Tracker phone** field. If found, go to the next control line. If not found, issue a message and set the target panel to BLG0B200.
 - c. Test for data in the **Tracker department** field. If found, go to the next control line. If not found, issue a message and set the target panel to **BLG0B200**.
 - d. Set the panel to **BLG0BU00** and issue a dialog end.
5. From the model panel, issue the **CONTROL** command. The Function Line Summary panel, BLM1TSCU, appears. Issue the **INSERT** line command on the line above the **FLOW** control line to insert a new control line.
6. On BLM8CU63, select **Control flow processing**.
7. On BLM8CU6A, do the following:
 - a. Change the **Control line type** to **TEST**.
 - b. Type **0000** in the **Function code** field.
 - c. Specify **Dialog end** is **YES**.
 - d. Clear the **True target** field.
 - e. Type **BLG0BU00** in the **False target panel** field.
 - f. Leave all other fields at their default values.
 - g. Type **end** and press **Enter**.
8. On BLM8CU63, select **Data collection processing**.
9. On BLM8CU6B, do the following:
 - a. Specify **Replace previous reply** as **YES**.
 - b. Leave all other fields at their default values.
 - c. Type **end** and press **Enter**.
10. On BLM8CU63, select **Test data processing**.
11. On BLM8CU64, type **0B5C** in the **Structured word index** field. Leave all other fields at their default values.
12. Type **end** and press **Enter**. The first control line is now set to test for data in the **Tracked by** field on BLG0B200. If data (in the form of the

s-word represented by the 0B5C index) is found, control will pass to the next control line because you did not set a true target panel. If data is not found, the dialog will end because you set a false target panel.

13. Type **end** and press **Enter**. The table display in panel BLM1TSCU now contains two control lines.
14. Issue the **INSERT** command on the line with your new control line.
15. On BLM8CU63, select **Control flow processing**.
16. On BLM8CU6A, do the following:
 - a. Change the **Control line type** to **TEST**.
 - b. Type **0000** in the **Function code** field.
 - c. Clear the **True target** field.
 - d. Type **BLG0B200** in the **False target panel** field.
 - e. Type **MES9AG01** in the **Message** field.
 - f. Leave all other fields at their default values.
 - g. Type **end** and press **Enter**.
17. On BLM8CU63, select **Test data processing**.
18. On BLM8CU64, type **0B30** in the **Structured word index** field.
19. Type **end** and press **Enter**. This control line is now set to test for data in the **Tracker phone** field on BLG0B200. If data is found, control will pass to the next control line because you did not set a true target panel. If data is not found, the dialog will end because you set a false target panel.
20. Type **end** and press **Enter**. Panel BLM1TSCU shows three control lines.
21. Issue the **INSERT** line command, by your second control line.
22. On BLM8CU63, select **Control flow processing**.
23. On BLM8CU6A, do the following:
 - a. Change the **Control line type** to **TEST**.
 - b. Type **0000** in the **Function code** field.
 - c. Clear the **True target** field.
 - d. Type **BLG0B200** in the **False target panel** field.
 - e. Type **MES9AG01** in the **Message** field.
 - f. Leave all other fields at their default values.
 - g. Type **end** and press **Enter**.
24. On BLM8CU63, select **Test data processing**
25. On BLM8CU64, type **0B9E** in the **Structured word index** field. Leave all other fields at their default values.
26. Type **end** and press **Enter**. This control line is now set to test for data in the **Tracker department** field on BLG0B200. If data is found,

control will pass to the next control line because you did not set a true target panel. If data is not found, panel BLG0B200 will be redisplayed with the single-line message from MES9AG01.

27. Type **end** and press **Enter**. Panel BLM1TSCU shows four control lines.
28. Issue the **UPDATE** line command by the **FLOW** control line.
29. On BLM8CU63, select **Control flow processing**.
30. On BLM8CU6A, do the following:
 - a. Set the **Function code** to 000A. (See “Function Code Indexes” on page 186 for more information about this index.)
 - b. Type **BLG0BU00** in the **True target panel** field.
 - c. Type **YES** in the **Dialog end** field.
 - d. Leave all other fields at their default values.
 - e. Type **end** and press **Enter**.
 - f. To set **Replace previous reply** to **YES**, repeat steps 7 and 8. This control line is now set to end the test and end the dialog.
 - g. Type **end** and press **Enter** for the last control line. Check the Function Line Summary to make sure all four control lines are complete.
 - h. Type **end,end** and press **Enter** to return to the Control Panel Update panel.
 - i. File the new control panel.

Testing Modifications

1. Request the control panel for update.
2. On BLM8CU60, select **Test**.
3. On BLM8CT00, type **BLG0BU00** in the **Panel name** field and **CREATE** in the **Create/inquiry** field.
4. On BLG0BU00, select **Status**.
5. On BLG0B200, fill in only the required fields, if any. Then fill in the **Tracked by** field and then type **end** and press **Enter**. You should be on panel BLG0B200 with your message displayed in the single-line message area.
6. Fill in the **Tracker department** field and then type **end** and press **Enter**. You should be on panel BLG0B200 with your message displayed in the single-line message area.
7. Now fill in the **Tracker phone** field and then type **end** and press **Enter**. You should now be on panel BLG0BU00.
8. Type **VIEW INTERNALS** on the command line and verify that you are testing for the right data.
9. Type **end** and press **Enter**.

Modifying a Control Panel for Conditionally Required Fields (II)

This checklist forms the second example of the task of making data-entry fields conditionally required. This section deals with the case of a data-entry panel that may target a panel different from the one on which the dialog was begun. This case usually applies to the data-entry panels that are first displayed to a user during the record create process. This example uses specific fields in a software feature configuration record.

The unique data-entry control information that dictates this example follows:

- Dialog end: NO
- Dialog end override: NO
- Target panel is specified.

This example defines a scenario that states if the **Feature type** field is entered in the Software Feature Entry panel, then the **User Feature ID** field becomes required. (There might be other required fields on the panel, as well; they should be unaffected by your modification.)

In this example, the software feature dialog starts on panel BLG0D203 (the Software Feature Entry panel). When the dialog is ended, the user is normally taken to the Software Feature Summary panel BLG0DU04. In this case, override the dialog target so that the user ends up on the Software Feature Summary panel when the dialog is ended, because the dialog may have begun on a panel other than BLG0DU04. When conditionally required fields are not satisfied, the user remains on panel BLG0D220 until all conditionally required fields are entered, then the dialog is ended and the user moves on to panel BLG0DU04.

See “Modifying a Control Panel for Conditionally Required Fields (I)” on page 321 for more information about this panel type and its features.

Planning **Panels.** The panels required for this change are:

- The data-entry panel containing the fields. In this example, it is BLG0D220.
- A control panel, locally assigned. In this example, it is a new panel named TSTPANEL.
- A message panel, locally assigned. In this example, it is a new panel named EME9SAGE.

Reports. Not affected.

Data Required. The s-words associated with the fields to be tested. Normally, you would look at the control information for the fields in question by issuing the **CONTROL** command from the Externals Update panel for the data-entry panel.

For this example, the s-word indexes are:

- 0C09 - Feature type
- 0CCF - User feature ID

Gathering Information. None, for this example.

Other Considerations. See “Making an Optional Data-Entry Field Required” on page 258 for instructions on that part of this task.

- Modifications** The panel modifications fall into separate sub-tasks:
- Creating a message panel (and a help panel to back it up)
 - Modifying the data-entry panel
 - Creating a control panel

Creating the Message Panel:

1. Select **Panel update** on the Panel Modification Facility options panel.
2. Enter the name of the new panel (**EME9SAGE**) on BLM8CU00.
3. On BLM8CUA0, select **Message**.
4. Update the text of the model message panel.
5. Type **end** and press **Enter**.
6. File the panel.

See “Creating a Message Panel” on page 172 for more information about creating a message panel, and about the need for a help panel as well.

Modifying the Data-Entry Panel:

1. Select **Panel update** on the Panel Modification Facility options panel.
2. Enter the name of the panel (**BLG0D220**) on BLM8CU00.
3. On BLM8CU70, select **Null Reply**.
4. Select **Panel flow processing**.
5. Note that both the **Dialog end** and **Override dialog target** fields are set to YES. Change *both* of these to NO.
6. Change the **Null target** field to **TSTPANEL**.
7. Type **end,end** and press **Enter**.
8. File the panel.

Creating the Control Panel:

1. Select **Panel update** on the Panel Modification Facility options panel.
2. Type the new panel name (**TSTPANEL**) on BLM8CU00.
3. On BLM8CUA0, select **Control**.
4. Type over the abstract text on the model panel, supplying a description of the new panel, and its purpose. The basic flow for this example is as follows:
 - a. Test for the presence of data in the **Feature type** field. If found, process the next control line. If not found, end the dialog and override by going to panel BLG0DU04.
 - b. Test for the presence of data in the **User feature ID** field. If found, process the next control line. If not found, go to panel BLG0D220 and display message EME9SAGE.
 - c. End the dialog and override by setting the target panel to BLG0DU04.

5. From the model panel, issue the **CONTROL** command. The Function Line Summary panel, BLM1TSCU, appears. Issue the **INSERT** line command on the line above the **FLOW** control line to insert a new control line.
6. On BLM8CU63, select **Control flow processing**.
7. On BLM8CU6A, do the following:
 - a. Change the **Control line type** to **TEST**.
 - b. Type **0000** in the **Function code** field.
 - c. Type **YES** and press **Enter** for **Dialog end**.
 - d. Type **YES** and press **Enter** for **Override dialog**.
 - e. Clear the **True target panel** field.
 - f. Type **BLG0DU04** in the **False target panel** field.
 - g. Leave all other fields at their default values.
 - h. Type **end** and press **Enter**.
8. On BLM8CU63, select **Data collection processing**.
9. On BLM8CU6B, do the following:
 - a. Specify **Replace previous reply** as **YES**.
 - b. Leave all other fields at their default values.
 - c. Type **end** and press **Enter**.
10. On BLM8CU63, select **Test data processing**.
11. On BLM8CU64, type **0C09** in the **Structured word index** field. Leave all other fields at their default values.
12. Type **end** and press **Enter**.

The first control line is now set to test for data in the **Feature type** field on BLG0D220. If data (in the form of the s-word represented by the 0C09 index) is found, control will pass to the next control line because you did not set any target panel. If data is not found, the dialog will end because you set a false target panel.
13. Type **end** and press **Enter** for this control line. The table display in panel BLM1TSCU now contains two control lines.
14. Issue the **INSERT** command on the line with your new control line.
15. On BLM8CU63, select **Control flow processing**.
16. On BLM8CU6A, do the following:
 - a. Change the **Control line type** to **TEST**.
 - b. Type **0000** in the **Function code** field.
 - c. Type **BLG0D220** in the **False target panel** field.
 - d. Type **EME9SAGE** in the **Message** field.
 - e. Clear the **True target panel** field.

- f. Leave all other fields at their default values.
- g. Type **end** and press **Enter**.
17. On BLM8CU63, select **Test data processing**.
18. On BLM8CU64, type **0CCF** in the **Structured word index** field. Leave all other fields at their default values.
19. Type **end** and press **Enter**.
This control line is now set to test for data in the **User feature ID** field on BLG0D220. If data is found, control will pass to the panel you specified in the **True target panel** field. (In this case, that field is set to blanks, so control passes to the next control line to be processed.) If no data is found in the **User feature ID** field, the target panel BLG0D220 is redisplayed with the single-line message from EME9SAGE.
20. Type **end** and press **Enter** for this control line. Panel BLM1TSCU shows three control lines.
21. Issue the **UPDATE** line command by the **FLOW** control line.
22. On BLM8CU63, select **Control flow processing**.
23. On BLM8CU6A, do the following:
 - a. Set the **Function code** to **000A**. (See “Function Code Indexes” on page 186 for information about this index.)
 - b. Type **BLG0DU04** in the **True target panel** field.
 - c. Type **YES** for **Dialog end**.
 - d. Type **YES** for **Override dialog target**.
 - e. Leave all other fields at their default values.
 - f. Type **end,end** and press **Enter**.
24. Check the Function Line Summary to make sure all three control lines are complete.
25. Type **end,end** and press **Enter** to return to the Control Panel Update panel.
26. File the new control panel.

Testing Modifications

1. Start PMF panel test at the Management application Primary Options Menu (BLG0EN20) and update a software component record.
2. When the Software Component Summary panel (BLG0DU03) appears, select **7, Feature entry**.
3. On BLG1TSFE, enter the **ADD** line command.
4. On BLG0D220, fill in all required fields, making sure to fill in **Feature type** but not **User feature ID**.
5. Press **Enter**. You should be on panel BLG0D220 with the error message from EME9SAGE displayed on the single-line message area. To continue, correct the feature record by filling in the **User feature ID** field. Press **Enter** or enter **end**. This takes you to panel BLG0DU04.

Modifying Control Panels

6. Fill in all the required fields as you did on BLG0D220, but this time fill in the **User feature ID** field as well.
7. Press **Enter** or enter **end**. You should be on panel BLG0DU04.
8. Fill in all the required fields as you did on BLG0D220, but this time do not fill in the **User feature ID** field.
9. Type **CANCEL** and press **Enter**. You should be on panel BLG0D203.
10. Test both paths on panel BLG0D203. Remember, you cannot file the record when you are in PMF panel test mode.

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Checklists for Selection and Options Panels

Selection and options panels are menu panels. They present a maximum of nine items that can define information being entered or searched. These panels guide you through a dialog by providing choices, and collect data based on your selections. If your panel might ever require more than nine items, use a data-entry panel.

For detailed information about the contents of selections and options panels, see “Creating a Selection Panel” on page 168 and “Creating an Options Panel” on page 170.

Creating a Selection or Options Panel

This checklist describes the steps required to create a new selection or options panel by updating a model panel. See “Creating a Selection Panel” on page 168 for an introduction to creating selection panels. See “Creating an Options Panel” on page 170 for an introduction to creating options panels.

Planning

Before you begin, you must consider:

- The purpose and placement of the selection panel
- The information to be collected
- The readability and aesthetics of the panel

Once these are completed, creating the panel is just a matter of adding selections, with a few additional steps.

Panels. Identify all target panels and each s-word that should be collected when the selection is chosen. Use the dictionary to identify or add s-words as required. Also, you can use the String Find report to identify the key phrase or other terms used on the panel.

Reports. Not affected.

Data Required. The following data is required:

- S-Word indexes
- Target panel names
- Dialog and panel flow considerations: Does this selection end a dialog? If the target is an assisted-entry panel, should the **Branch and link** field be set?

Gathering Information. Use the PMF reports to find panels that contain the s-words and target panels you want to use.

Other Considerations. If the panel you are creating is being inserted into an existing panel flow, SRCs that start the flow might have to be updated. (See “Adding a New Selection” on page 335 for additional considerations.)

Modifications

1. Select **Panel update** from the Panel Modification Facility options panel.
2. On BLM8CU00, enter the new name of the panel to be created.
3. Depending on the type of panel being created, choose **Selection** or **Options** on BLM8CUA0.
 - a. On the model panel, type the **Top title**, **Use line**, and **Bottom title**.
 - b. Create new selections for the panel. For each selection:
 - Type the keyword phrase and description
 - Issue the **FIELD** command with the cursor positioned immediately before the selection number
 - Update the **Keyword phrase** and **Description** fields
 - c. Enter the **CONTROL** command with the cursor positioned on the selection line. This brings up BLM8CU13, the Selection Control Summary.
4. Select **Panel flow processing** on the Selection Control Summary.
 - a. On BLM8CU1A, indicate the target panels. If the target panel is an assisted-entry panel, type **YES** in the **Branch and link** field. If the target panel is a data-entry panel, type **YES** in the **Target is data-entry** field.
 - b. Type **end** and press Enter.
5. On BLM8CU13, select **Data collection processing**. On BLM8CU1B, change the **S-Word index** or type a **Function code index**.
6. Type **end,end** and press Enter.
7. On BLM8CU10, select **Common** from the Selection Panel update options. On BLM8CU17, type the name of the target help panel or leave the default help target.
8. Type **end** and press Enter.
9. On BLM8CU10, select **File** to save the new panel on the write panel data set.

Testing Modifications

1. On BLM8CU00, the update-mode Panel Name Entry panel, enter the name of the panel you just created.
2. On BLM8CU10, select **Test**.
3. On BLM8CT00, the Panel Test Entry panel, enter in the name of the Primary Options Menu you want to start on (BLG0EN10 for the System application, BLG0EN20 for the Management application).
4. Type **INQUIRY** in the **Create/inquiry** field and go through the dialog until you reach your new panel.

5. Select each selection or option and respond to the assisted-entry or data-entry panels.
6. Make sure that each response returns to the original selection or options panel.
7. End PMF panel test.
8. Copy the new panel to a read panel data set. See “Copying and Deleting Panels” on page 179 for more information.

Modifying Selection and Options Panels

The checklists that follow illustrate other kinds of selection and options panel modifications:

- Changing the key phrase
- Moving a selection on a panel
- Adding a new selection
- Removing a selection and adding it to another panel
- Allowing a null reply.

Changing the Key Phrase

This checklist describes the steps required to change a key phrase for a selection or option. A key phrase on a selection or options panel is a short representation of the line item being selected.

Planning

Panels. In most cases, a corresponding create- or inquiry-mode data-entry panel also requires change.

Reports. Not affected.

Data Required. None.

Gathering Information. To identify all panels that must be changed:

1. Run the String Find report to identify the panels that contain the key phrase. To make sure that you locate all panels (some might have abbreviations for the key phrase), run an S-Word Cross-Reference report.
2. Review the panels to determine which ones to change.

Other Considerations.

- The key phrase is a short description of the line item that assists the experienced user when proceeding through panels by allowing easy vertical scanning. Do not repeat the key phrase in the line-item description; this does not help either the experienced or novice user.
- If the panel is used in create mode, remember that the key phrase is saved in the database for any record that contains the response to this panel. Although there is no retrieval dependency on this data, the users will see both the original and your new form of the key phrase with the **VIEW** command until older records are deleted from the database.
- Selection panels have an equal sign (=) in the key phrase to inform the user that the selection is recorded in the database during create mode, and can be searched during inquiry mode. Note that a profile field, **Display entire key word phrase**, when set to **NO** suppresses display of data to the left of the equal sign when the panel is displayed.

- Options panels do not contain equal signs, thus indicating to the user that a dialog is beginning, and that the information is not recorded in the database and cannot be searched.

Modifications

1. Select **Panel update** on the Panel Modification Facility options panel.
2. Enter the name of the panel you are changing on BLM8CU00.
3. On BLM8CU10 select **Externals**. The panel you requested appears in update mode.
4. Change the word and line item as required.
5. Type **end** and press Enter.
6. On BLM8CU10, select **File**.

Testing Modifications

Not required.

Moving a Selection on a Panel

This checklist describes the steps required to move a selection on a selection or options panel.

Planning

Panels. Selections on selection or options panels are usually arranged in generic groups, or in the order they are presented in create mode. In addition, other panels might contain the selection or option being moved, and they might also require change.

Reports. Not affected.

Data Required. None.

Gathering Information. To locate all panels that need modification, use the String Find or S-Word Cross-Reference report.

Other Considerations.

- Arrange selections or options according to frequency of use. Remember that the user's ability to remember the path is directly related to how the selections are arranged. Changing the order of selections will force the user to re-learn response chains.
- If the s-word currently used for the selection being moved does not change, existing SRCs are not affected. Otherwise, moving a selection can affect existing SRCs.

Modifications

If you have PF keys, assign the AT and MOVEA commands to two of them. Use PMF to update each panel as follows:

1. Select **Panel update** on the Panel Modification Facility options panel.
2. Enter the name of the panel on BLM8CU00.
3. On BLM8CU10, select **Externals**. The panel you requested appears in update mode.
4. Use the **FIELD SHOW** command to display the attribute bytes.

5. If you do not want data at the new location to be overwritten, use **AT** and **MOVEA** to move it to a temporary location (include the attribute bytes in the **AT** specifications).
6. Use the **AT** and **MOVEA** commands to move the selection to its new location. If you have not assigned **AT** and **MOVEA** to PF keys, do the following:
 - a. Type **AT** on the command line.
 - b. Move the cursor under the **%** sign in the first column for the selection.
 - c. Press Enter.
 - d. Type **AT** on the command line.
 - e. Move the cursor to the end of the line item description.
 - f. Press Enter.
 - g. Type **MOVEA** on the command line.
 - h. Move the cursor to the new location.
 - i. Press Enter.
7. If you moved other selections out of the way, move them back, following directions in step 6.
8. Renumber the selections.
9. Type **end** and press Enter.
10. On BLM8CU10, select **File**.

Testing Modifications

1. Enter the name of the panel on BLM8CU00.
2. On BLM8CU10, select **Test**.
3. Enter either **CREATE** or **INQUIRY** in the **Create/inquiry** field on BLM8CT00.
4. Press Enter. You will see your updated panel.
5. Select each item and make sure that the proper target panels are displayed.
6. End panel test.

Adding a New Selection

This checklist describes the steps required to add a new selection on a selection or options panel.

The mechanics of this change are quite simple; however, you must consider many things based on the purpose of the selection you are adding. For example, if the new selection calls an assisted-entry panel, the **Branch and link** and **Return to caller** fields are also involved.

Planning Panels.

- If you are adding a selection in create mode, you might also want to add it to the corresponding inquiry-mode panel.
- If you are adding a selection in inquiry mode, unless a shadowed s-word is being used, the data must be collected in the same manner as in create mode.

- In most cases, a target panel is required when a new selection is added. If the target panel already exists, examine the flow from that panel to determine how the user returns to the panel being updated (if required). If the target is an assisted-entry panel that has **YES** in the **Return to caller** field, make the **Branch and link** field **YES**. Also, the help panel for the assisted-entry panel might have to be modified.

Reports. Not affected.

Data Required. S-Word index, key phrase, line item description, and target panel.

Consider the following items:

- If the new selection calls an assisted-entry panel, determine the **Branch and link**, **Return to caller**, and the **Target** panels.
- If the new selection is used in creating a record, determine the s-word index or use a function code index of 000A. Also, if added to the create path, add a corresponding selection to an inquiry panel.
- If the new option begins a dialog, examine the dialog begin and target panels. If the new option does begin a dialog, then the new target panel (or subsequent panel in the flow) must end the current dialog.

Gathering Information. Examine the panel to which the selection is being added to determine which help panel to change. In addition, examine or update the panel flows to determine or add the new panel flow changes.

Other Considerations.

- Should the selection end the generation of an SRC?
- Should a new response replace an existing one (only one in a record)?
- For an options panel, should the selection begin a new dialog?
- Does the selection call a program exit?
- Should the user be able to change this selection (and thus the panel flow) with the **CHANGE** command?

See “Other Considerations” for “Changing the Key Phrase” on page 333.

Modifications

1. Select **Panel update** on the Panel Modification Facility options panel.
2. Enter the name of the panel on BLM8CU00.
3. On BLM8CU10, select **Externals**. The panel you requested appears in update mode.
4. On BLM8CU11, use the **MOVEA** and **AT** commands to move existing selections out of the way of your new selection, if necessary.
5. Add the new selection number, key phrase, and line item description.
6. Renumber the selections, if necessary.
7. Move the cursor to the line that contains the new selection and enter the **CONTROL** command.
8. On BLM8CU13, select **Panel flow processing**.

9. On BLM8CU1A change the target panels. If neither the create nor inquiry target is used, clear the field.
10. Type **end** and press Enter.
11. On BLM8CU13, select **Data collection processing**.
12. On BLM8CU1B, change the s-word index as required.
13. Type **end,end,end** and press Enter.
14. On BLMCU10, select **File**.

Testing Modifications

1. Enter the name of the panel on BLM8CU00.
2. On BLM8CU10, select **Test**.
3. On BLM8CT00, enter either **CREATE** or **INQUIRY** in the **Create/inquiry** field.
4. Choose the new selection.
5. On BLG1M118, make sure the target panel or the function called is displayed.
6. Issue the **VIEW INTERNALS** command to make sure the correct s-word is collected.
7. Additional testing should be done based on other fields changed in the panel, such as **Dialog begin**, **Dialog end**, **Force SRC end**, or **Authorization code**.
8. End panel test.

Removing a Selection and Adding It to Another Panel

This checklist describes the steps required to move a selection or option from one panel to another.

Planning

Panels. Depending on the type of selection being moved, and the function associated with the selection, various other panels might require modification. Some general guidelines are presented below. However, to be certain, examine the panel flow associated with the selection being moved to determine all possible changes.

- If the selection calls a function (as indicated by the function code index), examine the description of the function codes for additional information.
- If the **Branch and link** field is specified as **YES**, no other panels require modification.
- If the option begins a dialog, the target panels must contain a matching dialog end.
- If the option or selection collects an s-word, a subsequent control panel might test for the presence of this s-word. It might be necessary to create another control panel. Run the S-Word Cross-Reference report to determine if this condition exists.
- If the selection ends a dialog, make sure that the panel from which the selection is moved contains other selections that end that dialog. It might

be necessary to add a dialog end selection (or null reply) to the panel from which the selection is being moved.

Reports. Not affected.

Data Required. Names of the panels where the selection is to be deleted, and the names of the panels where the selection is to be added. In addition, before deleting the selection, print the panel for reference.

Gathering Information. Run the S-Word Cross-Reference or String Find report to locate all panels that might require modification.

Print the Panel Content report for the panels containing the selection to be moved. You will need the control information when adding the selection to the other panel.

Other Considerations.

- Moving selections from one panel to another implies changing more than just the selection panels. The help panels, and, if the selection is within one set of panels, other panels might require modification. Refer to the appropriate panel flows to determine the scope of the intended change. In the Tivoli Information Management for z/OS administrative panels, the selection panels in inquiry mode match the way they are presented during create mode (that is, they occur in the same order). Another method is to group the selections in inquiry mode based on amount of use (for example, all required fields presented on the first panel). See “Adding a New Selection” on page 335 for more details.
- Also, if the selection calls a function code or program exit, make sure that the environment and calling panels match. Based on what the program exit does, it might not be possible to move the selection without also moving another selection or panel later in the panel flow.

Modifications

1. Select **Panel update** on the Panel Modification Facility options panel.
2. Enter the name of the panel on BLM8CU00.
3. On BLM8CU10, select **Externals**. The panel you requested appears in update mode.
4. On BLM8CU11, enter **FIELD SHOW** to display the current attribute bytes.
5. Type **FIELD CLEAR** on the input line and position the cursor under the control attribute byte (%) for the selection to be deleted. Press Enter.
6. Type **FIELD OFF** and press Enter.
7. Blank out the visible description of the selection to be deleted.
8. Type **end** and press Enter.
9. On BLMCU10, select **File**.

To add the selection to the other panel, see “Adding a New Selection” on page 335.

Testing Modifications

Examine the first panel to verify that the selection was deleted. See “Adding a New Selection” on page 335 to test the second panel.

Allowing a Null Reply

This checklist describes the steps required to allow a null reply for a selection or options panel.

Planning

Panels. The only panel that requires modification is the panel on which a null reply is being allowed.

Reports. Reports can be affected if the null reply allows a bypass of data used in the RFTs. For example, if you modify panel BLM600000 to allow a null reply, the record type is no longer required. Thus, reports that search on the record s-words are affected.

Data Required.

- Name of the panel to be changed
- Name of the target panel for null reply, unless the changed panel ends a dialog.

Gathering Information. Examine the appropriate panel flow to determine the target panel.

Other Considerations.

- Allowing a null reply means that what was required is no longer required. The user in inquiry mode who has always relied on the fact that at least one selection was made can no longer do so.
- Also, dialog end processing can be required if all the selections of the panel end a dialog. See “Ending a Dialog” on page 367.

Modifications

1. Select **Panel update** on the Panel Modification Facility options panel.
2. Enter the name of the panel on BLM8CU00.
3. On BLM8CU10, select **Null Reply**.
4. On BLM8CU12, select **Panel flow processing**.
5. On BLM8CU1E, enter the create or inquiry target panel (refer to the panel flow diagrams); or type **YES** in the **Dialog end** field and clear the **Target panel** field if you want the null reply to end the dialog.
If you want to end the dialog but proceed to a panel other than where the dialog began, type **YES** in **Dialog end**, **YES** in **Override dialog target**, and the new panel name in the **Target panel** field.
6. Type **end** and press Enter.
7. On BLM8CU12, select **Data collection processing**.
8. On BLM8CU1H, enter the appropriate function code (usually 000A).
9. Type **end,end** and press Enter.

10. On BLM8CU10, select **Externals**. The panel you changed appears in update mode.
11. On BLM8CU11, change the bottom title to reflect the option of a null reply.
12. Type **end** and press **Enter**.
13. On BLM8CU10, select **File**.

Testing Modifications

1. Type the name of the panel on BLM8CU00.
2. On BLM8CU10, select **Test**.
3. On BLM8CT00, enter either **CREATE** or **INQUIRY** in the **Create/inquiry** field. When you are testing panels for a null reply, always start from the Primary Options Menu (BLG0EN10 for the System application, BLG0EN20 for the Management application). This allows the testing of null targets with **Dialog end** and **Override dialog target** set to **YES**, and a new target panel. If you start at the modified panel itself in this situation, you cannot do the proper test.
4. Press **Enter** to display your modified panel.
5. Press **Enter** without making a selection. If you are not ending a dialog, the specified target panel appears. (If it does not, the create or inquiry target panels are not correct.) If you are ending a dialog, return to BLM8CT00.
6. End panel test.

Checklists for Message Panels

See “Creating a Message Panel” on page 172 for an introduction to message panels.

Creating a Message Panel

This checklist describes the steps required to create a message panel.

Planning **Panels.** Before you create a message panel, you must think out the way you want to name it. See “Message Assignments” on page 174 and “Naming Conventions for Panels” on page 389 for more information.

Reports. Not affected.

Data Required. The following data is required:

- Name of the message panel to be created
- The message ID
- A help panel, if you want to provide more information when the user issues the HELP command. A help panel name is generated based on the message ID.

Gathering Information. None.

Other Considerations. Newly created message panels can be displayed only by using a control panel or a TSP. Therefore, you must modify the control panel or TSP after you complete the message panel.

Modifications

1. Select **Panel update**, on BLM8C000, the Panel Modification Facility options panel.
2. On BLM8CU00, enter the name of your new panel.
3. Select **Message** on BLM8CUA0, the Panel Type selection panel.
4. Update the panel’s externals on the model panel (BLM8CU31). If you are creating a message panel for use with a TSP and the message control line has insert data, enter underscores (__) on the message line in the position that the inserted data should appear for the maximum length of the insert.
5. Type **end** and press **Enter**.
6. Select **File** on BLM8CU30, the Message Panel update panel.

Testing Modifications

1. Enter the new message panel name on BLM8CU00.

2. Select **Test** on BLM8CU30.
3. Enter the name of the application's Primary Options Menu (BLG0EN10 for the System application, BLG0EN20 for the Management application). Enter CREATE in the **Create/inquiry** field.
4. Go through the dialog until the message panel is reached. Make sure the message is clear.
5. End PMF panel test.
6. Copy the new message panel to a read panel data set. See "Copying and Deleting Panels" on page 179 for more information.

Modifying Message Panels

This checklist describes the steps required to modify a message panel.

Planning **Panels.** Each message panel has a corresponding help panel. Therefore, you must change both panels. The name of the help panel associated with the message panel is generated when you indicate the message ID. (Refer to Table 18 on page 175 for naming conventions.)

Reports. Not affected.

Data Required. The panels to be changed.

Gathering Information. Run the String Find report to locate all message panels that contain the words or reason you are changing the message panel.

Other Considerations. SBCS underscores (___) in the single-line message area indicate the placement and length of inserted information (record identifier, error code, TSP messages, and so on) on a message panel. The underscores can be moved, shortened, or deleted without causing a problem. If you delete the underscores, no insert information will be displayed as part of the message. If you shorten the underscores, the insert information might not be displayed in full.

Modifications

1. Select **Panel update** on the Panel Modification Facility options panel.
2. Type the name of the panel on BLM8CU00.
3. On BLM8CU30, select **Externals**. The panel you requested appears in update mode.
4. On BLM8CU31, change the externals as required.
5. Type **end** and press **Enter**.
6. On BLM8CU30, select **File**.

Note: If you create a message panel to use with a TSP that inserts a literal or variable message, put underscores (___) on the message line where you want the TSP message inserted.

Testing Modifications

1. On BLM8CU00, request the panel for update.

2. On BLM8CU30, select **Test**.
3. On BLM8CT00, enter a different panel name. (Note that a message panel is not displayed directly by the panel processor. You cannot begin a dialog with this panel).
4. Type either **CREATE** or **INQUIRY** in the **Create/inquiry** field.
5. Press **Enter**.
6. Force display of the error message by proceeding through the panels until the message panel is processed.
7. End panel test.

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Checklists for Help Panels

A help panel shows you scrollable text that describes the product, clarifies the data on a panel, or provides additional information about a message. The help text is a full-screen display.

Help panels appear by courtesy of the window-display service, and the text is moved into a table panel and then displayed on the screen. Table panel BLG1T007 displays help panels. See “Creating a Help Panel” on page 176 for an introduction to help panels.

Creating a Help Panel

This checklist describes the steps required to create a new help panel by updating a model panel.

Planning

Panels. Identify the panel that is to call the new help panel.

Reports. Not affected.

Data Required. If this panel corresponds with a message panel, you need the name of the message panel as well as the name of this panel and the names of the target panels for any selections on the help panel.

For a help panel that is to be called from any other kind of panel, you must supply the name yourself. See “Naming Conventions for Panels” on page 389 for more information.

Gathering Information. When you create a message panel, PMF automatically generates a name for the help panel. To find the name of this message help panel, select **Common** on the Update Options panel for the message panel. The Common Update panel shows the help panel name generated by PMF.

Modifications

1. Select **Panel update**, from the Panel Modification Facility options panel.
2. On BLM8CU00, enter the name of the panel you are creating.
3. On BLM8CUA0, select **Help**.
4. On the model help panel:
 - a. Type the **Top title** and **Panel name** if the name does not appear in the top left corner.
 - b. Type the text of the panel.
 - c. Type **end** and press Enter.

If you are including selections on the help panel, follow the next three steps; otherwise, go on to 7b. Adding a Selection under “Modifying Help Panels” also describes this procedure.

5. On BLM8CU40, the Help Panel update panel, select **Summary**.
6. On BLM1TSU4, the Control Line Summary, enter the **UPDATE** line command next to the control line you want to change.
7. On BLM8CU43, the Control Line Update panel, enter the information for a help selection number:
 - a. Enter the selection number, the keyword phrase, and the target panel for this selection.
 - b. Type **end** and press Enter.
8. Type **end** and press Enter.
9. On BLM8CU40, select **File**.

Testing Modifications

1. On BLM8CU00, the update-mode Panel Name Entry panel, enter the new help panel name.
2. On BLM8CU40, select **Test**.
3. On BLM8CT00, Panel Test Entry, enter in the name of the application’s Primary Options Menu (BLG0EN10 for the System application, BLG0EN20 for the Management application). Type **CREATE** in the **Create/inquiry** field.
4. Go through the dialog until you reach the panel from which the help panel can be called.
5. Type **;HELP**. You should see the new help panel.
6. End PMF panel test.
7. Copy the new help panel to a read panel data set. See “Copying and Deleting Panels” on page 179 for more information.

Modifying Help Panels

The checklists that follow illustrate two kinds of help panel modifications:

- Adding a selection
- Deleting a selection.

Adding a Selection

This checklist describes the steps required to add a selection to a help panel.

Planning **Panels.** Identify the help panel that is to contain the selection and the target panel for that selection.

Reports. Not affected.

Data Required.

- Selection number
- Help panel and target panel names
- Function code:
 - Call HELP: 0002

- Cancel current help panel: 000D
- Cancel all help panels: 0007

Gathering Information. None.

Modifications

1. Select **Panel update** on the Panel Modification Facility options panel.
2. Type the name of the panel on BLM8CU00.
3. On BLM8CU40, select **Externals**. The panel you requested appears in update mode.
4. Add the selection and line description as required.
5. Issue the **CONTROL** command.
6. On BLM1THSC, issue the **INSERT** line command on the appropriate line.
7. Type the selection number and key phrase.
8. If you want to keep the default function code, 0002 (call **HELP** processor), type the target panel name.
9. If you are adding function code 0007 or 000D, no target is needed. See “Function Code Indexes” on page 186 for additional information.
10. Type **end,end,end** and press Enter.
11. Select **File**.

Testing Modifications

1. Type the name of the panel on BLM8CU00.
2. On BLM8CU40, select **Test**.
3. On BLM8CT00, enter the name of the panel calling the help panel (or the Primary Options Menu if the help panel is for a command or function).
4. Type either **CREATE** or **INQUIRY** in the **Create/inquiry** field.
5. Press Enter.
6. Type **HELP** or call the function from which the **HELP** command can be entered.
7. Choose the new selection.
8. Make sure the new help panel is displayed or the current help is canceled. If this does not happen, the target panel might be incorrect.
9. Type **end** or **CANCEL**; the previous help panel appears (if the function code index is 0002).
10. End panel test.

Deleting a Selection

This checklist describes the steps required to delete a selection from a help panel.

Planning **Panels.** Identify the help panel containing the selection that is to be removed.

Reports. Not affected.

Data Required. Help panel name.

Gathering Information. None.

Other Considerations. Removing a selection might result in an *orphan* panel (one with no calling panel). Before deleting the selection, run the Panel Cross-Reference report to determine if any other panels reference the selection target panel. If not, you can delete the target panel.

Modifications

1. Select **Panel update** on the Panel Modification Facility options panel.
2. Type the name of the panel on BLM8CU00.
3. On BLM8CU40, select **Externals**. The panel you requested appears in update mode.
4. On BLM2PT03, remove the selection.
5. Issue the **CONTROL** command.
6. Issue the **DELETE** line command on the appropriate line.
7. Type **end,end** and press **Enter**.
8. Select **File**.

Testing Modifications

1. Type the name of the panel on BLM8CU00.
2. On BLM8CU40, select **Test**.
3. On BLM8CT00, enter the name of the panel calling the help panel or the name of the Primary Option Menu (BLG0EN10 for the System application, BLG0EN20 for the Management application) if the help is for a command or function.
4. Enter either **CREATE** or **INQUIRY** in the **Create/inquiry** field.
5. Press **Enter**.
6. Enter **HELP**, or call the function from which the **HELP** command can be entered.
7. Choose the old selection. A message stating that the selection was not found appears.
8. End panel test.

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Checklists for Creating New S-Words and P-Words

Use the following checklists as you create s-words and p-words in the dictionary data set. PMF does not let you modify Tivoli-supplied s-words and p-words, but you can create new s-words and new p-words. You can use Tivoli indexes or add new indexes for your own s-words and p-words. See page 183 for more information about using existing s-word and p-word indexes.

An s-word consists of 1 to 10 characters that can be any characters except X'00' - X'3F'. The first position is a non-printable, non-enterable character called a *watermark*. To specify this character, enter one of the last six alphabetic characters:

- Z is translated to X'BA'
- Y is translated to X'BB'
- X is translated to X'BC'
- W is translated to X'BD'
- V is translated to X'BE'
- U is translated to X'BF'

The alphabetic character is subsequently used for display and update purposes. S-words beginning with X'BE' and X'BF' are reserved for your installation's use. Tivoli will not use these values when creating new s-words. In addition, Tivoli will not use s-words X'BC' IMRA*8000 through X'BC' IMRA*FFFF, because they are available for installation-defined authorization codes. During record entry or inquiry definition, the hexadecimal representation is used to distinguish s-words from freeform text entries, preventing out-of-context results during the data retrieval process.

Creating a New S-Word

This checklist describes how to create a new s-word for use in a modified panel. To complete this task, you must know the s-word you want to create. See “Understanding the Philosophy Behind S-Words” on page 190 for guidance on this.

Planning

Panels. You probably are preparing to modify or create a panel; that is why you need a new s-word.

Reports. Adding a new s-word can affect reports. You might want to change your RFTs to accommodate the new information represented by the new s-word.

Data Required. You need to know the authorization associated with the new s-word and how it is to be used in the modified panel. See “Defining S-Words for Privilege-Class Authorization” on page 196 for more on this.

Gathering Information. Always display and search the dictionary (use the FIND command) for your new s-word, in case it already exists.

Modifications

1. On the Panel Modification Facility options panel, select **Dictionary**.
2. On BLM8CG00, select **S-Word update**.
3. If you are just beginning to add s-words to the dictionary, do the following. Otherwise, go on to step 4.
 - a. Type **DOWN MAX** to display the last s-word entry.
 - b. Use the **ADD** line command with a number to add several new lines for this s-word entry and to reserve lines for s-words you might add later to the generic category. The index for each new s-word is generated automatically.
 - c. Go on to step 5.
4. If you are adding a new s-word to a category you previously defined, locate the index it belongs with.
5. Type the new s-word, its acronym, **YES** or **NO** in the **Program used** field (in most cases, this is **NO**), and a general comment. The comment can include such helpful information as your initials, the date, and the reason you are creating this s-word.
6. Record the s-word index for your use later.
7. Repeat these steps for each s-word you create.
8. Type **end,end** and press Enter to save your modifications.

Testing Modifications

Until you use the new s-word in a panel, you cannot really test it. At this point, you have only defined it in the dictionary. To confirm its existence, you can select **S-Word display** on the Dictionary Update panel and see if you can locate the s-word index using the **FIND** command.

After you use it in a panel, confirm the s-word by following these steps:

1. Request for update the panel where you used the s-word.
2. Select **Externals**.
3. Enter the **CONTROL** command for the field associated with the new s-word.
4. On the Control Line Summary panel, select **Data collection processing**.

5. Enter the s-word index and examine the display-only data to make sure the new s-word is shown.
6. Type **CANCEL** to end your test.

Creating a New P-Word

This checklist describes how to create a new p-word for use in a modified panel. To complete this task, you must know the p-word you want to create. See “Understanding the Philosophy Behind P-Words” on page 202 for guidance on this.

Planning

Panels. You probably are preparing to modify or create a panel; that is why you need a new p-word.

Reports. Adding a new p-word can affect reports. You might want to change your RFTs to accommodate any new information represented by the new p-word.

Data Required. In addition to the p-word itself, you need to know the validation pattern you want to use with it. See “Validating Data” on page 200 for more on this.

Gathering Information

Always display and search the dictionary (use the **FIND** command) for your new p-word in case it already exists or to locate generically related p-words.

General Considerations. See “Fields Used by Programs” on page 78 for some restrictions on the use of existing p-words.

Modifications

1. On the Panel Modification Facility options panel, select **Dictionary**.
2. On BLM8CG00, select **P-Word update**.
3. If you are just beginning to add p-words to the dictionary, do the following. Otherwise, go on to step 4.
 - a. Type **DOWN MAX** to display the last p-word entry.
 - b. Use the **ADD** line command with a number to add several new lines for this p-word entry, and to reserve lines for others you might add later to the generic category. The index for each new p-word is generated automatically.
 - c. Go on to step 5.
4. If you are adding a new p-word to a category you previously defined, locate the index it belongs with.
5. Type the new p-word, its validation pattern, **YES** or **NO** in the **Program used** field (in most cases, this is **NO**), and a general comment. The comment could include such helpful information as your initials, the date, and the reason you are creating this p-word.
6. Record the p-word index for your use later.

7. Repeat these steps for each p-word you create.
8. Type **end,end** and press **Enter** to save your modifications.

Until you use the new p-word in a panel, you cannot really test it. At this point, you have only defined it in the dictionary. To confirm its existence, you can select **P-Word display** on the Dictionary Update panel and see if you can locate the new p-word index using the FIND command.

After you use it in a panel, confirm the by following these steps:

1. Request for update the panel where you used the p-word.
2. Select **Externals**.
3. Enter the **CONTROL** command for the field associated with the new p-word.
4. On the Control Line Summary panel, select **Data collection processing**.
5. Enter the index and examine the display-only data to make sure the new p-word is shown.
6. Type **CANCEL** to end your test.

Checklists for Modifying Authority

This chapter includes checklists that cover several aspects of modifying authority:

- Adding existing authorization codes to panels
- Adding new authorization codes to panels
- Removing authorization
- Increasing the number of users in a privilege class

See “Authorization Codes” on page 73 and “Using the Dictionary” on page 183 for discussions of the use of authority in Tivoli Information Management for z/OS.

Adding Existing Authorization Codes to Panels

This checklist describes the steps required to add existing authorization codes to panels. Basically, the same steps are performed for each panel type, except that the panel flow for the CONTROL command is different.

Planning

Panels. Identify all panels containing the selection, fields, or value to be made authorized.

Reports. Not affected, because reports are not sensitive to field authorization.

Data Required.

- Names of panels to be changed
- Authorization codes

Gathering Information.

- To locate all panels requiring modification, examine the panel that contains the selection or field to be authorized. Record the p-word or s-word index associated with the field and then run the S-Word or P-Word Cross-Reference report.
- To obtain the authorization code, access the privilege class panel containing the authorization code, in update mode. Issue the **CONTROL** command for the appropriate field. The last four digits of the s-word constitute the authorization code.
- No PMF report can print only the panels associated with a specific authorization code. Therefore, if you add authorization codes to panels, use the Change Management product to keep track of the panels affected.

Other Considerations.

- Requiring authorization for a field means that only specific users can update, display, or perform certain functions. You might want to authorize the entry of data but not the display of the same data.
- To provide entry or display authorization, you update the appropriate panel type. Not all panels that reference the field need modifying.
- Adding an authorization code to a field or selection can affect existing SRCs for those users who do not have adequate authority.

Modifications

1. Select **Panel update** on the Panel Modification Facility options panel.
2. On BLM8CU00, type the name of the panel containing the field or selection that requires authorization.
3. On the Update Options panel, select **Externals**. The panel you requested appears in update mode.
4. On the Externals panel, enter the **CONTROL** command for the field or selection that is to require authorization. (For an assisted-entry, control, or help panel, just enter the **CONTROL** command.)
5. Based on the panel type:
 - a. For selection, option, and data-entry panels select **Panel flow processing**.
 - b. For assisted-entry panels, select **Prefix & content validation**.
 - c. If the panel is an assisted-entry, control, or help panel, enter the **UPDATE** line command for the appropriate control line. For a control panel, select **Control flow processing**.
6. On the update panel for the control line, enter the authorization code.
7. Type **end,end** and press **Enter**.
8. Select **File**.

Testing Modifications

1. Make sure you are running under a privilege class that contains the authority you need but is not the MASTER privilege class.
2. On BLM8CU00, type the name of the newly modified panel.
3. On BLM8CU80, select **Test**.
4. Type BLG0EN20 for the panel name and either **CREATE** or **INQUIRY** in the **Create/inquiry** field.
5. Press **Enter**.
6. Respond to the panel sequence until the panel with the new authorization appears. Choose the selection or enter data for the selection or field that requires authorization.

7. If you are running under the proper class, you should see the data in the field or be able to select or respond to the panel. If the Not Authorized message appears, you might have made an error entering the authorization code.
8. Enter **INIT**. This command returns you to the test entry panel.
9. Press **Enter**.
10. Change your privilege class to one that does not have the new authority.
11. Repeat steps 6 through 7 with a privilege class that is not authorized. You should receive the Not Authorized message.
12. End panel test.

Adding New Authorization Codes to Panels

This checklist describes the steps required to add new authorization to panels. For details about assigning authorization codes, see “Defining S-Words for Privilege-Class Authorization” on page 196. This task is similar to “Adding Existing Authorization Codes to Panels” on page 353 except that you first define a new s-word for the authorization code. You might want to “shadow” the s-word with existing s-words.

Planning For planning information, see “Adding Existing Authorization Codes to Panels” on page 353.

Modifications

1. Add a new authorization s-word in the dictionary, using the proper format. (See “Creating a New S-Word” on page 349 for details.)
2. Add the new authorization field to the appropriate panel in the privilege class flow (for example, BLG0J200 for an added problem authority). See “Adding an Input Field” on page 265 for instructions.
3. Modify each panel requiring change by inserting the authorization code in the appropriate selection or field. (See “Adding Existing Authorization Codes to Panels” on page 353.)
4. Update one privilege class record to provide the new authority. Here, you must be running under the master privilege class (or your privilege class must own the master privilege class). If you do not have this authority, see your system administrator.
5. Before updating all the required privilege class records, test your modifications to make sure the new authorization code is indeed in effect.

Testing Modifications

1. Type the name of the panel on BLM8CU00.
2. On BLM8CU80, select **Test**.
3. On BLM8CT00, change the panel name to that of the panel calling the table panel or to the name of the Primary Options Menu (BLG0EN10 for the System application, BLG0EN20 for the Management application).
4. Type **CREATE** or **INQUIRY** in the **Create/inquiry** field.

5. Press **Enter**.
6. Make sure you are running under a privilege class that does not contain the new authority. Proceed through the panels and attempt to select or enter the function. A message appears that says you are unauthorized. If this message is not issued:
 - a. Make sure the authorization code added to the panel is correct.
 - b. Make sure the current privilege class is not the master privilege class.
 - c. Make sure the authorization code is not one already being used. Display the privilege class record and issue the **VIEW INTERNALS** command. Check your new code against the authorization s-words that appear.
7. Change your privilege class to one that contains the needed authority. Proceed through the panels and select the authorized function. No message should appear. If a message does appear:
 - a. Make sure the last 4 digits of the s-word added to the privilege class records for the new field match the authorization code added to the panel.
 - b. Make sure the proper privilege class was processed: display the current privilege class record and issue the **VIEW INTERNALS** command.
8. Inform your users that the new authorization is being added, and previously created SRCs might require modifications.
9. When you have completed testing, update all privilege class records that require it.

Removing Authorization

This checklist describes the steps required to remove authorization from panels or fields. The same steps are involved for each panel type, but the panel flow for the CONTROL command is different.

Planning

Panels. Identify all panels containing the selection, field, or value from which the authorization is to be removed.

Reports. None.

Data Required. Names of panels to be changed.

Gathering Information.

- To identify panels requiring change, examine a panel that contains the existing authorization. Record the s-word index associated with the field or selection.
- To locate all panels requiring modification, run the S-Word or P-Word Cross-Reference report.

Other Considerations. Inform your users that they are now authorized to perform the function or enter the value.

Modifications

1. Select **Panel update** on the Panel Modification Facility options panel.
2. Request for update the panel that contains the field or selection whose authorization is to be removed.
3. Select **Externals**.
4. Issue the **CONTROL** command for the field or selection that no longer requires authorization. (For an assisted-entry, control, or help panel, just enter the **CONTROL** command.)
5. Based on the panel type:
 - a. For selection, options, and data-entry panels, select **Panel Flow Processing**.
 - b. For assisted-entry panels select **Prefix & Content Validation**.
6. If the panel is an assisted-entry, control, or help panel, enter the UPDATE line command for the appropriate control line. For a control panel, select **Control flow processing**.
7. Clear or enter **0000** in the **Authorization code** field.
8. End the update of control information.
9. End the update of Externals.
10. File the panel.

Testing Modifications

1. Make sure you are running under a privilege class that does not contain the old authority and that the current class is not the master privilege class.
2. Request the modified panel for update.
3. Select **Test**.
4. Type either **CREATE** or **INQUIRY** in the **Create/inquiry** field.
5. Press **Enter**.
6. Respond to the panel by selecting the previously authorized field. You should be able to select or respond to the field.
7. End panel test.

Increasing the Number of Users in a Privilege Class

This checklist describes the steps required to increase the number of users in a privilege class. The steps in this task can vary based on your requirements; however, the basic steps are:

1. Create additional privilege class s-words. Each privilege class user ID has an associated s-word used for display. A new s-word is required for each user to be added to the privilege class.
2. Add the additional privilege class user fields to the privilege class panels.

Planning Panels.

- Both create- and display-mode data-entry panels must be changed. Because the inquiry-mode panels for class records contain shadowed s-words, these panels do not require modification.
- If the number of new user fields to be added will fit on the panel, you can simply add them to the panel. However, if the number to be added cannot fit on the current panel, you must create another panel.

Reports. Not affected.

Data Required. You must define s-words for each additional user. These s-words should shadow the existing user s-words.

Gathering Information.

- The s-word root for privilege class users is XIM0I0EUXX where XX is the unique user privilege class identifier. Tivoli Information Management for z/OS uses values 01 through 36 (XIM0I0EU01, XIM0I0EU02, XIM0I0EU03, and so on.) You can assign any acceptable values above 36 to XX when you create your s-words (for example: XIM0I0EU37, XIM0I0EU38, XIM0I0EU39, XIM0I0EU3A, and so on). If you cannot follow this format, you must also modify previously created privilege class records and the privilege class inquiry panels. Request panel BLG0J300 for update to view the s-words associated with privilege class user IDs.
- Examine the privilege class panel flow (create and display) to identify the panels that must be changed. You can use the existing assisted-entry panel because it includes both **Collect s-word from caller** and **Branch and link**.

Modifications

This checklist is in the form of a specific example. It includes adding a new panel to the flow because the example adds 24 new users to the privilege class.

1. Update the dictionary and add the appropriate s-words. Note these new s-words for later use.
2. Copy panel BLG0J300 and assign it a new panel name; call it INS0J300. (This panel is the create-mode data-entry panel.)
3. Copy panel BLG0Q300 and assign it a new panel name; call it INS0Q300. (This panel is the display-mode data-entry panel.)
4. Request panel BLG0J300 for update.
5. On BLM8CU70, select **Null Reply** and do the following:
 - a. On BLM8CU72, select **Panel flow processing**.
 - b. Change the **Dialog end** field to **NO**.
 - c. Type the name of the new panel (**INS0J300**) in the **Target panel** field.
 - d. Enter **end,end**.
 - e. On BLM8CU70, select **Externals**.

- f. Change the bottom title of this panel to reflect the fact that additional fields can be displayed by pressing **Enter**. For example:
To add additional users press **Enter**; otherwise reply end.
 - g. File the panel.
6. Request panel BLG0Q300 for update.
7. On BLM7CU70, select **Null Reply** and do the following:
 - a. On BLM8CU72, select **Panel flow processing**.
 - b. Type the name of the new panel (**INS0Q300**) in the **Target panel** field.
 - c. Enter **end**.
 - d. Select **Data collection processing**.
 - e. Type **000A** in the **Function code index** field.
 - f. Enter **end,end**.
 - g. On BLM8CU70, select **Externals**.
 - h. Change the bottom title of this panel to reflect the fact that additional fields can be displayed by pressing **Enter**.
 - i. File the panel.
8. Request panel INS0J300 for update. You must change the s-word index for each **User** field.
9. On BLM8CU70, select **Summary**.
10. On BLM1TSU7, enter the **UPDATE** line command for each **User** field.
11. On BLM8CU73, select **Data collection**, and change the s-word index to one of the newly created ones. Repeat this step for each field. (You can use the **RECALL** command with an IRC to speed up the process.)
12. The first field (selection 1) on panel BLG0J300 is a required field, but it is not required on the new panel. For this field only, select **Panel flow processing** on BLM8CU73 and type **NO** in the **Required field** field.
13. Remove the <R> from the externals of the panel.
14. A null reply for this panel ends a dialog because this panel was copied from the original panel. Therefore, the panel modifications are complete.
15. File the panel.
16. Request panel INS0Q300 for update. Change the s-word index for each **User** field. Follow the same steps you used for INS0J300. Remember that a null reply for this panel cancels a dialog because this panel was copied from the original panel.
17. File the panel.

Testing Modifications

1. Copy panels BLG0J300, BLG0Q300, INS0J300, and INS0Q300 to a read panel data set.
2. Create a dummy privilege class record. Proceed through the panels until summary panel BLG0JU00 appears.
3. Select **Eligible users**. Panel BLG0J300 appears. The bottom title reflects the updates you made. If not, the panel was not copied.
4. Press **Enter**. Panel INS0J300 appears.
5. Type **end** and press **Enter**. Panel BLG0JU00 appears. If, instead, a message appears stating that the **END** command is not valid, a null reply does not exist for panel INS0J300. If the record is filed, then you did not specify **Dialog end** for the null-reply for panel INS0J300. If either of these problems exist, correct it before proceeding.
6. Select **Eligible users**. Fill in all the fields with unique user names.
7. Press **Enter** when all fields are filled in. Panel INS0J300 appears. Fill in all the fields with various user names as in the previous step. Organize your user names so that the fields can be checked quickly; for example, USER1 in field 1, USER2 in field 2, and USER3 in field 3. Each value must be unique, even from those entered in the previous step. Record these user identifiers; you will need them for a later test.
8. If the fields are not displayed correctly, you might have made an error while adding the s-word indexes to panel INS0J300. Issue the **VIEW INTERNALS** command followed by the **DOWN MAX** command to show the last responses.
9. If all the fields display correctly, type **end** and press **Enter**.
10. File the record.
11. Display the record.
12. Select **Eligible user display**. Panel BLG0Q300 appears with the appropriate fields shown. Press **Enter**. Panel INS0Q300 appears. If it does not, it is because the null-reply target in panel BLG0Q300 was not changed, or the 000D function code was not erased.
13. If panel INS0Q300 does appear, make sure that all fields are visible. If they are not, you might have made an error while entering s-word indexes. Compare the s-word indexes in panels INS0J300 and INS0Q300; they should match.
14. Type **end** and press **Enter**. Panel BLG0Q100 appears. If, instead, a message appears stating that the **END** command is not valid, a null reply is not allowed for panel INS0Q300. If the record display is canceled, then you need to specify an 000D function code for the null reply for panel INS0Q300.
15. The last step is to make sure the s-words were constructed correctly. To perform this test, create a search argument by proceeding through the System application privilege class-inquiry dialog as follows:
 - a. Select **Inquiry**.
 - b. Select **Class**.

- c. Select **Users**.
- d. Enter each of the user IDs you put in the privilege class record you just created.
- e. Enter the **SEARCH** command.
- f. If the privilege class record is not found, you made an error while constructing the s-words. If so, you must update the dictionary to correct the s-words. Panels INS0Q300 and INS0J300 are then brought in for update and filed. This automatically adds the corrected s-words in the panels.

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Checklists for Complex Modifications

This chapter includes checklists for specific examples of complex modifications:

- Calling a program exit
- Adding the **Search** selection
- Controlling a dialog
- Modifying report processing
- Cognizing user responses
- Moving data from one record to another
- Changing fields displayed on freeform text panels.

Calling a Program Exit

This checklist describes the steps required to call a program exit from a panel. It is essential that you complete the preparatory steps before you actually call a program exit. See “Program Exit Interface” on page 66 for a discussion of the use of program exits in your applications.

Planning

Panels. You must modify only the panel that calls the program exit.

Reports. Consider modifying reports based on the program exit you are using, (for example, if you are collecting new data or deleting data that is used in reports).

Data Required. Program exit symbol.

Gathering Information.

- Review the program exit descriptions described in “Program Exits for Use with Panels” on page 407 A program exit:
 - Can be called only from a certain environment (in a particular mode or from certain panel types).
 - Can use s-words or p-words previously collected in a dialog or defined in the calling control line.
 - Might require setting up target panels or adding other information to the panel.
- Before you use an exit, run the Panel Cross-Reference report to see where else the exit is used and to make sure that your use of the exit fits the task at hand.

Modifications

1. Select **Panel update** on the Panel Modification Facility options panel.
2. Request the panel for update.

3. Select **Externals** or **Null Reply**, depending on whether the exit is being called from the panel or from a field or selection on the panel.
4. If you chose **Externals**, enter the **CONTROL** command for the selection or panel, as appropriate.
5. Select **Panel flow processing**.
6. Complete the **Program exit symbol** field. Refer to the program exit description in “Program Exits for Use with Panels” on page 407 to determine whether the exit requires other information such as target panels or p-words.
7. End the update of the control information.
8. End the update of Externals or Null Reply.
9. File the panel.

Testing Modifications

1. Request the panel for update.
2. Select **Test**.
3. On BLM8CT00, enter the name of the panel that starts the environment that the program exit requires.
4. Type either **CREATE** or **INQUIRY** in the **Create/inquiry** field.
5. Press **Enter**.
6. Proceed through the panel flow until the panel that calls the exit appears.
7. Cause the program exit to be called. If an error occurs, verify whether it was the program-exit environment or input data that caused it.
8. End panel test.

Adding the Search Selection

This checklist describes the steps required to add the **Search** selection to a panel. Refer to the *Tivoli Information Management for z/OS User's Guide* for information about the **SEARCH** command.

- Planning**
- Panels.** Identify the panels to which the **Search** selection is to be added.
 - Reports.** Not affected.
 - Data Required.** S-Word index: 0004 (See “Function Codes” on page 66 for more information.)
 - Gathering Information.** Examine the panel flows to determine the proper placement of the selection.
 - Other Considerations.** Adding the **Search** selection on inquiry panels reminds users that they can issue the **SEARCH** command. In addition, proper placement in the panel flow lets the user know when it is a good time to issue the **SEARCH** command.

Modifications

1. Select **Panel update** on the Panel Modification Facility options panel.

2. Request the panel for update.
3. Select **Externals**.
4. Modify the external panel description as required.
5. Move the cursor to the line where you added the **Search** selection and enter the CONTROL command.
6. For data-entry, selection, and options panels:
 - a. Select **Data collection processing**.
 - Change the **Structured word index** to **0004**.
 - Type **NO** in the **Cognize response**, **Use s-word for display**, and **Replace previous reply** fields, if present.
 - Enter **end**.
 - b. Select **Panel flow processing**.
 - If you want to use the standard search-results list, type **BLG1TSRL** in the **Inquiry target** field. If not, type the name of your new table panel. Or you can leave the field blank, and the search results appear on the active search results list table panel.
 - Type **NO** in the **Dialog begin** and **Branch and link** fields, if present. The field type for data-entry panels must be **SELECTION**.
 - Type **end** and press **Enter**.
7. For control panels, select **Control flow processing**.
 - Change the **Function code index** to **0004**.
 - If you want to use a table panel other than BLG1TSRL, type its name in the **True target panel** field. Or you can leave the field blank, and the search results appear on the active search results list table panel.
 - Type **end** and press **Enter**.
8. End the update of control information.
9. End the update of Externals.
10. File the panel.

Testing Modifications

1. Request the panel for update.
2. Select **Test**.
3. Enter **INQUIRY** in the **Create/inquiry** field.
4. Select **Search**. A search results list appears. If it does not, make sure that the control line for the selection contains an 0004 function code.
5. End panel test.

Controlling a Dialog

The flow of panels through a task is controlled by dialog processing. You can change the dialog panel flow and create new dialogs. See “Dialog Control Interface” on page 69 for a discussion of the use of dialogs.

Starting a Dialog

This checklist describes the steps required to start a new dialog.

Planning **Panels.** Identify the panel and selection from which you want to start a new dialog.

Reports. Not affected.

Data Required. None.

Gathering Information. None.

Other Considerations.

- Beginning a new dialog means that when the **CANCEL** and **end** commands are issued, the user returns directly to the panel that began the dialog. (The **BACK** command returns the user to the beginning of the dialog one panel at a time.)
- Dialogs can be nested; each level of dialog increases the number of times the user must issue the **CANCEL** or **end** command.
- Make sure that the panel sequence that begins the new dialog also completes the dialog. Do this by following the checklist for “Ending a Dialog” on page 367.

Modifications The way you modify the panel depends on whether it is an options or data-entry panel. A generalized version of the steps to take follows:

1. Select **Panel update** on the Panel Modification Facility options panel.
2. Type the name of the panel on BLM8CU00.
3. On the update options panel, select **Externals**. The panel you requested appears in update mode.
4. Issue the **CONTROL** command for the selection that is to begin a dialog.
5. On the Control Summary panel, select **Panel flow processing**.
6. On the Panel Flow Processing panel, type **YES** in the **Dialog begin** field and **YES** in the **Replace previous reply** field.
7. Type **end,end,end** and press **Enter**.
8. On the update options panel, select **File**.

Testing Modifications

1. Type the name of the panel on BLM8CU00.
2. On the update options panel, select **Test**.
3. On BLM8CT00, type either **CREATE** or **INQUIRY** in the **Create/inquiry** field.

4. Press **Enter**.
5. Select the item that begins the dialog.
6. Type **CANCEL**. The panel is redisplayed.
7. Select the item again.
8. Enter **end**. If the dialog has all required fields completed, the panel is redisplayed.
9. End panel test.

Ending a Dialog

This checklist describes the steps required to end a dialog. A dialog can be ended by a selection, options, data-entry, assisted-entry, or control panel. The choice depends on where and with which panel you want to end a dialog. For each dialog begin there must be a corresponding dialog end.

Planning **Panels.** Identify the panel and selection from which you want to end the dialog.

Reports. Not affected.

Data Required. None.

Gathering Information. None.

Other Considerations. Ending a dialog at a given panel means that data the dialog collects could be bypassed by the user. Because null replies are simulated (where possible) by the absence of a reply, useful data that should be collected in the record might be missed.

See “Dialog Control Interface” on page 69 for other modification considerations.

Modifications Actual modification steps depend on the type of panel involved. A generalized version of the steps to take follows:

1. Select **Panel update** on the Panel Modification Facility options panel.
2. Type the name of the panel on BLM8CU00.
3. On the update options panel select **Externals**.
4. Issue the **CONTROL** command to enter the appropriate dialog. If updating a control panel, update the appropriate control line.
5. On the Control Summary panel, select **Panel flow processing**.
6. On the Panel Flow Processing panel, clear the **Target panel** fields.
7. Type **YES** in the **Dialog end** field and **YES** in the **Replace previous reply** field.
8. Type **end,end** and press **Enter**.
9. File the panel.

Testing Modifications

1. Request the panel for update.
2. Select **Test**.

3. Type the name of the panel from which the dialog begins.
4. Type either **CREATE** or **INQUIRY** in the **Create/inquiry** field.
5. Press **Enter**.
6. Proceed through the dialog until the panel ending the dialog is displayed or processed (control panels).
7. Select or cause the dialog to end.
8. The panel from which the dialog began is redisplayed.
9. End panel test.

Overriding a Dialog End Target

This checklist describes the steps required to override a dialog end target. Overriding a dialog end target is a method of returning to a panel other than the one on which the dialog began.

Planning **Panels.** Identify the panel that contains the dialog end indicator for the dialog.

Reports. Not affected.

Data Required. The name of the panel that contains the dialog end indicator.

Gathering Information. Refer to the panel flow to determine the panel that contains the dialog end indicator.

Modifications

1. Select **Panel update** on the Panel Modification Facility options panel.
2. Type the name of the panel on BLM8CU00.
3. On the Update options panel, select **Externals** or **Null Reply** if the override applies to a null reply.
4. For each selection or field that is to override the dialog end target:
 - a. On the Summary panel select **Panel flow processing**.
 - b. On the Panel Flow Processing panel, type a target panel name.
 - c. Type **YES** in the **Override dialog end** field.
 - d. Type **end,end** and press **Enter**.
5. File the panel.

Testing Modifications

1. On the Update options panel, select **Test**.
2. Type the name of the panel that starts the dialog whose ending point you are overriding.
3. Type either **CREATE** or **INQUIRY** in the **Create/inquiry** field.
4. Press **Enter**.
5. Proceed through the panels until you reach the last one in the dialog (refer to the panel flow if required).

6. Select the item, or press **Enter**, to end the dialog. The panel whose name you entered as the target panel for dialog override appears. If another panel is displayed instead, the **Override dialog end** field is not **YES**, or the target panel is incorrect.
7. End panel test.

Modifying Report Processing

You can use PMF to add a new report selection to a panel and also to add a panel that collects new data in a report.

Adding a New Report Selection

This checklist describes the steps required to add a new report selection to a report selection panel. Providing a selection for a new report is an alternative to specifying an installation-defined RFT and eliminates the need for the users to remember the RFT name.

Planning **Panels.** Identify the selection panel where the report selection is to be added.

Reports. Create the new RFT. Refer to the *Tivoli Information Management for z/OS Data Reporting User's Guide* for instructions.

Data Required.

- P-Word: RFT/
- Validation pattern for the new RFT name
- Name of the control panel
- Name of the report selection panel.

Gathering Information. None.

Modifications **To update the dictionary:**

1. On BLM8C000, select **Dictionary**.
2. On BLM8CG00, select **P-Word update**.
3. Issue the **DOWN MAX** command to see the last dictionary entry.
4. For the new entry, type the p-word **RFT/**, the validation pattern **<xxxxxxx>** (where *xxxxxxx* is the name of the RFT for the new report), and an appropriate comment for the entry.
5. Type **end** and press **Enter**.

To create a control panel:

1. On BLM8C000, select **Panel Copy** and copy an existing control panel that collects an RFT name. One such panel is BLG0W103.
2. Type the name of the new control panel on BLM8CU00.
3. On BLM8CU60, select **Summary**.
4. Issue the **UPDATE** line command at the beginning of the ADD control line in the panel.
5. Press **Enter**.
6. On BLM8CU63, select **Data collection processing**.

7. On BLM8CU6B, change the prefix index to the new index just created in the dictionary.
8. Type **end,end,end** and press **Enter**.
9. File the panel.

To update the selection panel:

1. Select **Panel update** on the Panel Modification Facility options panel.
2. Type the name of the selection panel on BLM8CU00.
3. On BLM8CU70, select **Externals**. The panel you requested appears in update mode.
4. Add the new report selection to the panel. See “Adding a New Selection” on page 335 for instructions.
5. On BLM8CU11, enter the **CONTROL** command for the new selection.
6. On BLM8CU13, select **Panel flow processing**.
7. Type the name of the control panel for the new report selection in the **Create target** and **Inquiry target** fields.
8. Type **end,end,end** and press **Enter**.
9. File the panel.

Testing Modifications

1. Copy the control panel and the selection panel to your read panel data set.
2. From the Primary Options Menu (BLG0EN20), enter the **REPORT** command.
3. Select the new report. If the panel works correctly, the report is sent to the report output destination specified in your profile. If the panel works correctly and the report is in error, a report error message is issued. If the panel fails, a message is issued indicating that the report format table cannot be found in the MACLIB or report format data set or that the RFT/ p-word is not found.

Adding Panels to Collect User-Supplied Data for a Report

This checklist describes the steps required to add a panel to prompt for user-supplied data for a report.

Planning

Panels. Determine all the places in the report panel flow where the new information is to be collected.

Reports. Identify the reports that will use the information. Make any adjustments to the reports to incorporate the new information.

Data Required.

- A user-defined variable and its s-word index
- Names of the data-entry panel and the assisted-entry panel for each field.

Gathering Information. Refer to the *Tivoli Information Management for z/OS Data Reporting User's Guide* for a list of the user-defined variables and s-word indexes for reports.

Other Considerations. Any type of data can be collected as user input for a report: a date, an assignee name, a descriptive phrase. The way the data is collected depends on the type of data. The data can be collected by selection panels or data-entry panels. In this example, a data-entry panel is used to collect string data.

If the new data-entry panel is the last in the report panel flow, make sure that the null reply results in a dialog end. This is normally accomplished by setting as the null target a control panel that tests for generate mode and subsequently ends the dialog. Examine the panel flow of an existing panel that collects user data for reports to see dialog end processing.

Modifications Creating Assisted-Entry Panels: For each field on the data-entry panel, create an assisted-entry panel as follows.

1. Select **Panel update** on the Panel Modification Facility options panel.
2. On BLM8CU00, type the name of the new assisted-entry panel.
3. On BLM8CUA0, select **Assisted-Entry**.
4. On BLM8CU51, modify the externals and examples.
5. Issue **CONTROL**.
6. On BLM8CU53, select **S-Word collection**.
 - a. Enter the s-word index for the user-defined variable.
 - b. Enter **end**.
7. Select **Response processing**.
 - a. Change the **Reply value** field to the proper length for both create and inquiry modes.
 - b. Change the **Reply value** field meaning to **LENGTH**.
 - c. Change the **Cognize response** field to **NO**.
 - d. Change the **Collect as string data** field to **YES**.
 - e. Type **end** and press **Enter**.
8. Select **Prefix & content validation**.
 - a. Delete the validation control line.
 - b. Type **end,end** and press **Enter**.
9. Type **end** and press **Enter**.
10. File the panel.

Updating the Data-Entry Panel:

1. Copy a data-entry panel that is similar to the one you need. Panel BLG0W210 (Periodic Change Status Report) is an example of a panel that collects user-specified data.

2. Select **Panel update** on the Panel Modification Facility options panel.
3. Request the panel for update.
4. Select **Externals**.
5. Modify the externals as required.
6. For each field:
 - a. Enter the **CONTROL** command for the input field.
 - b. On BLM8CU73, select **Panel flow processing**.
 - c. Change the **Target panel** name to that of the assisted-entry panel for the field.
 - d. Type **end** and press **Enter**.
 - e. Select **Data collection**.
 - f. Enter the s-word index for the user-defined variable.
 - g. Type **end,end** and press **Enter**.
7. End the update of Externals.
8. On BLM8CU70, select **Null Reply**.
9. On BLM8CU72, select **Panel flow processing**.
10. Change the **Target panel** name to that of a control panel that tests for generate mode, or change **Dialog end** to **YES**.
11. Type **end,end** and press **Enter**.
12. File the panel.

Updating the Panel Flow:

Update the report panel flow to include the new panels. The panel that precedes the new panels in the panel flow must be updated. In this example, the data-entry panel is added to the panel flow after the control panel that collects the report name.

1. Select the control panel for update.
2. On BLM8CU60, select Summary.
3. Update the FLOW control line using the **UPDATE** line command.
4. On BLM8CU63, select **Control flow processing**.
5. Enter the name of the new data-entry panel in the **Create target** and **Inquiry target** fields.
6. Type **end,end** and press **Enter**.
7. File the panel.

Testing Modifications

1. Request a panel for update.
2. Select **Test** on the update options panel.

3. On BLM8CT00, enter **BLG0EN20** as the starting panel and either **INQUIRY** or **CREATE** in the **Create/inquiry** field.
4. Enter the **REPORT** command.
5. Select a report that prompts for the new information. (The output from the report is sent to the report output destination specified in your profile.)
6. Verify that the data was collected properly.

Cognizing User Responses

This checklist describes the steps required to cognize a user response. See “Cognize Response” on page 60 for a discussion of the purpose of cognizing responses.

Planning **Panels.** You must decide which fields or selections you want to cognize and then locate all the panels that contain those items. They could be selection, data-entry, assisted-entry or control panels.

Note: To cognize a data-entry field, you modify the assisted-entry panel for the field, not the data-entry panel. This also applies to the **Cognize only p-word** field.

Reports. If you change a **Cognize response** field to **YES**, then you might need to change the reports to allow for the new information.

Data Required. The s-word or p-word for the response being cognized.

Gathering Information. To complete this task, identify all panels containing the s-word or p-word for which the response should be cognized. To identify the panels that contain the s-word or p-word, run the P-Word or S-Word Cross-Reference report.

Modifications Follow these steps for each panel you have to modify:

1. Select **Panel update** on the Panel Modification Facility options panel.
2. Enter the name of the panel on BLM8CU00.
3. On the update options panel, select **Externals** or **Abstract**. The panel you requested appears in update mode.
4. On the update panel, issue the **CONTROL** command for the selection or panel.
5. On the control line summary, enter the **UPDATE** line command by the control line you want to change.
6. On the control summary panel, select **Data collection processing**.
7. On the Data Collection or Response Processing panel, change the **Cognize response** field to **YES**.
8. Change the **Cognize only p-word** field to **YES** if you do not want to cognize the s-word. See “Cognize Only P-Word” on page 60 for more information.
9. Type **end,end** and press **Enter**.

10. File the panel.

Testing Modifications

1. Copy the modified panels to a read panel data set.
2. Create a record that contains the selection or field.
3. Proceed through the inquiry prompting sequence, and add selections or fields to the search argument.
4. Enter the **SEARCH** command. The record should be located. If it is not, make sure the search argument does not contain information not in the record being sought.

Moving Data from One Record to Another

This checklist describes the steps to automatically move data from one record to another. This is one of two methods you can use to add data to a record; the other is described in “Creating a Control Panel That Adds Data” on page 307. In this method, you define the fields in one record whose contents are automatically added to the current record being created when the default record ID is referenced. Then you call program exit BLG01273, which automatically adds the data to the current record.

This method of transferring data does not work for data entered through a table panel. Refer to program exit BLG01273 in “BLG01273 - Add Data from One Record to Another Record” on page 430 for a detailed description of its processing.

Note: If you want to perform extended data copy, use program exit BLG01439 instead of BLG01273. BLG01439 (described in “BLG01439 - Extended Data Copy” on page 497) performs all the functions of BLG01273 plus the following:

- Validates the data you are copying against any assisted-entry panel
- Copies freeform text
- Changes the s-word or p-word of data that is copied (it can change the s-word or p-word of structured data or the s-word that identifies freeform text).

For more information on program exit BLG01439, see “BLG01439 - Extended Data Copy” on page 497.

See “Program Exit Interface” on page 66 for a discussion of the use of program exits in your application processing.

Planning **Panels.** Two panels are involved: you must add a program exit name to the assisted-entry panel for the field containing the record ID, and you must create a control panel to identify the fields to be extracted from the default record.

Reports. Not affected.

Data Required.

- Program exit symbol: BLG01273
- The name of the assisted-entry panel that calls the program exit (BLG6KIAF)

- The name of the control panel that defines the data to be added to the record
- The s-word indexes associated with all fields that are to be taken from an existing record.

Gathering Information. Obtain s-word indexes by printing the panels associated with the record type from which data is to be extracted (such as the problem or hardware component data-entry panels). On those panels, identify all fields you want to add automatically to the record when a specific field is filled in.

Modifications **Creating a Control Panel:**

1. Select **Panel update** on the Panel Modification Facility options panel.
2. Type the name of the control panel you are creating.
3. On BLM8CUA0, select **Control**.
4. On the model panel, update the Abstract description and issue the **CONTROL** command.
5. On BLM1TSCU, issue the **UPDATE** line command next to the default FLOW control line.
6. On BLM8CU63, select **Control flow processing**.
 - a. Type **000D** in the **Function code index** field.
 - b. Clear the **True target panel** field.
 - c. If a message should be issued when the field is not located, create or copy a message panel and type its name in the **Message panel** field.
 - d. Type **end** and press **Enter**.
7. On BLM8CU63, select **Data collection processing**.
 - a. Enter the s-word index to be used to locate the field.
 - b. Type **end,end** and press **Enter**.
8. If you are extracting more than one field from the record, enter the **INSERT** line command next to the last line on BLM1TSCU and repeat steps 6 and 7.
9. End the update of the control information.
10. End the update of the Abstract.
11. File the panel.

Modifying the Assisted-Entry Panel:

1. Select **Panel update** on the Panel Modification Facility options panel.
2. Request the panel for update.
3. On BLM8CU50, select **Externals**. The panel you requested appears in update mode.
4. Enter the **CONTROL** command on the command line.

5. On BLM8CU53, select **Panel flow processing**.
6. On BLM8CU5A, type in the **Inquiry target** field the name of the control panel containing the s-word indexes that identify the data to be extracted.
7. Type **BLG01273** in the **Program exit symbol** field.
8. Type **end,end** and press **Enter**.
9. File the panel.

Testing Modifications

1. Request the assisted-entry panel for update.
2. On BLM8CU50, select **Test**.
3. On BLM8CT00, enter the name of the data-entry panel containing the field associated with the assisted-entry panel.
4. Type **CREATE** in the **Create/inquiry** field.
5. Press **Enter**.
6. On the data-entry panel, type the record identifier (**RNID**) for an existing record containing the fields in the appropriate field.
7. Issue the **VIEW INTERNALS** command. Verify that all data was properly extracted and added to the record.
8. End panel test.

Changing Fields Displayed on Freeform Text Panels

This checklist describes the steps required to change the fields displayed at the top of a freeform text panel when a user chooses the PDF editor.

You can set different variables, ISPF panels, and PDF macros based on the type of text a user is processing.

The BLG1AFTX control panel consists of a set of FLOW, ADD and TEST control lines. A FLOW control line defines the PDF macro that runs when the PDF editor is started and the ISPF panel that the PDF editor actually uses. An ADD control line specifies the ISPF variable that is set and what data to copy into that variable. A TEST control line checks the freeform text type the user is editing so that the correct FLOW and ADD control lines display the correct ISPF variables. This enables you to have different fields displayed on the different freeform text panels.

Planning **Panels.** Identify the ISPF panel you want the PDF editor to use when accessing freeform text. As shipped by Tivoli, the panel is BLM@EDIT.

Reports. None.

Data Required.

- Control panel BLG1AFTX
- ISPF panel BLM@EDIT
- Syntax for FLOW control line:

Function type=FLOW

Function code=000A if you are not specifying a PDF macro.

Function code=002B if you are specifying a PDF macro.

Multiple test begin=NO

Multiple test end=YES if this is the last line in a group of conditionally processed control lines. Otherwise, set this field to NO.

True target panel=*8-character ISPF panel name to be accessed when the PDF editor is used.*

If you are *only* specifying a PDF macro, this field should be blank.

Program exit/TSP name=*8-character name of the PDF macro you want to run when the PDF editor is started.*

If you are not specifying a PDF macro, this field should be blank.

All other fields are ignored.

■ Syntax for ADD control line:

Function type=ADD

Function code=0000

Structured word index=*s-word index for the field you want to display.*

Structured word index=0000 if you are searching by p-word or setting literal data

Prefix index=*p-word index for the data you want to display.* (This field is ignored if you specify anything other than 0000 in the **Structured word index** field.)

Prefix index=0000 if you are searching by s-word index.

Multiple test begin=NO

Multiple test end=YES if this is the last line in a group of conditionally processed control lines. Otherwise, set this field to NO.

True target panel=*8-character ISPF variable name to be set.*

All other fields are ignored.

■ Syntax for TEST control line:

Function type=TEST

Function code=0000

Structured word index=*index of the s-word to test for.*

Multiple test begin=YES if this is the first or only TEST control line associated with a set of conditionally processed control lines. Otherwise, set this field to NO.

Multiple test end=NO

Apply not logic=YES if you want to process the remaining lines in the multiple test group when the test is true.

Apply not logic=NO if you want to process the remaining lines in the multiple test group when the test is false.

All other fields are ignored.

Gathering Information. None.

Other Considerations.

FLOW control lines

If you include more than one FLOW control line that results in more than one ISPF panel name or macro name being identified, the last FLOW control line is the one that is used. The earlier lines are ignored.

You can set both the ISPF panel name and the macro name using one FLOW control line by specifying **Function code=002B**, **True target panel=8-character ISPF panel name**, and **Program exit/TSP name=8-character name of the PDF macro**.

If no FLOW control line exists that specifies an ISPF panel name, ISPF uses its default editor panel. If no FLOW control line exists that specifies a PDF macro name, Tivoli Information Management for z/OS checks to see if you used program exit BLG01376 to set a macro name in the BLGITEXT ISPF variable. If none exists, no macro is used.

A FLOW control line that contains any function code other than 000A or 002B is ignored.

ADD control lines

If you include more than one ADD control line that results in the same ISPF variable being set multiple times, the last ADD control line is the one that is used. The earlier lines are ignored.

If there is no **True target panel** specified for an ADD control line, the line is ignored.

When you specify an s-word index to identify the field you want to display, the value associated with the last occurrence of that s-word in the record is used. If the s-word is not found in the record or is marked for deletion, the value is not set. If you specify an s-word index, any p-word information on the same ADD control line is ignored.

You can specify a p-word index that includes a p-word and validation pattern. If the validation pattern is a literal string (for example, **<OPEN>** or **<AR**>**), the p-word and the validation pattern are used to find the data. Otherwise, only the p-word is used. The value associated with the last occurrence of the p-word or p-word and validation pattern in the record is used. If no data is found in the record for the p-word or the data is marked for deletion, the ISPF variable is not set.

You can also specify a p-word index that does not include a p-word but does include a literal string (for example, **<DESCRIPTION>**) as the validation pattern. This sets the ISPF variable to a constant value. The value in the validation pattern (without the surrounding symbols) is placed in the ISPF variable.

You can set a maximum of 16 variables with a combined data length of 512 bytes. If you exceed either of these limits, the ADD control line that caused the limit to be exceeded is ignored. If the same variable is set more than once, each time it is set counts toward the variable count and combined data length limits.

Modifications

To change which ISPF panel PDF uses:

1. Select **Panel update** on the Panel Modification Facility options panel.
2. Type **BLG1AFTX** on panel BLM8CU00.
3. On BLM8CU60, select **Summary**.
4. On BLM1TSU6, issue the **UPDATE** line command in the line command area of the FLOW control line. Press **Enter**.
5. On BLM8CU63, select **Control flow processing**.
6. On BLM8CU6A, change the **True target panel** to the name of the ISPF panel you want the PDF editor to use. (The panel name must be exactly 8 characters in length.)
7. Type **end,end,end** and press **Enter**.
8. File the panel.

To include a PDF macro:

1. Select **Panel update** on the Panel Modification Facility options panel.
2. Type **BLG1AFTX** on panel BLM8CU00.
3. On BLM8CU60, select **Summary**.
4. On BLM1TSU6, issue the **UPDATE** line command in the line command area of the FLOW control line. Press **Enter**.
5. On BLM8CU63, select **Control flow processing**.
6. On BLM8CU6A, change the **Function code index** to **002B**.
7. Change the **Program exit/TSP name** to the 8-character name of the PDF macro you want to use.
8. Type **end,end,end** and press **Enter**.
9. File the panel.

To change or add displayed fields:

1. Select **Panel update** on the Panel Modification Facility options panel.
2. Type **BLG1AFTX** on panel BLM8CU00.
3. On BLM8CU60, select **Summary**.
4. On BLM1TSU6, issue the UPDATE line command in the line command area of the ADD control line you want to change. Press **Enter**. (If you want to add an additional display field, use the INSERT line command and use an ADD control line.)
5. On BLM8CU63, select **Control flow processing**.
6. On BLM8CU6A, change the **True target panel** to the ISPF variable name you want to display. (The variable name must be exactly 8 characters in length.) You must also update the ISPF panel (BLM@EDIT as shipped by Tivoli) to include the changed variable name.
7. Type **end** and press **Enter**.
8. Do one of the following:

- Specify the s-word index to identify the field you want to display:
 - a. On BLM8CU63, select **Data collection processing**.
 - b. On BLM8CU6B, change the **Structured word index** to the s-word for the field you want to display.
- Or specify the prefix index of the field you want to display:
 - a. On BLM8CU63, select **Data collection processing**.
 - b. On BLM8CU6B, change the **Structured word index** to 0000.
 - c. Change the **Prefix index** to the prefix index for the field or literal string you want to display.
 - d. Type **end** and press **Enter**.
- 9. Type **end,end,end** and press **Enter**.
- 10. File the panel.

To change the text type:

1. Select **Panel update** on the Panel Modification Facility options panel.
2. Type **BLG1AFTX** on panel BLM8CU00.
3. On BLM8CU60, select **Summary**.
4. On BLM1TSU6, there are 8 groups of TEST/ADD control lines, as shipped by Tivoli. There is one group for each type of freeform text panel.
 - **Description** freeform text is the first group.
 - **Status** freeform text is the second group.
 - **Resolution** freeform text is the third group.
 - **Notes** freeform text is the fourth group.
 - **Justification** freeform text is the fifth group.
 - **Backup_plan** freeform text is the sixth group.
 - **Address** freeform text is the seventh group.
 - **SRC_notes** freeform text is the eighth group.

Issue the **UPDATE** line command in the line command area of the **TEST** control line you want to change. Press **Enter**.

5. On BLM8CU63, select **Data collection processing**.
6. On BLM8CU6B, change the **Structured word index** to the s-word for the text type you want to test for.
7. Type **end,end** and press **Enter**.
8. Issue the **UPDATE** line command in the line command area of the **ADD** control line that is paired with the **TEST** control line you just changed. Press **Enter**.
9. On BLM8CU63, select **Data collection processing**.

10. On BLM8CU6B, change the **Prefix index** to the prefix index for the literal string you want to display.
11. Type **end,end,end** and press **Enter**.
12. File the panel.

To add a new text type:

1. Select **Panel update** on the Panel Modification Facility options panel.
2. Type **BLG1AFTX** on panel BLM8CU00.
3. On BLM8CU60, select **Abstract**.
4. On BLM8CU61, type **CONTROL** and press **Enter**.
5. On BLM1TSCU, issue the **INSERT** line command in the line command area of the control line you want to follow.
6. On BLM8CU63, select **Control flow processing**.
7. On BLM8CU6A, change the following fields:
 - **Control line type=TEST**
 - **Function code index=0000**
 - **True target panel=(make this field blank)**
8. Type **end** and press **Enter**.
9. On BLM8CU63, select **Test data processing**.
10. On BLM8CU64, change the following fields:
 - **Begin multiple test=YES**
 - **Structured word index=(enter the s-word index for your new text type)**
 - **Apply not logic=YES**
11. Type **end,end** and press **Enter**.
12. On BLM1TSCU, issue the **INSERT** line command in the line command area of the **TEST** control line you just created.
13. On BLM8CU63, select **Control flow processing**.
14. On BLM8CU6A, change the following fields:
 - **Control line type=ADD**
 - **Function code index=0000**
 - **True target panel=TEXTTYPE**
15. Type **end** and press **Enter**.
16. On BLM8CU63, select **Test data processing**.
17. On BLM8CU64, change the following fields:
 - **End multiple test=YES**
 - **Prefix word index=(enter the p-word index for the literal string)**

18. Type **end,end,end,end** and press **Enter**.
19. File the panel.

Testing Modifications

1. Be sure your profile is set to use the PDF editor.
2. To test these changes, you must copy BLG1ATFX to a read panel data set.
3. On the Primary Options Menu (BLG0EN20) command line, type **5,1,1,=,14,INITIAL,25,TEST,,8,1** and press **Enter**.
4. You should see the freeform text panel for the description of a problem record.
5. Press F3 to exit the editor.
6. On the command line, type **INIT** and press **Enter**.

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Solving Problems Caused by Your Panel Modifications

This chapter gives you some general information about solving problems associated with modified panels. Refer to the *Tivoli Information Management for z/OS Diagnosis Guide* for specific recommendations and procedures to follow.

Problems caused by changes made to panels fall into three general categories:

- Those that are discovered by Tivoli Information Management for z/OS. These problems usually result in messages or user ABENDs.
- Those that get past Tivoli Information Management for z/OS, but the operating system detects. These usually result in system-generated ABENDs and messages.
- Those you or your users discover. These usually have no symptom indicators, such as messages or codes, to help you start solving them. Dialog mismatches and loops are common to this category.

Problems in the first two categories can be approached through the analysis of the symptom indicator you receive. If it is a Tivoli Information Management for z/OS message or ABEND code, consult the message help panel or the *Tivoli Information Management for z/OS Messages and Codes* book. If it is a system message or code, consult the appropriate messages and codes documentation for your operating system.

For problems in the third, nonautomated category, use the diagnostic checklists in the *Tivoli Information Management for z/OS Diagnosis Guide* to determine whether a panel change is the cause. The *Tivoli Information Management for z/OS Diagnosis Guide* also contains more general information that can help you determine the source of problems you and your users find when using Tivoli Information Management for z/OS.

What To Do If You Find a Problem

The Scenario: you are testing your new panels before copying them to the production read panel data set. Or, more likely, you have just finished copying them to the production data set, and your users are trying them out. In spite of all your care and panel testing, a problem develops. The wrong panel is displayed, a new report does not contain the right information, or a user is caught in a loop and cannot get beyond an assisted-entry panel.

A very useful tool for times like these is the VIEW INTERNALS command, which lets you examine data collected in the current dialog. For example, use VIEW INTERNALS in the following panel flow, starting with panel BLG0EN20, the Tivoli Information Management for z/OS Primary Options Menu.

What To Do If You Find a Problem

Enter the IRC **5,1**, bypassing the panel on which you indicate the type of record being created. (You know you want to create a problem record, and that the selection number is 1.)

```
BLG0EN20          --- PRIMARY OPTIONS MENU ---      APPLICATION: MANAGEMENT

OPTIONS:

  1. OVERVIEW.....Display general information and product enhancements.
  2. PROFILE.....Display or alter invocation or session defaults.
  3. APPLICATION....Change application, list available applications.
  4. CLASS.....Change current class, list available classes.
  5. ENTRY.....Create a record.
  6. INQUIRY.....Search for records.
  7. UTILITY.....Copy, display, print, delete, and update records.
  8. GLOSSARY.....Display a list of searchable words in the database.
  9. PMF.....Modify or create panels.

      Select an option, enter a command, or type QUIT to exit.

      Tivoli Information Management for z/OS Version 7 Release 1
      5697-SD9 (C) Copyright IBM Corp., 1981, 2001.

====> 5,1
```

BLG0B100, the first Problem record data-entry panel, appears. Enter another IRC to fill in all the required fields.

Type

1,JONESJR,14,INITIAL,25,TEST PROBLEM,

and press Enter.

```
BLG0B100          PROBLEM REPORTER ENTRY          PROBLEM: _____

Enter problem reporter data; cursor placement or input line entry allowed.

  1. Reported by.....<R> _____      13. Problem type..... _____
  2. Reporter dept..... _____      14. Problem status...<R> _____
  3. Reporter phone..... _____      15. User problem number.. _____
  4. Date occurred..... _____      16. Initial priority.... _
  5. Time occurred..... _____      17. Outrage..... _____
  6. Network name..... _____      18. Rerun time..... _____
  7. System name..... _____      19. Network impact..... _____
  8. Program name..... _____      20. System impact..... _____
  9. Device name..... _____      21. Program impact..... _____
 10. Key item affected... _____      22. Device impact..... _____
 11. Date fix required... _____      23. User form number..... _____
 12. Time fix required... _____      24. Location code..... _____
                                       26.Outage type..... _

 25. Description.....<R> _____

      When you finish, type END to save or CANCEL to discard any changes.

====> 1,jonesjr,14,initial,25,test problem,
```

Issue the VIEW INTERNALS command from BLG0B100.

Type **VIEW INTERNALS** and press **Enter**.

```

BLG0B100          PROBLEM REPORTER ENTRY          PROBLEM: _____

Enter problem reporter data; cursor placement or input line entry allowed.

  1. Reported by.....<R> JONESJR_____          13. Problem type..... _____
  2. Reporter dept..... _____                14. Problem status...<R> INITIAL_
  3. Reporter phone..... _____              15. User problem number.. _____
  4. Date occurred..... _____              16. Initial priority..... _____
  5. Time occurred..... _____              17. Outage..... _____
  6. Network name..... _____               18. Rerun time..... _____
  7. System name..... _____                19. Network impact..... _____
  8. Program name..... _____               20. System impact..... _____
  9. Device name..... _____                21. Program impact..... _____
 10. Key item affected... _____            22. Device impact..... _____
 11. Date fix required... _____            23. User form number..... _____
 12. Time fix required... _____            24. Location code..... _____
                                          26. Outage type..... _____

25. Description.....<R> TEST PROBLEM_____

      When you finish, type END to save or CANCEL to discard any changes.

====> view internals

```

Interpreting Internal Data

Issuing the VIEW INTERNALS command causes a the View Internal Data panel (BLG1TVID) to appear. The View Internal Data panel includes a great deal of useful information about every panel processed thus far in the flow, as well as any panels bypassed by IRCs or SRCs, and any that were called as a result of field entry. The following figure is the View Internal Data panel for the panels that you have dealt with, and the responses you have entered for them.

```

BLG1TVID          VIEW INTERNAL DATA          LINE 1 OF 9

PANEL   PANEL REL COG-  FLAGS   SWORD  STRUCTURED  PREFIX WORD OR
NAME    TYP/RSP LEV NIZE F  M  D  INDEX   WORD      VISIBLE PHRASE

BLG0EN20 D/ 5 12 B/  18/00/88 S002C  BA //S/TSI  ENTRY
BLG00000 S/ 1 12 B/  18/04/00 S0032  BA //S/TXS  RECS=PROBLEM
BLG0B001 S/ 1 12 B/  19/00/80 S0CFC  BC IMDIAENT0 REPORTER
BLG0B100 D/ 1 12 N/  41/00/08 S0B59
BLG6REQN A/ 2 12 B/U 00/04/00 S0B59  BC IM0I0PS00 PERS/jonesjr
BLG0B100 D/14 12 N/  41/00/00 S0BEE
BLG6STAT A/ 2 12 B/U 00/04/00 S0BEE  BC IMS0SSC00 STAC/INITIAL
BLG0B100 D/25 12 N/  41/00/00 S0E0F
BLG6DSAB A/ 2 12 B/U 00/04/00 S0E0F  BC IM0TXCA00 test problem
*** BOTTOM OF DATA ***

Type DOWN or UP to scroll the panel, or type END to exit the panel.

====>

```

Notice that each field you responded to on panel BLG0B100 is a separate line of data with that field's assisted-entry panel immediately below it. Notice also that in this example, there is no dialog end: the task controlled by this dialog is not yet complete.

The purpose of the information presented in response to VIEW INTERNALS is to let you see at a glance whether you have made an error in building or modifying your panels. You can then go directly to the panel in error and correct it, without having to work through the entire panel-create or panel-update process again. You can use VIEW INTERNALS to diagnose most of the problems you find with the panels you create or modify. If your

problem happens to occur at record file time, use the VIEW ON command to see what the data looks like before and after it is compressed.

Each panel that is passed through in the dialog from which you issue VIEW INTERNALS is a line in the View Internal Data display. The second entry, identified in the panel name column by SDDSROOT, is provided only when a record is displayed or updated. The 4-byte internal root VSAM key of the record is displayed in the Visible Phrase column in hexadecimal format.

Note: If a field in the record has an authorization code associated with it, you cannot display that field with VIEW INTERNALS unless your user ID has master privilege class authority.

A description of the fields in the display follows:

PANEL NAME

Name of the panel.

PANEL TYP/RSP

Type of panel and the response entered for the panel, as follows:

- S** Selection panel
- A** Assisted-entry panel
- C** Control panel
- D** Data-entry panel

RELEASE LEVEL

Release level of the panel.

COGNIZE

This field may contain two values separated by a slash (/). The first value may be either N (neither the s-word nor the p-word is cognized), B (both the s-word and the p-word are cognized), or P (only the p-word is cognized); following the slash (/) there may be another value: U (uppercase) or M (mixed case); if there is no value following the separator character, it means that the p-word is not being cognized or there is no p-word for the SDE. If there is a value following the separator character and it is followed by an asterisk *, then this SDE is a cognized unparsed string. Consider these examples:

- N/** Neither the s-word nor the p-word is cognized
- B/** Full cognizing, but no p-word exits
- B/U** Full cognizing, upper case
- B/U*** Cognized as an unparsed string, upper case
- P/M** Mixed case, only the p-word is cognized

FLAGS

Flags within the SDE, as follows:

- F** Common flags
- M** Maintenance flags
- D** Dialog flags

These flags are defined in Table 29.

S-WORD INDEX

The s-word index used to retrieve s-words from the dictionary.

STRUCTURED-WORD

The s-word from the panel.

PREFIX-WORD OR VISIBLE PHRASE

For selection or data-entry panels, the visible phrase from the panel; for assisted-entry panels and some control panels, the p-word associated with a field.

Table 29. Bit Mapping for SDE Flags

Flag	Bit Position	Description
F	8 4 2 1 8 4 2 1	Common flags
	1	Entry is administrative item
	. 1	Branch and link specified on this panel
	. . 1	Reserved
	. . . 1	Visible phrase present
	. . . . 1	S-Word present
	. . . . . 1 . . .	Prefixed data present
	. . . . . . 1 . .	Delete this entry
	. . . . . . . 1	Replace previous response
	M	8 4 2 1 8 4 2 1	Maintenance flags
1		Reserved
. 1		Data collected in fix panel
. . 1		Data collected in PDAID panel
. . . 1		Data collected in symptom panel
. . . . 1		Data collected in circumvention section
. 1 . . .		Not allowed
. 1 . .		Data collected in create mode
. 1		Data collected in inquiry mode
D		8 4 2 1 8 4 2 1	Dialog flags
	1	This begins a new dialog
	. 1	This ends a dialog
	. . 1	Program exit that collected this data is revoked when this data is deleted
	. . . 1	No back delete over this item
	. . . . 1	Panel displayed to user
	. . . . . 1 . . .	Override dialog end target panel
	. . . . . . 1 . .	Reserved
	. . . . . . . 1	Reserved

If you have a problem with the flow of your panels because they were modified, you can use the FLOW command to determine where the flow went wrong. For more resistant problems, refer to the *Tivoli Information Management for z/OS Diagnosis Guide*, and make sure you have documented your design and modifications carefully and completely.

Interpreting Internal Data

For more information on the VIEW and FLOW commands, refer to the *Tivoli Information Management for z/OS User's Guide*.

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Summary Information about Panels

This chapter contains general information about Tivoli Information Management for z/OS panels that can help you plan for panel modifications. The chapter includes:

- The naming convention used for standard Tivoli Information Management for z/OS panels
- Communicating panels (these cannot be modified) used in more than one application
- The control panels that perform basic functions or provide necessary information for the proper functioning of Tivoli Information Management for z/OS
- Key report fields that, when modified, might affect standard Tivoli Information Management for z/OS reports.

For a complete list of data-entry panel names used in Tivoli Information Management for z/OS, refer to the *Tivoli Information Management for z/OS Program Administration Guide and Reference*.

Naming Conventions for Panels

This section describes the general naming convention used for Tivoli Information Management for z/OS panels. Originally, the panel-naming scheme was explicit, but as panel development progressed, some exceptions occurred.

After records are entered in the database, it is difficult to change the naming scheme because the CHANGE command uses panel names to verify path changes and record updates. Therefore, keep changes to the panel-naming scheme to a minimum to avoid affecting CHANGE command processing.

The following prefixes are used on Tivoli-supplied panels for Tivoli Information Management for z/OS, with each prefix identified by application, mode, function, or panel type. This list is indexed by prefix (the list of panels indexed by function can be found on page Table 31 on page 391):

Table 30. Panel prefixes, indexed by prefix

BLGAPI	APIs
BLGESC	Escalation
BLGMIG	Migration
BLGNOT	Notification Management
BLGRF	TSPs for reference records
BLGT	TSPs
BLG0A	Help Panels

Table 30. Panel prefixes, indexed by prefix (continued)

BLG0B	Problem Create, Update, Copy, and Delete
BLG0C	Change Create, Update, Copy, and Delete
BLG0D	Configuration Create, Update, Copy, and Delete
BLG0E	Problem Inquiry
BLG0F	Change Inquiry
BLG0H000	Generic help panel
BLG0I	Escalation Rules Inquiry
BLG0J	Privilege Class Create, Update, Copy, and Delete
BLG0K	Privilege Class Inquiry
BLG0L	Problem Display
BLG0M	Change Display
BLG0N	Configuration Display
BLG0P	Profile Update, Display
BLG0Q	Privilege Class Display
BLG0R	Escalation Rules Display
BLG0S	Summary (Data-Entry) Display Panels
BLG0T	SRC Display and Delete
BLG0U	SRC Create, Update, and Copy
BLG0V	SRC Inquiry
BLG0W	Reports
BLG0X	Utility Panels
BLG0Y	Check-In Administration
BLG0Z	Escalation Rules Create, Update, Copy, and Delete
BLG00	General usage panels
BLG1A	Control Panels
BLG1B	Problem Symptom and Resolution Panels (Create and Inquiry)
BLG1M	Generic default panels
BLG1PDS	Version 1 panels
BLG1T	Table Panels
BLG1UT	Utilities
BLG1XMP	Example control panels
BLG2	Help Panels
BLG4	Message Help Panels
BLG6	Assisted-Entry Panels (Create and Inquiry)
BLG7	Assisted-Entry Panels (Inquiry)
BLG8	Assisted-Entry Panels (Inquiry)
BLG9	Message Panels
BLHLI1	Inventory List Display Panels
BLH0IU	Inventory Delete Panels
BLH0IO	Inventory Selection Panels
BLH0II	Inventory Display Panels

Table 30. Panel prefixes, indexed by prefix (continued)

BLH0I2	Inventory Query Panels
BLH1AI	Inventory Control Panels
BLM0A	Help Panels
BLM0B	People Create, Update, Copy, and Delete
BLM0Y	Panel set model panels
BLM1A	Control Panels
BLM1T	Table Panels
BLM1Y	Panel set model panels
BLM2	Help Panels
BLM4	Message Help Panels
BLM6	Assisted-Entry Panels (Create and Inquiry)
BLM8	PMF Panels
BLM9	Message Panels
BLX4C	Help Panels
BTN	Integration Facility Panels

This is the list of panel prefixes, indexed by function:

Table 31. Panel prefixes, indexed by function

APIs	BLGAPI
Assisted-Entry Panels (Create and Inquiry)	BLG6
Assisted-Entry Panels (Create and Inquiry)	BLM6
Assisted-Entry Panels (Inquiry)	BLG7
Assisted-Entry Panels (Inquiry)	BLG8
Change Create, Update, Copy, and Delete	BLG0C
Change Display	BLG0M
Change Inquiry	BLG0F
Check-In Administration	BLG0Y
Configuration Create, Update, Copy, and Delete	BLG0D
Configuration Display	BLG0N
Control Panels	BLG1A
Control Panels	BLM1A
Escalation	BLGESC
Escalation Rules Create, Update, Copy, and Delete	BLG0Z
Escalation Rules Display	BLG0R
Escalation Rules Inquiry	BLG0I
Example control panels	BLG1XMP
General usage panels	BLG00
Generic default panels	BLG1M
Generic help panel	BLG0H000
Help Panels	BLG0A
Help Panels	BLG2

Naming Conventions for Panels

Table 31. Panel prefixes, indexed by function (continued)

Help Panels	BLM0A
Help Panels	BLM2
Help Panels	BLX4C
Integration Facility Panels	BTN
Inventory Control Panels	BLH1AI
Inventory Delete Panels	BLH0IU
Inventory Display Panels	BLH0I1
Inventory List Display Panels	BLHLI1
Inventory Query Panels	BLH0I2
Inventory Selection Panels	BLH0I0
Message Help Panels	BLG4
Message Panels	BLG9
Message Help Panels	BLM4
Message Panels	BLM9
Migration	BLGMIG
Notification Management	BLGNOT
Panel set model panels	BLM0Y
Panel set model panels	BLM1Y
People Create, Update, Copy, and Delete	BLM0B
PMF Panels	BLM8
Privilege Class Create, Update, Copy, and Delete	BLG0J
Privilege Class Display	BLG0Q
Privilege Class Inquiry	BLG0K
Problem Create, Update, Copy, and Delete	BLG0B
Problem Display	BLG0L
Problem Inquiry	BLG0E
Problem Symptom and Resolution Panels (Create and Inquiry)	BLG1B
Profile Update, Display	BLG0P
Reports	BLG0W
SRC Create, Update, and Copy	BLG0U
SRC Display and Delete	BLG0T
SRC Inquiry	BLG0V
Summary (Data-Entry) Display Panels	BLG0S
Table Panels	BLG1T
Table Panels	BLM1T
TSPs	BLGT
TSPs for reference records	BLGRF
Utilities	BLG1UT
Utility Panels	BLG0X
Version 1 panels	BLG1PDS

Example of a Naming Scheme

If you plan to create panels, you should establish a panel-naming convention for them. Defining a naming scheme makes it easier for you to maintain and control the panels. For example, you can use the PMF reports more efficiently to identify selected groups of panels.

An example of a panel-naming scheme that you might want to use follows. In it, *xxx* is the 3-character application prefix and *yyy* (or *yyyy*) is a unique panel identifier.

Another idea for your naming convention is to have the last 4 digits of the panel name be either the s-word index or the p-word.

<i>xxx0B</i> yyy	Create, update, delete, and copy functions
<i>xxx0E</i> yyy	Inquiry mode
<i>xxx1A</i> yyy	Control panels
<i>xxx0L</i> yyy	Display panels
<i>xxx6</i> yyyy	Assisted-Entry panels
<i>xxx2</i> yyyy	Help panels
<i>xxx9</i> yyyy	Message panels
<i>xxx4</i> yyyy	Help for message panels
<i>xxx1T</i> yyy	Table panels

You can use a different set of constant values, but the point is to create categories and be consistent in their use as you set up groups of related panels. Adhering to a naming convention makes it much easier to debug any problems that you encounter when using Tivoli Information Management for z/OS panels you create.

Another benefit to using a naming scheme is running Panel Content reports. You can create reports for specific ranges of panels. For example, if all your TSPs contain a T in the fourth position of the panel name (*xxxTyyyy*), you could enter *xxxT* as the Panel range for a list of all your TSP panels. For more information, see “Panel Content Report” on page 230.

Avoid numbering your panels sequentially: A0000001, A0000002, A0000003, and so forth. It is almost impossible for anyone to remember which panel is which when they are numbered sequentially. If you want to use the FLOW command to debug panel errors and your panels are numbered sequentially (or do not follow a standard naming convention), you could have to look at every panel listed in the flow to find the errors.

If you can recognize control panel names or TSP names, those are always a good starting point to debugging panel errors. If you have a good naming convention, you should be able to spot these types of panels immediately.

Panels That Cannot Be Modified

Tivoli Information Management for z/OS includes a subset of panels that are marked as *communicating*. You can change only some of the externals on these panels. The externals you cannot change are the selection numbers and corresponding keyword phrases and names of the panels. If you request a communicating panel for update, the panel is presented along with a message indicating that restrictions apply to the current update dialog. If you make any changes to the panel’s control information, PMF ignores them.

The following communicating panels are used by the PMF dictionary function:

- BLM6PREN
- BLM6CWRD

- BLM6PVAL.

The following communicating panels are used in naming panel data set panel names:

- BLM6PAID
- BLM6FRPA
- BLM6TOPA
- BLM6PARA.

Control Panels

Selected control panels contain information used by Tivoli Information Management for z/OS to control various functions. Many of these control panels are not processed by the panel processor; usually they contain the name of a panel that is used by the panel processor. The control panels listed are used for:

- Determining the Primary Options Menu
- Record processing
- PMF panel identification
- PMF control line defaults
- PMF Panel Content report
- Miscellaneous functions.

Primary Control Panel

Use the Primary Control panel to test and set the current application. This is accomplished through a program exit (BLG01065) and application test control lines (000E function code). The first control line of this panel calls the program exit to set the current application; the panel named in the **False target** field is used as the Application Selection panel.

The System application Primary Control panel is BLG0ENTR. If you want to use a panel other than BLG0ENTR, make sure the first control line calls the application program exit. In addition, you must change the BLGPARMs installation macro to call Tivoli Information Management for z/OS with the user-defined Primary Control panel.

The Management application Application Selection panel is BLG00030. If you want to use a panel other than BLG00030, the false target of the first control line of the Primary Control panel must be changed to reflect the name of the user-defined Application Selection panel.

Record Processing

Access to records for various purposes, such as display, print or update, is managed through control panels. Each record type has its own set of control panels. Examine these control panels before you add additional authorization, change the RFT names, or add fields to be deleted on a record copy.

Table 32. Record Processing Control Panels

Record Type	Record File	Record Access	Record Print	Record Delete	Record Copy	Record Update
Problem	BLG1A111	BLG1A115	BLG1A118	BLG1A119	BLG1A116	BLG1A113
Change	BLG1A121	BLG1A125	BLG1A128	BLG1A129	BLG1A126	BLG1A123
Activity	BLG1A131	BLG1A135	BLG1A138	BLG1A139	BLG1A136	BLG1A133
Validation	BLG1A511	BLG1A504	BLG1A508	BLG1A509	BLG1A506	-----
Center	BLG1A1C1	BLG1A1C5	BLG1A1C8	BLG1A1C9	BLG1A1CA	BLG1A1C3
System	BLG1A1D1	BLG1A1D5	BLG1A1D8	BLG1A1D9	BLG1A1DA	BLG1A1D3

Table 32. Record Processing Control Panels (continued)

Record Type	Record File	Record Access	Record Print	Record Delete	Record Copy	Record Update
Hardware Component	BLG1A151	BLG1A155	BLG1A158	BLG1A159	BLG1A15A	BLG1A153
Hardware Feature	BLG1A161	BLG1A165	BLG1A168	BLG1A169	BLG1A162	BLG1A163
Hardware Connection	BLG1A1F0	BLG1A1F1	BLG1A166	BLG1A1F4	BLG1A1F5	BLG1A1F2
Hardware Subcomponent	BLG1A15B	BLG1A15C	BLG1A156	BLG1A15F	BLG1A152	BLG1A15D
Software Component	BLG1A171	BLG1A175	BLG1A178	BLG1A179	BLG1A17A	BLG1A173
Software Feature	BLG1A181	BLG1A185	BLG1A188	BLG1A189	BLG1A182	BLG1A183
Software Connection	BLG1A235	BLG1A236	BLG1A242	BLG1A1F4	BLG1A238	BLG1A237
Hardware Financial	BLG1A191	BLG1A195	BLG1A198	BLG1A199	BLG1A19A	BLG1A193
Software Financial	BLG1A1A1	BLG1A1A5	BLG1A1A8	BLG1A1A9	BLG1A1AA	BLG1A1A3
Model Hdw. Component	BLG1A291	BLG1A295	BLG1A298	BLG1A299	BLG1A29A	BLG1A293
Model Hdw. Feature	BLG1A2A1	BLG1A2A5	BLG1A2A8	BLG1A2A9	BLG1A2AA	BLG1A2A3
Model Hdw. Subcomponent	BLG1A212	BLG1A215	BLG1A218	BLG1A219	BLG1A21A	BLG1A213
Model Sftw. Component	BLG1A271	BLG1A275	BLG1A278	BLG1A279	BLG1A27A	BLG1A273
Model Sftw. Feature	BLG1A281	BLG1A285	BLG1A288	BLG1A289	BLG1A282	BLG1A283
Service	BLG1A1B1	BLG1A1B5	BLG1A1B8	BLG1A1B9	BLG1A1BA	BLG1A1B3
Escalation Rules Record	BLG1A411	BLG1A415	BLG1A418	BLG1A419	BLG1A416	BLG1A413
Privilege Class	BLG1A100	BLG1A104	BLG1A107	BLG1A108	BLG1A106	BLG1A10A
SRC	BLG1A141	BLG1A145	BLG1A148	BLG1A14A	BLG1A146	BLG1A143
Base Record	BLM1Y111	BLM1Y115	BLM1Y118	BLM1Y119	BLM1Y116	BLM1Y113
Parent Record	BLM1Y611	BLM1Y615	BLM1Y618	BLM1Y619	BLM1Y616	BLM1Y613
Child Record	BLM1Y641	BLM1Y655	BLM1Y658	BLM1Y659	BLM1Y656	BLM1Y653
People Record	BLM1B040	BLM1B000	BLM1B060	BLM1B151	BLM1B020	BLM0B000
Call Record	-----	BLM1A1C5	BLM1A1C8	BLM1A1C4	-----	-----
Tivoli Information Management for z/OS Record Detail	-----	-----	BLG0W120	-----	-----	-----

Following are the descriptions of the columns in Table 32 on page 394.

Record Type

Identifies the type of record.

Record File

Does pre-file processing for a record. It adds specific items such as date last altered, time last altered, and user last altered to the record. It also starts any specialized program exits for additional record functions, such as transfer-to privilege class processing. The last control line in this control panel is a 0004 function code that causes the record to be filed.

Record Access (Display)

Permits access to the record for the utility functions: copy, display, print, delete, and update. This control panel is the target of the 0004 (FILE) function code. When the record is accessed, this control panel tests for the type of function and

then sets an appropriate target panel. For example, if the function is update, it sets the panel for record update. Each control line of the control panel contains an authorization code to make sure the user is authorized to perform the requested function. You can change this authorization if you need to.

Record Print	Identifies the RFT to be used to print the record. The control panel is set by the record-access panel when the user issues the PRINT command.
Record Delete	Performs verification for record delete. It is set when the user selects Verify delete from a Delete Verification panel.
Record Copy	Identifies the target panel to be set for a record copy operation. It also calls program exits to be used before the panel is set, as automatically deleting fields in one record from the source record prior to copying them to the new record.
Record Update	Calls the record ownership verification program exit before allowing the record to be updated. It subsequently sets the name of the Record Update Summary panel.

You can add your own set of control panels to perform record processing, if required. The best method is to copy a row of panels to your own name.

PMF Panel Identification

The PMF panel identification panel identifies all panels used in PMF with an s-word. This panel enables you to modify the panels displayed by PMF for a specific function. For example, you can change the summary panel from the CONTROL command for a selection panel to an installation-defined summary panel. You can update this control panel. Two other panel identification panels are used in PMF; they identify all the panels to be copied for either a SIMPLE or COMPLEX panel set create. Each panel named in the control panel is copied, and the first 3 characters of the panel name are replaced by those specified for the new panel set. In addition, any target panel name that exists in the copied panel and has the character y in the fifth position of the name, has the first 3 characters replaced with the new panel set prefix. If you want to change or add panels to the panel set created, you can change the control panel as required.

Table 33. PMF Panel Identification Control Panels

Function	Control Panel
Panel set create (simple)	BLM1A213
Panel set create (complex)	BLM1A214
PMF panel flow	BLM1A215

PMF Panel Content Reports

The control panels listed in Table 34 on page 397 identify the table panels used to format PMF Panel Content reports. Each control line in these panels contains an s-word and a target panel. The target panel is a table panel that identifies the format and columns associated with the panel type being printed. If you want to change the format of the Panel Content

report, you can modify these table panels by using PMF Panel Update. In addition, you can keep information from being printed by deleting the control lines for the associated data (for example, the common data).

For example, you can print just the externals of the panels for distribution or review. To do so, delete the control lines that contain the s-words for the control information, copy the control panels to a specific panel data set used for this purpose, and request the Panel Content reports. The names of the table panels that format Panel Content reports are in “Table Panel Modifications” on page 156.

Table 34. PMF Panel Content Report Table Names

Panel Type	Control Panel
Selection	BLM1A201
Options	BLM1A202
Message	BLM1A203
Help	BLM1A204
Assisted-Entry	BLM1A205
Control	BLM1A206
Data-Entry	BLM1A207
Table	BLM1A208
TSP	BLM1A209

PMF Control Line Defaults

PMF uses the control panels listed in Table 35 to add default information to panels:

Table 35. PMF Control Line Defaults

Panel Type	Control Defaults	Null/General Defaults
Selection	BLM1A801	BLM1A811
Options	BLM1A802	BLM1A812
Message	BLM1A833	-----
Help	BLM1A804	-----
Assisted-Entry	BLM1A805	BLM1A815
Control	BLM1A806	-----
Data-Entry	BLM1A807	BLM1A817
Table	BLM1A808	BLM1A839
TSP control line	BLM8CU9n where n=last character of data-entry panel name	BLM1A40n where n=last character of data-entry panel name
TSP control line return	BLM1A40Y	-----
TSP control line clear	BLM1A40C	-----

The descriptions of the columns in the table follow:

Control Defaults

Adds defaults for new fields, selections, options, control lines or columns when the CONTROL command is issued. The defaults added depend on the panel type.

Null or General Defaults Adds defaults for new null-reply lines or the General update dialog for table panels. The null-reply defaults added are based on the panel type.

You can update these control panels if you want to use different defaults than those shipped with PMF. For example, a default target panel of BLG1M118 is added for selections. You can change this default by modifying the control panel BLG1A811.

Other Important Panels You Can Change

Table 36 presents other important control panels used by Tivoli Information Management for z/OS that you can change to suit your needs.

Table 36. Miscellaneous Control Panels

Function	Control Panel	Description
Text display	BLG1ACTL	Controls the display of control information. (As shipped by Tivoli, this includes date, time, and user ID.)
Report test	BLG1AW00	Used by reports to test for periodic date for changes.
Report test	BLG1AW10	Used by reports to test for periodic date for problems.
Search results list	BLG1A201	Identifies the table panels used by the search processor.
Authority test	BLG1A210	Verifies authorization before displaying any record data on a search results list or including the record in a report. This panel controls authority by using the s-word and authority code fields on the control lines. All other fields on the control lines are ignored.
Table panel display	BLG1ATBL	Identifies available search results list panels for use with the TABLE command.
Rename field qualification	BLG1A1DD	Used by the rename processor to identify the fields to be renamed in the database.
Swap field qualification	BLG1UT24 BLG1UT25 BLG1UT26	Used to swap specific fields between two components or subcomponents.

Fields Whose Modification Affects Tivoli Information Management for z/OS Reports

Table 37 lists the key fields used in the Tivoli Information Management for z/OS standard reports. For each field, the table shows the field name, the associated p-words and s-words, the RFT that includes it, and how it is used in reports. The elements of the RFT most frequently affected by modifying these fields are the ARGUMENT and SORT keywords on the SEARCH statement. Refer to the *Tivoli Information Management for z/OS Data Reporting User's Guide* for more information about RFTs.

Table 37. Key Fields Used in Standard Reports

Field Name	S-Word/ P-Word	RFT Name	How Used
Activity name	SOCBC	BLMZZ35	Find records that have activity
Activity records	S0B07	BLMZZ12	Find activity records
	S0B07	BLMZZ13	Find activity records
	S0B07	BLMZZ14	Find activity records

Table 37. Key Fields Used in Standard Reports (continued)

Field Name	S-Word/ P-Word	RFT Name	How Used
	S0B07	BLMZZ31	Find activity records
	S0B07	BLMZZ32	Find activity records
	S0B07	BLMZZ33	Find activity records
	S0B07	BLMZZ34	Find activity records
	S0B07	BLMZZ35	Find activity records
	S0B07	BLMZZ36	Find activity records
Actual start date	S0C43	BLMZZ36	Find records with an actual start date
Alias records	S12E4	BLMZZ12	Find alias records
	S12E4	BLMZZ13	Find alias records
	S12E4	BLMZZ14	Find alias records
Assignee dept.	GROA	BLMZZ23	Records sorted by assignee department
	S0B9C	BLMZZ23	Find records that have an assignee
Assignee name	PERA	BLMZZ23	Records sorted by assignee name
	S0B5A	BLMZZ23	Find records that have an assignee
Call records	S0037	BLMZZ12	Find call records
	S0037	BLMZZ13	Find call records
	S0037	BLMZZ14	Find call records
	S0037	BLGPRCA	Find call records
Change records	S0B06	BLMZZ12	Find change records
	S0B06	BLMZZ13	Find change records
	S0B06	BLMZZ14	Find change records
	S0B06	BLMZZ31	Find change records
	S0B06	BLMZZ32	Find change records
	S0B06	BLMZZ33	Find change records
	S0B06	BLMZZ34	Find change records
	S0B06	BLMZZ35	Find change records
	S0B06	BLMZZ36	Find change records
Completion date	S0C40	BLMZZ36	Find records with a completion date
Component record	S0B17	BLMZZ41	Find component records
Current priority	PRI0	BLMZZ21	(prio/01) Find priority 1 records
Current status	STAC	BLMZZ21	(¬stac/closed) Find records not closed
	STAC	BLMZZ23	(¬stac/closed) Find records not closed
	STAC	BLMZZ33	(¬stac/closed) Find records not closed
	STAC	BLMZZ34	(¬stac/closed) Find records not closed
	STAC	BLMZZ34	(¬stac/closed) Find records not closed
	STAC	BLMZZ35	(¬stac/closed) Find records that closed
	STAC	BLMZZ36	(¬stac/closed) Find records that closed
Data center	S0B0C	BLMZZ12	Find data center records
	S0B0C	BLMZZ13	Find data center records

Fields Whose Modification Affects Reports

Table 37. Key Fields Used in Standard Reports (continued)

Field Name	S-Word/ P-Word	RFT Name	How Used
	S0B0C	BLMZZ14	Find data center records
Date entered	DATE	BLMZZ21	Find records entered during the current period. Records sorted by record ID
	DATE	BLMZZ22	Records sorted by date entered
	DATE	BLMZZ23	Records sorted by date entered
	DATE	BLMZZ31	Find records entered during the previous, current, and next periods
Date finished	DATR	BLMZZ21	Find records finished during the current period. Records sorted by record ID
Date required	DATD	BLMZZ31	Records sorted by date required
	DATD	BLMZZ32	Records sorted by date required
	DATD	BLMZZ33	Records sorted by date required
	DATD	BLMZZ34	Records sorted by date required
	DATD	BLMZZ36	Records sorted by date required
Feature name	NAFE	BLMZZ42	Records sorted by feature name
	S0CBD	BLMZZ42	Find records with feature names
Feature record	S0B10	BLMZZ42	Find feature records
Feature records	S0B10	BLMZZ41	Find feature records
Generic device	TYPD	BLMZZ41	Records sorted by generic device
Hardware component records	S0B0F	BLMZZ12	Find hardware component records
	S0B0F	BLMZZ13	Find hardware component records
	S0B0F	BLMZZ14	Find hardware component records
	S0B0F	BLMZZ41	Find hardware components
	S0B0F	BLMZZ42	Find hardware component records
	S0B0F	BLMZZ43	Find hardware component records
Hardware connection records	S0B1E	BLMZZ12	Find hardware connection records
	S0B1E	BLMZZ13	Find hardware connection records
	S0B1E	BLMZZ14	Find hardware connection records
Hardware feature records	S0B10	BLMZZ12	Find component feature records
	S0B10	BLMZZ13	Find component feature records
	S0B10	BLMZZ14	Find component feature records
Hardware subcomponent records	S0AF8	BLMZZ12	Find hardware subcomponent records
	S0AF8	BLMZZ13	Find hardware subcomponent records
	S0AF8	BLMZZ14	Find hardware subcomponent records
Model hardware component records	S0AF4	BLMZZ12	Find model hardware component records
	S0AF4	BLMZZ13	Find model hardware component records
	S0AF4	BLMZZ14	Find model hardware component records

Table 37. Key Fields Used in Standard Reports (continued)

Field Name	S-Word/ P-Word	RFT Name	How Used
Model hardware feature records	S0AF4	BLMZZ14	Find model hardware feature records
	S0AF5	BLMZZ13	Find model hardware feature records
	S0AF5	BLMZZ14	Find model hardware feature records
Model hardware subcomponent records	S0AF6	BLMZZ12	Find model hardware subcomponent records
	S0AF6	BLMZZ13	Find model hardware subcomponent records
	S0AF6	BLMZZ14	Find model hardware subcomponent records
Hardware financial records	S0B1B	BLMZZ12	Find hardware financial records
	S0B1B	BLMZZ13	Find hardware financial records
	S0B1B	BLMZZ14	Find hardware financial records
Location code	LOCC	BLMZZ41	Records sorted by location code
	S0C0C	BLMZZ41	Find records with location codes
Logsave records	S0F60	BLMZZ12	Find logsave records
	S0F60	BLMZZ13	Find logsave records
	S0F60	BLMZZ14	Find logsave records
Parent record	RNOR	BLMZZ35	Find records belonging to this parent
	RNOR	BLMZZ42	Find records belonging to this parent
Pending approver privilege classes	SP**	BLMZZ33	Find records that have pending approval privilege classes
Pending approver	SP**	BLMZZ34	Find records that have pending
Planned end date	DATT	BLMZZ36	Records sorted by planned end date
Planned start date	DATP	BLMZZ36	Records sorted by planned start
	S0C41	BLMZZ36	Find records with a planned start
Privilege class record	S0B1C	BLGZZ12	Find privilege class records
	S0B1C	BLGZZ13	Find privilege class records
	S0B1C	BLGZZ14	Find privilege class records
Problem records	S0B01	BLMZZ12	Find problem records
	S0B01	BLMZZ13	Find problem records
	S0B01	BLMZZ14	Find problem records
	S0B01	BLMZZ21	Find problem records
	S0B01	BLMZZ22	Find problem records
	S0B01	BLMZZ23	Find problem records
Program type	TYPP	BLMZZ41	Records sorted by program type
Record ID	RNID	BLGZZ11	Records sorted by record ID
	RNID	BLGZZ12	Records sorted by record ID
	RNID	BLGZZ13	Records sorted by record ID
	RNID	BLGZZ14	Records sorted by record ID
	RNID	BLGZZ21	Records sorted by record ID

Fields Whose Modification Affects Reports

Table 37. Key Fields Used in Standard Reports (continued)

Field Name	S-Word/ P-Word	RFT Name	How Used
	RNID	BLGZZ22	Records sorted by record ID
	RNID	BLGZZ23	Records sorted by record ID
	RNID	BLGZZ31	Records sorted by record ID
	RNID	BLGZZ32	Records sorted by record ID
	RNID	BLGZZ33	Records sorted by record ID
	RNID	BLGZZ34	Records sorted by record ID
	RNID	BLGZZ35	Records sorted by record ID
	RNID	BLGZZ36	Records sorted by record ID
	RNID	BLGZZ41	Records sorted by record ID
	RNID	BLGZZ42	Records sorted by record ID
	RNID	BLGZZ43	Records sorted by record ID
	RNID	BLGZZ44	Records sorted by record ID
Rules records	S0120	BLMZZ12	Find rules records
	S0120	BLMZZ13	Find rules records
	S0120	BLMZZ14	Find rules records
Service organization records	S0B19	BLMZZ12	Find service organization records
	S0B19	BLMZZ13	Find service organization records
	S0B19	BLMZZ14	Find service organization records
Software component records	S0B13	BLMZZ12	Find software component records
	S0B13	BLMZZ13	Find software component records
	S0B13	BLMZZ14	Find software component records
	S0B13	BLMZZ41	Find software components
	S0B13	BLMZZ42	Find software component records
	S0B13	BLMZZ44	Find software component records
Software feature records	S0B14	BLMZZ12	Find software feature records
Software connection records	S0B1F	BLMZZ12	Find software connection records
	S0B1F	BLMZZ13	Find software connection records
	S0B1F	BLMZZ14	Find software connection records
	S0B14	BLMZZ13	Find software feature records
	S0B14	BLMZZ14	Find software feature records
	S0B14	BLMZZ42	Find software feature records
Model software component records	S0AFB	BLMZZ12	Find model software component records
	S0AFB	BLMZZ13	Find model software component records
	S0AFB	BLMZZ14	Find model software component records
Model software feature records	S0AFC	BLMZZ12	Find model software feature records
	S0AFC	BLMZZ13	Find model software feature records

Table 37. Key Fields Used in Standard Reports (continued)

Field Name	S-Word/ P-Word	RFT Name	How Used
	S0AFC	BLMZZ14	Find model software feature records
People records	S0031	BLMPRPE	Find people records
	S0031	BLMZZ12	Find people records
	S0031	BLMZZ13	Find people records
	S0031	BLMZZ14	Find people records
Software financial records	S0B1A	BLMZZ12	Find software financial records
	S0B1A	BLMZZ13	Find software financial records
	S0B1A	BLMZZ14	Find software financial records
System records	S0B0E	BLMZZ12	Find system records
	S0B0E	BLMZZ13	Find system records
	S0B0E	BLMZZ14	Find system records
SRC records	S0B1D	BLGZZ12	Find SRC records
	S0B1D	BLGZZ13	Find SRC records
	S0B1D	BLGZZ14	Find SRC records
Up component	RNU*	BLMZZ43	Find records with up connections
	RNU*	BLMZZ44	Find records with up connections
Users records	S12E1	BLMZZ12	Find users records
	S12E1	BLMZZ13	Find users records
	S12E1	BLMZZ14	Find users records
Validation records	S10B1	BLMZZ12	Find validation records
	S10B1	BLMZZ13	Find validation records
	S10B1	BLMZZ14	Find validation records

Determining the Characteristics of Fields on Tivoli Information Management for z/OS Panels

When you add a field to a panel or modify the use of an existing field, you must have certain information about the field:

- Its associated s-word and prefix indexes
- The validation pattern for any responses, including the length of the reply area
- Whether its data is journalized
- Whether the field is required
- Whether it is filled in by the system or by the user.

This section tells you how to locate information about the characteristics of fields on Tivoli Information Management for z/OS panels.

When you plan to modify a field, you can use PMF to look at the field and to find the information you want. The following example outlines the procedure for modifying a data-entry field. The steps are similar for selections.

1. If you do not know which panels contain the field, run the String Find report to list them, searching on the key phrase.
2. Go through the appropriate Tivoli Information Management for z/OS dialog, such as creating a problem or searching the database, until you reach the data-entry panel containing the field you want to change.
3. Type the field number on the command line and press Enter.
4. The assisted-entry panel for the field appears. In the upper right corner is the p-word for the field. Write down the p-word and the name of the assisted-entry panel.
5. Issue the INIT command to return to BLG0EN20, the Tivoli Information Management for z/OS Primary Options Menu. Enter the following IRC to request the assisted-entry panel for PMF update: 9,1. Enter the name of the assisted-entry panel on BLM8CU00, and select **Externals** on BLM8CU50.
6. Issue the CONTROL command from the assisted-entry panel to see the control information for the field, such as the s-word index and s-word, if present; how the field is used, and so on. If you are on panel BLM8CU53, you can select **Prefix & content validation** to see the prefix index and validation pattern for the field.
7. Cancel the update of the assisted-entry panel and return to the Panel Modification Facility options panel.
8. Select **Dictionary**.
9. Select **P-Word display** and look at the p-word record in the dictionary to see the length and validation pattern for the field. You can use the FIND command to locate the first occurrence of the p-word in the dictionary display. This is the same information you get when you follow step 6.
10. If you are creating a new s-word, you might want to look at this field's s-word in the dictionary to see how it shadows, or is shadowed by, other s-words.
11. Return to the Panel Modification Facility options panel and select **Reports**.
12. Run the appropriate PMF reports to see how the p-word and s-word are used in other panels.

S-Words for Freeform Text

Freeform text entered on Tivoli Information Management for z/OS panels has s-words associated with it so that it can be searched. The s-word indexes for freeform text are the same for all record types. Because freeform text does not occur in a defined field, you cannot use the procedure outlined here to find its s-word. Table 38 lists the freeform text data types and their associated s-word indexes:

Table 38. S-Words for Freeform Text

Freeform Text Type	S-Word Index Key
Description text (except SRCs)	S0E01
Status text	S0E02
Resolution text	S0E03
Notes text	S0E04
Justification text	S0E05
Backup plan text	S0E06

Table 38. S-Words for Freeform Text (continued)

Freeform Text Type	S-Word Index Key
Location/address text	S0E07
SRC notes text	S0E0D

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Program Exits for Use with Panels

This chapter describes the program exit routines that Tivoli Information Management for z/OS applications use. Program exits, as mentioned elsewhere in this book, are routines that you can call from control panels and programs that use some of the internal data collected by panels. Tivoli Information Management for z/OS applications use program exits to interrupt panel-to-panel processing and perform specific, often repetitive, functions.

When you create panels or sets of panels, you can use many of the same program exit routines used by Tivoli Information Management for z/OS applications to do similar processing. However, you cannot use your own installation-created exit routines.

Tivoli Information Management for z/OS has two categories of program exits: common and specific. The common category contains the program exits you should find useful: they perform a variety of functions for you (for example, validating the proper format of dates, or copying parent and child records).

The specific category includes program exits that are unique to Tivoli Information Management for z/OS functions (such as profile, SRC and PMF). Do *not* remove a specific program exit from the base panel flow. This book includes the specific program exits for the sake of completeness, but only with brief descriptions of each one.

The common exits, on the other hand, are presented in enough detail to let you use them in your own panel processing. For each exit routine, the following information is provided for you:

- | | |
|--------------------|--|
| Description | The routine's processing and the data required by the routine |
| Environment | The mode and panel types from which the program exit can be called. (Unless otherwise specified, create mode includes create, update, and copy modes.) |
| Example | A panel that uses the program exit. (For a list of all the panels that use a program exit, run a panel cross-reference report.) |
| Input | Panels, p-words, and s-words used by the program exit. |
| Output | Messages and ABEND codes issued by the exit routine. |

A program exit can be called from five panel types: selection, options, data-entry, assisted-entry, and control. Not all program exits can be called from all panel types, however; most program exits are specific to a single type of panel. In addition, program exits can be called from data attribute records, which in an interactive environment can take the place of assisted-entry panels.

In an interactive environment, any reference to assisted-entry panels also applies to data attribute records. Data attribute records can be used interactively or by an application using a Tivoli Information Management for z/OS Application Program Interface (API). Of those program exits that can be invoked by data attribute records, only some can be invoked by data attribute records that are used in an API environment. The Environment section for each program exit identifies whether the program exit can be called:

- from one or more of the five panel types listed above
- from a data attribute record resulting from an API create, update, or add record relations transaction.

To use a program exit, enter its name in the **Program exit** or **Program exit/TSP symbol** field on the Panel Flow Processing panel for a specific control line of the appropriate panel type. For example, if you want to call a program exit to set up the use of record utility functions from a new selection panel:

Issue the **CONTROL** command for a selection on your new panel.

```

BLM8CU11                SELECTION PANEL UPDATE                EXTERNALS

+-----+-----+
| PANEL NAME                TOP TITLE                DIALOG NAME |
+-----+-----+
| USE....This line describes the general purpose of the panel. |
| 1. KEY PHRASE.....Provide additional description of keywords. |
| 2. KEY PHRASE.....Provide additional description of keywords. |
| 3. KEY PHRASE.....Provide additional description of keywords. |
| 4. KEY PHRASE.....Provide additional description of keywords. |
| 5. KEY PHRASE.....Provide additional description of keywords. |
| 6. KEY PHRASE.....Provide additional description of keywords. |
| 7. KEY PHRASE.....Provide additional description of keywords. |
|                                BOTTOM TITLE          |
+-----+-----+

Modify textual data within the box. To modify control data, type
CONTROL on the command line. When you finish, type END to save or
CANCEL to discard any changes.

==> control

```

Select **Panel flow processing** on the Control Line Summary panel.

```

BLM8CU13                SELECTION CONTROL SUMMARY                PANEL: _____

SELECTION: _____

Dialog end..... _____   Structured word index..... _____
Create target..... _____ Structured word..... _____
Inquiry target..... _____ Apply not logic..... _____
Branch and link..... _____ Cognize response..... _____
Authorization code..... _____ Force SRC generate end.... _____
Target is data-entry.... _____ Program exit symbol..... _____

Select one of the choices, or type END to save or CANCEL to discard changes.

                        1. Panel flow processing.
                        2. Data collection processing.

====> 1

```

Type the name of the Program exit symbol you want to use, along with the rest of the data needed for this panel. Type **end**, and press **Enter**.

```

BLM8CU1A                PANEL FLOW PROCESSING                PANEL: _____

Enter panel flow control data; cursor placement or input line entry allowed.

SELECTION: _____

1. Authorization code..... _____
2. Create target..... _____
3. Inquiry target..... _____
4. Branch and link..... _____
5. Dialog end..... _____
6. Override dialog target... _____
7. Target is data-entry.... _____
8. Force SRC generate end... _____
9. Program exit symbol..... BLG01195

When you finish, type END to save or CANCEL to discard any changes.

====> end

```

When a user chooses a selection on your new panel, program exit BLG01195 is automatically called. The program exit initializes the environment for the collection of data for the new record.

Read the information on the following pages to understand and use the Tivoli Information Management for z/OS program exits in your own applications. To find out which program exits are called from which Tivoli Information Management for z/OS panels, run the Panel Cross-Reference report. See “Running PMF Reports” on page 227 for more information.

Common and Specific Program Exits

The common program exits perform general-use functions and might be useful in your own applications. The specific program exits are program exits that are specific to certain Tivoli Information Management for z/OS applications. The specific program exits are program dependent and function correctly only when used in a specific panel sequence. Do not use the specific program exits in any other manner.

BLG01050 - Initialize Environment for Record Entry and File Record

The BLG01050 program exit sets up the environment for a record entry process. A brief outline of the routine's processing follows:

- Locates database 5.
- Makes sure the recovery log data set (SDLDS), if present, is not full.
- Obtains storage for the record to be created.
- Sets the mode to **CREATE**.
- Sets the next panel to be processed: the target panel from the calling control line or, if running with the LLAPI, the panel obtained by user exit BLGYAPGP.
- Regains control when the record entry process is completed and determines whether to file the record. If the record is to be filed (a 0004 function code was processed), the control panel named as the target of the function code is used as the record access (display) panel, and the record is filed. (See function code 0004 in "Function Code Indexes" on page 186 for more information.)
- Regardless of whether the record is filed, frees all storage and resets the environment to its previous state. The panel from which the exit was called reappears.

Environment: Called from a selection, options, data-entry, or assisted-entry panel. Called from data attribute records used interactively.

Note: This exit cannot be called from data attribute records used in an API environment.

Example: BLG0EN20, the Tivoli Information Management for z/OS Primary Options Menu.

Input:

Panels: Target panel is obtained from the control line.

P-Words: None.

S-Words: None.

Output:

Messages:

BLG03019E BLG03026I BLG03029E BLG03058I

ABEND codes:

None.

BLG01051 - Validate Date Entered

The BLG01051 program exit validates the internal format of the date entered. A brief outline of the routine's processing follows:

- It does no validation if any of the following conditions exist:

- The user entered a null response.
- The user entered an equal sign (=) in the **Date** field, requesting a system-generated date.
- The system is in generate mode and the user entered the divert symbol (?).
- If the user has entered a date, does the following:
 - Checks the month value for a range of 01 through 12
 - Checks the day value for a range of 01 through 31
 - If the month value is 02 (February), checks the day value to make sure it does not exceed 29 for a leap year or 28 for a non-leap year
 - If the month value is 04, 06, 09, or 11, checks the day value to make sure it does not exceed 30.
- If the date was entered in inquiry mode, does the following additional validation:
 - Allows the use of the abbreviation symbol (SBCS period character) if it is by itself
 - Does not make the check for less than 01 on the month or day value if an SBCS asterisk (*) is entered in either position of the value
 - If the month value is 02 and either position of the year field is an SBCS asterisk (*), checks only to see that the day value does not exceed 29
 - For a range search, checks to make sure the date-to value of the range is greater than the date-from value.

Environment: Called in create or inquiry mode from an assisted-entry panel or from a data attribute record used interactively.

Note: This exit cannot be called from data attribute records used in an API environment.

Example: BLG6DATX, the General Date panel.

Input:

Panels: None.

P-Words: None.

S-Words: None.

Output:

Messages:

BLG04007W BLG05021W BLG05022W

ABEND codes:

None.

BLG01052 - Validate Time Entered

The BLG01052 program exit validates the input time. A brief outline of the routine's processing follows:

- In inquiry mode, it allows a period (.) as an abbreviation symbol for a time, with these restrictions:
 - If you do not use a time conversion routine.
 - If you do use a time conversion routine, the period must be the only thing entered.

- It does no validation if any of the following conditions exist:
 - The user entered a null reply.
 - In create mode, the user entered an equal sign (=) in the field, requesting that the system generate the time.
 - The system is in generate mode and the user entered the divert symbol (?).
- If the user entered a time, it does the following:
 - Checks the hour value for a range of 00 through 24
 - Checks the minute value for a range of 00 through 59
 - If the hour value is 24, checks the minute value to see that it does not exceed 00.
- If the prefix begins with **TIM**, the HH:MM format is assumed. If the prefix begins with anything other than **TIM**, the DD:HH:MM format is assumed (DD is assumed to be days with the value range of 00 through 99).
- In inquiry mode, if the user entered a time range, it verifies the internal formats of the times, both the beginning and ending times of the range. It also verifies that the ending time is greater than the beginning time.

Environment: Called in create, inquiry, or display mode from an assisted-entry panel. Called in create or display mode from data attribute records used interactively. This exit can be called from data attribute records used in an API environment.

Example: BLG6TIMX, the General Time panel.

Input:

Panels: None.
P-Words: None.
S-Words: None.

Output:

Messages:

BLG03006E BLG04009W BLG05021W BLG05022W

ABEND codes:

None.

BLG01053 - Validate User-Assigned Record ID

The BLG01053 program exit processes and validates user-assigned record identifiers. A brief outline of its processing follows:

- Does no validity checking if it detects a null reply or if the session is in generate mode.
- Makes sure the record is being created rather than updated. If it is being updated, issues an error message.
- If this user has already assigned a record ID during the current record-create process, dequeues the new record ID and clears the old one from the correct record block.
- Processes and validates the record identifier:
 - If it cannot locate the current database, issues an error message and stops processing.
 - If it locates the current database, opens the database for input.

- Checks that the user-assigned record ID does not already exist. If it does, issues an error message and stops processing.
- Enqueues on the record ID. If successful, sets the record ID in the current record block.

Environment: Called in create mode from an assisted-entry panel. Does no processing in inquiry mode from a dual-mode assisted-entry panel. Called in create mode from data attribute records used interactively.

Note: This exit cannot be called from data attribute records used in an API environment.

Example: BLG6URN0, the Record ID panel.

Input:

Panels: None.

P-Words: RNID/. - Record identifier.

S-Words: None.

Output:

Messages:

BLG03029E BLG21002W BLG21004W

ABEND codes:

None.

BLG01054 - Verify Record Type

The BLG01054 program exit verifies that the record ID entered by the user is a valid Tivoli Information Management for z/OS record type. A brief outline of the routine's processing follows:

- Checks the last entry in the current record block for an s-word. If it finds no s-word in the entry, issues an error message.
- Steps through the control lines in control panel BLG1ARVC until an s-word in the control panel matches the s-word in the last entry. If it finds no match, issues an error message.
- Tries to locate the record name entered by the user. If unsuccessful, issues an error message.
- Builds a word list using the s-word from the control panel to define the record type and the data from the entry to define the record ID.
- Tries to locate the record in the database. If unsuccessful, issues an error message.

Note: The control lines in panel BLG1ARVC are in groups of three. If you add a new s-word to this panel, you must add three new control lines for it:

- The s-word for the record ID (the assisted-entry collection s-word)
- The s-word for the record type (search s-word)
- An alternate s-word for locating the record.

The third control line can be a no-operation FLOW line with a function code of 000D, but it must be present. The third control line contains an s-word that is searched with a \neg before it. This results in a search for the second s-word, but not the third s-word. For example,

```
SEARCH RNID/xxxxxxx sword2  $\neg$  sword3
```

Environment: Called in create mode from an assisted-entry panel or from data attribute records used interactively. This exit can also be called in create mode from data attribute records used in an API environment. Does no processing in inquiry mode from a dual-mode assisted-entry panel.

Example: BLG6PRCL, the Invocation Privilege Class panel.

Input:

Panels: BLG1ARVC - Control panel that contains the s-words for interrecord relationships.

P-Words: RNID/. - Record identifier.

S-Words: None.

Output:

Messages:

```
BLG03006E    BLG03029E    BLG03062W
```

ABEND codes:

None.

BLG01065 - Set the Current Product

The BLG01065 specific program exit sets the current product. The product s-word and name are moved into the current product field.

BLG01110 - Insert Profile Default Database ID into Reply Buffer

The BLG01110 program exit builds the entries required to prime the utilities data-entry panel with the user's database ID. If the user's profile names a default database ID, the routine's processing occurs in the following manner:

- Saves the reply buffer and sets the reply buffer length to zero
- Moves the s-word for the database ID, followed by a comma, the database index from the profile, and another comma, into the reply buffer and sets the reply buffer length
- Moves the saved reply buffer into the reply buffer following the second comma and sets the reply buffer length.

Environment: Called in create mode from a control panel.

Example: BLG1A117, the Invoke Utility Routines panel.

Input:

Panels: None.

P-Words: None.

S-Words: XDCCFCC100E - Cluster ID.

Output:**Messages:** None.**ABEND codes:**
None.**BLG01111 - Invoke Record Function Processor**

The BLG01111 program exit extracts the database ID and record ID from the structured-description entry (SDE) chain and calls the proper processor to complete the requested function. A brief outline of the routine's processing follows:

- Saves the current panel name.
- Locates and extracts the last occurrence of the database ID from the SDE chain.
- Determines which record function the user wants to perform and sets the appropriate function type.
- Locates and extracts the last occurrence of the record ID from the SDE chain. If the record ID is not found, issues an error message.
- Builds a word list with the record ID p-word and the saved record ID.
- Searches the database for the record ID and saves the VSAM record number.
- Calls the record function processor to read in the record for the specified function.

Environment: Called in create or inquiry mode from a data-entry panel.**Example:** BLG1UT01, the Utility Entry Dialog panel.**Input:****Panels:** None.**P-Words:** RNID/. - Record identifier.**S-Words:**

XDCFCC100E - Database ID
 XIM00NR001 - Record number
 XISCOMMD** - Any command entered
 XISCOMMD04 - Display command entered
 XISCOMMD05 - Copy command entered
 XISCOMMD06 - Update command entered
 XISCOMMD07 - Print command entered
 XISCOMMD08 - Delete command entered

Output:**Messages:**

BLG03019E BLG03020W BLG03022W BLG03023W BLG03025I
 BLG03026I

ABEND codes:
None.**BLG01119 - Initialize SRC Generate Mode**

The BLG01119 specific program exit initializes the environment for SRC generation.

BLG01120 - Cleanup after SRC Copy or Update

The BLG01120 specific program exit restores the environment after an SRC record has been copied or updated.

BLG01121 - Change Contents of SRC Record

The BLG01121 specific program exit controls the CHANGE selection processing of SRC responses when an SRC is being updated.

BLG01124 - Initialize SRC Copy/Update/Display Functions

The BLG01124 specific program exit sets up for the copy, update, and display record utility functions for an SRC record.

BLG01125 - Display SRC Responses

The BLG01125 specific program exit displays the SRC responses for the SRC record currently being displayed.

BLG01132 - Display Privilege Classes

The BLG01132 program exit displays a list of privilege classes available to the user. The user may view or run any privilege class record on the list. A brief outline of the routine's processing follows. When called after collection:

- Builds a word list and calls the search processor to find all the privilege class records for this user
- Uses window-display services to display the privilege class-record list
- Ends the current dialog upon return from displaying the record list.

Environment: Called in create or inquiry mode from a data-entry panel.

Example: BLG0EN10, the System application Primary Options Menu.

Input:

Panels: BLG1T013 - Privilege Class Record Display panel.

P-Words: CODU/ - Eligible users.

S-Words: XIM0I0CREC - Class record.

Output:

Messages:

BLG10003W

ABEND codes:

None.

BLG01135 - Display Glossary Keyword

The BLG01135 program exit determines the database to be used for the glossary display and the keyword from which the display should start. A brief outline of the routine's processing follows:

- If called for the first time, makes sure the entry was from a valid panel, and requests it to be called after collection
- If called after collection, does the following:

- If the user specified a database to be used for the glossary display and a keyword from which the display should start, sets the index into the glossary using the specified keyword
- If no keyword was specified, sets the index into the glossary using the first prefixed word or freeform word contained in the glossary data set for the named database
- Calls window-display services to display the glossary keywords.

Environment: Called in create or inquiry mode from a selection, options, data-entry, assisted-entry, or control panel. Called from data attribute records used interactively.

Note: This exit cannot be called from data attribute records used in an API environment.

Example: BLG0X100, the Glossary Entry panel.

Input:

Panels: BLG1TGLD - Glossary Display panel.

P-Words: None.

S-Words:

XDCFCC100E - Database ID
XDCFCC102A - Keyword display

Output:

Messages:

BLG11001I

ABEND codes:

None.

BLG01137 - Display History Data for a Record

The BLG01137 program exit displays the current history data associated with the record being displayed. A brief outline of the routine's processing follows:

- Based on the panel type, loads the appropriate target panel. If the panel type is unknown, uses the default history display panel.
- If the panel being loaded is not a table panel, issues an error message.
- If the history entry is a Version 2 or later control entry (journalized first), does the following:
 - Matches the s-word of the control entry to an s-word in the history table panel. When it finds a match, extracts the p-word data from the entry and moves it into the corresponding window-display entry for display.
- If the history entry is a Version 2 or later data-entry, does the following:
 - Scans for a column containing the history s-word
 - If the column exists and the entry includes a p-word, moves the p-word and its associated data into the window-display entry for display
 - If no p-word word exists in the history entry, moves the current visible phrase into the window-display block for display.

- If the history entry is a Version 1 data-entry, does the following:
 - If the date of the current entry differs from the date of the previous entry, obtains a new window-display block and moves the date of the current entry into the window-display block for display
 - Moves the p-word and its associated data into the window-display entry for display.
- Calls window-display services to display the history data to the user.

Environment: Called only when a record is being displayed, from a selection, options, data-entry, or assisted-entry panel. Called from data attribute records used interactively.

Note: This exit cannot be called from data attribute records used in an API environment.

Example: BLG0N100, the Hardware Component Display panel.

Input:

Panels: Target panel is obtained from the control line. BLG1TDHD - Default history display panel.

P-Words: USER/ - Alter user ID.

S-Words:

XIM00SDM00 - Date last altered
XIM00STM00 - Time last altered
XIMGENC009 - History display.

Output:

Messages:

BLG03019E BLG04010E BLG22500I BLG23040E

ABEND codes:

None.

BLG01146 - Insert Responses into the Reply Buffer

The BLG01146 program exit inserts predefined panel responses into the reply buffer in last-in, first-out order. The responses to be inserted are defined by the validation pattern of the p-word index in the control line that calls the exit. Thus, the number of responses that can be inserted is limited by the length of the p-word validation-pattern field. A brief outline of the routine's processing follows:

- Does no processing if an SRC is running
- Saves the data in the reply buffer
- Clears the reply buffer
- If the validation pattern of the designated p-word index is a literal string surrounded by delimiter characters, the literal value is placed in the reply buffer followed by a comma. If the validation pattern of the designated p-word index is just the delimiter characters, a comma is placed in the reply buffer.
If the validation pattern of the designated p-word index is not a literal string, the entire validation pattern is placed in the reply buffer followed by a comma. If the length of validation pattern of the designated p-word is zero, nothing is placed in the reply buffer.

- Moves the contents of the saved reply buffer into the reply buffer following the new reply.

Environment: Called from a control panel.

Example: BLG1A120, the Begin Change Entry Dialog panel.

Input:

Panels: None.

P-Words: Validation pattern is obtained from the control line.

S-Words: None.

Output:

Messages: None.

ABEND codes:
None.

Detailed Examples

The following examples demonstrate how program exit BLG01146 treats different input p-word index validation patterns. All of the examples use a target control panel called CTL1ADD1. The p-word index specified in the control line of panel CTL1ADD1 changes for each example.

This is control panel CTL1ADD1:

```

BLMITSCU                FUNCTION LINE SUMMARY                LINE 1 OF 1
  FUNC FUNC S-WORD PREFIX MULT APPLY AUTH TRUE  FALSE MESSAGE PROGRAM
  TYPE CODE INDEX  INDEX  B  E NOT  CODE TARGET TARGET  PANEL  EXIT/TSP
'' **** ****  ****  ****  *  *  *  ****  *****  *****  *****  *****
'' FLOW 000B 0000  8050  N  N  N   0000  BLG0B200                BLG01146
** **** ****  ****  ****  *  *  *  ****  *****  *****  *****  *****

Line Cmds: A=After C=Copy D=Delete I=Insert M=Move R=Repeat U=Update
Type DOWN, UP, LEFT, or RIGHT to scroll the panel, or type END to exit.

===>
    
```

The prefix indexes used in these examples are shown here with their associated validation patterns:

```

'' 8050          <1,HD,3>
'' 8051          <1,,>
'' 8052          CCV14
'' 8053          <>
    
```

Example 1a:

Prefix index 8050 has a validation pattern of <1,HD,3>. When a user selects Status data from the Problem Summary panel (BLG0BU00), program exit BLG01146 inserts these responses into the reply buffer:

```
1,HD,3,
```

Then the Assignee name field (field 1) on the Problem Status Entry Panel (BLG0B200) is assigned the value HD. The user sees the Assignee phone (field 3) assisted-entry panel (BLG6PHON).

Example 1B:

Prefix index 8050 has a validation pattern of <1,HD,3>. When a user enters **2,3033** as an IRC on the Problem Summary panel (BLG0BU00), the 2 selects Status data, and program exit BLG01146 inserts these responses into the reply buffer:

```
1,HD,3,3033
```

The Assignee name field (field 1) on the Problem Status Entry panel (BLG0B200) is assigned the value HD. Then, the assignee phone field (field 3) is assigned the value 3033 from the reply buffer. The user sees the Problem Status Entry panel (BLG0B200).

Example 2:

Prefix index 8051 has a validation pattern of <1,,>. When a user selects Status data from the Problem Summary panel (BLG0BU00), program exit BLG01146 inserts these responses into the reply buffer:

```
1,,,
```

Then the Assignee name field (field 1) on the Problem Status Entry panel (BLG0B200) is blanked out. The user remains on the Problem Summary panel (BLG0BU00).

Example 3:

Prefix index 8052 has a validation pattern of CCV14. When a user selects Status data from the Problem Summary panel (BLG0BU00), program exit BLG01146 inserts this response into the reply buffer:

```
CCV14,
```

The user sees the Problem Status Entry panel (BLG0B200).

Example 4: Prefix index 8053 has a validation pattern of <>. When a user selects Status data from the Problem Summary panel (BLG0BU00), program exit BLG01146 inserts this response into the reply buffer:

```
,
```

The user remains on the Problem Summary panel (BLG0BU00).

BLG01147 - Change Transfer-to Class to Owning Class

The BLG01147 program exit performs transfer-to privilege class processing. A brief outline of the routine's processing follows:

- Returns to the caller without doing any processing if either of the following conditions exist:
 - A current privilege class does not exist.

- The record being filed does not contain a transfer-to privilege class.
- If the transfer-to privilege class name is the same as the current privilege class name, marks the transfer-to class entry for deletion
- Adds an entry containing the new privilege class name to the end of the entry chain. This entry will replace any previous ownership entry in the chain during file processing.

Environment: Called in create mode from a selection, options, data-entry, assisted-entry, or control panel. Called from data attribute records used interactively. This exit can be called in create mode from data attribute records used in an API environment.

Example: BLG1A1A1, the Software Financial Record File Processing Description panel.

Input:

Panels: None.

P-Words:

CLAT/ - Transfer-to privilege class

CLAO/ - Owner privilege class

S-Words: XIM0ILOCCO0 - Owing privilege class

Output:

Messages: None.

ABEND codes:

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BLG01148 - Append Chain of Responses to an SRC

The BLG01148 specific program exit validates the freeform chain of responses to be appended to an SRC. If the freeform response chain was entered on an assisted-entry panel, the response chain must be enclosed in quotes.

BLG01151 - Delete Fields from a Copied Record

The BLG01151 program exit copies a record without including the fields specified in the target panel. In addition, this routine performs freeform text deletes. The following is a brief outline of the routine's processing:

- Finds the record entries associated with the **Record ID**, **Master privilege class**, and **Date entered** fields
- If any of the entries were located, deletes them
- Loads the target panel containing the variable fields to be deleted
- For each control line in the target panel that has an s-word or a root s-word for list data from a list processor panel, finds the entry associated with the panel s-word and deletes the entry or list
- Performs freeform text deletes. Freeform text can be deleted from a copied record, thus excluding it from the new record.

To delete structured data and freeform text that are associated with the same s-word, two identical control lines must be coded on the target panel containing variable fields to be

deleted. The first control line causes the structured data containing the identified s-word to be deleted. The second causes the freeform text associated with the s-word to be deleted.

If you want to delete a list of data, be sure to use the root s-word. Using an s-word with a truncation character (.) results in poor performance. Using an s-word with an ignore character (*) results in a corrupted list in the record.

Environment: Called from a control panel when a record is being copied. A BACK command issued immediately after BLG01151 results in a CANCEL being processed.

Example: BLG1A116, the Delete Unwanted Fields From a Copied Record panel.

Input:

Panels: Target panel to be loaded is obtained from the **False target** field of the calling control line.

P-Words: RNID/. - Record identifier.

S-Words:

XIM0IOCCM0 - Master privilege class
XIM00SST01 - Modify time of day

Output:

Messages:

BLG09008E

ABEND codes:

None.

BLG01152 - Add Authority Root S-Word

The BLG01152 specific program exit adds the authority root s-word to all new privilege class records. The s-word identifies the record as not being a Version 1 privilege class record. In addition, this routine adds the master privilege class s-word to the first privilege class created.

BLG01153 - Initialize and Control Profile Dialog

The BLG01153 program exit initializes and controls the profile dialog. A brief outline of the routine's processing follows:

- If the profile dialog is entered while the session is in generate mode, the routine makes sure this is the first and only time it has happened. If not, it issues an error message.
- Obtains storage for the record block and sets the create-mode switch on.
- Saves the current panel name.
- Sets the current panel name to that of the profile summary panel.
- If in SRC generate mode, collects the profile-start entry on the profile record dialog chain.
- If not in SRC generate mode, builds a display entry chain to pass to the profile dialog.
- Calls the dialog processor services to display the profile summary panel to the user and to process the dialog.

- On return from the dialog processor, resets any saved variables.
- If the dialog-keep flag is on and the system is not in generate mode, updates the profile control block with the panel values entered by the user.
- Determines the profile termination selection and processes the reset, temporary save, or permanent save.

Environment: Called in create or inquiry mode from a selection, options, data-entry, assisted-entry, or control panel. Called from data attribute records used interactively.

Note: This exit cannot be called from data attribute records used in an API environment.

Example: BLG0EN10, the System application Primary Options Menu.

Input:

Panels: BLG0PU00 - Profile Summary Display panel.

P-Words: None.

S-Words:

XPROFC11F0 - Profile reset
 XPROFC11F1 - Profile temporary file
 XPROFC11F2 - Profile permanent file
 XPROFC11F* - All profile file

Output:

Messages:

BLG03071W BLG16507I BLG16508I BLG16509I BLG16510I
 BLG16511I

ABEND codes:

None.

BLG01184 - Delete a Record

The BLG01184 program exit deletes a record. A brief outline of the routine's processing follows:

- Makes a local copy of the record ID, the sequence number, and the database number
- If there is a record to be deleted, and the sequence number is greater than zero, deletes the record
- If the record was deleted successfully, issues a message indicating this
- If the record could not be deleted because of a duplicate record ID, issues a message indicating this.

Note: Do not use this exit for complex record types, such as change components or hardware or software components. See program exit BLG01330.

Environment: Called, after a record is displayed for delete verification, from a selection, options, data-entry, assisted-entry, or control panel. Called from data attribute records used interactively.

Note: This exit cannot be called from data attribute records used in an API environment.

Example: BLG0BU10, the Problem Delete Verification panel.

Input:

Panels: None.

P-Words: None.

S-Words: None.

Output:

Messages:

BLG03026I BLG03034I

ABEND codes:

None.

BLG01185 - Verify a Multiple Delete Request

The BLG01185 program exit lets the user verify a multiple delete request. It is used when a user selects multiple records for delete on a search-results type display with a block delete (**DD**) or multiple single **D** line commands. When the user verifies the multiple delete, subsequent delete-verification panels for each record are not displayed. A brief outline of the routine's processing follows:

- If the user verifies that the multiple delete request is correct, indicates that verification has been provided for all pending deletes.

Environment: Called after the first record is displayed for delete verification, usually from a split-function data-entry panel. can be called from a selection, options, data-entry, assisted-entry, or control panel. Called from data attribute records used interactively.

Note: This exit cannot be called from data attribute records used in an API environment.

Example: BLG1A16A, the Parent/Child Record Delete panel.

Input:

Panels: None.

P-Words: None.

S-Words: None.

Output:

Messages: None.

ABEND codes:

None.

BLG01194 - Verify Ranges for Profile Fields

The BLG01194 specific program exit validates the profile fields that can be specified within a range of values. This information is collected in the profile dialog.

BLG01195 - Initialize Environment for Record Utilities

The BLG01195 program exit sets up the environment to begin the record utility functions. A brief outline of the routine's processing follows:

- Obtains storage for record initialization
- Sets the target panel, contained in the control line
- Sets the create-mode switch on
- Calls the panel dialog processor to collect the panel responses and begins the record dialog.

Environment: Called in create or inquiry mode from a selection, options, data-entry, or assisted-entry panel. Called from data attribute records used interactively.

Note: This exit cannot be called from data attribute records used in an API environment.

Example: BLG0EN20, the Tivoli Information Management for z/OS Primary Options Menu.

Input:

Panels: Target panel is obtained from the control line.

P-Words: None.

S-Words: None.

Output:

Messages:

BLG03019E

ABEND codes:

None.

BLG01208 - Build Freeform Text

The BLG01208 program exit is the entry module to the freeform-text processor and serves as the mainline text processor routine. It calls window-display services to display and/or collect freeform text data and performs any necessary cleanup when the user terminates the text display. A brief outline of the routine's processing follows:

- Saves the current panel name and the calling panel type.
- Obtains from the control line the s-word for the type of text selected.
- Obtains from the control line the name of the table panel associated with the selected text type.
- Locates the text associated with the given text type. If it finds no text while in display, issues a message indicating this.
- Calls window-display services to display or collect the text data.
- On return from window-display services, resets the dialog flags and restores the panel name.

Environment: Called in create or inquiry mode from a selection, options, data-entry, or control panel.

Example: BLG0L010, the Display Problem Text panel.

Input:

Panels: Target panel is obtained from the control line for the panel that calls the exit.

- When called from a control panel:
 - The control line must be a TEST control line.
 - The **S-Word index** field must contain the s-word for the text type.
 - The **True target** field must contain the name of the table panel on which to display the text.
 - The program exit must be BLG01208.
 - A target panel must be specified later in the control panel to specify where to go (after processing is complete).
- When called from a selection panel:
 - The **Inquiry target** field must contain the name of the table panel on which to display the text.
 - The **Create target** field must contain the name of the panel to return to (after processing).
 - The program exit must be BLG01208.
 - The **s-word index** field must contain the s-word for the text type.
- When called from a data-entry panel:
 - The **Target panel** field must contain the name of the table panel on which to display the text.
 - Dialog begin must be NO.
 - The program exit must be BLG01208.
 - The **S-Word index** field must contain the s-word of the text type.

Note: When the program exit ends, it does not generate a dialog end. If the program exit starts with a dialog begin, you must add panels to the flow that end or cancel the dialog. Be careful not to cancel any divert symbols entered on the command line while running the program exit. For an example that tests for generate mode, see panel BLG1A109.

If the panels do not cancel the dialog, then Replace previous reply should be YES, so that information does not remain in the record every time the program exit is called.

P-Words: None.

S-Words: None.

Output:

Messages:

BLG03077E BLG06020E BLG06021E BLG06022E BLG06035I

ABEND codes:

None.

BLG01214 - Set Date/Time/User ID for Freeform Text Display

The BLG01214 program exit sets the date, time, and user ID associated with freeform text as it is being filed. A brief outline of the routine's processing follows:

- Moves the current control (administrative) data into the freeform text entry in the record
- Locates all the freeform text entries that contain temporary control information (information collected during the entry of freeform text)
- Changes the temporary control information to permanent control information
- Moves the new time into the time freeform text entry
- Moves the new date into the date freeform text entry
- Moves the new user ID into the user ID freeform text entry.

Environment: Called in create mode from a selection, options, data-entry, assisted-entry, or control panel. Called from data attribute records used interactively.

Note: This exit cannot be called from data attribute records used in an API environment.

Example: BLG1A111, the Problem Record File Processing panel.

Input:

Panels: None.

P-Words: None.

S-Words: None.

Output:

Messages: None.

ABEND codes:
None.

BLG01216 - Print the Current Record Being Displayed

The BLG01216 specific program exit prints the current record. It requires that the RFT name has been added to the current chain of responses.

BLG01246 - Verify Update Authority for Transfer-to Class

The BLG01246 program exit makes sure the specified transfer-to privilege class is valid and has update authority for the current record type. A brief outline of the routine's processing follows:

- Initializes the transfer-to class to blanks.
- Saves the current privilege class information.
- Extracts the transfer-to class name from the input entries.
- Reads the specified transfer-to class record into storage and makes it temporarily the current class.
- Loads the control panel that contains the update authorization codes for the current record's type.

- Checks whether the transfer-to class has update authority for the located record type. If not, issues an error message.
- Makes the saved privilege class information the current privilege class information.

Note: If you add a new record type to your database, you must add another flow line to control panel BLG1A211. Be sure the new flow line includes the s-word of the new record type and the new authorization codes. If the control panel does not have a flow line for the current record type, it is assumed that the privilege class *is* authorized. For information about adding new authorization codes, see “Authorization Codes” on page 73 and “Using the Dictionary” on page 183.

Environment: Called in create mode from an assisted-entry panel on which a transfer-to class has been entered. Called from data attribute records used interactively. This exit can be called in create mode from data attribute records used in an API environment.

Example: BLG6PTRF, the Transfer-to Class panel.

Input:

Panels: BLG1A211 - Transfer-To Privilege Class Authorization Control panel.

P-Words: None.

S-Words:

XIM0I0CREC - Privilege-class record
 XIM0I0CCM0 - Master privilege class record

Output:

Messages:

BLG03006E	BLG03019E	BLG03026I	BLG03028E	BLG03029E
BLG10025W	BLG10027W	BLG10028W	BLG12001E	

ABEND codes:

None.

BLG01249 - Invoke Record Utility Functions

The BLG01249 program exit prepares the current displayed record for display, update, delete, print, or copy. It also lists record references to the current displayed record. A brief outline of the routine’s processing follows:

- Saves the current panel
- Indicates whether or not the current panel was displayed to the user
- Using the s-word from the calling control line, determines the record utility function to be performed and performs the function by using the record’s access panel
- If listing record references, does the following:
 - Loads the target panel specified in the control line
 - Uses the p-words in the control line and the target panel to locate any records related to the current record
 - If record references are found, uses the target panel to display them.

- For other record utility functions, processes the record based on the function code index in the s-word.

Environment: Called from a data-entry panel after a record is displayed.

Example: BLG0S011, the Record Utility panel.

Input:

Panels: Target panel is obtained from the control line.

P-Words: RNID/. - Record Identifier

S-Words:

XISCOMMD04 - Display command entered
 XISCOMMD05 - Copy command entered
 XISCOMMD06 - Update command entered
 XISCOMMD07 - Print command entered
 XISCOMMD08 - Delete command entered

Output:

Messages:

BLG03019E BLG03086W BLG03087I BLG03088I

ABEND codes:

None.

BLG01253 - Glossary Selection Processor

The BLG01253 specific program exit builds a response chain for the glossary and displays the glossary data-entry panel.

BLG01259 - Verify Data Set Characteristics

The BLG01259 specific program exit checks for valid logical and physical record length combinations for the various record formats. In addition, this exit verifies that the primary and secondary allocation quantities are both zero, and that LRECL does not exceed 32 756 for a variable record format.

BLG01260 - Verify Data Set Name

The BLG01260 program exit validates and collects data set names. A brief outline of the routine's processing follows:

- If the response entered by the user is a null reply or a divert symbol (?), does not process the response.
- Checks the data set name for blanks. If any are present, issues an error message.
- Checks to make sure the first character in each qualifier is an alphabetic or national character. If not, issues an error message.
- Removes the periods (.) from the user's response.
- If a member name was specified, removes the left and right parentheses.
- Collects the s-word, p-word, or both, associated with the data set name.

Environment: Called in create, inquiry, or display mode from an assisted-entry panel.

Example: BLG6DDSN, the Dump Data Set Name panel.

Input:

Panels: None.

P-Words:

DSNA/ - First data set name
DSNB/ - Second data set name
DSNC/ - Third data set name
DSND/ - Fourth data set name
DSNE/ - Fifth data set name
DSNF/ - Sixth data set name
DSNG/ - Seventh data set name
DSNH/ - Eighth data set name
DSNI/ - Ninth data set name
DSNJ/ - Tenth data set name
DSNK/ - Eleventh data set name
DSNL/ - Twelfth set name
DSNM/ - Thirteenth data set name
DSNN/ - Fourteenth data set name
DSNO/ - Fifteenth data set name
DSNP/ - Sixteenth data set name
DSNQ/ - Seventeenth data set name
DSNR/ - Eighteenth data set name
DSNS/ - Nineteenth data set name
DSNT/ - Twentieth data set name
DSNU/ - Twenty-first data set name
DSNV/ - Twenty-second data set name
DSMB/ - Data set member name

S-Words: XIM0LDDS00 - Data set name

Output:

Messages:

BLG03016W BLG05021W BLG13005W

ABEND codes:

None.

BLG01261 - Load and Verify Customized Report Load Module

The BLG01261 specific program exit loads a module for a user-generated customized report and verifies that the load module has the appropriate format.

BLG01262 - Verify RFT Name

The BLG01262 specific program exit verifies that the RFT (report format table) name exists in the report format table data set.

BLG01273 - Add Data from One Record to Another Record

The BLG01273 program exit obtains information from one record and automatically adds it to the record being created or updated. You can also use BLG01273 to copy data from a record in a read-only database (4 or 6–9) to a record in database 5. (Another means of

copying data from a read-only database to a record in database 5 is described in “BLG01439 - Extended Data Copy” on page 497.) A brief outline of the routine’s processing follows:

- Loads the inquiry target panel specified in the control line to determine the type of information to be added to the current record.
 - If you want to use BLG01273 to copy data from a record in a read-only database (4 or 6–9) to a record in database 5, you can use an optional ADD (0000) control line that contains the p-word index for the database name of the record to be copied. If you specify ADD, it must be the first control line. The following indexes may be used: 02D9=4, 02DA=5, 02DC=7, 02DD=8, 02DE=9. If an ADD control line is not specified, the database name defaults to database 5.
 - Regardless of whether you specify an ADD control line, the target panel must be a control panel with FLOW (000D) control lines that contain the s-word indexes for the information to be added. You can use the root s-word for list processor data.
- If a database name was specified on the ADD command, determines whether the database exists. If it cannot find the database, issues an error message and stops.
- Concatenates the user’s response with p-word RNID/ and then determines whether the record exists.
- If it cannot find the record, does the following:
 - Scans the target panel for a control line containing the s-word represented by index 0DDA. If it finds the index, issues an error message and does not collect the user’s reply. The message issued is the one named in the control line, if any, or an appropriate Tivoli Information Management for z/OS message. If the 0DDA index is not found, collects the user’s reply and stops.
- If it finds the record, does the following:
 - Uses each s-word index in the control panel to locate the data indicated by the user’s reply. If it cannot find an s-word and the control line involved includes a message panel, issues that message.
 - If the data is found, adds it to the record currently being processed, using panel name BLGCOCOP.
 - If the data is not found in the source record, adds no data to the record currently being processed.
 - If a field in the current record was filled in by a program exit and there is no data in the source record for that field, the field is blanked out. However, if a field in the current record was filled in by a user and the source record has no data for that field, the field is not blanked out, and the current data remains in the field.
- If the user enters another reply for the field, replaces the previously entered value and its associated data with the new value and data. This occurs whether this program exit or program exit BLG01439 copied the data.
- If the user clears the field, the routine clears the associated data if copied by this program exit or program exit BLG01439. The program does not clear fields changed by you after retrieval from the source record.

If you want to validate the data you are adding, use program exit BLG01439 because it has extended functions that this one does not have.

Environment: called in create mode from an assisted-entry panel. Does no processing in inquiry mode from a dual-mode panel. Called from data attribute records used interactively. This exit can be called in create mode from data attribute records used in an API environment.

Example: BLG6DEVN, the Device Name panel.

Input:

Panels: Target panel is obtained from the control line.

P-Words: None.

S-Words:

XISCCOPVER - Verify record
XIM00NR001 - Record number

Output:

Messages:

BLG03019E BLG03062W BLG09008E BLG19202W BLG22005E

ABEND codes:

None.

BLG01274 - Verify Record Ownership before Update

The BLG01274 program exit determines whether the current privilege class is the owning, transfer-to, or master privilege class, and allows or prevents the update or delete of a record. A brief outline of the routine's processing follows:

- If the user is deleting a privilege class record, searches the database to see if the privilege class owns any records. Issues a message and prohibits deletion of the record if either of the following conditions exists:
 - The privilege class owns records.
 - The privilege class does not own records, but is the initiating privilege class record.
- Allows authorization for the user to update or delete the record if any of the following conditions exist:
 - The current privilege class has master class authority or master-class create authority.
 - The record in question has no owner.
 - The record is owned by the current privilege class.
- If the record has an owner but the owner is not the current privilege class, determines whether ownership is being transferred.
- If ownership is being transferred to the current privilege class, allows authorization.
- If none of these is true, issues an error message and prohibits the update or delete of the record.

Environment: Called, following record display, from a selection, options, data-entry, assisted-entry, or control panel. Called from data attribute records used interactively.

Note: This exit cannot be called from data attribute records used in an API environment.

Example: BLG1A1A3, the Software Financial Record Ownership Test panel.

Input:**Panels:** None.**P-Words:** CLAT/. - Transfer-to privilege class record CLAO/. - Owing privilege class search all**S-Words:** XIM0I0CREC - Privilege class record XIM0I0SREC - SRC record**Output:****Messages:**

BLG10002W BLG10029W

ABEND codes:

None.

BLG01279 - Check Report Generate Mode

The BLG01279 specific program exit determines whether the user entered the GENERATE command before the REPORT command or from within the REPORT command dialog. The SRC is forced to end when the GENERATE command is issued within the REPORT dialog.

BLG01293 - Verify Authority of Privilege Class to Give Authority

The BLG01293 specific program exit verifies that the authority to be given to the new privilege class does not exceed the authority of the current privilege class.

BLG01294 - Verify Privilege Class Record Copy Authority

The BLG01294 specific program exit makes sure that the current privilege class has at least the same authority as the privilege class record being copied. If it does not, a message indicates that the copy is not allowed.

BLG01295 - Related Record Check

The BLG01295 program exit determines if any related records exist for the current record. A brief outline of the routine's processing follows:

- Builds a search argument using both the p-word obtained from the control panel and the current record ID
- Calls the search processor to search the database for any records that meet the search criteria
- Upon return from the search, if related records exist, sets the module return code to 4. Otherwise, sets the module return code to zero.

Environment: Called from a control panel when a record is being displayed.

Example: BLG1A1AB, the Software Financial Record References Test panel.

Input:**Panels:** None.**P-Words:** P-Word is obtained from the control line.**S-Words:** None.**Output:****Messages:** None.

ABEND codes:

None.

BLG01300 - TSP ADDDATA Processor

The BLG01300 specific program exit adds the data specified in the TSP ADDDATA control line to the TSCA reply buffer. The data added is eventually processed by the Tivoli Information Management for z/OS panel processor.

BLG01301 - TSP TESTFIELD Processor

The BLG01301 specific program exit tests a field specified in the TSCA for equality against the data specified in the literal or variable data fields. The method of comparison depends on the type of data contained in the specified field. The data being compared can either be numeric (a fixed or pointer field) or mixed character data. If the result of the test is true, processing continues at the control line identified in the **True label** field of the TESTFIELD control line.

BLG01302 - TSP TESTFLOW Processor

The BLG01302 specific program exit tests for the current displayed panel or for the existence of a message on the message chain. If the result of the panel-name or message-ID test is true, the control line index counter is set to the control line of the specified True label.

BLG01303 - TSP PROCESS Function Initialization

The BLG01303 specific program exit stops the current processing and switches to the information processor to process the responses accumulated in the TSCA command line reply buffer. The command line reply buffer is built using the ADDDATA function.

BLG01304 - TSP BRANCH Function

The BLG01304 specific program exit makes the TSP control line continue at the control line containing the LABEL specified as the target in the BRANCH control line definition.

BLG01305 - TSP CLEAR Function

The BLG01305 specific program exit clears the accumulator for the command line reply buffer in the TSCA. This action in effect discards any data collected in the command line reply buffer since the last PROCESS function was run.

BLG01306 - TSP FINDSDATA Function

The BLG01306 specific program exit extracts from a record any of the data added by the prompting sequence panels during the record create process or the record update process. The data extracted can be associated with an s-word, p-word, or panel.

BLG01307 - TSP FINDSJRNL Function

The BLG01307 specific program exit extracts journalized data from a record. The data extracted can be associated with an s-word or p-word.

BLG01308 - TSP LINK Function

The BLG01308 specific program exit provides the capability to transfer control from one TSP to another TSP. If the link is successful, the new TSP gains control immediately.

BLG01309 - TSP RETURN Function

The BLG01309 specific program exit provides an exit from a TSP. If the current TSP received control when a previous TSP issued a LINK function, processing resumes with the

control line following the LINK control line in the previous TSP. If the current TSP received control from the System application, return is made to the System application environment at the point where the TSP was called.

BLG01310 - TSP FLATTEN Function

The BLG01310 specific program exit copies a record out of a Tivoli Information Management for z/OS database. The record is converted to a format that is easily transported out of the Tivoli Information Management for z/OS environment. The flattened record can be saved in a file on tape or transmitted to a remote system.

BLG01311 - TSP UNFLATTEN Function

The BLG01311 specific program exit creates a Tivoli Information Management for z/OS record from a flat file Tivoli Information Management for z/OS record that was created by the FLATTEN function. The flat file record pointed to by the TSCA is used to create a Tivoli Information Management for z/OS record, which is stored in the database equivalent to the one from which the record was originally obtained.

BLG01312 - TSP TRACE Function

The BLG01312 specific program exit traces the flow of the control lines that are processed by one or more TSPs. The output is printed to the BLGTRACE file, which, if not specified by the user, defaults to SYSOUT.

BLG01313 - TSP WORDFIX Function

The BLG01313 specific program exit performs one of the following functions as specified by the WORDFIX control line:

- Deletes an s-word and any associated visible phrase from a record
- Replaces an existing s-word with a new one, and deletes the existing visible phrase
- Replaces the data previously entered on an assisted-entry panel with a new entry
- Replaces the p-words or s-word collected previously from an old assisted-entry panel that was changed
- Deletes a p-word and its associated data regardless of how the data and its p-word were collected
- Changes the data collected with a p-word word regardless of how the data and its p-word were collected
- Changes the p-word associated with a data item to a new p-word regardless of how the data and its p-word were collected
- Changes the p-word and data item to a new p-word and data item regardless of how the data and its p-word were collected
- Adds a combination of an s-word, a p-word, and data to the record. Valid combinations are:
 - S-Word
 - Data
 - S-Word and data
 - P-Word and data
 - S-Word, p-word, and data.

BLG01314 - TSP PRINT Function

The BLG01314 specific program exit prints the following:

- The contents of the message chain
- The contents of the TSCA (in hexadecimal) up to and including the residual reply buffer and the panel that would have been displayed if simulation was not done.

The areas to be printed are specified on the Print Specification panel when the PRINT control line is created.

BLG01325 - Delete Fields from a Record

The BLG01325 program exit deletes fields specified in a target panel from the current record. For each control line in the target panel that has an s-word, the entry in the current record containing that s-word, if found, is deleted. The following is a brief outline of the routine's processing:

- Loads the target panel containing the variable fields to be deleted
- For each control line in the target panel that has an s-word, finds the entry associated with the panel s-word and deletes the entry
- Performs freeform text deletes. Freeform text can be deleted from a copied record, thus excluding it from the new record.

To delete structured data and freeform text that are associated with the same s-word, two identical control lines must be coded:

- Deletes the structured data containing the identified s-word
- Deletes the freeform text associated with the s-word.

Environment: Called from a control panel during record create or update. A BACK command issued immediately after BLG01325 results in a CANCEL being processed.

Example: BLG1A116, the Delete Unwanted Fields from a Copied Record panel.

Input:

Panels: Target panel to be loaded is obtained from the **False target** field of the calling control line.

P-Words: None.

S-Words: None.

Output:

Messages:

BLG09008E

ABEND codes:

None.

BLG01326 - Child Record Build Processor

The BLG01326 program exit defines the relationship between parent and child records and provides a list of all child records related to the parent record currently displayed. A brief outline of the routine's processing follows:

- Saves the current panel name and indicates whether the current panel was displayed to the user.

- Verifies that the target panel and the p-word are contained in the data-entry panel for the related record process.
- Searches all records related to the current record based on the input p-word and s-word. A list of related records is then displayed.
- Resets the saved panel name.

Environment: Called from a data-entry panel after a parent record is requested for update.

Example: BLG0DU01, the Software Component Summary panel.

Input:

Panels: Target panel is obtained from the control line.

P-Words: RNOR/. - Activity/Feature number.

S-Words: S-Word used in the search is obtained from the control line.

Output:

Messages:

BLG03086W BLG03088I

ABEND codes:

None.

BLG01327 - Set Up Environment for Parent/Child Copy

The BLG01327 program exit reads in the requested record for copy. A brief outline of the routine's processing follows:

- Makes sure the specified record is a parent record
- Locates the parent p-word in the record
- Marks all child references in the parent record for deletion.

Environment: Called from a control panel when a record is being copied.

Example: BLG1A1E9, the Hardware Component Model Display panel.

Input:

Panels: None.

P-Words: RNOR/. - Activity/Feature number

S-Words:

XISCOMMD05 - Copy command entered

XIM0IC***A - Child-A shadow

XIM0IC***B - Child-B shadow

Output:

Messages:

BLG09004I

ABEND codes:

None.

BLG01329 - File Parent Records

The BLG01329 program exit files parent records. If the parent record is being filed as a result of a copy request, also copies all the child records associated with the parent. A brief outline of the routine's processing follows:

- Saves the current panel name and the target panel name
- Loads the target panel
- If in PMF panel test, issues a message and returns to caller without filing the record
- Copies the old parent record to the new parent record
- If the old parent record has related child records, finds the child records associated with the old parent and copies them to the new parent
- Locates any parent references in the copied child records and updates these fields to contain the new parent record ID
- Files the child records
- Files the parent record
- Resets the saved panel names.

Environment: Called in create mode from a control panel.

Example: BLG1A151, the Hardware Component Record File Processing panel.

Input:

Panels: Target panel is obtained from the control line.

P-Words: RNOR/. - Activity/Feature number

S-Words:

XISCOMMD02 - Command entered
XISCOMMD05 - Copy command entered
XISRAC. - Read entry panel
XISSCPN009 - Return selection
XIM0IC***A - Child-A shadow
XIM0IC***B - Child-B shadow
XIM0IC***F - Child-F shadow

Output:

Messages:

BLG03026I BLG03045W BLG03058I

ABEND codes:

None.

BLG01330 - Delete Parent and Child Records

The BLG01330 program exit deletes parent and child records. A brief outline of the routine's processing follows:

- If the record being deleted is a child record:
 - Locates the parent record number
 - Enqueues on the parent record and reads the parent record in for update

- Deletes from the parent record any references to the child record being deleted
- Writes the parent record back and dequeues on the parent record
- If the write was successful, deletes the child record.
- If the record being deleted is a parent record:
 - If the parent record being deleted is referenced in a component definition in another component record, returns to caller without deleting the record.
 - If the parent record has associated child records, deletes the child records.
 - Deletes the parent record.
- Sets the current record.

Environment: Called during the delete dialog, from a data-entry or control panel.

Example: BLG0CU11, the Change Delete Verification panel.

Input:

Panels: None.

P-Words:

RNID/. - Record identifier
 RNOR/. - Activity/Feature number
 RNU*/. - All up components

S-Words:

XISRAC.- Read entry panel
 XISSCPN009 - Return selection
 XIM0IC***A - Child-A shadow
 XIM0IC***B - Child-B shadow
 XIM0IC***F - Child-F shadow

Output:

Messages:

BLG03034I BLG03052W BLG09022I

ABEND codes:

None.

BLG01331 - Validate Child Name

The BLG01331 program exit verifies that the name being assigned to a new child record does not already exist for the current parent. A brief outline of the routine's processing follows:

- If updating the child record, issues a message informing the user that the child name cannot be changed
- Obtains the child name entered by the user
- Makes sure that the child name entered is unique for the parent record.

Environment: Called in create mode from an assisted-entry panel. Called from data attribute records used interactively.

Note: This exit cannot be called from data attribute records used in an API environment.

Example: BLG6ACNM, the Activity Name panel.

Input:

Panels: None.

P-Words: None.

S-Words: None.

Output:

Messages:

BLG03051W BLG09001W

ABEND codes:

None.

BLG01336 - Database Cleanup

The BLG01336 program exit cognizes and files any partially filed records that were marked busy or deleted as the result of a system outage, ABEND, release of a user, or pressing the ATTENTION key. The following is a brief outline of the routine's processing:

- Locks database data sets to prevent any other input/output to the database
- Checks the SDDS database for uncognized (partially filed) records
- If it finds uncognized records, cognizes and files each record
- Unlocks the database.

Environment: Called from the System application Primary Options Menu panel.

Example: None.

Input:

Database ID from profile (default database).

Panels: None.

P-Words: None.

S-Words: None.

Output:

Messages: None.

ABEND codes:

None.

BLG01338 - Check In Record Administration

The BLG01338 specific program exit displays a table panel that lists records containing checkout control data. When the user selects one or more records to check in, the program exit removes the checkout control data.

BLG01362 - Process Deleted USERS Record Entries

The BLG01362 specific program exit searches a record for data that the user is deleting and replaces that data with null data. This ensures the order of the fields stays the same.

BLG01376 - Update Variable in ISPF Shared Pool

The BLG01376 program exit copies a user-specified value to the ISPF shared pool. If a variable of the same name already exists in the shared pool, it is updated. If it does not exist in the shared pool, it is created. A brief outline of the routine's processing follows:

- The ISPF variable name is taken from the **True target** field of the calling control line.
- The value to be associated with that variable name is taken from the validation pattern associated with the **Prefix index** field of the calling control line. Because the validation pattern is literal data, it is surrounded by delimiters.
- The ISPF VPUT Service is called using the specified variable name and value.

Environment: Called by a control panel.

Example: BTN1S026, the control panel used to call text from the problem entry panel in the Integration Facility.

Input:

Panels: Variable name is obtained from the **True target** field of the control line.
Variable value is obtained from the **Prefix index** field of the control line.

P-Words: None

S-Words: None

Output:

Messages:

BLG03077E BLG19250W

ABEND codes:

None.

BLG01385 - Sort List Processor Rows in Ascending Order

The BLG01385 program exit sorts the data in list processor tables in ascending order. This program exit can be called by a control panel. "BLG01386 - Sort List Processor Rows in Descending Order" on page 442 describes how to sort the lists in descending order.

An end user uses the SORT command to sort the data in a list. You might want to allow your users to sort the data in lists for their own use, but keep the lists intact when they file the record. You can do this by calling this program at file time. When you use the program exit at file time, this ensures that a record filed by the APIs also runs the program exit. This keeps the lists sorted consistently.

Only 32 characters of data are sorted; no prefixes are sorted. If the data is a multiple entry (multiple words with the same prefix), only the data collected with the first prefix is sorted.

This program exit will not run if any of the columns in the list require authorization. Nor will it run if any of the columns are protected unless the **Repeat/delete/move protected** bit is on for the protected columns.

The calling control panel must specify the following:

- The root s-word of the list to sort

- The table list panel used to identify the lists to sort (using the root s-word as the key)
- **Replace previous reply=YES** if the sort is allowed unconditionally. The data is always sorted. If **Replace previous reply=NO**, the sort is conditional. It runs *only* if the data was changed in some way (that is, modified, added, copied in to the record, or deleted). If the data is unchanged, the sort is not performed.

Note: Performance using this program exit is improved when you specify **Replace previous reply=NO**. The sort only runs when the list is changed.

This program exit will not run if the list processor is active for the same record. You can, however, run this program exit when the list processor is active for a different record.

Environment: Called by a control panel.

Example: None.

Input:

- Panels:** Table panel specifying the lists to sort is obtained from the **False target** of the calling control line
- P-Words:** None
- S-Words:** Root s-word of the list to sort

Output:

Messages:

BLG03143I	BLG03077E	BLG09008E	BLG15144I	BLG15147I
BLG15148I	BLG19223I	BLG19226I		

ABEND codes:

None

BLG01386 - Sort List Processor Rows in Descending Order

The BLG01386 program exit sorts the data in list processor tables in descending order. This program exit can be called by a control panel. “BLG01385 - Sort List Processor Rows in Ascending Order” on page 441 describes how to sort the lists in ascending order.

An end user uses the SORT command to sort the data in a list. You might want to allow your users to sort the data in lists for their own use, but keep the lists intact when they file the record. You can do this by calling this program at file time. When you use the program exit at file time, this ensures that a record filed by the APIs also runs the program exit. This keeps the lists sorted consistently.

Only 32 characters of data are sorted; no prefixes are sorted. If the data is a multiple entry (multiple words with the same prefix), only the data collected with the first prefix is sorted.

This program exit will not run if any of the columns in the list require authorization. Nor will it run if any of the columns are protected unless the **Repeat/delete/move protected** bit is on for the protected columns.

The calling control panel must specify the following:

- The root s-word of the list to sort

- The table list panel used to identify the lists to sort (using the root s-word as the key)
- **Replace previous reply=YES** if the sort is allowed unconditionally. The data is always sorted. If **Replace previous reply=NO**, the sort is conditional. It runs *only* if the data was changed in some way (that is, modified, added, copied in to the record, or deleted). If the data is unchanged, the sort is not performed.

Note: Performance using this program exit is improved when you specify **Replace previous reply=NO**. The sort only runs when the list is changed.

This program exit will not run if the list processor is active for the same record. You can, however, run this program exit when the list processor is active for a different record.

Environment: Called by a control panel.

Example: None.

Input:

Panels: Table panel specifying the lists to sort is obtained from the **False target** of the calling control line

P-Words: None

S-Words: Root s-word of the list to sort

Output:

Messages:

BLG03143I	BLG03077E	BLG09008E	BLG15144I	BLG15147I
BLG15148I	BLG19223I	BLG19226I		

ABEND codes:

None

BLG01390 - Delete Contiguous Shift Out/Shift In and Shift In/Shift Out Pairs

The BLG01390 program exit deletes any contiguous SO/SI and SI/SO character pairs found in the data.

Environment: Called in create mode from an assisted-entry panel. Called from data attribute records used interactively.

Note: This exit cannot be called from data attribute records used in an API environment.

Input:

Panels: None

P-Words: None

S-Words: None

Output:

Messages: None

ABEND codes:

None

BLG01391 - Replace Contiguous Shift Out/Shift In and Shift In/Shift Out Pairs with Blanks

The BLG01391 program exit replaces any contiguous SO/SI and SI/SO character pairs found in the data with two SBCS spaces and one DBCS space respectively.

Environment: Called in create mode from an assisted-entry panel. Called from data attribute records used interactively.

Note: This exit cannot be called from data attribute records used in an API environment.

Input:**Panels:** None**P-Words:** None**S-Words:** None**Output:****Messages:** None**ABEND codes:**

None

BLG01392 - Translate DBCS Ward 42 to SBCS

The BLG01392 program exit translates any DBCS Ward 42 characters or DBCS spaces/nulls found in the data to the corresponding SBCS characters, during which the integrity of the DBCS portions is maintained.

CAUTION:

Do not use this program exit with the SBCS Katakana code page; this program exit does not convert lowercase ward 42 Latin characters to their SBCS forms.

Environment: Called in create mode from an assisted-entry panel. Called from data attribute records used interactively.

Note: This exit cannot be called from data attribute records used in an API environment.

Input:**Panels:** None**P-Words:** None**S-Words:** None**Output:****Messages:**

BLG05021W

ABEND codes:

None

BLG01393 - Translate SBCS to DBCS Ward 42

The BLG01393 program exit translates any SBCS characters found in the data to the corresponding Ward 42 characters and any SBCS spaces/nulls to their DBCS forms, during which the integrity of the DBCS portions is maintained.

CAUTION:

Do not use this program exit with the SBCS Katakana code page; this program exit does not convert lowercase ward 42 Latin characters to their SBCS forms.

Environment: Called in create mode from an assisted-entry panel. Called from data attribute records used interactively.

Note: This exit cannot be called from data attribute records used in an API environment.

Input:

Panels: None

P-Words: None

S-Words: None

Output:

Messages:

BLG05021W

ABEND codes:

None

BLG01394 - Check Data for Embedded Shift Out/Shift In Characters

The BLG01394 program exit checks that the data does not contain SO or SI characters. The data may be an SBCS or DBCS string.

Environment: Called in create mode from an assisted-entry panel. Called from data attribute records used interactively.

Note: This exit cannot be called from data attribute records used in an API environment.

Input:

Panels: None

P-Words: None

S-Words: None

Output:

Messages:

BLG05021W

ABEND codes:

None

BLG01395 - Check That Data Is Enclosed by Shift Out/Shift In Characters

The BLG01395 program exit checks that the data is enclosed by SO and SI characters, and does not contain any other SO or SI characters.

Environment: Called in create mode from an assisted-entry panel. Called from data attribute records used interactively.

Note: This exit cannot be called from data attribute records used in an API environment.

Input:

Panels: None

P-Words: None

S-Words: None

Output:

Messages:

BLG05021W

ABEND codes:

None

BLG01396 - List Processor Program Exit

The BLG01396 program exit provides a way for a user to display, enter, and update lists of related data. The data can be a single item repeated several times, such as eligible users in a privilege class, or the data can be multiple items repeated several times, such as a list of MVS users and their associated user IDs.

The list processor works with the assisted-entry panel processor using both table and assisted-entry panels to process data. The list processor assisted-entry panel can flow to a target panel. The list processor cannot be used in inquiry mode.

The list processor uses a table panel similar to the one that appears when you update the dictionary: data is displayed on a table panel that contains one or more columns. Each unprotected column, or protected column for which the **Repeat/delete/move protected** field is set to **YES**, has an assisted-entry panel defined to do the data validation for that column.

The panel developer defines in the table panel a root s-word for each column of data in the table list. When the list processor collects the data, it appends 2 hexadecimal digits to the root s-word to uniquely identify the row that contains the data. Using root s-words and having the list processor dynamically create the hexadecimal suffixes conserves s-words in the dictionary while uniquely defining the data in each field. If the list is saved, the list processor builds a root entry using the root s-word.

For example, suppose you change the eligible users list in a privilege class record to use the list processor. The user enters **ID1** in the first row and **ID2** in the second row, and then enters **end** to file the data. When the list processor collects the data, it appends X'0001'x to the root s-word for ID1, and it appends X'0002'x to the root s-word for ID2.

The endings for the s-words are hexadecimal values for the following reasons:

- The user can enter as many occurrences of the data as possible, with a maximum of 19 274 items in a single list. That is, the biggest suffix for a list item is decimal 19 274.
- Because the user cannot enter the hexadecimal values in the dictionary, the list processor does not create an s-word that the user is already using for a different purpose.
- The s-words with the hexadecimal endings are not cognized. Therefore, you need not define them in the dictionary, and fill your SDIDS with unnecessary entries. The root s-word is cognized if you set the **Cognize** field to **YES** in the associated assisted-entry panel for the field. It is cognized so that you can use that value on your inquiry panels. You cannot journalize either s-word.

The s-words you use on the list panel must be no more than 8 characters in length. This restriction allows Tivoli Information Management for z/OS to append the 2-hexadecimal character suffix. A root s-word cannot be a subset of another s-word in the same record, nor can a root s-word end with a period (.) or asterisk (*). For example, do not use s-word XAB for a list and s-word XABCD for another list or field in the same record. Each column on a list panel must have a unique s-word from other columns on that panel.

If you create a line sequence column that is not a line command column, the field must be a protected field.

The assisted-entry panel for each column must have the following characteristics:

- **Replace previous reply** must be **YES**.
- **Return to caller** must be **NO**.
- **Dialog end** must be **YES** if there is no **Create target** specified.
- **Inquiry target** and **Null target** must be blank.
- **Program exit symbol** must be blank or contain BLG01051 or BLG01052 or BLG01439 (if BLG01439 is specified on a list assisted-entry panel, then an inquiry target may be specified, as this is a requirement for program exit BLG01439)
- If **Collect from caller** is **NO**, then the s-word must match the s-word in the associated table panel control line for that field.

If you choose to set **Dialog end** to **NO**, you must remember to include a dialog end somewhere else in your panel sequence. Do not use any other method (such as a FLOW to a target panel) to return to the list processor table panel. When the dialog ends, the s-word suffix is assigned and the item is identified as a list processor item. If you do not end the dialog correctly, the list processor data is not collected. Any list data collected before the dialog end is not displayed on the original list processor table panel.

If **Sort on prefix** is **YES** for the table panel, it is ignored.

Data is entered on the table panel and is processed by assisted-entry panels in much the same way as it is with data-entry panels. If a user skips an entry, it creates a hole in a list. For example, the user enters data into rows 1 and 3 but leaves row 2 blank. These holes can appear in the list when a record is displayed. When this occurs, it means that this row is available for use. The list processor does not file these holes in the record.

Any data that the list processor collects replaces the existing data in the record for that field. For example, in our previous example, if the user types over **ID1** with **ID3**, the s-word for ID1 in the existing record has a suffix of X'0001'x; the s-word for ID3 also has a suffix of X'0001'x. The list processor deletes the occurrence of **ID1** when the user enters **end** from

the table-list display. If the user enters **CANCEL**, the list processor deletes all the data it collected and the existing record remains untouched.

If a list processor table panel has a line command column that is not the first column on the panel, error message BLG16033I is issued.

User line commands work on panels where all fields are protected. Tivoli Information Management for z/OS line commands are not valid on list panels where all fields are protected.

Data is not in order by panel rows. When data is in multiple columns, the data for each column is all together after leaving the list processor panel. For example, all the data for the first column is together, then all the data for the second column, and so on.

VIEW INTERNALS, while in a list processor call, shows all the list data added, changed, or deleted in the current invocation. Using TSP control line FINDSDATA LAST on a specific list item always finds the current data for the item even if it was changed in the current list processor call.

There is a **Repeat/delete/move protected** control field for each table panel column. This control field only applies to list processor type table panels.

- A reply of **YES** indicates (if this column is protected) to allow the list processor line commands to change or copy the data.
- The default reply of **NO** indicates (if this column is protected) not to allow the data to be changed or copied.

This control field has no affect on data for which the user is not authorized. Unauthorized fields cannot be changed or copied.

Protected fields residing on a table panel with unprotected fields do not require an assisted-entry panel unless **Repeat/delete/move protected=YES** for those fields. If these entries are found by a TSP FINDSDATA, TSCAFRET is set to 0, and TSCAFRES is set to 8.

While the list processor is running, list item entries for a column may be out of order physically in the record (the highest entry with the highest suffix number might not be physically last). Outside of the list processor or immediately after it runs, the entries for a list are in order and only the last entry for a field exists.

The highest allowed index for a list item is 19 274.

Using the **BACK** command from an assisted-entry panel does not stop processing of other entered data or other line commands.

A user can enter data for a list field that is longer than the table list column (the table panel column). The same applies for multiple response list items. The data is not shown, but it exists in its entirety in the record.

If the assisted-entry panel for a list field is changed, new data is validated through it. Existing data is not validated again through it when the list is saved.

When an existing list is updated and saved, new or changed items are merged in with existing entries for that list on whatever dialog the existing entries reside. Therefore, using the CANCEL command does not delete the entire list. However, changes cannot be canceled unless the dialog that the old entries resided on is canceled. If list data for a previously filed record is updated, this means canceling the record update.

Columns for which the user is not authorized appear blank instead of filled in with table panel column fill characters.

Root entries (entries that contain only the root structured word for the column) are cognized only when the assisted-entry panel associated with the column has **Cognize** set to **YES**.

TSPs that add data do not need to call BLGPTFIX. If they do, it does not adversely affect anything, but it is not required.

You can use multiple words in a single field on a list processor panel, but the LLAPI and HLAPI do not support this enhancement.

You can use the data on your list display without having to save the list.

You can specify program exits BLG01051 and BLG01052 on the assisted-entry panels associated with list processor fields.

You can run reports using list processor output. (Refer to the *Tivoli Information Management for z/OS Data Reporting User's Guide* for complete information.)

SRCs cannot be processed on list panels. The BACK command does not cause the last-entered item to be deleted on a list panel, nor does it return you to previously processed or displayed panels. If users use the BACK command on a list panel, they remain on that list panel.

You can sort the data in table lists by using the BLG01385 program exit or the SORT command.

You cannot change list processor data with the WORDFIX control line in a TSP.

If the user does not have the necessary authorization to satisfy the authorization code specified for a table list column, no existing data for that column is displayed, and the column is protected. The user cannot enter data into the field. The REPEAT and DELETE line commands do not repeat or delete fields for which the user is not authorized.

Figure 11 on page 450 shows a table panel for a dialog that collects multiple columns of recursive data. The panel demonstrates another capability of the list processor: it can list a variable number of data attributes that are confined to a single record.

Note: If the record is being created and no record ID has been created yet, then the line containing RECORD: PERSON01 does not appear. Also, the table panel must be defined with a block data line count (in the general update section of the panel) of 1 to prevent the display of message BLG23006 when the list processor is called for a record containing a record ID. This informational message warns you that data that is not being displayed because of the way you defined your table panel. In this case, the record ID is not seen.

```

BLGL0001          PERSON INFORMATION DISPLAY          LINE 1 OF 10
                                     RECORD: PERSON01

      NAME          PHONE  DEPT USER ID  NODE ID
''  BULLOCK        9192541234 X102 NATHAN  RALVM100
''  NOLAN          9193622345 Z330 RAYLENE CARVM200
''  MILLER         9192543456 X102 LDMILLER RALVM100
''  THOMPSON       8133364567 Y271 LINDSEY JAXVM100
''  _____
''  _____
''  _____
''  _____
''  _____
''  _____
''  _____
''  _____
''  _____
''  _____

Line Cnds: A=After B=Before C=Copy D=Delete E=Erace I=Insert
           L=Line Entry M=Move R=Repeat
Type DOWN, UP, LEFT, or RIGHT to scroll the panel, or type END to exit.
====>
    
```

Figure 11. Table panel containing lists of data

Following are the line commands you can use on list processor panels:

- A (AFTER)
- B (BEFORE)
- C (COPY)
- D (DELETE)
- E (ERASE)
- I (INSERT)
- L (LINE ENTRY).
- M (MOVE)
- R (REPEAT)

In addition, you can define up to 204 unique line commands for each table panel. If you want a line command column, it must be the first column on the table panel.

Entering a line command other than a user-defined line command is valid only when a table panel contains at least one unprotected column (not including the line command column).

- AFTER** Use the AFTER line command to specify after which line in the list you want to move or copy data.
- BEFORE** Use the BEFORE line command to specify before which line in the list you want to move or copy data.
- COPY** Use the COPY line command to copy the data from a line in the list. You can use the block form of this line command (**CC**) or a repetition factor **C#**, where # is a number greater than zero, or a block form with a repetition factor (for example, **CC3**) with this line command. You must also specify where you want the copied data placed by using either the **AFTER** or **BEFORE** line command.
- DELETE** Use the DELETE line command to actually delete the data and the line, and move any following lines up to fill in the gap. DELETE does not delete

lines from columns that are protected unless the **Repeat/delete/move list protected** field is set to **YES** for those columns.

You can use the block form of this line command (**DD**) or a repetition factor **D#**, where **#** is a number greater than zero, with this line command.

ERASE

Use the ERASE line command to blank out the data from a line. This line command causes the list program exit to move the data fill character in the table panel to each column (field) in the specified row. It also puts an entry marked for deletion into the record. If the existing record has data associated with this item (the *s*-words constructed from each column (field) and the table panel line number already exist in the record), this existing data is deleted when the user enters end on the table panel. Only one entry for a particular list item exists outside the list processor. A deleted row is not filed into the record, but is presented as blanks upon redisplay if it appears between rows that contain data. The data in a single column can be deleted by entering a not sign (**¬**) into that field. ERASE does not clear data from columns that are protected unless the **Repeat/delete/move protected** field is set to **YES** for those columns.

You can use the block form of this line command (**EE**) or a repetition factor **E#**, where **#** is a number greater than zero, with this line command.

INSERT

Use the INSERT line command to add one or more rows to the list. When you enter the INSERT line command, the list processor uses the data fill character to initialize each field in the added rows to provide field length guidance.

You can use the INSERT line command on any row in the list. You can use a repetition factor **I#**, where **#** is a number greater than zero, with this line command.

LINE ENTRY

The LINE ENTRY line command allows you to enter data into the table panel fields without requiring your cursor to be in the field (because the field has no selection number). The main purpose of the LINE ENTRY line command is to allow TSPs to enter data via the list processor, but interactive users can use this line command, too.

If a list panel contains only one column (excluding the line command area), it is sufficient to enter an **L** in the line command area for that field and enter the data on the command line. Alternatively, you can enter **DOWN** (or **UP**) **n**, **LINECMD L,xxxxx** on the command line, where **n** represents the number of lines to be scrolled to make the desired line the current one, and **xxxxx** is the data to be entered into the field). For list displays with multiple columns, the LINE ENTRY line command requires that you enter a number to identify which of the fields is to be updated. For example, to update BULLOCK's user ID (in the fourth column that contains data you can update) in Figure 11 on page 450, you enter:

```
LINECMD L4,newid
```

The LINE ENTRY line command is not allowed for a display-only field. The LINE ENTRY command can be used without corresponding data, and the assisted-entry panel for that column is displayed. You can then enter data, or use the **BACK** command to return to the table panel.

- MOVE** Use the MOVE line command to move the data from one line to another location in the list. You can use the block form of this line command (**MM**) or a repetition factor **M#**, where **#** is a number greater than zero, with this line command. You must also specify where you want the moved data placed by using either the AFTER or BEFORE line command.
- REPEAT** Use the REPEAT line command to repeat viewable data from the corresponding table panel column. The table panel field can show less data than is actually in the entry; the data that is not shown is not repeated with this line command. You can enter the REPEAT line command on any row in the list.
- REPEAT does not repeat data from fields that are protected unless the **Repeat/delete/move protected** field is set to **YES** for those columns.
- You can use the block form of this line command (**RR**), a repetition factor **R#**, where **#** is a number greater than zero, or a block form with a repetition factor (for example, **RR3**) with this line command.
- User-Defined** You can use any alphabetic character except A, B, C, D, E, I, L, M, or R as the first character of a 1- or 2-character user line command. This line command must have a TSP or TSX name defined for it in the **Program target panel** field of the line command area in the table panel. For more information, see “List Processor Program Exit Examples” on page 521 and refer to the *Tivoli Information Management for z/OS Program Administration Guide and Reference*. When the list processor does not recognize a line command, it looks in the **Program target panel** field in the line command control line of the table panel for a TSP or TSX name. If the table panel does not contain a TSP or TSX name, the list processor issues an error message. Otherwise, the characters in the specified line command replace the last character or the last 2 characters of the TSP or TSX name. If the list processor cannot find the TSP or TSX as a completely defined alias in the ALIAS record, or if it cannot find the TSP, it issues an error message. For example, if the table panel defines a TSP named USRTSPXX in the line command control line and the user enters **Y** in the line command area, the list processor tries to initialize TSP USRTSPXY. Similarly, if the user enters **Y2** or **YY** in the line command area, the list processor tries to initialize TSP USRTSPY2 or USRTSPYY, respectively. If a TSX were used in this scenario, the list processor tries to initialize the TSX in a similar manner.

Note: If you are using a TSX rather than a TSP to process a line command, you must define an alias in the ALIAS record and specify the alias as a TSX (type X) on BLGLALIS, the Alias Name Entry panel.

The user can define 204 unique line commands for each table panel. The first (or only) character can be any of the 17 characters of the alphabet other than A, B, C, D, E, I, L, M, or R. The second character, if there is one, can be the same character as the first one (for example, GG, NN, QQ, and so on) or can be a numeric digit (0-9).

When the user-defined line command (the TSP or TSX) is called, TSCATLIX is set to the line number that the line command was called on. If you are using a TSP, this allows you to access the data on that line by using a FINDSDATA control line with the **List Index?** field set to **YES**. If you are

using a TSX, you can access the data on that line with a GETLIST control line. The TSP or TSX has access to all of the list data. FINDSDATA can locate entries that have been deleted.

If the line command TSP or TSX is linked to a TSP or TSX that changes TSCATLIX, TSCATLIX is reset to its original value when the TSP or TSX returns control to the original TSP or TSX. The only exception to this is if TSCATLIX contained a value of zero (0) before linking to the second TSP or TSX.

Note: If you have TSPs that are dependent on the line command names from versions prior to Version 6.2, and you do not want to change your TSPs, you can use the LPLNCMD keyword on the BLGPARMS session parameters macro to disable the line command changes that occurred in Version 6.2. For more information about this keyword, refer to the *Tivoli Information Management for z/OS Planning and Installation Guide and Reference*.

When you type a line command that is not valid or that results in an error message, the line command remains in the line command column. If you type over part of that line command and press **Enter**, only the newly typed data is used as the line command. For example, if you type **G2** instead of **R2**, you will get an error message. If you then type over the **G** with an **R**, **R** is processed as the line command, not **R2**.

For more information about creating a table panel to use with the list processor, see “Adding Lists of Data” on page 296.

A brief outline of this exit routine’s processing follows:

- Any data in the current record that contains the s-words in the table panel to be displayed is formatted into the correct rows and columns on the table panel. The list processor adds blank lines to fill the screen, if necessary.
- The table panel is displayed.
- The user can add, change, copy, move, or delete data on the table panel. Temporary structured entries are built for new, modified, or moved data when necessary to ensure that the following are true:
 - The CANCEL command restores the data as it was prior to the program exit being called.
 - The TSP control line FINDSDATA LAST used with the s-word and TSCATLIX for a field finds the last value for a nonblank field and returns a TSCAFRET of 0 and a TSCAFRES of 8. If the field was blank when the program exit was called, a TSCAFRET of 8 and TSCAFRES of 4 are returned.

Temporary structured entries are not kept in row order. When the list is saved, the permanent structured entries are updated as necessary and put in row order, and the temporary structured entries are deleted.

- The user can add, update, repeat, or delete data on the table panel. Each added, changed, repeated, or deleted entry results in a structured entry being stored in the record. A list field has multiple entries if that field is changed more than once; an entry exists for each change. FINDSDATA LAST used with the s-word and TSCATLIX for a field finds the last occurrence of data for a field. If an item was deleted, FINDSDATA returns

TSCAFRET=0 and TSCAFRES=8. Because an entry is built for each changed, added, repeated, or deleted field, a list can become physically out of order while the list processor is running. The list is put back in order when it is saved.

Before building an entry, the list processor validates it. If the data is not valid, the list processor does not build the entry and issues an error message. For each entry that the list processor builds, it adds a suffix consisting of two hexadecimal digits to the end of the s-word defined for the column where the data appears. The suffix identifies the row that contains the data.

For example, if the second row contains data, the list processor adds an item to the record. The item contains the data and an s-word ending in X'0002'. The next time the list processor is called, this data again appears on the second row of the panel.

You can use multiple panels to collect related information. For example, Panel 1 contains a list of users, their node IDs, and their user IDs. Panel 2 contains a list of the same users, their department numbers, and their location codes. If you decide later to have a table panel that lists user IDs and department numbers, you can build a table panel with the two fields on it. The list processor matches each user ID from Panel 1 with the appropriate department number from Panel 2 because the s-word suffixes are the same.

- If the user enters **CANCEL**, **QUIT**, or **INIT**, the list processor does not change the data that existed before the list processor started.
- If the user enters **end**, the list processor merges any new, changed, or deleted entries with any old entries already in the record. It also eliminates any multiple entries for the same field. The last entry for a field becomes the only structured entry in the record. If old entries existed, the new list resides on the dialog that contained the old list. So, if you **end** from the list processor, no changes can be canceled unless the dialog that contained the old list is canceled. If no old entries existed, the new list resides on the current dialog.

Note: When you use the list processor, your profile setting for command detection is ignored when you are on an assisted-entry panel.

Environment: Called from a selection, data-entry, options, or control panel in create or display mode.

Examples:

BLG0B402, the Problem Symptom Data panel
BLG0DU01, the Hardware Component Summary panel
BLG0C061, the Hardware Add panel.

See also “List Processor Program Exit Examples” on page 521

Input:

- Panels:** Identify the table panel to be displayed in a target field of the control line that calls the exit:
- For a selection or options panel, put the name of the table panel in the **Create target** field.
 - For a data-entry panel, put the name of the table panel in the **Target panel** field.
 - For a control panel, put the name of the table panel in the **True target** field.

Output:**Messages:**

BLG16025E	BLG16026W	BLG16027I	BLG16028W	BLG16029I
BLG16030I	BLG16031W	BLG16032W	BLG16033E	BLG16034E
BLG23040E				

ABEND codes:

None.

BLG01419 - TSP SETFIELD Function

The BLG01419 specific program exit sets a field in the TSCA, TSCAUFLD, which is used as a communications vehicle within a TSP or between TSPs.

BLG01420 - TSP Message Function

The BLG01420 specific program exit includes a message in the TSP process. The message is either added to the current message chain or saved for display after the TSP session completes. The message processing to be performed is specified on the Message Specification panel when the MESSAGE control line is created.

BLG01432 - Get Early RNID

The BLG01432 program exit allows the product to obtain a record RNID before the filing process. The system-assigned RNID appears during record creation. Users can still to assign a 'User RNID' if it passes validation.

The program exit must be called from panel BLG00000 or its equivalent. (An equivalent panel is one that, like BLG00000, allows the user to select the type of record to be created.)

To use this program exit, you must enter its name in the **Program exit** field for the control lines of the record types that you want to use it with.

Note: You can use this program exit for one or more record types. However, you cannot use it on any record types that require an alphabetic character for the first character of the record ID, such as SRCs and privilege class records.

If you cancel the record entry, this record ID is skipped.

Any other use of this program exit can produce unpredictable results.

Example:

1. Update panel BLG00000.
2. On the Selection Panel Update panel (BLM8CU10), select **Summary**.
3. Update the control line for RECS=PROBLEM.
4. Select **Panel Flow Processing**.
5. Type **BLG01432** into the **Program exit symbol** field.
6. File the panel, and copy it to your modified panels data set.
7. Test the change by creating a problem record and verifying that as soon as you see the Problem Reporter Entry panel (BLG0B100) an all numeric RNID appears in the upper right corner of the panel and in the **User problem number** field.

BLG01433 - TSP ISPEXEC Function

The BLG01433 program exit generates a call to ISPF's module ISPEXEC with user-specified data.

BLG01434 - TSP MOVEVAR Function

The BLG01434 program exit moves user-specified data to the TSCA variable data area.

BLG01437 - Date/Time Addition

The BLG01437 program exit performs arithmetic functions on dates, times, and durations. It gathers input data specified to it by use of a control panel and performs the calculation, formats the results, and adds the results to the current record. Dates, times, and durations are valid input operands to the program exit.

You can gather input operand data from the current record or you can specify it as a constant by using the dictionary. The types of results that you can obtain by using this program exit are as follows:

Date and Time

Date and Time + Duration

Date Date + Integer Duration (Days, Months, Years)

- Duration** Duration + Duration
- Integer (Minutes, Days, Months, Years)
 - Standard (DD:HH:MM)
 - Extended (DDDD:HH:MM)

Date/time math supports times and durations to the minute level only.

The exit routine accepts both the DD:HH:MM format (referred to as Standard Duration) and the DDDD:HH:MM format (referred to as Extended Duration) for durations. (DD or DDDD = number of days, HH = number of hours, and MM = number of minutes). Also acceptable as durations are integers specifying either a number of minutes, a number of days, a number of months, or a number of years.

The ranges shown in Table 39 are valid for time and for each type of duration. Input and result durations must be within the ranges shown.

Table 39. Valid Ranges for Duration Addition

Type	Valid Input Range	Valid Result Range
Time	00:00 - 24:00	00:00 - 23:59
Duration Years Duration Months Duration Days Duration Minutes	0 - 2 147 483 647	0 - 2 147 483 647
Standard Duration (DD:HH:MM)	DD: 00 - 99 HH:MM 00:00 - 24:00	DD: 00 - 99 HH:MM 00:00 - 23:59
Extended Duration (DDDD:HH:MM)	DDDD: 0000 - 9999 HH:MM 00:00 - 24:00	DDDD: 0000 - 9999 HH:MM 00:00 - 23:59

If you specify a duration or time that does not fall into the correct range, processing stops and the system issues an error message. If you use integer durations in calculations with

integer durations, both of the inputs and the result must fall in the range 0 - 2 147 483 647 as shown above. The program converts all dates (except for dates specified as constants) to internal format (YY/MM/DD) before using them in the calculations.

- If a two-digit year is used and the internal or external format has a YY value in the range 00 - 49, the program assumes it to be in the 21st century; if the YY value is in the range 50 - 99, the program assumes it to be the 20th century.
- If a four-digit year is used, then any date is acceptable.

Additional information on these date formats can be found in the *Tivoli Information Management for z/OS Planning and Installation Guide and Reference*.

You must specify constant dates in the form YY/MM/DD or YYYY/MM/DD.

If you are using a time conversion program and you are getting the data from the current record, the times are converted to HH:MM format before the program exit validates the input range. If you specify a time as a constant, the time must be in the HH:MM format. The valid result ranges shown in the preceding table are based on the HH:MM format; however, the resulting time is returned in your external format.

If you are using a two-digit year, when you add a duration to a date, the YY value cannot exceed a boundary of 50 (for example, adding 730 days to a date with a YY of 49 would result in a YY of 51, which is not valid). Date/time math only support dates up to December 31, 2049. This limits the maximum size of integer durations involved in calculations with a date. The integer can only be as large as the amount (years, months, days, minutes) that makes up the 100 years between January 01, 1950, to December 31, 2049. For example, the maximum size an integer days duration can be is 36 524.

You must specify the name of a control panel (target control panel) for use by this exit routine. This control panel contains information about input operands for the calculation and also information about how to store the result. Only one calculation can be performed per target control panel. The target control panel is never run in the flow of a dialog, and many fields in the control lines are used in ways that are different from their use in a control panel that can be run in a dialog. For example, when identifying an input duration, the **Authorization code** field of the TEST control line indicates the duration type. When creating a control panel to run in a dialog, the **Authorization code** field of the TEST control line indicates an authorization code to be tested for.

The target control panel lists indexes of s-words and p-words that are associated with the input operands to the exit routine. If the operand data is coming from the current record, the program exit uses the last occurrence of the data associated with the specified s-word and/or p-word.

Each date, time, and duration input operand is identified by one control line. Likewise, each date, time, and duration result to be stored requires a control line.

You are not required to specify a result control line. If you do not specify any result control lines, the program exit does not store any results in the current record. If the calculation provides two results (date and time) and you specify only one result line, the program stores only the date part of the result.

You can specify a length to indicate the length needed to store an integer duration. If the result is shorter than the specified length, the program pads the result on the left with the

number of zeros necessary to make the result that length. If the result is longer than the specified length, the program truncates the results from the left.

The following is a brief description of the routine's processing:

- Verifies that the requested calculation is a valid one. If it is valid:
 - Gathers input operand data from the current record or constant data from the target control panel. If the operand data is not found, issues an error message and ends.
 - Performs the math calculation. If an error occurs, issues a message and ends.
 - Adds results to the current record based on the information specified in the target control panel.
- If requested calculation is not supported, issues a message and ends.

Environment: Called in create and inquiry mode from an assisted-entry panel or control panel. Called from data attribute records used interactively. This exit can be called in create mode from data attribute records used in an API environment.

Examples: BLG1XMP1 (to calculate the planned end date based on the estimated effort and the planned start date).

BLG1XMP2 (to calculate the planned end date and time based on the estimated duration and the planned start date).

BLG1XMP3 (to add three days to the planned start date and the planned end date).

Input:

Specifying input operands: The following describes how control lines are coded on the target control panel to indicate what calculation to perform and what input operand data to use. One control line is coded for each input operand required in the calculation. Input operands can either be data from the current record or constant data from the dictionary. See "Input operands - specifying constants/specifying data from the current record" on page 459 for information describing how each is done.

- **Date only:** Use a FLOW control line with a function code of 000D and an s-word or p-word index identifying an input date.
- **Date/time pair:** Use two FLOW control lines with a function code of 000D and s-word or p-word indexes identifying the input date and time. The line identifying the date input operand must have the **Begin multiple test** field set to **YES**. The line identifying the time input operand must have the **End Multiple Test** field set to **YES**. The program ignores any control lines that exists between the control line with **Begin Multiple Test** set to **YES** and the control line with **End multiple test** set to **YES**.
- **Duration:** Use a TEST control line with a function code of 0000, an s-word or p-word index identifying an input duration, and any name in the **Program Exit/TSP name** field (this name is not used in the program exit processing, but the field must contain data in order to file the control panel). Durations may be years, months, days, minutes, Standard (DD:HH:MM), or Extended (DDDD:HH:MM). You specify the type of duration on the control line using the **Authorization code** field. Table 40 on page 459 shows what you enter in this field to indicate the duration type.

Table 40. Valid Authorization Codes for Duration Addition

Duration Type	Authorization Code
DD:HH:MM	0000
DDDD:HH:MM	0000
Years	0001
Months	0002
Days	0003
Minutes	0004

- **Input operands - specifying constants and specifying data from the current record:** Each input operand can be a constant or data taken from the current record. The following steps show you how to specify a constant:
 1. Create or locate an existing p-word dictionary entry with validation data completely enclosed in < and >. The date/time math exit routine uses only the first 16 characters of the validation data field.
 2. Code an input operand control line that specifies this p-word index and no s-word index.

The following steps show you how to use the data from the current record as an input operand:

1. Determine the indexes of an s-word or p-word that are associated with the data in the current record the program uses as an input operand.
2. Code an input operand control line that specifies the s-word index, the s-word and prefix indexes, or the prefix index (you can do this only if the p-word has validation data not completely enclosed in < and >). You need not specify both an s-word and a prefix index unless both an s-word and a p-word are required to uniquely identify the data. If you specify a p-word, the program exit uses the p-word word to locate data in the current record and the associated validation data is ignored.

Specify the indexes that fully identify the desired data. At run time, the program scans the current record for data associated with the s-word or p-word identified by the indexes specified. The program exit locates the last occurrence of the data in the current record that is associated with the s-word or p-word identified by the indexes specified.

Specifying output operands: The following describes how control lines are coded on the target control panel to indicate how results are to be added to the current record. You must code one control line for each result being stored.

- **Result is a duration or date only:**
 - Use an ADD control line with a function code of 0000 and the s-word and/or prefix indexes identifying the s-word and/or p-word to be associated with the result.
 - Set **Replace previous reply** to **YES** if you want the replace item flag turned on for this data item.
 - **Set Journal reply** to **YES** if you want the data journaled.
 - Set **Cognize response** to **YES** if you want the data cognized.

- Set **Data is a date** to **YES** if the result is a date and should have this flag set (this flag is only set if the result is actually a date and you specify that the program exit store a p-word with the data).

Integer duration: At least one of the indexes that you specify must refer to a nonblank s-word or p-word (the program exit must have an s-word or p-word, or both to store with the result).

If you add two integer durations, the program always stores the result as an integer (for example, Duration Days + Duration Days = Duration Days can only be stored as an integer, not in the form of a Standard or Extended Duration). You can specify the length needed by the program to store the result using the **Program Exit/TSP name** field of the control line.

To specify a length, you must specify the first position of the field as A and the remaining positions as the length you want the result to be when the program stores it. For example, if you want the program to store the result as 10 characters, the **Program Exit/TSP** field contains A0000010. You can specify a maximum length of 80. Therefore, the valid contents for the **Program Exit/TSP** field range is from A0000000 to A0000080.

If the **Program Exit/TSP** field contains blanks, the program stores the result as calculated (with no padding or truncation). If the result is a date or a noninteger duration, the program ignores this field. If the result is shorter than the length you specify, the program pads the result on the left with zeros. If the result is longer than the length you specify, the program truncates the result from the left.

Standard and Extended Durations: If the result is a duration and it is not an integer (for example, the two input operands were Standard or Extended Duration), the program exit can store the result in Standard or Extended duration form.

If you want the result stored as a Standard Duration, set the **Override Dialog target** field to NO or blanks. If you want the result stored as an Extended Duration, set the **Override Dialog target** field to **YES**.

If the result is an integer duration or a date, the exit program ignores the field. The program exit stores an integer result as an integer and a date result in external date form.

If the result is an Extended or Standard Duration of 100 or more days and the **Override Dialog target** field is set to NO or blanks, the program exit issues an error message and does not store the result.

- **Result is a date/time pair:**
 - For the date result use an ADD control line with a function code of 0000; and the s-word and/or prefix indexes identifying the s-word and/or p-word to be associated with the date result.
 - Set **Replace previous reply** to **YES** if you want the replace item flag turned on for this data item.
 - Set **Journal reply** to **YES** if you want the data journaled.
 - Set **Cognize response** to **YES** if you want the data cognized.

- Set **Data is a date** to **YES** if the result is a date and should have this flag set (the flag is set only if the result is actually a date and you specified that the program store a p-word with the data).
- Set **Begin multiple test** to **YES**.

At least one of the indexes you specified must refer to a nonblank s-word or p-word. (The program exit must have an s-word or p-word, or both to store with the result.)

- For the time part of the result, use a similar ADD control line except have **End multiple test** set to **YES**.

To store the date part of the result, the program exit uses information from the control line that has **Begin multiple test** set to **YES**. To store the time part of the result, the program exit uses information from the control line with **End multiple test** set to **YES**. Even if you specify an s-word and p-word that usually denote a time using the control line with **Begin multiple test** set to **YES**, the program stores the date part of the result with this information. Likewise, if you specify a date s-word and p-word using the **End multiple test** control line, the program exit stores the time part of the result using that information. The program exit ignores any control lines that exists between the control line with **Begin multiple test** set to **YES** and the control line with **End multiple test** set to **YES**.

If the result is a date/time pair and you only specified one results line, the program exit stores the date using that information. If you specified date/time results pair on the control panel but the result is a date only or a duration, the program stores the result using information from the first control line of the pair (however, if the result is a duration, the program ignores any length specification).

Panels: A control panel that conforms to the specifications described earlier in this section must be built. The control panel must contain information about what data to perform the operation on, what to add, and where to put the results. The control line that calls this program exit must contain the name of the control panel. If the panel that calls the program exit is an assisted-entry panel, the name of the control panel goes into the inquiry target field. If the panel that calls the program exit is a control panel, the name of the control panel that contains the information goes into the false target field.

P-Words: None.

S-Words: None.

Output: Results of the calculation are added to the current record.

Messages:

BLG03096I	BLG03097I	BLG03100I	BLG03101I	BLG03102I
BLG03103I	BLG03104I	BLG03105I	BLG03106I	BLG03107I
BLG03108I	BLG03112I	BLG03115I	BLG03117I	BLG03118I

ABEND codes:

None.

Examples and Valid Calculations:

The following are examples of some calculations you can perform and a description of how the target control panel would be coded in order to perform the calculation.

These notes apply to the BLG01437 examples that follow:

Notes:

1. You can specify either the s-word or prefix index of an input operand, unless both are required to uniquely identify the data. If a prefix index is specified and you are not specifying a constant input operand, the program exit ignores the validation data and uses the p-word word to locate the data. See “Input operands - specifying constants/specifying data from the current record” on page 459 for more information on how to use s-words and p-words to identify input operands.
2. xxxxxxxx means that any 8-character string is valid. The program exit does not use the fields that contain this string; however, the fields must contain data before the control panel can be filed.
3. You can blank out the result before calling the program exit. This prevents a calculation that is not valid from remaining in the record if the program exit finds an error and is unable to put the new result in the record. See “Example 1” for an implementation of this method.
4. Only one program exit can be invoked from a data attribute record. In the example, Planned Start Date invokes BLG01051 directly to handle the special date math. It also invokes control panel CTL1SCHD, which in turn invokes BLG01437. This is done with the create target panel field. A data attribute record can do this interactively, but not in the API. Only the program exit field and the inquiry target field are available in the API. Because of this, the Return To Caller field should always be set to YES.

However, you can make this program exit work in the following way:

- a. Create the Planned Start Date with only the program exit for BLG01051.
- b. Create the Estimated Effort data attribute record with the BLG01437 program exit and the Inquiry Target set to CTL1ADD1.
- c. Define the Planned Start Date data attribute record in the data view record before the one for the Estimated Effort. Thus the date will be correct when the program exit is invoked by the Effort record.
- d. The CTL1W and CTL1ADD2 control panels are not needed, nor is the MSG9ESEF message panel, either for running with the API or interactively. These panels provide an automatic request for the Effort when the planned start date is entered. Thus, as long as the date is entered first, and the effort later, the program exit will work both with the API and interactively.

Example 1

In this example, you modify panels so that the **Planned end date** field is automatically calculated and filled in when the user enters a date in the **Planned start date** field and a number in the **Estimated effort** field.

Planned Start Date + Estimated Effort = Planned End Date (Date + Integer Duration = Date)

The steps involved are:

- Creating a new p-word in the dictionary data set
- Updating 2 assisted-entry panels
- Creating 3 new control panels
- Creating 1 new message panel.

The fields that are used in this sample panel flow are the **Planned start date** field, the **Planned end date** field, and the **Estimated effort** field on the Change Status Entry panel (BLG0C200). The data flow for this task follows.

On the next few pages are the panel modifications you must make.

Start by creating a new p-word in the dictionary data set. Type the following IRC on the command line of the Management application Primary Options Menu (BLG0EN20), and press **Enter**.

9,2,4,DOWN MAX

```

BLG0EN20          --- PRIMARY OPTIONS MENU ---      APPLICATION: MANAGEMENT

OPTIONS:

  1. OVERVIEW.....Display general information and product enhancements.
  2. PROFILE.....Display or alter invocation or session defaults.
  3. APPLICATION....Change application, list available applications.
  4. CLASS.....Change current class, list available classes.
  5. ENTRY.....Create a record.
  6. INQUIRY.....Search for records.
  7. UTILITY.....Copy, display, print, delete, and update records.
  8. GLOSSARY.....Display a list of searchable words in the database.
  9. PMF.....Modify or create panels.

      Select an option, enter a command, or type QUIT to exit.

      Tivoli Information Management for z/OS Version 7 Release 1
      5697-SD9 (C) Copyright IBM Corp., 1981, 2001.

==> 9,2,4,down max

```

Use the ADD line command to create the new p-word. The p-word index used in this example is 8001.

Note: If 8001 is already in use, assign an available number, and replace 8001 in this example with your p-word index number.

```

BLM1TDP0          DICTIONARY UPDATE          PREFIX WORDS

      P-WORD  PREFIX  P-WORD          PGM  GENERAL
      INDEX          VALIDATION      USED  COMMENT

''  7FA4                      NO
''  7FA5                      NO
''  7FA6                      NO
''  7FA7                      NO
''  7FA8                      NO
''  7FA9                      NO
''  7FAA                      NO
''  7FAB                      NO
''  7FAC                      NO
''  7FAD                      NO
''  7FAE                      NO
''  7FAF                      NO
a2' 7FB0                      NO

Line Cnds: A=Add D=Delete R=Repeat
Type DOWN, UP, LEFT, or RIGHT to scroll the panel, or type END to exit.

====>
    
```

Enter the following for the new p-word index entry:

- Prefix:** DATT/
- P-Word validation:** <>
- Program used:** YES
- General comment:** BLG01437 Example 1

Then type **end,end** to save the new p-word entry and return to the PMF options panel.

```

BLM1TDP0          DICTIONARY UPDATE          PREFIX WORDS

      P-WORD  PREFIX  P-WORD          PGM  GENERAL
      INDEX          VALIDATION      USED  COMMENT

''  7FA6                      NO
''  7FA7                      NO
''  7FA8                      NO
''  7FA9                      NO
''  7FAA                      NO
''  7FAB                      NO
''  7FAC                      NO
''  7FAD                      NO
''  7FAE                      NO
''  7FAF                      NO
''  7FB0                      NO
''  8000
''  8001  DATT/  <>          YES  BLG01437 Example 1

Line Cnds: A=Add D=Delete R=Repeat
Type DOWN, UP, LEFT, or RIGHT to scroll the panel, or type END to exit.

====> end,end
    
```

Next, update the assisted-entry panels for **Planned start date** and **Estimated effort**. Type **1,1,BLG6SCHD,,1**, on the command line, and press **Enter**.

```

+ BLM8C000 ----- PANEL MODIFICATION FACILITY ----- PMF--+
|
| OPTIONS:
|
| 1. PANEL UPDATE.....Display, modify, or create panels.
| 2. DICTIONARY.....Display or modify dictionary data.
| 3. PANEL COPY.....Create new panel via panel copy.
| 4. PANEL DELETE.....Delete existing panel.
| 5. REPORTS.....Panels, prefix, and other listings.
| 6. PANEL SET.....Create panels to be used for inquiry,
|                   creation, update, etc. of records.
| 7. PANEL LIST.....Display panel data set information.
|
+----- SELECT OPTION -----+

```

```
====> 1,1,blg6sched,,1,
```

Update the control information for this panel.

```

BLM8CU51                ASSISTED ENTRY UPDATE                EXTERNALS
|
| +-----+
| | BLG6SCHED                PLANNED START DATE                DATP/ |
| | USE...Enter date that change or activity is planned to start. |
| | FORM...MM/DD/YY - Month, day, year (= defaults to today's date, |
| |                   or use = with + or - and a number as shown below). |
| |
| | EXAMPLES:  June 3, 1997.....Reply.....06/03/1997
| |              Today.....Reply.....=
| |              Yesterday.....Reply.....=-1
| |              2 months ago.....Reply.....=-2M
| |              A year from now...Reply.....=+1Y
| |
| | REPLY AS ILLUSTRATED
| |
| +-----+
|
| Modify textual data within the box.  To modify control data, type
| CONTROL on the command line.  When you finish, type END to save or
| CANCEL to discard any changes.
|
|====> control

```

Select **Panel flow processing**.

```

BLM8CU53                ASSISTED ENTRY SUMMARY                PANEL: BLG6SCHD

Dialog end..... NO          Structured word index..... 0C41
Create target.....          Structured word..... XIM00SD005
Inquiry target.....          Journal reply..... YES
Return to caller..... YES    Journal sequence..... ORDER
Replace previous..... YES    Program exit symbol..... BLG01051
Cognize response..... YES    Reply value (create)..... 1
Cognize only p-word..... NO  Reply value (inquiry)..... 1
Force search on 'any'..... NO Reply value meaning..... WORDS
Collect as string data.... NO Data type..... M

Select one of the choices, or type END to save or CANCEL to discard changes.

1. Panel flow processing.
2. Structured word and validation collection.
3. Response processing.
4. Prefix & content validation.

====> 1
    
```

Using an IRC, change the following fields, and then file the panel.

- Create target=CTL1SCHD**
- Inquiry target=BLG0F290**
- Return to caller=NO**

Note: Program exit BLG01051 verifies that a date is entered. Do not remove it from this panel.

```

BLM8CU5A                PANEL FLOW UPDATE                PANEL: BLG6SCHD

Enter panel flow control data; cursor placement or input line entry allowed.

1. Create target.....          _____
2. Inquiry target.....          _____
3. Return to caller..... YES    _____
4. Dialog end..... NO_
5. Force SRC generate end... NO_
6. Program exit symbol..... BLG01051

When you finish, type END to save or CANCEL to discard any changes.

====> 1,ctl1sched,2,blg0f290,3,no,,end,6,
    
```

Now update the other assisted-entry panel, BLG6ESEF by entering 1,BLG6ESEF,,1 on the command line.


```

BLM8CU53                ASSISTED ENTRY SUMMARY                PANEL: BLG6ESEF

Dialog end..... NO          Structured word index.... 0C94
Create target.....          Structured word..... XIM00SI002
Inquiry target.....          Journal reply..... YES
Return to caller..... YES    Journal sequence..... ORDER
Replace previous..... YES    Program exit symbol.....
Cognize response..... YES    Reply value (create).... 1
Cognize only p-word..... NO  Reply value (inquiry).... 1
Force search on 'any'..... NO Reply value meaning..... WORDS
Collect as string data.... NO Data type..... M

Select one of the choices, or type END to save or CANCEL to discard changes.

1. Panel flow processing.
2. Structured word and validation collection.
3. Response processing.
4. Prefix & content validation.

====> 1,1,ctl1add2,2,blg0f290,3,no,,end,end,6,
    
```

Now create the three new control panels. The first one is CTL1SCHD, so enter 1,CTL1SCHD,1 on the command line.

```

BLM8CU00                PANEL NAME ENTRY                UPDATE

Identify panel to be updated; cursor placement or input line entry allowed.

1. Panel name.....<R> BLG6ESEF
2. Data set definition label.....

To enter the panel update dialog, press Enter without field modifications.

BLM04015I Panel BLG6ESEF was written to the WRITE panel data set.
====> 1,ctl1sched,,8,
    
```

Type the abstract for the control panel, and then create the control information.

```

BLM8CU61          CONTROL PANEL UPDATE          EXTERNALS
+-----+
| CTL1SCHD                                     DIALOG |
+-----+
| This control panel is called by assisted-entry panel BLG6SCHD from
| the Planned start date field on the Change Status Entry panel
| (BLG0C200). The control panel tests for the presence of data in the
| Planned start date field and the Estimated effort field. If data is
| found, the control panel calls program exit BLG01437.
+-----+

Modify textual data within the box. To modify control data, type
CONTROL on the command line. When you finish, type END to save or
CANCEL to discard any changes.

BLM04030I Panel CTL1SCHD was not found in any panel data set.
==> control

```

Using the I and D line commands, insert four new lines, and delete the existing FLOW.

```

BLM1TSCU          FUNCTION LINE SUMMARY          LINE 1 OF 1
+-----+
| FUNC FUNC S-WORD PREFIX MULT APPLY AUTH TRUE FALSE MESSAGE PROGRAM
| TYPE CODE INDEX INDEX B E NOT CODE TARGET TARGET PANEL EXIT/TSP
+-----+
| i4 **** **** **** **** * * * **** * * * * * * * * * * * * * * *
| d' FLOW 000A 0000 0000 N N N 0000 BLG1M118
| ** **** **** **** **** * * * **** * * * * * * * * * * * * * * *
+-----+

Line Cmds: A=After C=Copy D=Delete I=Insert M=Move R=Repeat U=Update
Type DOWN, UP, LEFT, or RIGHT to scroll the panel, or type END to exit.

==>

```

Using an IRC, change **Control flow processing** as follows:

Control line type=TEST
Function code index=0000
True target panel=(blank)
False target panel=BLG0C200

This control line tests for the presence of a planned start date. If a date is found, the test is TRUE, and the control flows to line 2. If no date is found, the test is FALSE, and control returns to BLG0C200.

```

BLM8CU63                CONTROL LINE SUMMARY                PANEL: CTL1SCHD

Control line type..... FLOW                S-word index..... ____
Function code index.... 000A                Structured word..... _____
True target panel..... BLG1M118            Prefix word index..... ____
False target panel..... _____          Prefix word..... _____
Begin multiple test.... NO                  Validation..... _____
End multiple test..... NO                  Program exit/TSP name.... _____
Authorization code..... 0000                Apply not logic..... NO

Select one of the choices, or type END to save or CANCEL to discard changes.

1. Control flow processing.
2. Data collection processing.
3. Test data processing.

====> 1,1,test,2,0000,5,,6,blg0c200,,
    
```

Using an IRC, change **Data collection processing** as follows, and save your changes.

S-Word index=0C41

P-Word index=0000

```

BLM8CU63                CONTROL LINE SUMMARY                PANEL: CTL1SCHD

Control line type..... TEST                S-word index..... ____
Function code index.... 0000                Structured word..... _____
True target panel..... _____            Prefix word index..... ____
False target panel..... BLG0C200            Prefix word..... _____
Begin multiple test.... NO                  Validation..... _____
End multiple test..... NO                  Program exit/TSP name.... _____
Authorization code..... 0000                Apply not logic..... NO

Select one of the choices, or type END to save or CANCEL to discard changes.

1. Control flow processing.
2. Data collection processing.
3. Test data processing.

====> 2,1,0c41,2,0000,,end
    
```

The second control line that you inserted appears. Change **Control flow processing** as follows:

Control line type=TEST

Function code index=0000

True target panel=(blank)

False target panel=BLG6ESEF

Message panel=MSG9ESEF

This control line tests for the presence of an estimated effort. If one is found, the test is TRUE, and control flows to line 3. If one is not found, the test is FALSE, and control passes to assisted-entry panel BLG6ESEF, and Tivoli Information Management for z/OS issues message MSG9ESEF.

BLM8CU63	CONTROL LINE SUMMARY	PANEL: CTL1SCHD
Control line type..... FLOW	S-word index..... _____	
Function code index..... 000A	Structured word..... _____	
True target panel..... BLG1M118	Prefix word index..... _____	
False target panel..... _____	Prefix word..... _____	
Begin multiple test..... NO	Validation..... _____	
End multiple test..... NO	Program exit/TSP name.... _____	
Authorization code..... 0000	Apply not logic..... NO	
Select one of the choices, or type END to save or CANCEL to discard changes.		
<ol style="list-style-type: none"> 1. Control flow processing. 2. Data collection processing. 3. Test data processing. 		
====> 1,1,test,2,0000,5,,6,blg6esef,9,msg9esef,,		

Using an IRC, change **Data collection processing** as follows, and save your changes.

S-Word index=0C94

P-Word index=0000

BLM8CU63	CONTROL LINE SUMMARY	PANEL: CTL1SCHD
Control line type..... TEST	S-word index..... _____	
Function code index..... 0000	Structured word..... _____	
True target panel..... _____	Prefix word index..... _____	
False target panel..... BLG6ESEF	Prefix word..... _____	
Begin multiple test..... NO	Validation..... _____	
End multiple test..... NO	Program exit/TSP name.... _____	
Authorization code..... 0000	Apply not logic..... NO	
Select one of the choices, or type END to save or CANCEL to discard changes.		
<ol style="list-style-type: none"> 1. Control flow processing. 2. Data collection processing. 3. Test data processing. 		
====> 2,1,0c94,2,0000,,end		

The third control line that you inserted appears. Change **Control flow processing** as follows:

Control line type=ADD

Function code index=0000

True target panel=(blank)

This control line adds a blank entry for the planned end date.

```

BLM8CU63                CONTROL LINE SUMMARY                PANEL: CTL1SCHD

Control line type..... FLOW          S-word index..... ____
Function code index.... 000A         Structured word..... ____
True target panel..... BLG1M118     Prefix word index..... ____
False target panel..... _____  Prefix word..... ____
Begin multiple test.... NO          Validation..... ____
End multiple test..... NO          Program exit/TSP name.... ____
Authorization code..... 0000        Apply not logic..... NO

Select one of the choices, or type END to save or CANCEL to discard changes.

1. Control flow processing.
2. Data collection processing.
3. Test data processing.

====> 1,1,add,2,0000,5,,
    
```

Using an IRC, change **Data collection processing** as follows, and save your changes.

- S-Word index=0C42**
- P-Word index=8001**
- Journal reply=YES**
- Journal sequence=ORDER**
- Cognize response=YES**
- Data is a date=YES**

```

BLM8CU63                CONTROL LINE SUMMARY                PANEL: CTL1SCHD

Control line type..... ADD          S-word index..... ____
Function code index.... 0000         Structured word..... ____
True target panel..... _____  Prefix word index..... ____
False target panel..... _____  Prefix word..... ____
Begin multiple test.... NO          Validation..... ____
End multiple test..... NO          Program exit/TSP name.... ____
Authorization code..... 0000        Apply not logic..... NO

Select one of the choices, or type END to save or CANCEL to discard changes.

1. Control flow processing.
2. Data collection processing.
3. Test data processing.

====> 2,1,0c42,2,8001,3,yes,4,order,5,yes,8,yes,,end
    
```

The fourth control line that you inserted appears. Change **Control flow processing** as follows:

- Control line type=FLOW**
- Function code index=000B**
- True target panel=BLG0C200**
- False target panel=CTL1ADD1**
- Program exit/TSP name=BLG01437**

This control line calls program exit BLG01437. The **True target** is the target panel when the calculation is finished. The **False target** is the control panel that contains the operands.

BLM8CU63	CONTROL LINE SUMMARY	PANEL: CTL1SCHD
Control line type.....	FLOW	S-word index.....
Function code index.....	000A	Structured word.....
True target panel.....	BLG1M118	Prefix word index.....
False target panel.....	_____	Prefix word.....
Begin multiple test.....	NO	Validation.....
End multiple test.....	NO	Program exit/TSP name....
Authorization code.....	0000	Apply not logic.....
		NO
Select one of the choices, or type END to save or CANCEL to discard changes.		
<ol style="list-style-type: none"> 1. Control flow processing. 2. Data collection processing. 3. Test data processing. 		
====> 1,1,flow,2,000b,5,b1g0c200,6,ctl1add1,8,b1g01437,,		

Using an IRC, change **Data collection processing** as follows, and save your changes.

S-Word index=0000

P-Word index=0000

BLM8CU63	CONTROL LINE SUMMARY	PANEL: CTL1SCHD
Control line type.....	FLOW	S-word index.....
Function code index.....	000B	Structured word.....
True target panel.....	BLG0C200	Prefix word index.....
False target panel.....	CTL1ADD1	Prefix word.....
Begin multiple test.....	NO	Validation.....
End multiple test.....	NO	Program exit/TSP name....
Authorization code.....	0000	Apply not logic.....
		NO
Select one of the choices, or type END to save or CANCEL to discard changes.		
<ol style="list-style-type: none"> 1. Control flow processing. 2. Data collection processing. 3. Test data processing. 		
====> 2,1,0000,2,0000,,end		

The Function Line Summary panel appears with the lines you inserted filled in. A message also informs you that the original FLOW line was deleted as you requested. File this control panel.

```

BLM1TSCU                FUNCTION LINE SUMMARY                LINE 1 OF 4

  FUNC FUNC S-WORD PREFIX MULT APPLY AUTH TRUE  FALSE MESSAGE PROGRAM
  TYPE CODE INDEX INDEX B  E NOT  CODE TARGET TARGET PANEL  EXIT/TSP

'' **** ****  ****  **** * * *  **** ***** ***** ***** *****
'' TEST 0000 0C41  0000 N N N  0000          BLG0C200
'' TEST 0000 0C94  0000 N N N  0000          BLG6ESEF MSG9ESEF
'' ADD  0000 0C42  8001 N N N  0000
'' FLOW 000B 0000  0000 N N N  0000 BLG0C200 CTL1ADD1          BLG01437
** **** ****  ****  **** * * *  **** ***** ***** ***** *****

Line Cmds: A=After C=Copy D=Delete I=Insert M=Move R=Repeat U=Update
Type DOWN, UP, LEFT, or RIGHT to scroll the panel, or type END to exit.

BLM04054W The control information for the specified line is deleted.
====> end,end,6,
    
```

The second control panel that you must create is CTL1ADD1, so enter 1,CTL1ADD1,,8 on the command line.

```

BLM8CU00                PANEL NAME ENTRY                UPDATE

Identify panel to be updated; cursor placement or input line entry allowed.

      1. Panel name.....<R> CTL1SCHD
      2. Data set definition label..... _____

To enter the panel update dialog, press Enter without field modifications.

BLM04015I Panel CTL1SCHD was written to the WRITE panel data set.
====> 1,ctl1add1,,8,
    
```

Type the abstract for the control panel, and then create the control information.


```

BLM8CU61          CONTROL PANEL UPDATE          EXTERNALS
+-----+
| CTL1ADD1          DIALOG                      |
+-----+
|
|   This control panel finds the data in the Planned start date
|   field and the Estimated effort field on the Change Status Entry
|   panel (BLG0C200). The control panel then adds the duration
|   number to the date and fills in the Planned end date field.
|
+-----+

Modify textual data within the box. To modify control data, type
CONTROL on the command line. When you finish, type END to save or
CANCEL to discard any changes.

BLM04030I Panel CTL1ADD1 was not found in any panel data set.
==> control
    
```

Using the I and D line commands, insert three new lines, and delete the existing FLOW.

```

BLM1TSCU          FUNCTION LINE SUMMARY          LINE 1 OF 1
+-----+
| FUNC  FUNC S-WORD PREFIX MULT APPLY AUTH  TRUE  FALSE  MESSAGE  PROGRAM |
| TYPE  CODE INDEX  INDEX  B  E  NOT  CODE  TARGET  TARGET  PANEL  EXIT/TSP |
+-----+
| i3 **** ****  ****  ****  *  *  *  ****  *****  *****  *****  ***** |
| d' FLOW 000A  0000  0000  N  N  N  0000  BLG1M118 |
| ** **** ****  ****  ****  *  *  *  ****  *****  *****  *****  ***** |
+-----+

Line Cnds: A=After C=Copy D=Delete I=Insert M=Move R=Repeat U=Update
Type DOWN, UP, LEFT, or RIGHT to scroll the panel, or type END to exit.

==>
    
```

Using an IRC, change **Control flow processing** and **Data collection processing** as follows, and save your changes.

- Control line type=FLOW**
- Function code index=000D**
- True target panel=(blank)**
- S-Word index=0C41**
- P-Word index=0000**

```

BLM8CU63                CONTROL LINE SUMMARY                PANEL: CTL1ADD1

Control line type..... FLOW          S-word index..... ____
Function code index.... 000A         Structured word..... _____
True target panel..... BLG1M118     Prefix word index..... ____
False target panel..... _____   Prefix word..... _____
Begin multiple test.... NO           Validation..... _____
End multiple test..... NO           Program exit/TSP name.... _____
Authorization code..... 0000         Apply not logic..... NO

Select one of the choices, or type END to save or CANCEL to discard changes.

1. Control flow processing.
2. Data collection processing.
3. Test data processing.

====> 1,1,flow,2,000d,5,,2,1,0c41,2,0000,,end
    
```

The second control line that you inserted appears. Change **Control flow processing** and **Data collection processing** as follows, and save your changes.

- Control line type=TEST**
- Function code index=0000**
- True target panel=(blank)**
- Authorization code=0003**
- Program exit/TSP name=XXXXXXXX**
- S-Word index=0C94**
- P-Word index=0000**

Note: The authorization code of 0003 in the TEST control line indicates the duration type. In this case, the type is days. See “Duration” on page 458 for more information on specifying duration types.

```

BLM8CU63                CONTROL LINE SUMMARY                PANEL: CTL1ADD1

Control line type..... FLOW          S-word index..... ____
Function code index.... 000A         Structured word..... _____
True target panel..... BLG1M118     Prefix word index..... ____
False target panel..... _____   Prefix word..... _____
Begin multiple test.... NO           Validation..... _____
End multiple test..... NO           Program exit/TSP name.... _____
Authorization code..... 0000         Apply not logic..... NO

Select one of the choices, or type END to save or CANCEL to discard changes.

1. Control flow processing.
2. Data collection processing.
3. Test data processing.

====> 1,1,test,2,0000,5,,7,0003,8,xxxxxxx,,2,1,0c94,2,0000,,end
    
```

The third control line that you inserted appears. Change **Control flow processing** and **Data collection processing** as follows, and save your changes.

- Control line type=ADD**

Function code index=0000
True target panel=XXXXXXXX
S-Word index=0C42
P-Word index=00E9

```

BLM8CU63          CONTROL LINE SUMMARY          PANEL: CTL1ADD1

Control line type..... FLOW          S-word index..... ____
Function code index.... 000A          Structured word..... ____
True target panel..... BLG1M118       Prefix word index.... ____
False target panel..... _____   Prefix word..... ____
Begin multiple test.... NO            Validation..... ____
End multiple test..... NO             Program exit/TSP name... ____
Authorization code..... 0000          Apply not logic..... NO

Select one of the choices, or type END to save or CANCEL to discard changes.

1. Control flow processing.
2. Data collection processing.
3. Test data processing.

==> 1,1,add,2,0000,5,xxxxxxxx,,2,1,0c42,2,00e9,,end
    
```

The Function Line Summary panel appears with the lines you inserted filled in. A message also informs you that the original FLOW line was deleted as you requested. File this control panel.

```

BLM1TSCU          FUNCTION LINE SUMMARY          LINE 1 OF 3

FUNC FUNC S-WORD PREFIX MULT APPLY AUTH TRUE FALSE MESSAGE PROGRAM
TYPE CODE INDEX INDEX B E NOT CODE TARGET TARGET PANEL EXIT/TSP

'' **** **** **** **** * * * **** * * * * * * * * * * * * * * * *
'' FLOW 000D 0C41 0000 N N N 0000
'' TEST 0000 0C94 0000 N N N 0003 XXXXXXXX
'' ADD 0000 0C42 00E9 N N N 0000 XXXXXXXX
** **** **** **** **** * * * **** * * * * * * * * * * * * * * * *

Line Cmds: A=After C=Copy D=Delete I=Insert M=Move R=Repeat U=Update
Type DOWN, UP, LEFT, or RIGHT to scroll the panel, or type END to exit.

BLM04054W The control information for the specified line is deleted.
==> end,end,6,
    
```

The third control panel that you must create is CTL1ADD2. so enter 1,CTL1ADD2,,8 on the command line.

```
BLM8CU00          PANEL NAME ENTRY          UPDATE
Identify panel to be updated; cursor placement or input line entry allowed.

1. Panel name.....<R> CTL1ADD1
2. Data set definition label..... _____

To enter the panel update dialog, press Enter without field modifications.

BLM04015I Panel CTL1ADD1 was written to the WRITE panel data set.
====> 1,ctl1add2,,8,
```

Type the abstract for the control panel, and then create the control information.

```
BLM8CU61          CONTROL PANEL UPDATE      EXTERNALS
+-----+
| CTL1ADD2                                     DIALOG |
| This control panel is called by assisted-entry panel BLG6ESEF from |
| the Estimated effort field on the Change Status Entry panel      |
| (BLG0C200). The control panel adds a blank entry for Planned end  |
| date. Then it calls program exit BLG01437.                       |
+-----+

Modify textual data within the box. To modify control data, type
CONTROL on the command line. When you finish, type END to save or
CANCEL to discard any changes.

BLM04030I Panel CTL1ADD2 was not found in any panel data set.
====> control
```

Using the I and D line commands, insert two new lines, and delete the existing FLOW.

```

BLM1TSCU                FUNCTION LINE SUMMARY                LINE 1 OF 1

  FUNC FUNC S-WORD PREFIX MULT APPLY AUTH  TRUE   FALSE  MESSAGE  PROGRAM
  TYPE CODE INDEX  INDEX  B  E NOT  CODE  TARGET TARGET  PANEL   EXIT/TSP

i2 **** ****  ****  ****  *  *  *   ****  *****  *****  *****  *****
d' FLOW 000A  0000  0000  N  N  N   0000 BLG1M118
** **** ****  ****  ****  *  *  *   ****  *****  *****  *****  *****

Line Cmds: A=After C=Copy D=Delete I=Insert M=Move R=Repeat U=Update
Type DOWN, UP, LEFT, or RIGHT to scroll the panel, or type END to exit.

====>
    
```

Using an IRC, change **Control flow processing** and **Data collection processing** as follows, and save your changes.

- Control line type=ADD**
- Function code index=0000**
- True target panel=(blank)**
- S-Word index=0C42**
- P-Word index=8001**

```

BLM8CU63                CONTROL LINE SUMMARY                PANEL: CTL1ADD2

Control line type..... FLOW          S-word index..... ____
Function code index.... 000A          Structured word..... ____
True target panel..... BLG1M118      Prefix word index.... ____
False target panel..... _____   Prefix word..... ____
Begin multiple test.... NO           Validation..... ____
End multiple test..... NO           Program exit/TSP name... ____
Authorization code..... 0000          Apply not logic..... NO

Select one of the choices, or type END to save or CANCEL to discard changes.

1. Control flow processing.
2. Data collection processing.
3. Test data processing.

====> 1,1,add,2,0000,5,,2,1,0c42,2,8001,,end
    
```

The second control line that you inserted appears. Change **Control flow processing** and **Data collection processing** as follows, and save your changes.

- Control line type=FLOW**
- Function code index=000B**
- True target panel=BLG0C200**
- False target panel=CTL1ADD1**
- Program exit/TSP name=BLG01437**
- S-Word index=0000**
- P-Word index=0000**

```

BLM8CU63                CONTROL LINE SUMMARY                PANEL: CTL1ADD2

Control line type..... FLOW          S-word index..... ____
Function code index.... 000A          Structured word..... ____
True target panel..... BLG1M118      Prefix word index.... ____
False target panel..... _____   Prefix word..... ____
Begin multiple test.... NO            Validation..... ____
End multiple test..... NO             Program exit/TSP name... ____
Authorization code..... 0000          Apply not logic..... NO

Select one of the choices, or type END to save or CANCEL to discard changes.

1. Control flow processing.
2. Data collection processing.
3. Test data processing.

====> 1,1,flow,2,000b,5,blg0c200,6,ctl1add1,8,blg01437,,2,1,0000,2,0000,,end
    
```

The Function Line Summary panel appears with the lines you inserted filled in. A message also informs you that the original FLOW line was deleted as you requested. File this control panel.

```

BLM1TSCU                FUNCTION LINE SUMMARY                LINE 1 OF 2

FUNC FUNC S-WORD PREFIX MULT APPLY AUTH TRUE FALSE MESSAGE PROGRAM
TYPE CODE INDEX INDEX B E NOT CODE TARGET TARGET PANEL EXIT/TSP

'' **** *  ****  ****  * * *  **** *  ****  ****  ****  ****
'' ADD 0000 0C42 8001 N N N 0000
'' FLOW 000B 0000 0000 N N N 0000 BLG0C200 CTL1ADD1 BLG01437
** **** *  ****  ****  * * *  **** *  ****  ****  ****  ****

Line Cmds: A=After C=Copy D=Delete I=Insert M=Move R=Repeat U=Update
Type DOWN, UP, LEFT, or RIGHT to scroll the panel, or type END to exit.

BLM04054W The control information for the specified line is deleted.
====> end,end,6,
    
```

The last panel modification you must make is to create message panel MSG9ESEF; enter 1,MSG9ESEF,4 on the command line.

```

BLM8CU00          PANEL NAME ENTRY          UPDATE
Identify panel to be updated; cursor placement or input line entry allowed.

      1. Panel name.....<R> CTL1ADD2
      2. Data set definition label..... _____

To enter the panel update dialog, press Enter without field modifications.

BLM04015I Panel CTL1ADD2 was written to the WRITE panel data set.
====> 1,msg9esef,,4,
    
```

Type the message ID and text, and then file the panel and return to the Primary Options Menu.

```

BLM8CU31          MESSAGE PANEL UPDATE      EXTERNALS
+-----+-----+
| MSG9ESEF          TOP TITLE          DIALOG NAME          |
| MSG05SEF - You must enter the estimated effort.          |
| Add additional days for weekends and holidays to your estimate.          |
| For example, if an effort takes 9 working days, then enter 11          |
| because the work effort spans a weekend.          |
+-----+-----+

Modify textual data within the box. To modify control data, type
CONTROL on the command line. When you finish, type END to save or
CANCEL to discard any changes.

BLM04030I Panel MSG9ESEF was not found in any panel data set.
====> end,6,init
    
```

Once you complete all these panel modifications, copy them to a read panel data set so you can test your changes.

To verify that your changes work correctly, begin at the Primary Options Menu and create a change request.

```

BLG0EN20          --- PRIMARY OPTIONS MENU ---      APPLICATION: MANAGEMENT

OPTIONS:

  1. OVERVIEW.....Display general information and product enhancements.
  2. PROFILE.....Display or alter invocation or session defaults.
  3. APPLICATION...Change application, list available applications.
  4. CLASS.....Change current class, list available classes.
  5. ENTRY.....Create a record.
  6. INQUIRY.....Search for records.
  7. UTILITY.....Copy, display, print, delete, and update records.
  8. GLOSSARY.....Display a list of searchable words in the database.
  9. PMF.....Modify or create panels.

      Select an option, enter a command, or type QUIT to exit.

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      5697-SD9 (C) Copyright IBM Corp., 1981, 2001.

====> 5,2
    
```

Enter information in the required fields.

```

-----
BLG0C100          CHANGE REQUESTER ENTRY          CHANGE: _____

Enter change requester data; cursor placement or input line entry allowed.

  1. Requested by.....<R> _____          11. Change type..... _____
  2. Requester dept..... _____          12. Change status...<R> _____
  3. Requester phone.... _____          13. Change reason..... _____
  4. Network name..... _____          14. User change number.. _____
  5. System name..... _____          15. Initial priority.... _
  6. Program name..... _____          16. Estimated duration.. _____
  7. Device name..... _____          17. Problem fixed..... _____
  8. Key item affected... _____          18. User form number.... _____
  9. Date required..... _____          19. Location code..... _____
 10. Time required..... _____

20. Description.....<R> _____

      When you finish, type END to save or CANCEL to discard any changes.

====> 1,=,12,open,20,testing,,
    
```

Select **Status data**.


```

BLG0CU01          CHANGE REQUEST SUMMARY          CHANGE: _____
Assignee name..... _____          Change status..... OPEN
Assignee phone..... _____          Approval status..... _____
Coordinator name..... _____          Current priority..... _
Device name..... _____          Date required..... _____
Key item affected..... _____          Planned start date..... _____
                                          Completion date..... _____

Description..... TESTING

Select one of the choices, or type END to save or CANCEL to discard changes.

1. Requester data.          6. Reviewer data.
2. Status data.            7. Activity entry (and file change).
3. Close data.             8. Freeform text.
4. Detail data.            9. File record.
5. Approver data.          10. Software Distribution data.

====> 2
    
```

Enter a date in the **Planned start date** field.

```

BLG0C200          CHANGE STATUS ENTRY          CHANGE: _____
Enter change status data; cursor placement or input line entry allowed.

1. Assignee name..... _____          12. Change status...<R> OPEN__
2. Assignee dept..... _____          13. Current phase..... _____
3. Assignee phone..... _____          14. Planned start date.. _____
4. Date assigned..... _____          15. Planned start time.. _____
5. Time assigned..... _____          16. Actual start date... _____
6. Transfer-to class... _____          17. Actual start time... _____
7. Current priority... _____          18. Planned end date.... _____
8. Coordinator name.... _____          19. Planned end time.... _____
9. Coordinator dept.... _____          20. Estimated effort.... _____
10. Coordinator phone... _____          21. Estimated duration.. _____
11. Risk assessment..... _____

22. Co-requisites..... _____
23. Pre-requisites..... _____

When you finish, type END to save or CANCEL to discard any changes.

====> 14,=
    
```

The assisted-entry panel for the **Estimated effort** field appears because you did not enter any data in that field. The message that accompanies the assisted-entry panel is the one you just created.

On the command line, type the number of days for the estimated effort, and press **Enter**.

```

+ BLG6ESEF ----- ESTIMATED EFFORT ----- EFE/-+
|
| USE...Enter estimated effort required for change or activity.
|
| FORM...NNNN - 1 to 4 decimal positions, number of person days,
|             automatic left zero padding.
|
|     EXAMPLES: 10 days.....Reply.....10
|               150 days.....Reply.....150
|
+----- REPLY AS ILLUSTRATED -----+
MSG05SEF - You must enter the estimated effort.

Add additional days for weekends and holidays to your estimate.
For example, if an effort takes 9 working days, then enter 11
because the work effort spans a weekend.

====> 11

```

Program exit BLG01437 calculates the **Planned end date** and adds it to the record. Use the **VIEW INTERNALS** command to see how the data was added.

```

BLG0C200                CHANGE STATUS ENTRY                CHANGE: _____
Enter change status data; cursor placement or input line entry allowed.

 1. Assignee name..... _____      12. Change status...<R> OPEN__
 2. Assignee dept..... _____      13. Current phase..... _____
 3. Assignee phone..... _____      14. Planned start date.. 10/17/1998
 4. Date assigned..... _____      15. Planned start time.. _____
 5. Time assigned..... _____      16. Actual start date... _____
 6. Transfer-to class... _____      17. Actual start time... _____
 7. Current priority... _____      18. Planned end date... 10/28/1998
 8. Coordinator name.... _____      19. Planned end time.... _____
 9. Coordinator dept.... _____      20. Estimated effort.... 0011
10. Coordinator phone... _____      21. Estimated duration.. _____
11. Risk assessment..... _____

22. Co-requisites..... _____
23. Pre-requisites..... _____

      When you finish, type END to save or CANCEL to discard any changes.

====> v i

```

Program exit BLG01437 added the last line.

```

BLG1TVID                VIEW INTERNAL DATA                LINE 1 OF 17

PANEL   PANEL  REL COG-  FLAGS   SWORD  STRUCTURED  PREFIX WORD OR
NAME    TYP/RSP  LEV NIZE  F  M  D  INDEX   WORD       VISIBLE PHRASE

BLG0EN20 D/ 5   05 B/U 19/00/88 S002C  BA //S/TSI  ENTRY
BLG00000 S/ 2   05 B/U 18/00/00 S0B06  BA //S/TRSM RECS=CHANGE
BLG0C004 S/ 1   05 N/ 19/00/80 S0CFC  BC IMDIAENT0 REQUESTER
BLG0C100 D/ 1   05 N/ 41/00/08 S0B59
BLG6REQM A/ 2   05 B/U 00/04/00 S0B59  BC IM0I0PS00 PERS/VANYO
BLG0C100 D/12  05 N/ 41/00/00 S0BEE
BLG6STAT A/ 2   05 B/U 00/04/00 S0BEE  BC IMS0SSC00 STAC/OPEN
BLG0C100 D/20  05 N/ 41/00/00 S0E0F
BLG6DSAB A/ 2   05 B/U 00/04/00 S0E0F  BC IM0TXCA00 TESTING
BLG0C100 D/ E   05 N/ 01/00/44 S000B
BLG0CU01 D/ 2   05 B/U 19/00/88 S0CFD  BC IMDIASTA0 Status data
BLG0C200 D/14  05 N/ 41/00/08 S0C41
BLG6SCHD A/ 2   05 B/U 00/04/00 S0C41  BC IM00SD005 DATP/11/17/96
BLG6ESEF A/ 2   05 B/U 00/04/08 S0C94  BC IM00SI002 EFE/0011
CTLIADD2 C/ 2   00 N/ 00/00/00 S0C42  BC IM00SD006 DATT/
BLGCDTAD C/ 2   00 N/ 00/02/00 S0C42  BC IM00SD006 DATT/11/28/96
*** BOTTOM OF DATA ***

Type DOWN or UP to scroll the panel, or type END to exit the panel.

==>

```

Example 2

This example shows you the control information you need for the **Planned end date** field and **Planned end time** field to be automatically calculated and filled in when the user enters a date and time in the **Planned start date** and **Planned start time** fields and a number in the **Estimated effort** field.

Planned Start Date/Time + Estimated Duration = Planned End Date/Time (Date/Time + Standard Duration = Date/Time)

This is the information you need to include on the target control panel.

On the ADD control lines, set the data collection flags as appropriate.

```

BLMITSCU                FUNCTION LINE SUMMARY                LINE 1 OF 5

FUNC  FUNC  S-WORD  PREFIX  MULT  APPLY  AUTH  TRUE  FALSE  MESSAGE  PROGRAM
TYPE  CODE  INDEX   INDEX  B  E  NOT  CODE  TARGET  TARGET  PANEL  EXIT/TSP

'' **** **** **** **** * * *  **** ***** ***** ***** *****
'' FLOW 000D 0C41 0000 Y N N  0000
'' FLOW 000D 0C6E 0000 N Y N  0000
'' TEST 0000 0C95 0000 N N N  0000
'' ADD  0000 0C42 00E9 Y N N  0000
'' ADD  0000 0C6F 0298 N Y N  0000 XXXXXXXX
** **** **** **** **** * * *  **** ***** ***** ***** *****

Line Cmds: A=After C=Copy D=Delete I=Insert M=Move R=Repeat U=Update
Type DOWN, UP, LEFT, or RIGHT to scroll the panel, or type END to exit.

==>

```

Table 41 summarizes the valid calculations and the number of control lines that are coded on the target control panel for each calculation.

Table 41. Valid Calculation Types for Duration Addition

Calculation Type	Number Input Control Lines	Number Result Control Lines
Date and Time + Duration (all types) = Date and Time	3	2
Date + Duration Days = Date	2	1
Date + Duration Months = Date	2	1
Date + Duration Years = Date	2	1
Duration Years + Duration Years = Duration Years	2	1
Duration Months + Duration Months = Duration Months	2	1
Duration Days + Duration Days = Duration Days	2	1
Duration Minutes + Duration Minutes = Duration Minutes	2	1
Standard Duration + Standard Duration = Extended Duration	2	1
Standard Duration + Standard Duration = Standard Duration	2	1
Standard Duration + Extended Duration = Extended Duration	2	1
Standard Duration + Extended Duration = Standard Duration	2	1
Extended Duration + Extended Duration = Standard Duration	2	1
Extended Duration + Extended Duration = Extended Duration	2	1

The input combinations listed are the only ones supported. If you specify others (for example, Date and Time + Date and Time), the program does not calculate the results and issues an error message.

You must specify control lines in the order of first operand lines, second operand lines, and result lines.

BLG01438 - Date/Time Subtraction

The BLG01438 program exit performs arithmetic functions on dates, times, and durations. It gathers input data specified to it by use of a control panel and performs the calculation, formats the results, and adds the results to the current record. Dates, times, and durations are valid input operands to the program exit.

You can gather input operand data from the current record, or you can specify it as a constant by using the dictionary. The following lists the types of results that you can obtain by using this program exit:

Date and Time

Date and time minus duration

Date

Date minus integer duration (days, months, years)

Duration

- Date and time minus date and time
- Date minus date
- Duration minus duration

- Integer (minutes, days, months, years)
- Standard (DD:HH:MM)
- Extended (DDDD:HH:MM)

Date/time math supports times and durations to the minute level only.

The exit routine accepts both the DD:HH:MM format (referred to as Standard Duration) and the DDDD:HH:MM format (referred to as Extended Duration) for durations. (DD or DDDD = number of days, HH = number of hours, and MM = number of minutes). Also acceptable as durations are integers specifying either a number of minutes, a number of days, a number of months, or a number of years.

The following ranges are valid for time and for each type of duration. Input and result durations must be within the ranges shown in Table 42.

Table 42. Valid Ranges for Duration Subtraction

Type	Valid Input Range	Valid Result Range
Time	00:00 - 24:00	00:00 - 23:59
Duration Years Duration Months Duration Days Duration Minutes	0 - 2 147 483 647	0 - 2 147 483 647
Standard Duration (DD:HH:MM)	DD: 00 - 99 HH:MM: 00:00 - 24:00	DD: 00 - 99 HH:MM: 00:00 - 23:59
Extended Duration (DDDD:HH:MM)	DDDD: 0000 - 9999 HH:MM: 00:00 - 24:00	DDDD: 0000 - 9999 HH:MM: 00:00 - 23:59

If you specify a duration or time that does not fall into the correct range, processing stops and the system issues an error message. If you use integer durations in calculations with integer durations, both of the inputs and the result must fall in the range 0 - 2 147 483 647 as shown above. Negative durations are not supported. The program converts all dates (except for dates specified as constants) to internal format (YY/MM/DD) before using them in calculations.

- If a two-digit year is used and the internal or external format has a YY value in the range 00 - 49, the program assumes it to be in the 21st century; if the YY value is in the range 50 - 99, the program assumes it to be the 20th century.
- If a four-digit year is used, then any date is acceptable.

Additional information on these date formats can be found in the *Tivoli Information Management for z/OS Planning and Installation Guide and Reference*.

You must specify constant dates in the form YY/MM/DD or YYYY/MM/DD.

If you are using a time conversion program and you are getting the data from the current record, the times are converted to HH:MM format before the program exit validates the input range. If you specify a time as a constant, the time must be in the HH:MM format. The valid result ranges shown in the preceding table are based on the HH:MM format; however, the resulting time is returned in your external format.

If you use a two-digit year, when you subtract a duration from a date, the YY value cannot exceed a boundary of 50 (for example, subtracting 730 days from a date with a YY of 50

would result in a YY of 48). This limits the maximum size of integer durations involved in calculations with a date. The integer can only be as large as the amount (years, months, days, minutes) that makes up the 100 years between January 01, 1950 to December 31, 2049. For example, the maximum size an integer days duration can be is 36 524.

You must specify the name of a control panel (target control panel) for use by this program exit. This control panel contains information about input operands for the calculation and also information about how to store the result. Only one calculation can be performed per target control panel. The target control panel will never be run in the flow of a dialog and many fields in the control lines are used in ways that are different from their use in an executable control panel. For example, when identifying an input duration, the authorization code field of the TEST control line is used to indicate the duration type. When creating an executable control panel, the authorization code field of the TEST control line indicates an authorization code to be tested for.

The target control panel lists indexes of s-words and p-words that are associated with the input operands to the exit routine. If the operand data is coming from the current record, the program exit uses the last occurrence of the data associated with the specified s-word and/or p-word.

Each date, time, and duration input operand is identified by one control line. Likewise, each date, time, and duration result to be stored requires a control line. It is not mandatory for you to specify a result control line. If you do not specify any result control lines, the program exit does not store any results in the current record. If the calculation provides two results (date and time) and you specify only one result line, the program stores only the date part of the result.

You can specify a length to indicate the length needed to store an integer duration. If the result is shorter than the specified length, the program pads the result on the left with the number of zeros necessary to make the result that length. If the result is longer than the specified length, the program truncates the results from the left.

The following briefly describes the routine's processing:

- Verifies that the requested calculation is a valid one. If it is valid:
 - Gathers input operand data from the current record or constant data from the target control panel. If the operand data is not found, issues an error message and ends.
 - Performs the math calculation. If an error occurs, issues a message and ends.
 - Adds results to the current record based on the information specified in the target control panel.
- If requested calculation is not supported, issues a message and ends.

Environment: Called in create and inquiry mode from an assisted-entry panel or control panel. Called from data attribute records used interactively. This exit can be called in create mode from data attribute records used in an API environment.

Examples: BLG1XMP4 (to calculate the planned start date based on the duration and the planned end date).

BLG1XMP5 (to calculate the planned start date and time based on the estimated duration and the planned end date and time).

BLG1XMP6 (to calculate the total time by subtracting the date and time occurred from the date and time closed).

Input:

Specifying input operands: The following describes how control lines are coded on the target control panel to indicate what calculation to perform and what input operand data to use. One control line is coded for each input operand required in the calculation. Input operands can be either data from the current record or constant data from the dictionary. See “Input operands - specifying constants/specifying data from the current record” on page 489 for information describing how each is done.

- **Date only:** use a FLOW control line with a function code of 000D and an s-word or prefix index identifying an input date.
- **Date/time pair:** use two FLOW control lines with a function code of 000D and s-word or p-word indexes identifying the input date and time. The line identifying the date input operand must have the **Begin multiple test** field set to YES. The line identifying the time input operand must have the **End Multiple Test** field set to YES. The program ignores any control lines that exists between the control line with **Begin multiple test** set to YES and the control line with **End multiple test** set to YES.
- **Duration:** use a TEST control line with a function code of 0000, an s-word or prefix index identifying an input duration, and any name in the **Program Exit/TSP name** field (this name is not used in the program exit processing, but the field must contain data to file the control panel). Durations may be years, months, days, minutes, Standard (DD:HH:MM), or Extended (DDDD:HH:MM). You specify the type of duration on the control line using the **Authorization code** field. Table 43 shows what you enter in this field to indicate the duration type.

Table 43. Valid Authorization Codes for Duration Subtraction

Duration Type	Authorization Code
DD:HH:MM	0000
DDDD:HH:MM	0000
Years	0001
Months	0002
Days	0003
Minutes	0004

- **Input operands - specifying constants/specifying data from the current record:**
Each input operand can be a constant or data taken from the current record. Use the following steps to specify a constant:
 1. Create or locate an existing p-word dictionary entry with validation data completely enclosed in < and >. The date/time math exit routine uses only the first 16 characters of the validation data field.
 2. Code an input operand control line that specifies this prefix index and no s-word index.

Use the following steps to take data from the current record as an input operand:

1. Determine the indexes of an s-word or p-word that are associated with the data in the current record that the program uses as an input operand.

2. Code an input operand control line that specifies the s-word index, the s-word and prefix indexes, or the prefix index (you can only do this if the p-word has validation data not completely enclosed in < and >). You need not specify both an s-word and prefix index unless both an s-word and p-word are required to uniquely identify the data. If you specify a p-word, the program exit uses the p-word word to locate data in the current record and the associated validation data is ignored.

Specify the indexes that fully identify the desired data. At run time, the program scans the current record for data associated with the s-word or p-word identified by the indexes specified. The program exit locates the last occurrence of the data in the current record that is associated with the s-word or p-word identified by the indexes specified.

Specifying output operands: The following describes how to code control lines on the target control panel to indicate how results are to be added to the current record. Code one control line for each result being stored.

- **Result is a duration or date only:**
 - Use an ADD control line with a function code of 0000, and the s-word and/or prefix indexes identifying the s-word and/or p-word to be associated with the result.
 - Set **Replace previous reply** to **YES** if you want the replace item flag turned on for this data item.
 - Set **Journal reply** to **YES** if you want the data journaled.
 - Set **Cognize response** to **YES** if you want the data cognized.
 - Set **Data is a date** to **YES** if the result is a date and you want this flag set (this flag is only set if the result is actually a date and you specify that you want the program exit to store a p-word with the data).

At least one of the indexes that you specify must refer to a nonblank s-word or p-word (the program exit must have an s-word or p-word, or both to store with the result).

Integer duration:

If you subtract two integer durations, the program always stores the result as an integer (that is, Duration Days - Duration Days = Duration Days can only be stored as an integer, not in the form of a Standard or Extended Duration). You can specify the length needed by the program to store the result using the **Program Exit/TSP** name field of the control line.

To specify a length, you must specify the first position of the field as A, and the remaining positions as the length you want the result to be when the program stores it. For example, if you want the program to store the result as 10 characters, the **Program Exit/TSP** field contains A0000010. You can specify a maximum length of 80. Therefore, the valid contents for the **Program Exit/TSP** field range is from A0000000 to A0000080.

If the **Program Exit/TSP** field contains blanks, the program stores the results as calculated with no padding or truncation. If the result is a date or noninteger duration, the program ignores this field. If the result is shorter than the length you specify, the

program pads the result on the left with zeros. If the result is longer than the length you specify, the program truncates the result from the left.

Standard and Extended Durations:

If the result is a duration and it is not an integer (for example, the two input operands were Standard or Extended Duration), the program stores the result in Standard or Extended duration form.

If you want the result stored as a Standard Duration, set the Override **Dialog target** field to NO or blanks. If you want the result stored as an Extended Duration, set the **Override Dialog target** field to YES.

If the result is an integer duration or a date, the program exit ignores the field. The program exit stores the integer result as an integer and a date result in external date form.

If the result is an Extended or Standard Duration specifying 100 or more days and the **Override Dialog target** field is set to NO or blanks, the program issues an error message and does not store the result.

- **Result is a date/time pair:**
 - For the date result use an ADD control line with a function code of 0000; and the s-word and/or prefix index identifying the s-word and/or p-word to be associated with the date result.
 - Set **Replace previous reply** to YES if you want the replace flag turned on for this data item.
 - Set **Journal reply** to YES if you want the data journaled.
 - Set **Cognize response** to YES if you want the data cognized.
 - Set **Data is a date** to YES if the result is a date and should have this flag set (occurs only when you specify a p-word be stored with the data).
 - Set **Begin multiple test** to YES.

At least one of the indexes you specify must refer to a nonblank s-word or p-word (the program exit must have an s-word or p-word, or both to store with the result).

- For the time part of the result, use a similar ADD control line except have **End multiple test** set to YES.

To store the date part of the result, the program exit uses information from the control line that has **Begin multiple test** set to YES. To store the time part of the result, the program exit uses information from the control line with **End multiple test** set to YES. Even if you specify an s-word and p-word that usually denote a time using the control line with **Begin Multiple Test** set to YES, the program exit stores the date part of the result with this information. Likewise, if you specify a date s-word and p-word using the **End multiple test** control line, the program exit stores the time part of the result using that information. The program exit ignores any control lines that exists between the control line with **Begin multiple test** set to YES and the control line with **End multiple test** set to YES.

If the result is a date and time pair and you only specified one result control line, the program exit stores the date using that information. If you specified a date and time results pair on the control panel but the result is a date only or a duration, the program exit stores the result using information from the first control line of the pair (however, if the result is a duration, the program exit ignores any length specification).

You must specify control lines in the order of first operand lines, second operand lines, and result lines. The program exit adds date results to the current record in external displayable form.

Panels: A control panel that conforms to the specifications described earlier in this section must be built. The control panel must contain information about what data to perform the operation on, what to subtract, and where to put the results. The control line that calls this program exit must contain the name of the control panel. If the panel that calls the program exit is an assisted-entry panel, the name of the control panel goes into the **Inquiry target** field. If the panel that calls the program exit is a control panel, the name of the control panel that contains the information goes into the **False target** field.

P-Words: None.

S-Words: None.

Output: Results of the calculation are added to the current record.

Messages:

BLG03096I	BLG03097I	BLG03100I	BLG03101I	BLG03102I
BLG03103I	BLG03104I	BLG03105I	BLG03106I	BLG03107I
BLG03108I	BLG03112I	BLG03115I	BLG03117I	BLG03118I

ABEND codes:

None.

Examples and Valid Calculations:

The following examples show some calculations you can perform and describe how the target control panel would be coded to perform the calculation.

BLG01438 works very much like BLG01437, so if you want to see a detailed scenario, see “Example 1” on page 462.

These notes apply to the BLG01438 examples that follow.

Notes:

1. You can specify either the s-word or prefix index of an input operand, unless both are required to uniquely identify the data. If a prefix index is specified and you are not specifying a constant input operand, the program exit ignores the validation data and uses the p-word to locate the data. See “Input operands - specifying constants/specifying data from the current record” on page 489 for more information on how to use s-words and p-words to identify input operands.
2. xxxxxxxx means that any 8-character string is valid. The program exit does not use the fields that contain this string; however, the fields must contain data before the control panel can be filed.

3. Only one program exit can be invoked from a data attribute record. In the example, Planned Start Date invokes BLG01051 directly to handle the special date math. It also invokes control panel CTL1SCHD, which in turn invokes BLG01437. This is done with the create target panel field. A data attribute record can do this interactively, but not in the API. Only the program exit field and the inquiry target field are available in the API. Because of this, the Return To Caller field should always be set to YES.

However, you can make this program exit work in the following way:

- a. Create the Planned Start Date with only the program exit for BLG01051.
- b. Create the Estimated Effort data attribute record with the BLG01437 program exit and the Inquiry Target set to CTL1ADD1.
- c. Define the Planned Start Date data attribute record in the data view record before the one for the Estimated Effort. Thus the date will be correct when the program exit is invoked by the Effort record.
- d. The CTL1W and CTL1ADD2 control panels are not needed, nor is the MSG9ESEF message panel, either for running with the API or interactively. These panels provide an automatic request for the Effort when the planned start date is entered. Thus, as long as the date is entered first, and the effort later, the program exit will work both with the API and interactively.

Example 1

This example shows you the control information you need for the **Planned start date** field to be automatically calculated and filled in when the user enters a date in the **Planned end date** field and a number in the **Estimated effort** field.

Planned End Date – Estimated Effort = Planned Start Date (Date – Integer Duration = Date)

This is the information you need to include on the target control panel.

The authorization code of 0003 in the TEST control line indicates the duration type. In this case, the type is days. See “Duration” on page 458 for more information on specifying duration types.

On the ADD control line, set the data collection flags as appropriate.

```

BLM1TSCU                FUNCTION LINE SUMMARY                LINE 1 OF 3

  FUNC FUNC S-WORD PREFIX MULT APPLY AUTH TRUE  FALSE MESSAGE PROGRAM
  TYPE CODE INDEX  INDEX  B  E NOT  CODE TARGET TARGET PANEL  EXIT/TSP

'' **** ****  ****  ****  *  *  *  ****  *****  *****  *****  *****
'' FLOW 000D 0C42  0000  N  N  N  0000
'' TEST 0000 0C94  0000  N  N  N  0003                XXXXXXXX
'' ADD  0000 0C41  00E5  N  N  N  0000 XXXXXXXX
** **** ****  ****  ****  *  *  *  ****  *****  *****  *****  *****

Line Cmds: A=After C=Copy D=Delete I=Insert M=Move R=Repeat U=Update
Type DOWN, UP, LEFT, or RIGHT to scroll the panel, or type END to exit.

====>

```

Example 2

This example shows you the control information you need for the **Planned start date** field and **Planned start time** field to be automatically calculated and filled in when the user enters a date and time in the **Planned end date** and **Planned end time** fields and a number in the **Estimated effort** field.

$$\text{Planned End Date/Time} - \text{Estimated Duration} = \text{Planned Start Date/Time} \text{ (Date/Time - Standard Duration = Date/Time)}$$

This is the information you need to include on the target control panel.

On the ADD control lines, set the data collection flags as appropriate.

```

BLM1TSCU                FUNCTION LINE SUMMARY                LINE 1 OF 5

  FUNC FUNC S-WORD PREFIX MULT APPLY AUTH TRUE  FALSE MESSAGE PROGRAM
  TYPE CODE INDEX  INDEX  B  E NOT  CODE TARGET TARGET PANEL  EXIT/TSP

'' **** ****  ****  ****  *  *  *  ****  *****  *****  *****  *****
'' FLOW 000D 0C42  0000  Y  N  N  0000
'' FLOW 000D 0C6F  0000  N  Y  N  0000
'' TEST 0000 0C95  0000  N  N  N  0000
'' ADD  0000 0C41  00E5  Y  N  N  0000
'' ADD  0000 0C6E  0294  N  Y  N  0000 XXXXXXXX
** **** ****  ****  ****  *  *  *  ****  *****  *****  *****  *****

Line Cmds: A=After C=Copy D=Delete I=Insert M=Move R=Repeat U=Update
Type DOWN, UP, LEFT, or RIGHT to scroll the panel, or type END to exit.

====>

```

Example 3

This example shows you the control information you need to automatically calculate the total days and hours a record was active. In this example, call the program exit either from the **Time closed** assisted-entry panel or by coding the program exit on the **Null reply** for the panel.

$$\begin{aligned} \text{Date/Time Closed} - \text{Date/Time Opened} &= \text{Total Time} \\ (\text{Date/Time} - \text{Date/Time}) &= \text{Standard Duration} \end{aligned}$$

This is the information you need to include on the target control panel.

On the ADD control line, set the data collection flags as appropriate.

```

BLMITSCU                FUNCTION LINE SUMMARY                LINE 1 OF 5
  FUNC FUNC S-WORD PREFIX MULT APPLY AUTH  TRUE   FALSE  MESSAGE  PROGRAM
  TYPE CODE INDEX  INDEX  B  E NOT  CODE  TARGET  TARGET  PANEL   EXIT/TSP
'' **** ****  ****  ****  *  *  *   ****  *****  *****  *****  *****
'' FLOW 000D 0C38  0000  Y  N  N   0000  *****  *****  *****  *****
'' FLOW 000D 0C65  0000  N  Y  N   0000  *****  *****  *****  *****
'' FLOW 000D 0C3E  0000  Y  N  N   0000  *****  *****  *****  *****
'' FLOW 000D 0C74  0000  N  Y  N   0000  *****  *****  *****  *****
'' ADD  0000  0C93  0164  N  N  N   0000  XXXXXXXX *****  *****  *****
** **** ****  ****  ****  *  *  *   ****  *****  *****  *****  *****

Line Cmds: A=After C=Copy D=Delete I=Insert M=Move R=Repeat U=Update
Type DOWN, UP, LEFT, or RIGHT to scroll the panel, or type END to exit.

===>

```

Example 4

This example shows you the control information you need to automatically calculate the total number of days a record was active.

$$\text{Planned End Date} - \text{Planned Start Date} = \text{Estimated Effort (Date - Date = Duration Days)}$$

This is the information you need to include on the target control panel.

On the ADD control line, set the data collection flags as appropriate. A0000004 indicates that the result should be stored as four characters. See “RESULT IS A DURATION OR DATE ONLY” on page 490 for more information about how to specify a duration result length.

```

BLM1TSCU                FUNCTION LINE SUMMARY                LINE 1 OF 3

  FUNC FUNC S-WORD PREFIX MULT APPLY AUTH TRUE  FALSE MESSAGE PROGRAM
  TYPE CODE INDEX  INDEX  B  E NOT  CODE TARGET TARGET PANEL  EXIT/TSP

'' **** **  ****  ****  *  *  *  **** ***** ***** ***** *****
'' FLOW 000D 0C42  0000 N  N  N  0000
'' FLOW 000D 0C41  0000 N  N  N  0000
'' ADD  0000 0C94  0027 N  N  N  0000 XXXXXXXX                A0000004
** **** **  ****  ****  *  *  *  **** ***** ***** ***** *****

Line Cmds: A=After C=Copy D=Delete I=Insert M=Move R=Repeat U=Update
Type DOWN, UP, LEFT, or RIGHT to scroll the panel, or type END to exit.

====>

```

Table 44 summarizes the valid calculations and the number of control lines that are coded on the target control panel for each calculation.

Table 44. Valid Calculation Types for Duration Subtraction

Calculation Type	Number Input Control Lines	Number Result Control Lines
Date and Time - Duration (all types) = Date and Time	3	2
Date and Time - Date and Time = Standard Duration	4	1
Date and Time - Date and Time = Extended Duration	4	1
Date - Date = Duration Days	2	1
Date - Duration Days = Date	2	1
Date - Duration Months = Date	2	1
Date - Duration Years = Date	2	1
Duration Years - Duration Years = Duration Years	2	1
Duration Months - Duration Months = Duration Months	2	1
Duration Days - Duration Days = Duration Days	2	1
Duration Minutes - Duration Minutes = Duration Minutes	2	1
Standard Duration - Standard Duration = Extended Duration	2	1
Standard Duration - Standard Duration = Standard Duration	2	1
Standard Duration - Extended Duration = Extended Duration	2	1
Standard Duration - Extended Duration = Standard Duration	2	1
Extended Duration - Standard Duration = Standard Duration	2	1
Extended Duration - Standard Duration = Extended Duration	2	1
Extended Duration - Extended Duration = Standard Duration	2	1
Extended Duration - Extended Duration = Extended Duration	2	1

The input combinations listed are the only ones supported. If you specify others (for example, Date and Time + Date and Time), the program does not calculate the results and issues an error message.

You must specify control lines in the order of first operand lines, second operand lines, and result lines.

BLG01439 - Extended Data Copy

The BLG01439 program exit, like the BLG01273 program exit, obtains information from one record and automatically adds it to the record being created or updated. You can also use BLG01439, like BLG01273) to copy data from a record in a read-only database (4 or 6–9) to a record in database 5. The BLG01439 program exit performs all the functions of program exit BLG01273, plus:

- Validates the data you are copying against any assisted-entry panel
- Copies freeform text
- Changes the p-word or s-word of data that is copied (it can change the s-word or p-word of structured data or the s-word identifying freeform text). It cannot change both the p-word and the s-word, however.
- Is capable of copying single items into list processor data. For example, if the user is modifying a list which displays names and addresses, a panel can be modified to copy the address in from another record when a user's name is entered. The address is copied into the list with the same row (hexadecimal digits following the s-word). See panel BLGLDATT in "Using Data Model Records" on page 539 for an example of how a table list panel can use assisted-entry panels to copy and display the data using BLG01439.

Note: This capability cannot be used within the API.

You can also use BLG01439 to copy data from a record in a read-only database (4 or 6–9) to a record in database 5. (Another means of copying data from a read-only database to a record in database 5 is described in "BLG01273 - Add Data from One Record to Another Record" on page 430.) If you are using BLG01439 to copy data from a record in a read-only database to a record in database 5:

- Use an optional ADD (0000) control line that contains the p-word index for the database name of the record to be copied. If you specify ADD, it must be the first control line. The following indexes may be used: 02D9=4, 02DA=5, 02DC=7, 02DD=8, 02DE=9. If an ADD control line is not specified, the database name defaults to database 5.
- Regardless of whether you specify an ADD control line, the target panel must be a control panel with FLOW (000D) control lines that contain the s-word indexes for the information to be added. You can use the root s-word for list processor data.

You specify the name of a target control panel using the **Inquiry target** field of the assisted-entry panel calling BLG01439. The user's response to the assisted-entry panel that is calling this program exit is the ID of a source record from which data is copied. The target control panel contains a control line for each item to be copied from the source record to the current record.

A brief outline of the routine's processing follows:

- Loads the target control panel.
- Concatenates the user's response in the calling field with RNID/ and then determines whether the source record exists.

- If the program exit finds the record:
 - Uses the control lines (descriptions follow) to determine what structured data or text to add to the current record and whether data validation or s-word and/or p-word replacement is to be performed. If the data or text that the program exit is to copy is not located in the source record, the program exit issues a message (if specified). If it finds the data or text, the program exit copies the data or text using the guidelines described below. When copying the data, the panel name used is BLGCEXDC.
 - If a field in the current record was filled in by a program exit and there is no data in the source record for that field, the field is blanked out. However, if a field in the current record was filled in by a user and there is no data in the source record for that field, the field is not blanked out, and the current data remains in the field.
- If the program exit cannot find the record:
 - Scans the target panel for a control line containing the s-word represented by index 0DDA. If it finds the index, issues an error message and does not collect the user's reply. The message issued is the one named in the control line, if any, or an appropriate Tivoli Information Management for z/OS message. If the 0DDA index is not found, collects the user's reply and stops.
- If you enter another reply for the field, the program exit replaces the previously entered value with the new value and associated structured data with the new data. This occurs whether this program exit or program exit BLG01273 is used to copy the data. If copying freeform text, takes the appropriate actions.
- If you clear the field, the program exit clears associated structured data but leaves associated text untouched. The program does not clear fields that you changed after retrieval from the source record. This occurs whether this program exit or program exit BLG01273 is used to copy the data.

Environment: Called in create mode from an assisted-entry panel. Does no processing in inquiry mode from a dual-mode panel. Called from data attribute records used interactively. This exit can be called in create mode from data attribute records used in an API environment.

Examples:

BTN600CN, the Contact Name panel
BTN600CR, the Resolver/Closer Name panel
BTN600C1, the Assignee Name panel
BTN600PA, the Assignee Name or Class panel
BTN600PR, the Resolver Name or Class panel
BTN600TN, the Tracker Name or Class panel.

Input:

Panels: The target panel is obtained from the inquiry target of the calling assisted-entry panel.

The control panel can contain a list of one or more data items to be copied. For each control line or control line pair, only one of the following copy options can be used:

- Assisted-entry panel validation (cannot be used for a freeform text item)

- Changing of the s-word and/or p-word associated with the data item, or the s-word associated with text
- Copy structured data as is
- Copy freeform text as is.

Specifying data items to be copied:

The following describes how you can code control lines to specify data to be copied to the program exit and provides information about how the program exit processes each type of copy. The program exit may use fields within the control lines differently than they are used when creating control panels to run in dialogs.

- If the program exit is to validate the data (only useful for non-freeform text data items):
 - Use the FLOW control line with a function code of 000D.
 - An s-word index defining what data item the program exit should copy. You can use a root s-word to copy list processor data.
 - A **False target** of an assisted-entry panel that the program exit is to use to validate the copied data.
 - Optionally, a message panel to be issued if the specified s-word does not exist in the source record.

If the **Authorization code** field is 0001, 0002, or 0003, the program exit ignores the specification of a panel name in the **False target** field.

If the program exit is to copy structured data, the **Authorization code** field cannot contain 0001, 0002, or 0003. The following lists information about copied data validation.

- If the data item that the program exit is to copy contains none or more than one p-word occurrence, the program exit does not validate the data item and issues a message, and the data item is not copied.
- If the data item that the program exit is to copy contains a single p-word and data pair, the program exit validates the data against the criteria in the specified assisted-entry panel.
- If validation is successful, the data acquires the attributes within the assisted-entry panel that you specified for validation (for example, s-word, p-word, journaling information, and cognizing information).
- If validation is unsuccessful, the program exit does not copy the data. A message is issued if a control line with an s-word index of 0DDC is coded on the target control panel.
- If copying freeform text and not changing the s-word associated with it:
 - Use the FLOW control line with a function code of 000D
 - An s-word index defining what text to copy
 - Optionally, a message panel to be issued if the specified s-word does not identify freeform text in the source record.

Three options are available:

- Append the specified freeform text to the current record. Set the **Authorization code** field to 0001.

The program exit copies the freeform text in the source record associated with the specified s-word to the current record (appended to any existing freeform text associated with the same s-word).

- Replace existing freeform text. Set the **Authorization code** field to 0002.

If freeform text associated with the specified s-word is located in the source record and the current record, the program exit replaces the freeform text in the current record with the text from the source record.

- Add freeform text only if text associated with the specified s-word does not exist in the target record: set the **Authorization code** field to 0003.

If freeform text associated with the specified s-word exists in the target record, the program exit does not copy the text. If none exists, the program exit copies any freeform text in the source record associated with the specified s-word to the target record.

- If changing the s-word or p-word, or both, of the data or text but not validating:

- Use two FLOW control lines:

The first control line with:

- A function code of 000D
- An s-word index identifying the data (or freeform text) to be copied
- **Begin Multiple Test** set to **YES**
- Optionally, a message panel to be issued if the specified data or text does not exist in the source record.

The second control line with:

- A function code of 000D
- **End multiple test** set to **YES**
- An s-word index or prefix index, or both, identifying the new s-word and p-word to be associated with the data.

If the data to be copied is freeform text, there are three options available:

- Append the specified freeform text to the current record. Set the **Authorization code** field of the first control line to 0001.

The freeform text in the source record associated with the s-word in the control line having the **Begin multiple test** set to **YES** is copied to the current record. The freeform text s-word is changed to the s-word found in the control line having **End multiple test** set to **YES**. Any existing test in the source record associated with the s-word in the control line with **End multiple test** set to **YES** remains in the current record.

- Replace existing freeform text. Set the **Authorization code** field of the first control line to 0002.

The program exit replaces the text in the current record associated with the s-word in the control line that has End Multiple Test set to **YES** with the text in the source record associated with the s-word in the control line that has **Begin multiple test** set to **YES**. The s-word is changed to the one found in the control line with **End multiple test** set to **YES**.

- Add freeform text only if text associated with the specified s-word does not exist in the target record. Set the **Authorization code** field of the first control line to 0003.

If freeform text associated with the s-word in the control line with **End multiple test** set to **YES** exists in the current record, the program exit does not copy the text. Otherwise, the program exit copies any freeform text in the source record associated with the s-word in the control line with **Begin multiple test** set to **YES** to the current record and changes its s-word to the s-word found in the control line with **End multiple test** set to **YES**.

The program exit ignores any control lines between the control line with **Begin multiple test** set to **YES** and the control line with **End multiple test** set to **YES**.

For structured data, if you only specified a replacement s-word, the copied data item retains its p-word from the source record and its s-word is changed. If you specify p-word replacement and the copied data item contains zero or more than one p-word occurrence, p-word replacement does not occur. However, the data is copied, and s-word replacement does occur, if specified. If you only specified a replacement p-word, the copied data item retains its s-word from the source record, and its p-word is changed.

If the data item is freeform text and a replacement p-word is specified, the replacement p-word is ignored.

If you specified an s-word or p-word replacement, the program exit ignores the **False target** field.

- If the item is not being validated and the s-word or p-word associated with the copied data is not being changed, code the control line as it was coded for exit routine BLG01273 except for the **Authorization code** field. A value of 0000, 0004, or greater than 0004 indicates that the program exit is copying the structured data. A value of 0001, 0002, or 0003 indicates that freeform text is being copied.
- A special control line with an s-word index of 0DDC can optionally be coded on the control panel if you want an error message issued each time validation fails for a data item. If this control line contains a message panel name, the program exit issues that message when validation errors occur. If no message panel name exists, then the program issues the default message, BLG03110.
- A special control line with an s-word index of 0DDA can optionally be coded on the control panel if you want an error message issued when the source record cannot be located. If this control line contains a

message panel name, the program exit issues that message when it cannot locate the source record identified by the response.

P-Words: None.

S-Words:

- XISCCOPVER - Verify record
- XISCCO0DDC - Message on copy validation error
- XIM00NR001 - Record number

Restrictions:

- Use caution when you attempt to copy large amounts of freeform text. If you specify multiple appends of freeform text and exceed your storage capacity, the text that is appended before the append that caused the error remains in the current record (copying is likely to be partially completed). Do not file the record. It may be impossible to file a record that has a large amount of freeform text added to it. Or it may be possible for you to file the record, but not perform any subsequent actions on it (such as update or delete) without increasing the Tivoli Information Management for z/OS address space.
- The data that is copied includes the flags that are stored with the data, such as cognize and journal, and cannot be changed by this program exit.
- When using this program exit, dialogs may have to be updated allowing the user to see or update copied data items. Panels may have to be changed to allow viewing and updating of copied data items.
- The program exit validates data only on data items containing a single p-word/data item pair.
- You can only change the p-word for structured data if a single p-word exists in the data item before copying.

Output:

Messages:

BLG03062W	BLG03109I	BLG03110I	BLG03111I	BLG0313
BLG03114E	BLG09008E	BLG16024I	BLG19202W	BLG22005E

ABEND codes:

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BLG01442 - Copy an Assisted-Entry Panel into a Data Attribute Record

The BLG01442 program exit copies an assisted-entry panel into a data attribute record. It ignores any other panel types.

BLG01448 - Define Partition Prefix and Default Global Partition Name

The BLG01448 program exit performs the following functions:

- Defines the p-word used with the Owning Partition Name and the Sharing Partition Name.
- Defines an optional Global Partition Name.

Environment:

Called from a control panel. This exit should be called from the control panel

invoked upon entry to Tivoli Information Management for z/OS. The default entry control panel is BLG0ENTR. Refer to the *Tivoli Information Management for z/OS Planning and Installation Guide and Reference* for additional information on how to specify the entry control panel with the PANEL parameter on the BLGPARMs MACRO in your session parameters member.

Input:**Panels:**

None.

p-words:

The p-word you wish to be used for the Owing Partition Name and the Sharing Partition Name. If the p-word has an associated literal validation pattern, that value is used as the Global Partition Name.

CAUTION:

It is imperative that only one p-word be used at any given installation, or logical partitioning will not function properly.

s-words:

None.

Output:**Messages:**

None.

ABEND codes:

None.

BLG01449 - Assign Owing Partition to Current Record

The BLG01449 program exit performs the following function:

- Assigns either the Primary or Global Partition as the Owing Partition of the current record.

By default, if the user's privilege class contains a Primary Partition, the Get Early RNID program exit, BLG01432, or the standard record file process that assigns an RNID, automatically assigns the Primary Partition as the Owing Partition. In order to assign the Global Partition as the Owing Partition, you must invoke program exit BLG01449 before program exit BLG01432 (if in use) or before the record is filed. If BLG01432 is in use, BLG01449 should be invoked from a control panel at the start of the record create process. If BLG01432 is not in use, BLG01449 should be invoked from the record type file time control panel prior to the FLOW control line with a Function Code of X'0004'.

Environment:

Called from a control panel.

Input:**Panels:**

A keyword is specified as the target panel name.

- The keyword APRIMARY assigns the Primary Partition as the Owing Partition
- The keyword AGLOBALP assigns the Global Partition as the Owing Partition

Note:

If the Global Partition is to be assigned, but one is not defined, the Primary Partition is assigned instead.

p-words:

None.

s-words:

None.

Output:**Messages:**

None.

ABEND codes:

None.

BLG01450 - Modify Partition Search Controls for Next Search

The BLG01450 program exit performs the following function:

- Enables (only for the next search operation) either Universal Partition Access or Multi-Partition Searching. Once the search operation is completed, the action of this exit is negated.

Environment:

Called from a control panel.

Input:**Panels:**

A keyword is specified as the target panel name.

- The keyword DISABLEP disables database partitioning (allow Universal Partition Access).
- The keyword MULTIPLE enables multi-partition searching.

p-words:

None.

s-words:

None.

Output:**Messages:**

None.

ABEND codes:

None.

BLG01455 - Validate ODBC Column Name Syntax

The BLG01455 program exit is used to validate ODBC column name syntax. An ODBC column name must begin with an alpha, and the remaining characters must be alphanumeric characters or the underscore (_) character. This program exit works as follows:

- If the user has entered an ODBC column name, BLG01455 performs the following validation:

Checks the first character for an alphabetic (A-Z) character.

Checks the remaining characters for alphanumeric (A-Z or 0–9) characters or the underscore (_) character.

- If the ODBC column name was entered in inquiry mode, BLG01455 does the following additional validation:

Allows the use of the abbreviation symbol (SBCS period (.) character) if it is the final character.

Allows the use of the position-ignore symbol (SBCS asterisk(*) character) in any position.

No validation is performed if either of these conditions exists:

The user entered a null response.

The system is in generate mode and the user entered the divert symbol (?).

Environment:

Called in create or inquiry mode from an assisted-entry panel or from a data attribute record interactively.

Input:

Panels:

None.

p-words:

None.

s-words:

None.

Output:

Messages:

BLG05021W

ABEND codes:

None.

BLG01461 - TSD Bridge Cleanup

The BLG01461 specific program exit displays a table panel that lists records pending completion of some TSD Bridge activity. When the user selects a record, the program exit unlocks the record and puts it into the same state that it was in in the Tivoli Information Management for z/OS database before the TSD Bridge transaction was initiated.

BLG02002 - Set Up Environment for Parent/Child Copy

The BLG02002 program exit reads in the record requested for copy and makes sure it is a parent record.

Note: In earlier versions of Tivoli Information Management for z/OS, this program exit was replaced by BLG01327, which performs identical processing. If you have control panels that name this exit, they still work, but if you change the program exit symbol to the new exit name, you avoid ambiguity.

BLG02003 - Reset Approver Privilege Class Status for a Copied Change Record

The BLG02003 program exit changes each of the p-words in the approver list of a change record from “accept” or “reject” to “pending”. A brief outline of the routine’s processing follows:

- Locates the p-words for “accept” and “reject” in the approval list and changes them to the p-word for “pending”.

Environment: Called from a control panel when a change record is being copied.

Example: BLG1A126, the Change Record Copy panel.

Input:

Panels: None.

P-Words: SA**/. - Signoff accept class SP - Signoff pending section SR**/. - Signoff reject class

S-Words: None.

Output:

Messages: None.

ABEND codes:
None.

BLG02005 - Child Record Build Processor

The BLG02005 program exit defines the relationship between parent and child records and provides a list of all child records related to the parent record currently being displayed.

Note: In earlier versions of Tivoli Information Management for z/OS, this program exit was replaced by BLG01326, which performs identical processing. If you have control panels that name this exit, they still work, but if you change the program exit symbol to the new exit name, you avoid ambiguity.

BLG02006 - Validate Child Name

The BLG02006 program exit verifies that the name being assigned to the new child record does not already exist for the current parent.

Note: In earlier versions of Tivoli Information Management for z/OS, this program exit was replaced by BLG01331, which performs identical processing. If you have control panels that name this exit, they still work, but if you change the program exit symbol to the new exit name, you avoid ambiguity.

BLG02007 - File Parent Records

The BLG02007 program exit files parent records. If the parent record is being filed as a result of a copy request, all the child records associated with the parent are also filed.

Note: In earlier versions of Tivoli Information Management for z/OS, this program exit was replaced by BLG01329, which performs identical processing. If you have control panels that name this exit, they still work, but if you change the program exit symbol to the new exit name, you avoid ambiguity.

BLG02008 - Delete Parent and Child Records

The BLG02008 program exit deletes parent and child records.

Note: In earlier versions of Tivoli Information Management for z/OS, this program exit was replaced by BLG01330, which performs identical processing. If you have control panels that name this exit, they still work, but if you change the program exit symbol to the new exit name, you avoid ambiguity.

BLG02011 - Add Interested Privilege Class

The BLG02011 program exit adds the current privilege class to the interested privilege class list for the current record. The routine calls the add privilege class processor to perform the add.

Environment: Called from a data-entry panel only when a record is in display mode.

Example: BLG0L600, the Interested Class Display panel.

Input:

Panels: None.

P-Words: None.

S-Words: None.

Output:

Messages: None.

ABEND codes:
None.

BLG02012 - Delete Interested Privilege Class

The BLG02012 program exit deletes the current privilege class from the interested privilege class list for the current record. The routine calls the delete privilege class processor to perform the delete.

Environment: Called from a data-entry panel only when a record is in display mode.

Example: BLG0L600, the Interested Class Display panel.

Input:

Panels: None.

P-Words: None.

S-Words: None.

Output:

Messages: None.

ABEND codes:
None.

BLG02013 - Add Approval (APPROVE) to Current Change Record

The BLG02013 program exit changes the “pending” status of the current change record to “approve” for the current privilege class. The routine calls the approve processor to make the change.

Environment: From a data-entry panel, called only when a change record is in display mode. This program exit can only be used when the record is filed on the record file panel (BLG1A1x1) with at least one of the following:

CLAE/

Class entered

TIME/

Time entered

DATM/

Date last modified

DATE/

Date entered.

Tivoli Information Management for z/OS searches for CLAE/ first. If that is not found, the search continues looking for TIME/, then DATM/, then DATE/.

The panel associated with the p-word is used by the program exit for additional processing. If that panel is not the record file panel (BTN1A1x1), unpredictable results will occur.

Example: BLG0M500, the Change Approver Display panel.

Input:

Panels: None.

P-Words: None.

S-Words: None.

Output:

Messages: None.

ABEND codes:

None.

BLG02014 - Add Disapproval (REJECT) to Current Change Record

The BLG02014 program exit changes the “pending” status of the current change record to “reject” for the current privilege class. The routine calls the reject processor to make the change.

Environment: From a data-entry panel, called only when a change record is in display mode. This program exit can only be used when the record is filed on the record file panel (BLG1A1x1) with at least one of the following:

CLAE/

Class entered

TIME/

Time entered

DATM/

Date last modified

DATE/

Date entered.

Tivoli Information Management for z/OS searches for CLAE/ first. If that is not found, the search continues looking for TIME/, then DATM/, then DATE/.

The panel associated with the p-word is used by the program exit for additional processing. If that panel is not the record file panel (BTN1A1x1), unpredictable results will occur.

Example: BLG0M500, the Change Approver Display panel.

Input:**Panels:** None.**P-Words:** None.**S-Words:** None.**Output:****Messages:** None.**ABEND codes:**
None.

BLG02016 - Display Up Components

The BLG02016 program exit displays a list of all upward-connected components associated with the component record being displayed. A brief outline of the routine's processing follows:

- Saves the current panel name and indicates whether the current panel was in display mode
- Locates the first entry in the record and makes sure this entry contains data
- Obtains the component s-word and its length
- Locates all upward-connected components and saves their component names
- Searches the database and constructs a search-results list containing all the upward-connected component records that were located
- On return from search, restores the saved panel name.

Environment: Called from a data-entry panel only when a record is in display mode.

Example: BLG0N131, the Connectivity Display Options panel.

Input:**Panels:** The target panel is obtained from the control line.**P-Words:** RNID/. - Record identifier RNU*/. - All up connections**S-Words:** Z//S/TRSC - Configuration record**Output:**

Messages:

BLM09011I

ABEND codes:

None.

BLG02017 - Display a Related Record

The BLG02017 program exit displays records related to the current record. A brief outline of the routine's processing follows:

- Saves the current panel name.
- Makes sure a p-word is defined in the control line. If not, issues a message and returns without further processing.
- Scans the current record for the p-word from the control line and makes sure there is data associated with it.
- Extracts the data and uses it as the ID of the record to be displayed.
- Makes sure the record pointed to by the configuration record exists.
- Calls the related record display processor to display the record selected.

Environment: Called from a data-entry panel after a record is displayed.

Example: BLG0N150, the Hardware Support Display panel.

Input:

Panels: The target panel is obtained from the control line.

P-Words: RNID/. - Record identifier

S-Words: S-Word is obtained from the control line

Output:**Messages:**

BLG09008E BLM03069W BLM03070I

ABEND codes:

None.

BLG02018 - Display All Connections

The BLG02018 program exit displays a list of all component records that are related to the current component via connections. A brief outline of the routine's processing follows:

- Saves the current panel name
- Loads the target panel named in the control line
- Calls the upward-connection processor to check for upward-connection component records
- Calls the downward-connection processor to check for downward-connection component records
- Calls window-display services to display the list of connection records
- Restores the saved panel name.

Environment: Called from a data-entry panel only when a component record is in display mode.

Example: BLG0N131, the Connectivity Display Options panel.

Input:

Panels: The target panel is obtained from the control line.

P-Words: None.

S-Words: None.

Output:

Messages:

BLG09008E BLM09016I

ABEND codes:

None.

BLG02019 - Display Paths between Components

The BLG02019 program exit displays all components between the **From** and **To** names specified by the user. A brief outline of the routine's processing follows:

- Saves the current panel name
- Loads the target panel so the user can enter the **From** and **To** names
- Makes sure the **From** and **To** names actually exist
- Calls the path-building routine to construct the paths. If no path is found using the **From** and **To** names as entered, swaps the names and calls the path builder again to try constructing the path in the other direction
- Displays the data constructed
- Restores the saved panel name.

Environment: Called from a data-entry panel only when displaying a component record.

Example: BLG0N131, the Connectivity Display Options panel.

Input:

Panels: BLG1TPTH - Connectivity Path Display panel

P-Words:

- CODL/. - Connection path ID
- DATX/. - Connection date from
- DISC/. - Path display class
- RNID/. - Requester number
- RNU*/. - All up components
- TYPD/. - Connection type

S-Words:

- Z//S/TRSC - Configuration record
- XIM00NR002 - Original record (parent)

Output:**Messages:**

BLG09008E BLM03078I BLM09015I BLM09016I

ABEND codes:

None.

BLG02020 - Display Down Components

The BLG02020 program exit displays a list of connected components associated with the component (hardware or software) record being displayed. A brief outline of the routine's processing follows:

- Saves the current panel name
- Builds a search argument to retrieve all the component records that point to the current component record
- Calls the search processor to display the list of records connected to the current component record
- On return from the search processor, restores the saved panel and ends the current dialog.

Environment: Called from a data-entry panel only when displaying a component record.

Example: BLG0N131, the Connectivity Display Options panel.

Input:

Panels: The target panel is obtained from the control line.

P-Words: RNU*/. - All up components

S-Words:

Z//S/TRSC - Configuration record

Z//QCI*STL - All connections

Output:**Messages:**

BLM09024I

ABEND codes:

None.

BLG02023 - Update Change Record Approval Status

The BLG02023 specific program exit determines whether the current change request has been approved, rejected or is still pending and adds the appropriate response to the current response chain. If there are no approvers or rejectors, no response is added to the response chain.

BLG02024 - Add Current Priority

The BLG02024 program exit determines whether an initial priority was entered and, if so, copies that priority in the **Current priority** field. A brief outline of the routine's processing follows:

- If the current priority p-word is located in the current record, returns to the caller

- If the initial priority p-word is located in the current record, adds the p-word and associated data to the response chain.

Environment: Called in create mode from a selection, options, data-entry, assisted-entry, or control panel. Called from data attribute records used interactively. This exit can be called in create mode from data attribute records used in an API environment.

A sample control panel that calls this program exit follows:

```

BLM1TSCU                FUNCTION LINE SUMMARY                LINE 1 OF 4

  FUNC FUNC S-WORD PREFIX MULT APPLY AUTH  TRUE  FALSE  MESSAGE  PROGRAM
  TYPE CODE INDEX  INDEX  B  E NOT  CODE  TARGET  TARGET  PANEL  EXIT/TSP

'' **** **
'' ADD 0000 0000 0000 0000 N  N  N  0000 BLG0BU00          BLG02024
** **** **

```

Line Cmds: A=After C=Copy D=Delete I=Insert M=Move R=Repeat U=Update
Type DOWN, UP, LEFT, or RIGHT to scroll the panel, or type END to exit.

====>

Example: BLG0B100, the Problem Reporter Entry panel.

Input:

Panels: None.

P-Words: PRII/. - Initial priority PRIO/. - Current priority

S-Words: XIMSOSPC00 - Current priority

Output:

Messages: None.

ABEND codes:
None.

BLG02029 - Initialize PMF

The BLG02029 specific program exit prior to the beginning of the PMF dialog. The routine initializes all control blocks required for PMF, allocates the required data sets, and sets the PMF entry panel.

BLG02035 - Check Panel Data Set

The BLG02035 specific program exit determines whether a write panel data set has been defined prior to entering PMF Panel Update.

BLG02036 - Initialize Panel Update Pre-Processor

The BLG02036 specific program exit sets up the environment for panel update and calls the update options dialog. When the user ends the dialog, the routine determines whether the updates should be saved (END or FILE) and if so, writes the panel to the write panel data set.

BLG02041 - Set Approval Status for Current Change Request

This program exit changes the current status (“pending”, “approve”, or “reject”) to “approve” or “reject” based on the action code entered. The routine calls the approval status processor to make the change.

Environment: From a data attribute record or from an assisted-entry panel, called only when a change record is in display mode. This program exit can only be used when the approver data was entered using the list processor panel BLGLAPVR Change Approver Enter.

Example: BLGLAPST, the Change Approver Display panel.

Input:

Panels: None.

P-Words: None.

S-Words: None.

Output:

Messages:

BLM10010W BLM10012W

ABEND codes:

None.

BLG02050 - Control Dictionary Update/Display

The BLG02050 specific program exit determines which type of structured descriptions (s-words or p-word words) has been selected for update or display, and calls window-display services to display the appropriate dictionary records.

BLG02054 - Retrieve S-Words/P-Words from Dictionary

The BLG02054 specific program exit acts as the PMF service interface to retrieve the dictionary values for s-word and p-word indexes during the PMF dialog.

BLG02056 - Panel List Processor

The BLG02056 specific program exit performs all processing for the Panel List Processor.

BLG02060 - Display PMF Summary

The BLG02060 specific program exit verifies that the summary is valid for the current panel type, extracts the target panel from the control line, and calls the summary display processor.

BLG02063 - Invoke PMF Utilities

The BLG02063 specific program exit sets the environment necessary for PMF utility programs. It calls the appropriate utility program based on the previous user selection, such as panel copy, panel delete, and PMF reports.

BLG02064 - Panels Externals Update

The BLG02064 specific program exit sets up the environment for panel externals update.

BLG02065 - Locate PMF Section to be Updated

The BLG02065 specific program exit locates the appropriate section of the panel to be updated, based on the user's selection, and presents the section for update.

BLG02072 - Validate Program Exit Name

The BLG02072 specific program exit determines whether the program exit name entered is in the correct character format.

BLG02077 - PMF CONTROL Command

The BLG02077 specific program exit provides the interface to update control information for control, assisted-entry, and help panels.

BLG02088 - Validate P-Word and Validation Pattern

The BLG02088 specific program exit validates the p-words and the p-word validation data entered during a dictionary update.

BLG02095 - Test the Field Type for a Data-Entry Panel

The BLG02095 specific program exit tests the data-entry externals during panel update to make sure the attribute byte is correct for the type of field entered.

BLG02096 - Verify Existence of Software Record

The BLG02096 program exit verifies that the record ID entered by the user is a valid software component record. A brief outline of the routine's processing follows:

- If the user is updating a record and has entered a record ID that is not the same as the current record ID, the routine builds a search argument and calls the search processor to search the database for the record ID entered.
- If the user did not enter a record ID, the routine builds a search argument and calls the search processor to search the data base for the current record ID.

Environment: Called in create mode from an assisted-entry panel. Called from data attribute records used interactively. This exit can be called in create mode from data attribute records used in an API environment.

Example: None

Input:

Panels: None.

P-Words: RNID/. - Record identifier

S-Words: Z//QCILSCC - Software record

Output:

Messages:

BLM03096W BLM09023W

ABEND codes:

None.

BLG02097 - Verify Existence of Hardware Record

The BLG02097 program exit verifies that the record ID entered by the user is a valid hardware component record. A brief outline of the routine's processing follows:

- If the user is updating a record and has entered a record ID, the routine builds a search argument and calls the search processor to search the database for the record ID entered.
- If the user did not enter a record ID, the routine builds a search argument and calls the search processor to search the data base for the current record ID.

Environment: Called in create mode from an assisted-entry panel. Called from data attribute records used interactively. This exit can be called in create mode from data attribute records used in an API environment.

Example: BLG6HDWL, the Hardware Component Link panel.

Input:

Panels: None.

P-Words: RNID/. - Record identifier

S-Words::

Z//QCIPSCC - Hardware record

Z//QCIPSCH - Subcomponent

XIM00NR002 - Original record (parent)

Output:

Messages:

BLM09014W

ABEND codes:

None.

BLG02098 - PMF Panel Test Processor

The BLG02098 specific program exit sets the environment needed to test a panel within the PMF dialog.

BLG02107 - Set the Field Type for a Control Panel

The BLG02107 specific program exit sets internal control information that is needed to distinguish the type of control line being added to a control panel.

BLG02110 - Create a Panel Set

The BLG02110 specific program exit creates a set of panels based on the type of panel set entered by the user. It copies each of the panels specified in control panel BLM1A213 (for a simple panel set) and BLM1A214 (for a complex panel set) and replaces the first 3 characters specified by the user.

BLG02113 - Set the Field Type for an Assisted-Entry Panel

The BLG02113 specific program exit sets internal control information that is needed to distinguish which type of control line is added to an assisted-entry panel.

BLG02115 - Validate Data Model Records

The BLG02115 specific program exit validates data attribute records, data view records, and validation records.

BLG02116 - Direct Model Copy

The BLG02116 specific program exit initiates the creation of a component from a model when the model record ID is known.

BLG02118 - Model Component List

The BLG02118 specific program exit displays a table list of model component records. It is called when the specific model ID is not known.

BLG02119 - Verify Existence of Hardware or Software Record

The BLG02119 program exit determines whether the component-to record ID entered is a valid hardware or software component record. A brief outline of the routine's processing follows:

- If in update mode, issues a message and returns to the caller
- Extracts the component-to record ID from the description entry
- Extracts the ID of the component-to record's parent record from the description entry
- If the component-to record ID and the component-to record's parent record ID are the same, issues a message and returns to caller
- Builds a search argument to locate any software or hardware components with the component-to record ID
- Calls the search processor to search the database for any records meeting the search criteria
- On return from search, if no records were located, issues the appropriate message.

Environment: Called in create mode from an assisted-entry panel. Called from data attribute records used interactively. This exit can be called in create mode from data attribute records used in an API environment.

Example: BLG6RNCT, the Component To Name panel.

Input:

Panels: None.

P-Words:

RNID/. - Record ID
 RNOR/. - Activity or feature record ID
 RNCT/. - Component record ID

S-Words:

Z//QCIPSCC - Hardware record
 Z//QCILSCC - Software record
 Z//QCI*SCF - Hardware or software feature record
 Z//QCI*STL - All connection records
 Z//QCIPSCH - Subcomponent record

Output:

Messages:

BLM03077W BLM0309I6

ABEND codes:

None.

BLG02120 - Verify Existence of Hardware Model Record

The BLG02120 program exit verifies that the record ID entered is a hardware model component record. A brief outline of the routine's processing follows:

- Obtains the model link record ID entered by the user.
- Builds a search argument and calls the search processor to locate matching records in the database.
- If any records are located in the database, the record ID entered is a valid hardware model component record.
- If no matching records are located (the search processor set a nonzero return code), issues a message.

Environment: Called in create mode from an assisted-entry panel. Called from data attribute records used interactively. This exit can be called in create mode from data attribute records used in an API environment.

Example: BLG6MDID, the Model ID panel.

Input:

Panels: None.

P-Words: RNID/. - Record identifier

S-Words:

Z//QCIPMCC - Model hardware record
Z//QCIPMCF - Model hardware feature record.

Output:**Messages:**

BLM09026W

ABEND codes:

None.

BLG02121 - Verify Existence of Software Model Record

The BLG02121 program exit verifies that the record ID entered is a software model component record. A brief outline of the routine's processing follows:

- Obtains the model link record ID entered by the user.
- Builds a search argument and calls the search processor to locate matching records in the database.
- If any records are located in the database, the record ID entered is a valid hardware model component record.
- If no matching records are located (the search processor set a nonzero return code), issues a message.

Environment: Called in create mode from an assisted-entry panel. Called from data attribute records used interactively. This exit can be called in create mode from data attribute records used in an API environment.

Example: BLG6SDID, the Model ID panel

Input:

Panels: None.

P-Words: RNID/. - Record identifier

S-Words:

Z//QCILMCC - Model software record

Z//QCILMCF - Model software feature record

Output:

Messages:

BLM09026W

ABEND codes:

None.

BLG02122 - Feature Record List

The BLG02122 specific program exit does the following:

- For hardware components, displays a table list of features, subcomponents, and linked model features (with a storage class of REFER)
- For software components, displays a table list of features and linked model features (with a storage class of REFER)
- For model hardware components, displays a table list of features
- For model software components, displays a table list of features.

BLG02123 - Model Subcomponent Processor

The BLG02123 specific program exit displays a table list of subcomponents linked to a model hardware component.

BLG02124 - Check Referred Features

The BLG02124 specific program exit determines whether the feature name being entered exists as a feature on a linked model with a storage class of REFER.

BLG02127 - Rename/Swap Command Preprocessor

The BLG02127 specific program exit extracts the database ID, record ID, and effective date of swap from the response chain and calls the appropriate command processor to process the command entered.

BLG02129 - Rename Command Processor

The BLG02129 specific program exit renames a record as specified by the user. It takes steps to provide recovery in the event that the function does not process to completion.

BLG02130 - Check Model Features

The BLG02130 specific program exit determines if the feature name (with a storage class of REFER) being entered exists as a feature on a component linked to the model.

BLG02131 - Maintain Model Link

The BLG02131 specific program exit determines, when a model link ID is entered on the component data-entry panel, that the model does not have features (with a storage class of REFER) that have the same name as features on the component.

BLG02132 - Add an Up Connection

The BLG02132 specific program exit adds the generic device and up-component ID to the connection record.

The generic device is taken from the up-component record. If the connection record is being copied, the program exit replaces the generic device with the generic device found in the up-component. If the program exit finds no generic device in the up-component, the existing generic device in the copied connection record is deleted. This program exit also adds RNU1/up-component-ID to the connection record.

BLG02140 - Invoke Profile Services

The BLG02140 specific program exit calls profile services and displays the minimum required LRECL for the draw command.

BLG02142 - Display Connection Record List

The BLG02142 specific program exit displays a list of all connection records attached to the component record currently being displayed.

BLG02143 - Check Migration Environment

The BLG02143 specific program exit determines whether the current Tivoli Information Management for z/OS session is being run in a migration environment.

BLG02155 - Validate Data Model Records

The BLG02155 specific program exit validates options specified in data model records.

BLG02156 - Convert Watermarks for Data Model Records

The BLG02156 specific program exit converts watermarks in data model records to displayable characters.

BLG02157 - Freeform Text Search

The BLG02157 specific program exit initiates the search function call to the Text Search Engine API.

BLG02158 - Create Search Index

The BLG02158 specific program exit initiates the create index function call to the Text Search Engine API.

BLG02159 - Delete Search Index

The BLG02159 specific program exit initiates the delete index function call to the Text Search Engine API.

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List Processor Program Exit Examples

This chapter includes examples for the list processor program exit (BLG01396). Read the description of this program exit included in “BLG01396 - List Processor Program Exit” on page 446 before you attempt these examples. The examples are step-by-step procedures on how to:

- Write a TSP for list processing data. With this example, you also build a new list panel.
- Create a new list panel with several user line commands. This example steps you through building a new list panel and defining several user line commands to use with it.

The examples included in this chapter assume you already know how to use PMF and TSPs. If you are new to PMF, see earlier chapters in this book for assistance with creating and modifying list table panels and data-entry panels. If you are new to TSPs, refer to the *Tivoli Information Management for z/OS Terminal Simulator Guide and Reference* for assistance with creating the required TSPs.

A detailed example of presenting lists of valid values for users to choose from is included in “Creating Selectable Lists” on page 112.

You can also process list data from within a TSX using the GETLIST control line. Refer to the *Tivoli Information Management for z/OS Terminal Simulator Guide and Reference* for more information.

Creating a TSP for Processing List Data

Suppose your installation decides that meetings are useful for getting change requests accurately assessed. So you decide to remove the approver and reviewer dialogs from the Change Management panels and add a new selection: **5. Invitee list.**

This is what you want your Change Request Summary panel to look like.

Creating a TSP for Processing List Data

```

BLG0CU00          CHANGE REQUEST SUMMARY          CHANGE: _____

Assignee name..... _____          Change status..... _____
Assignee phone..... _____          Approval status..... _____
Coordinator name..... _____          Current priority..... _____
Device name..... _____          Owing priv. class..... _____
Key item affected..... _____          Entry priv. class..... _____
Date required..... _____          Date entered..... _____
Planned start date..... _____          Time entered..... _____
Completion date..... _____          Date last altered..... _____
Description..... _____

Select one of the following, type END to save your changes, or type CANCEL
to discard your changes.
    1. Requester data.          7. Activity entry.
    2. Status data.           8. Freeform text.
    3. Close data.            9. File record.
    4. Detail data.
    5. Invitee list.

====>

```

Some changes require a number of different groups to take action, so sometimes the roster of invitees is quite large. Therefore, you decide to use the list processor to record who is invited to the meeting, whether they attend, and whether they vote to accept or to reject the change.

Your list processor panel looks like this:

```

BLGLCU00          INVITEE LIST DATA          LINE 1 OF 11

List appropriate information about each person.

      NAME          ATTENDED?          VOTE
'' _____          _____          _____
'' _____          _____          _____
'' _____          _____          _____
'' _____          _____          _____
'' _____          _____          _____
'' _____          _____          _____
'' _____          _____          _____
'' _____          _____          _____
'' _____          _____          _____
'' _____          _____          _____
'' _____          _____          _____
'' _____          _____          _____

Line Cmds: A=After B=Before C=Copy D=Delete E=Erase I=Insert
           L=Line Entry M=Move R=Repeat
Type DOWN, UP, LEFT, or RIGHT to scroll the panel, or type END to exit.

====>

```

Suppose you decide that anyone who attends the meeting must vote on the change request. Because you cannot make conditionally required fields on the list processor panel, you write a TSP to be started when you issue the END command from this panel.

You want the target of selection 5 from panel BLG0CU00 to be a new control panel that has two lines in it:

- The first line calls the list processor
- The second line has a target panel of BLG0CU00 and starts your TSP.

For this example, the s-word index for each column is as follows:

- 8640** Invitee name
- 8641** Attendance indicator

8642 Vote

Create your TSP as follows:

FUNCTION NAME	LABEL NAME	LITERAL DATA	GET VAR	APPLY NOT	FIELD NAME	S-WORD INDEX	GET LIST INDEX	LIST INDEX	OCCUR-ENCE	SAVE MESSAGES	INSERT TYPE
0. *****	*****	*****	****	****	*****	****	***	****	*****	*****	****
1. FINDSDATA						8641	NO	5C5C	FIRST		
2. TESTFIELD	NOONE	0		YES	TSCAFRET						
3. LABEL	LOOP										
4. TESTFIELD	GETNEXT	YES		YES	TSCASDF						
5. FINDSDATA						8642	YES		NEXT		
6. TESTFIELD	NOVOTE	0		YES	TSCAFRET						
7. FINDSDATA						8641	YES		FIRST		
8. LABEL	GETNEXT										
9. FINDSDATA						8641	NO	5C5C	NEXT		
10. TESTFIELD	ALLDONE	0		YES	TSCAFRET						
11. BRANCH	LOOP										
12. LABEL	NOVOTE										
13. MOVEVAR					TSCATLIX						
14. MESSAGE			YES							YES	HEX
15. ADDDATA		5									
16. PROCESS										YES	
17. RETURN											
18. LABEL	ALLDONE										
19. LABEL	NOONE										
20. RETURN											

Some important things to note about this TSP are:

- Line 1 — Finds the first occurrence in the record of an attendance indicator, because 5C5C is the hexadecimal equivalent for two asterisks (**).
- Line 2 — If the return code is not zero, this record has no entries for the **Attendance** field, so there is nothing to process. If this is the case, branch to the LABEL line of NOONE.
- Line 3 — Start the loop to process attendees.
- Line 4 — This line is being processed because a value was found for the **Attendance** field. Check for a value of YES. If the value is not YES, branch to the LABEL line of GETNEXT.
- Line 5 — Try to find a value for the **Vote** field on the same line as the **Attendance** field you are currently processing.
- Line 6 — If the return code is not zero, this line does not have a **Vote** field associated with it. If this is the case, branch to the LABEL line of NOVOTE.
- Line 7 — Find, again, the attendance indicator that is currently being verified. This must be done to find the next occurrence of the attendance indicator.
- Line 8 — Gets the next line containing an **Attendance** field.
- Line 9 — Locates the next occurrence in the record of an attendance indicator.
- Line 10 — If the return code is not zero, this record has no more entries for the **Attendance** field. If so, branch to the LABEL line of ALLDONE.
- Line 11 — This line has an **Attendance** field in it. Branch to the LABEL line of LOOP to process this line.
- Line 12 — This line has an **Attendance** field with a value of YES, but it does not specify a vote. This is an error and is flagged with an error message.
- Line 13 — Move the current line number to the variable data area so that the error message can specify it.

Creating a TSP for Processing List Data

- Line 14 — Issue an error message using **Message panel name=BLG9X001** (you must create this message panel) with a hexadecimal insert of what is in the variable data area. (The variable data area was just set to TSCATLIX, the number of the line you are working on.)
- Lines 15 and 16 — Bring the user back to the list processor panel to correct the error.

The following is an example that uses the newly created TSP.

Data was entered on the list processor panel as shown.

```

BLGLCU00          INVITEE LIST DATA          LINE 1 OF 11

List appropriate information about each person.          RECORD:00000347

      NAME          ATTENDED?          VOTE
'' SMITHA          NO_          YES
'' JONESB          YES          ___
''          ___          ___          ___
''          ___          ___          ___
''          ___          ___          ___
''          ___          ___          ___
''          ___          ___          ___
''          ___          ___          ___
''          ___          ___          ___
''          ___          ___          ___
''          ___          ___          ___
''          ___          ___          ___
''          ___          ___          ___

Line Cmds: A=After B=Before C=Copy D=Delete E=Erase I=Insert
           L=Line Entry M=Move R=Repeat
Type DOWN, UP, LEFT, or RIGHT to scroll the panel, or type END to exit.

====>

```

When you leave BLGLCU00, if you use the VIEW INTERNALS command, the list processor data is displayed.

```

BLG1TVID          VIEW INTERNAL DATA          LINE 35 OF 43

PANEL   PANEL   REL COG   FLAGS   SWORD   STRUCTURED   PREFIX WORD OR
NAME    TYP/RSP  LEV NIZE  F M D   INDEX   WORD         VISIBLE PHRASE

BLG0CU00 D/ 5  04 B/    19/00/00 S0CFA  BC IMDIAPRO  Approver data
BLG6XNAM A/ 2  00 P/U    00/04/00 S0000  BC IMXNAM..  XNAM/SMITHA
BLG6XNAM A/ 2  00 P/U    00/04/00 S0000  BC IMXNAM..  XNAM/JONESB
BLG6XNAM A/ 1  00 B/     08/00/10 S8640  BC IMXNAM
BLG6XATT A/ 2  00 P/U    00/04/00 S0000  BC IMXATT..  XATT/NO
BLG6XATT A/ 2  00 P/U    00/04/00 S0000  BC IMXATT..  XATT/YES
BLG6XATT A/ 1  00 B/     08/00/10 S8641  BC IMXATT
BLG6XVOT A/ 2  00 P/U    00/04/00 S0000  BC IMXVOT..  XVOT/YES
BLG6XVOT A/ 1  00 B/     08/00/10 S8642  BC IMXVOT

*** BOTTOM OF DATA ***

====>

```

Here is a line-by-line account of how the TSP processed the data.

Line 1

FINDSDATA finds the attendance indicator for SMITHA. TSCATLIX now contains 0001. TSCASDF=NO because SMITHA did not attend the meeting.

- Line 2**
TESTFIELD finds that the return code from Line 1 is 0, so it continues with line 3.
- Line 3**
LABEL (no operation performed)
- Line 4**
TESTFIELD - TSCASDF is not YES, so branch to GETNEXT. This ends processing for SMITHA.
- Line 8**
LABEL (no operation performed)
- Line 9**
FINDSDATA finds the attendance indicator for JONESB. TSCATLIX now contains 0002. TSCASDF=YES because JONESB attended the meeting.
- Line 10**
TESTFIELD - TSCAFRET is 0 because the previous FINDSDATA was successful, so continue with the next line.
- Line 11**
BRANCH to LOOP (line 3).
- Line 3**
LABEL (no operation performed)
- Line 4**
TESTFIELD - TSCASDF is YES, so continue with the next line.
- Line 5**
FINDSDATA finds the YES/NO vote indicator for JONESB. TSCATLIX still contains 0002. TSCAFRET is not 0 because JONESB did not vote.
- Line 6**
TESTFIELD — the FINDSDATA from line 5 failed, so branch to NOVOTE (line 12).
- Line 12**
LABEL (no operation performed)
- Line 13**
MOVEVAR — move TSCATLIX, which indicates the TSP is working on the second person in the list, to the variable data area.
- Line 14**
MESSAGE — issue a message to register someone's vote in the list.
- Line 15**
ADDDATA — go back into the list processor.
- Line 16**
PROCESS the ADDDATA.
- Line 17**
RETURN — exit the TSP.

The list processor panel with the error message at the bottom of the screen is displayed. The task is complete.

Creating a New List Panel

```

BLGLCU00          INVITEE LIST DATA          LINE 1 OF 11

                List appropriate information about each person.
                                RECORD:00000347

      NAME          ATTENDED?      VOTE
'' SMITHA          NO_             YES
'' JONESB          YES             ___
''                ___             ___
''                ___             ___
''                ___             ___
''                ___             ___
''                ___             ___
''                ___             ___
''                ___             ___
''                ___             ___
''                ___             ___
''                ___             ___
''                ___             ___
''                ___             ___

Line Cmds:  A=After  B=Before  C=Copy  D=Delete  E=Erase  I=Insert
            L=Line Entry  M=Move   R=Repeat
Type DOWN, UP, LEFT, or RIGHT to scroll the panel, or type END to exit.
MSG24001E  Vote required for invitee number 02.
====>

```

Creating a New List Panel with Several User Line Commands

Assume you want to maintain a list of people who are interested in the problem records for your system. Because you want to use this list to track the individuals who ask about a specific problem, rather than to keep track of privilege classes that are interested in the problem, the existing architecture shipped with Tivoli Information Management for z/OS does not meet your needs.

Along with tracking the people interested in a specific problem, you also want a list of who should be contacted when the problem is resolved. You can create a list panel and a user line command to do this for you.

Here is a Problem Summary panel that has a new selection added:

11. Interested parties.

```

BLG0BU00          PROBLEM SUMMARY          PROBLEM: _____

Reported by..... SMITH          Problem status..... OPEN
Assignee name..... _____     Current phase..... _____
Tracked by..... _____       Current priority..... _
Network name..... _____     Owing priv. class..... _____
System name..... _____       Entry priv. class..... _____
Program name..... _____       Date entered..... _____
Device name..... _____        Time entered..... _____
Key item affected..... _____   Date last altered..... _____

Description..... TEST

Select one of the following, type END to save your changes, or type CANCEL
to discard your changes.
    1. Reporter data.             6. Supplemental data.
    2. Status data.              7. Synopsis data.
    3. Close data.               8. Freeform text.
    4. Symptom data.            9. File record.
    5. Resolution data.         10. Create solution and file record.
                                11. Interested parties.

====>

```

Selection 11 takes you to the Interested Parties Entry panel.

```

USELINTP           Interested Parties Entry           Line 1 OF 10
USE....List people interested in this problem.

      Name           Phone           Contacted?
  ..  _____  _____  _____
  ..  _____  _____  _____
  ..  _____  _____  _____
  ..  _____  _____  _____
  ..  _____  _____  _____
  ..  _____  _____  _____
  ..  _____  _____  _____
  ..  _____  _____  _____
  ..  _____  _____  _____
  ..  _____  _____  _____

Line Cnds:  A=After B=Before C=Copy D=Delete E=Erase I=Insert M=Move
            L=Line Entry R=Repeat S=Show person details P=Show other problems
Type DOWN, UP, LEFT, or RIGHT to scroll the panel, or type END to exit.

===>
    
```

Each list column has a true target of an assisted-entry panel used to collect data for that column. Assume that the s-word indexes for the three columns are 81D0, 81D1, and 81D2.

All the TSPs described in this section assume that if any column of a row has data, all the columns have data. You can write a TSP that runs when the lists are saved to verify that this is true.

The Interested Parties Entry panel has several user line commands defined for it:

- S** Displays the person record for the party named on the line where S is issued. It assumes the use of person records similar to the Integration Facility person record.
- P** Searches for other nonclosed problems that show the person name and phone number as an interested party.

The line command column of the Interested Parties Entry panel has a true target panel of BLGTXN00. Any user line command TSPs that are written for this panel must be named using BLGTXN followed by two characters using the rules described on page 452.

Modifying the Panels

Update panel BLG0BU00 and add a selection:

- 11. Interested parties

Creating a New List Panel

```

BLG0BU00          PROBLEM SUMMARY          PROBLEM: _____

Reported by..... _____ Problem status..... _____
Assignee name..... _____ Current phase..... _____
Tracked by..... _____ Current priority..... _____
Network name..... _____ Owing priv. class..... _____
System name..... _____ Entry priv. class..... _____
Program name..... _____ Date entered..... _____
Device name..... _____ Time entered..... _____
Key item affected..... _____ Date last altered..... _____

Description..... _____

Select one of the following, type END to save your changes, or type CANCEL
to discard your changes.
    1. Reporter data.           6. Supplemental data.
    2. Status data.            7. Synopsis data.
    3. Close data.             8. Freeform text.
    4. Symptom data.           9. File record.
    5. Resolution data.        10. Create solution and file record.
                                11. Interested parties.

====>

```

Define the control information for selection 11 as follows:

- Target panel=USELINTP
- Field type=SELECTION
- Dialog begin=NO
- Program exit symbol=BLG01396

Create a table panel with four columns as shown. Each attribute byte shown by the % is made using the FIELD UNPROTECT command. The ? attribute bytes are made using the FIELD PROTECT command.

```

USELINTP?          Interested Parties Entry          ?Line _ OF _
?
?USE....List people interested in this problem.
?
-----
??
?
?
?
?          Name          Phone          Contacted?
-----
%   ? % _____ ? % _____ ? % ___?
-----
?
??Line Cmds: A=After B=Before C=Copy D=Delete E=Erace I=Insert M=Move
??          L=Line Entry R=Repeat S=Show person details P=Show other problems
?
-----

NOTE: You can modify the contents of each area by using cursor movement keys
and PMF screen commands. Type HELP on the command line for more infor-
mation. Type FIELD SHOW on the command line to locate all attribute
bytes on the panel.

====>

```

The control information for these columns follows:

- Line command column (first column):
 - Program target panel = BLGTXN00 (allows user line command TSPs named BLGTXNxx to be called)
 - All other fields set as appropriate for a line command column.
- Name column

- Program target panel = USE6INTN
 - Maximum field width = 15
 - Line command column = NO
 - Line Sequence column = NO
 - Sequence column justify = LEFT
 - Structured word index = 81D0 (XINTPNAM)
 - Prefix word index = 0000
 - Sequence number suffix = .
 - Permanent column = YES
 - Horizontal scroll = NO
 - Repeat/delete/move protected = NO
- Phone column
 - Program target panel = USE6INTP
 - Maximum field width = 15
 - Line command column = NO
 - Line Sequence column = NO
 - Sequence column justify = LEFT
 - Structured word index = 81D1 (XINTPPH)
 - Prefix word index = 0000
 - Sequence number suffix = .
 - Permanent column = YES
 - Horizontal scroll = NO
 - Repeat/delete/move protected = NO
- Contacted? column
 - Program target panel = USE6INTC
 - Maximum field width = 3
 - Line command column = NO
 - Line Sequence column = NO
 - Sequence column justify = LEFT
 - Structured word index = 81D2 (XINTPCON)
 - Prefix word index = 0000
 - Sequence number suffix = .
 - Permanent column = YES
 - Horizontal scroll = NO
 - Repeat/delete/move protected = NO

Now you need to create assisted-entry panels for the **Name**, **Phone**, and **Contacted?** fields. The best way to do this is to use an existing list processor assisted-entry panel (such as BLG6DEVL) as a model because many assisted-entry panel control fields require specific settings for use with the list processor.

The assisted-entry panels you need to create are:

- USE6INTN — Name
- USE6INTP — Phone
- USE6INTC — Contacted?

Change the externals of the panels to match the fields on the table panel USE6INTN. Use the correct **Prefix & content validation** control information, and create prefixes using the correct validation for each field.


```

USE0H000          PERSON SEARCH OPTIONS

Enter person information to be used in search argument.

1. Person identifier.... _____
2. Person name..... _____
3. Person department.... _____
4. Person phone..... _____
5. Cross-reference ID... _____
6. Company name..... _____
7. Dept/Loc/City..... _____
8. Street address..... _____
9. City,Prov/State..... _____
10. Country..... _____
11. Postal Code/ZIP..... _____

13. SEARCH and display on the formatted search results list.

      When you are finished, type 13 on the command line and press Enter
      to see the selected information.

====>
    
```

The Person Record panel that displays these records is USE0N500.

Suppose the Interested Parties Entry panel looks like this.

```

USELINTP          Interested Parties Entry          Line 1 OF 10

USE....List people interested in this problem.          RECORD: 00007896

      Name          Phone          Contacted?
''  AARON          555-7001          NO_
''  COMBS          555-6754          NO_
''  DODDS          555-9032          NO_
''  JOHNSON        555-0791          NO_
''  MARTIN/TERRY   555-2054          NO_
''  SMITH          555-5412          NO_
''  TAYLOR/JAKE    555-8709          NO_
''  WILSON         555-4321          NO_
''  WILSON/MIKE    555-2000          NO_
''  _____    _____    _____

Line Cnds:  A=After B=Before C=Copy D=Delete E=Erase I=Insert M=Move
            L=Line Entry R=Repeat S=Show person details P=Show other problems

====>
    
```

You want to see the person record information about Mike Wilson. (A person record exists for him called WILSONM.) If you enter an S in the line command column of panel USELINTP, this panel is displayed.

Creating a New List Panel

```
USE0N500          PERSON RECORD          PERSON ID: WILSONM

Person information.

  Caller's identifier WILSONM          Date entered.... 10/18/1998
  Cross-reference ID. _____      Time entered.... 17:26
  Name..... WILSON/MIKE              Date last altered 10/18/1998
  Department..... 20                  Time last altered 17:26
  Telephone..... 555-2000             User last altered X11111
  Company name..... Tivoli
  Dept/Loc/City..... _____
  Street Address..... _____
  City,Prov/State.... LOSANGELES, CA
  Country..... USA
  Postal Code/ZIP.... _____

                        1. History display
                        2. Record utilities
                        8. Freeform text

*** To return to the Interested Parties panel, enter ;RESUME.
===>
```

Write a TSP called `BLGTXN0S`. This TSP will perform the processing to display the person record you want to see. An example of such a TSP follows:

FUNCTION NAME	LABEL NAME	LITERAL DATA	GET VAR	APPLY NOT	FIELD NAME	S-WORD INDEX	GET LIST INDEX	LIST INDEX	OCCUR- ENCE	REPLACE DATA
0.	*****	*****	****	****	*****	****	***	****	*****	***
1.	LABEL	BLGTXNOS								
2.	LABEL	*****								
3.	LABEL	*FIND LAST OCCURRENCE OF NAME								
4.	LABEL	*DATA FOR CURRENT ROW								
5.	LABEL	*****								
6.	FINDSDATA		NO			81D0	YES	0000	LAST	
7.	TESTFIELD	NONE	NO	YES	TSCAFRES					
8.	MOVEVAR				TSCASDF					NO
9.	LABEL	*****								
10.	LABEL	*FIND LAST OCCURRENCE OF PHONE								
11.	LABEL	*DATA FOR CURRENT ROW								
12.	LABEL	*****								
13.	FINDSDATA		NO			81D1	YES	0000	LAST	
14.	LABEL	*****								
15.	LABEL	*SUSPEND AND DO SEARCH FOR								
16.	LABEL	*A PERSON RECORD								
17.	LABEL	*****								
18.	ADDDATA	;SUS	NO							
19.	PROCESS	ERROR								
20.	PROCESS	ERROR								
21.	ADDDATA	3,2,6,9,2,	YES							
22.	MOVEVAR				TSCASDF					NO
23.	ADDDATA	,4,	YES							
24.	ADDDATA	,13	NO							
25.	PROCESS	ERROR								
26.	LABEL	*****								
27.	LABEL	*IF NO HITS RETURN WITH MESSAGE								
28.	LABEL	*****								
29.	TESTFLOW	NOHITS	NO	NO						
30.	LABEL	*****								
31.	LABEL	*BUILD AND ISSUE MESSAGE TO TELL								
32.	LABEL	*USER TO USE ;RESUME TO RETURN								
33.	LABEL	*****								
34.	MOVEVAR	*** To return to the Interested								YES
35.	MOVEVAR	Parties panel, enter ;RESUME								NO
36.	MESSAGE		YES							
37.	LABEL	*****								
38.	LABEL	*SEE IF ONE OR MORE THAN ONE HIT								
39.	LABEL	*****								
40.	TESTFIELD	EXIT	NO	YES	TSCATPLC					
41.	ADDDATA	LINECMD S	NO							
42.	PROCESS	ERROR								
43.	BRANCH	EXIT								
44.	LABEL	NONE								
45.	MESSAGE	*NO NAME FOR CURRENT LINE FOUND NO NAME FOUND FOR THIS LINE	NO							
46.	BRANCH	EXIT								
47.	LABEL	NOHITS								
48.	ADDDATA	;RESUME	NO							
49.	PROCESS	ERROR								
50.	PROCESS	ERROR								
51.	MESSAGE	PERSON RECORD NOT LOCATED	NO							
52.	BRANCH	EXIT								
53.	LABEL	ERROR								
54.	PRINT									
55.	LABEL	EXIT56. RETURN								

Some important things to note about this TSP are:

- Lines 6 and 7 — Find the last occurrence of **Name** data for the line where the S user line command was issued. If no data is found, branch to NONE. A message is issued (Line 45), and returns.
- Line 13 — Find the last occurrence of **Phone** data for the line where the S user line command was issued.
- Lines 18 through 20 — Issue a SUSPEND command. The second PROCESS statement clears the suspension message from the screen.
- Lines 21 through 25 — Build and issue an IRC to search for a person record containing the name and phone number found in lines 6 and 13. For this example, the IRC is:
3,2,6,9,2,WILSON/MIKE , 4,555-2000 ,13

Creating a New List Panel

- Line 29 — TESTFLOW type=MESSAGE and verify name=BLG19214. This message is issued if no person records match the name and phone number on the Interested Parties Entry panel. Branch to NOHITS. Then, issue the RESUME command, and issue a message indicating that no other person records were found.
- Lines 34 through 36 — Build and issue a message to tell the user to issue ;RESUME to return to the Interested Parties Entry panel.
- Line 40 — If TSCATPLC=1, only one person record was found during the search. If TSCATPLC is not 1, more than one record was found. The search results list remains on the screen.
- Lines 41 and 42 — If only one person record was found, display the record.

SHOW OTHER PROBLEMS User Line Command

The SHOW OTHER PROBLEMS (P) user line command displays a search results list of other nonclosed problems that contain the selected person name and phone number as an interested party. It assumes that two people with the same name do not have the same phone number.

The user line command TSP performed a SUSPEND command at the beginning of its processing. Therefore, after you use this user line command, you must issue the RESUME command to return to the Interested Parties Entry panel.

Suppose the Interested Parties Entry panel looks like this.

```
USELINTP          Interested Parties Entry          Line 1 OF 10
USE....List people interested in this problem.
                                     RECORD: 00007892

      Name          Phone          Contacted?
''  JAMES          6681          YES
''  SMITH          5412          NO_
''  _____          _____          ___
''  _____          _____          ___
''  _____          _____          ___
''  _____          _____          ___
''  _____          _____          ___
''  _____          _____          ___
''  _____          _____          ___
''  _____          _____          ___
''  _____          _____          ___

Line Cmds:  A=After  B=Before  C=Copy  D=Delete  E=Erase  I=Insert  M=Move
            L=Line Entry  R=Repeat  S=Show person details  P=Show other problems

====>
```

You want to know what other problems James is interested in. Assume that James is also listed in the interested parties list for problems 7893 and 7895.

Table panel BTN1TSAN displays the results of the search.

If you enter a P in the line command column for the first line on the Interested Parties Entry panel, this panel is displayed.

```
BTN1TSAN PROBLEMS: STATUS/ASSIGNEE DATA/ CAUSE/DESCRIPTION      LINE 1 OF 2
DATABASE: 5
      RNID      STATUS  ASSIGNEE  ASSIGNEE  CAUSE  DESCRIPTION
                   NAME    TELEPHONE CODE
1. 00007895 INITIAL  PARKS     6601      PRINTER PROBLEM
2. 00007893 OPEN    THOMAS    555-3320  BADGE ACCESS DENIED
*** BOTTOM OF DATA ***
```

```
Line Cnds: C=Copy D=Delete P=Print S=Select U=Update
Type DOWN or UP to scroll the panel. Type TABLE to see alternate formats.
Or type RES to leave this suspension level.
          INIT Main Option Panel
*** To return to the Interested Parties panel, enter ;RESUME.
===>
```

Write a TSP called BLGTXN0P. Assume the p-word for Name on the Interested Parties Entry panel is INTN/ and the p-word for Phone is INTP/. An example of such a TSP follows:

Creating a New List Panel

FUNCTION NAME	LABEL NAME	LITERAL DATA	GET VAR	APPLY NOT	FIELD NAME	S-WORD INDEX	GET LIST INDEX	LIST INDEX	OCCUR- ENCE	REPLACE DATA
0.	*****	*****	****	****	*****	****	***	****	*****	***
1.	LABEL	BLGTXNØP								
2.	LABEL	*****								
3.	LABEL	*FIND LAST OCCURRENCE OF NAME								
4.	LABEL	*DATA FOR CURRENT ROW								
5.	LABEL	*****								
6.	FINDSDATA		NO			81DØ	YES	ØØØØ	LAST	
7.	TESTFIELD	NONE 12	NO	YES	TSCAFRES					
8.	LABEL	*****								
9.	LABEL	*BUILD SEARCH IRC								
10.	LABEL	*****								
11.	LABEL	*SEARCH FOR PROBLEM RECORDS FOR								
12.	LABEL	*WHICH FOUND NAME IS INTERESTED								
13.	LABEL	*AND EXCLUDE CURRENT RECORD ID								
14.	LABEL	*AND CLOSED PROBLEMS								
15.	LABEL	*****								
16.	MOVEVAR	3,2,6,1,SE + INTN/								YES
17.	MOVEVAR				TSCASDF					NO
18.	MOVEVAR	INTP/								NO
19.	FINDSDATA		NO			81D1	YES	ØØØØ	LAST	
20.	MOVEVAR				TSCASDF					NO
21.	MOVEVAR	^STAC/CLOSED								NO
22.	MOVEVAR	^RNID/								NO
23.	MOVEVAR				TSCACRID					NO
24.	LABEL	*****								
25.	LABEL	*SUSPEND AND SET SRL PANEL TO								
26.	LABEL	*BTN1TSAN								
27.	LABEL	*****								
28.	ADDDATA	;SUS, TABLE BTN1TSAN	NO							
29.	PROCESS	ERROR								
30.	PROCESS	ERROR								
31.	LABEL	*****								
32.	LABEL	*DO THE SEARCH								
33.	LABEL	*****								
34.	ADDDATA									YES
35.	PROCESS	ERROR								
36.	LABEL	*****								
37.	LABEL	*IF NO HITS RETURN WITH MESSAGE								
38.	LABEL	*****								
39.	TESTFLOW	NOHITS	NO	NO						
40.	LABEL	*****								
41.	LABEL	*BUILD AND ISSUE MESSAGE TO TELL								
42.	LABEL	*USER TO USE ;RESUME TO RETURN								
43.	LABEL	*****								
44.	MOVEVAR	*** To return to the Interested								YES
45.	MOVEVAR	Parties panel, enter ;RESUME.								NO
46.	MESSAGE									YES
47.	BRANCH	EXIT								
48.	LABEL	NONE *NO NAME FOR CURRENT LINE FOUND								
49.	MESSAGE	NO NAME FOUND FOR THIS LINE								NO
50.	BRANCH	EXIT								
51.	LABEL	NOHITS								
52.	ADDDATA	;RESUME								NO
53.	PROCESS	ERROR								
54.	PROCESS	ERROR								
55.	MESSAGE	NO OTHER PROBLEMS LOCATED								NO
56.	BRANCH	EXIT								
57.	LABEL	ERROR								
58.	PRINT									
59.	LABEL	EXIT								
60.	RETURN									

Some important things to note about this TSP are:

- Lines 6 and 7 — Find the last occurrence of **Name** data for the line where the P user line command was issued. If no data is found, branch to NONE, which issues a message (line 49) and returns.

- Lines 16 through 23 — Build an IRC that requests the search. In this example, the IRC is:

```
3,2,6,1,SE + INTN/JAMES INTP/6681 -STAC/CLOSED -RNID/ØØØØ7892
```

Even if there is no record ID for the current record, the results are okay.

-
- Lines 28 through 30 — Issue a SUSPEND command. Set the table panel to BTN1TSAN. This is the search results list panel that is displayed. The second PROCESS statement clears the suspension message from the screen.
 - Lines 34 and 35 — Process the IRC built in lines 16 through 23.
 - Line 39 — TESTFLOW type=MESSAGE and verify name=BLG19214. This message is issued if no records are found. Branch to NOHITS. Then, issue a RESUME command, and issue a message indicating that no other problems were found.
 - Lines 44 through 46 — Build and issue a message to tell the user to enter ;RESUME to return to the Interested Parties Entry panel.

Using Data Model Records

Using Data Model Records You can store the data composition of records in data model records rather than in panels. If you use this method, the need to use the Table Build Utility (BLGUT8) to create PIDTs for use with the API is eliminated.

There are three types of data model records: validation records, data attribute records, and data view records.

Validation Records

Validation records are records which contain validation criteria for a field in a record. You can use these records to present a list of valid entries for a record field (see “Presenting a List of Valid Values From Which To Choose” on page 286 for more information).

You can also use these records with APIs. In addition, you can use validation records that include validation patterns, prefixes, authorization codes, and group prefix indicators to contain all of the data necessary for data validation.

The utility BLGUT8 copies the validation record ID, validation s-word, and validation data s-word into a static PIDT. All of this information is put into the PIDT generated from a specific data view record. When the PIDT is loaded for use with a transaction within an API, the validation data is resolved, except for the validation record ID s-word.

Refer to the *Tivoli Information Management for z/OS Application Program Interface Guide* for more information on using validation records with the APIs.

Data Attribute Records

Data attribute records describe the data and its attributes. These records can be used with data view records for use with the API.

There are four methods of using data attribute records on an interactive panel sequence.

■ Assisted-entry panel collection

Data attribute records can be used on any panel which accepts an assisted-entry panel. These panels are:

- Data-entry panel
- Assisted-entry panel
- Control panel
- Selection panel
- Options panel

All data attributes from assisted-entry panels, including the panel display, are included in the data attribute record. In order for a displayable panel to be created using the data attribute record, generic panel **BLG6GNRC**, shipped by Tivoli, is loaded and modified using the data attribute information. The displayable panel information is replaced using any panel display text in the data attribute record.

- Direct add data

This is data which is added into the record with a control panel. The data attribute record is specified on the control panel and the control line is changed to an ADD control line.

- Freeform text

If the data attribute record defines text data, this can be specified on a control panel to invoke freeform text collection.

- List data

This is similar to the assisted-entry panel described above, except that the data attribute record defines the data as list data. It is to be specified in place of an assisted-entry panel on a list processor table panel.

In addition, these records can be used with data view records for use with the API.

Note: You may wish to use the TSX BLGTDARL, which runs a PMF report that will provide all a table of the attribute records, and for each record, its description, journal reply, s-word, s-word index, p-word, p-word index, and reference panel. See “Generating Data Attribute Record Reports with the BLGTDARL TSX” on page 615 for additional information on this TSX.

Data View Records

Data view records contain data attribute RNIDs. They contain the fields that an API application processes. Data view records can describe the entire record’s contents. Information needed for certain record transactions, such as the record-type s-word and authorization codes, are included in these records.

These records are only used by the APIs. In effect, data view records can replace PIDTs and PIPTs.

To specify a data view record in the LLAPI, the name is passed in the existing PIDT name field PICATABN and a flag, PICADMRC=Y, is set to indicate that a PIDT should be built using the data view records and given the data view record ID as its name. If you are using the HLAPI, specify the data view record ID in the control PDB DATA_VIEW_NAME.

When building data model records, you can also specify whether specific values are required for a Create, Update, or Inquiry function. That is, you can specify that a value be required only for a Create, only for an Update, only for an Inquiry, or for various combinations. Additional information can be found on page 565.

Data Model Record Naming Conventions

The following naming conventions apply to data model records:

- Data view and validation record IDs may be from 1 to 8 characters in length and must start with a letter.

- Data attribute record IDs must be 8 characters long and start with a letter. If the name will be used in place of a panel name in the interactive panel sequence, then the fourth character must be the trigger character specified with the MODELDB parameter in the session member. This is so the record name can be distinguished from a panel name. There is no default character for the trigger character. If the trigger character matches the data attribute character specified with the MODELDB keyword in the session parameter member, the name is assumed to be a data attribute record identifier. Otherwise, the name is assumed to be that of a panel.

Creating a Data Model of a Problem Record

Note: You may wish to use the TSX BLGTDMBL, which simplifies the task for defining data model records. “Building Data Model Records with the BLGTDMBL TSX” on page 607 contains additional information on this TSX.

In order to fully explore the procedure for building a data model record, this example will take you through several stages.

1. In the first stage, “Stage 1 -- Creating Data Attribute Records”, you will create data attribute records which represent the required fields of a sample record, which is a subset of a full problem record. You will add the descriptive freeform text field, which is not required.
2. In the next stage, “Stage 2 -- Build the Data View Record” on page 560, you will create a data view record for a problem record. The API will use this data view record instead of using a static PIDT to create an instance of your sample problem record.
3. In the third stage, “Stage 3 -- Using Data Attribute Records to Replace Assisted-Entry Panels” on page 567, you will use the data attribute records from the first stage in an interactive session with Tivoli Information Management for z/OS to replace the assisted-entry panels.
4. In “Stage 4 -- Data Attribute Records for Direct Add Fields” on page 591, you will use “bypass panel processing” which can be used in the API environment. You will also create additional data attributes, which add specific data to your sample record. Some of this is file time data, such as date created, while others are optional data, which is added automatically during interactive data collection for record creation.
5. In the next stage, “Stage 5 -- Incorporating the Direct Add Field Information into the Data Model” on page 601, you add the data attribute records created in the previous step to the data view record that was created in the second step.
6. Finally, in “Stage 6 -- Using the Direct Add Data Attribute Records Interactively” on page 604, you can see how to use your data attribute record so that you can merely modify the data attribute record if you want to change a setting, instead of modifying the control panels that add that data. This stage describes how to change interactive file processing to use the direct add data attribute records to add data, such as DATE CREATED to the sample record.

Stage 1 -- Creating Data Attribute Records

In order to create the data model, you must determine the contents of the data model. This data model will consist of the three required fields for a problem record—problem reporter, problem status, and problem description. You will also include freeform text for description information. The three required fields already have assisted-entry panels built to collect the data. This makes it easy to build the data attribute records.

Creating a Data Model of a Problem Record

First, get the assisted-entry panel name for each field. From the primary options menu (BLG0EN20), type **5** and press **Enter** to begin the problem record dialog.

```
BLG0EN20          --- PRIMARY OPTIONS MENU ---      APPLICATION: MANAGEMENT

OPTIONS:

  1. OVERVIEW.....Display general information and product enhancements.
  2. PROFILE.....Display or alter invocation or session defaults.
  3. APPLICATION....Change application, list available applications.
  4. CLASS.....Change current class, list available classes.
  5. ENTRY.....Create a record.
  6. INQUIRY.....Search for records.
  7. UTILITY.....Copy, display, print, delete, and update records.
  8. GLOSSARY.....Display a list of searchable words in the database.
  9. PMF.....Modify or create panels.

      Select an option, enter a command, or type QUIT to exit.

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====> 5
```

Type **1** and press **Enter** to continue the interrogation of the problem record.

```
+ BLG00000 -----ENTRY----- 1 OF 1--+
|
| USE....Identify the type of description (record) to be entered.
|
| 1.PROBLEM.....Enter data processing problem description.
| 2.CHANGE.....Enter change request for system/procedure.
| 3.CONFIG.....Enter description of system configuration,
|               financial data, or service organization.
| 4.RULES.....Enter description of escalation rules.
| 5.DATA MODEL.....Enter description of a data model.
| 6.PEOPLE.....Enter description of a person.
| 7.SOLUTION.....Enter solution record.
|
+----- SELECT ITEM -----+

====> 1
```

Select each field which will be included in the data model. For this model, you need to know the name of the assisted-entry panel for the following:

- 1. Reported by**
- 14. Problem status**
- 25. Description**

Type **1** and press **Enter** to obtain the name of the assisted-entry panel for the Reported-by field.

```

BLG0B100                PROBLEM REPORTER ENTRY                PROBLEM: _____
Enter problem reporter data; cursor placement or input line entry allowed.

 1. Reported by.....<R> _____ 13. Problem type..... _____
 2. Reporter dept..... _____ 14. Problem status....<R> _____
 3. Reporter phone..... _____ 15. User problem number.. _____
 4. Date occurred..... _____ 16. Initial priority.... _
 5. Time occurred..... _____ 17. Outage..... _____
 6. Network name..... _____ 18. Rerun time..... _____
 7. System name..... _____ 19. Network impact..... _____
 8. Program name..... _____ 20. System impact..... _____
 9. Device name..... _____ 21. Program impact..... _____
10. Key item affected... _____ 22. Device impact..... _____
11. Date fix required... _____ 23. User form number..... _____
12. Time fix required... _____ 24. Location code..... _____
                                26. Outage type..... _____

25. Description.....<R> _____

====> 1
    
```

Note that the name of the assisted-entry panel is BLG6REQN. Type a name (**smith** in this example) and press **Enter** when prompted for a reporter name.

```

+ BLG6REQN ----- REPORTER NAME ----- PERS/--+
|
| USE....Enter name of the person entering problem, change, etc.
|
| FORM...Up to 40 characters, including special characters and
|         embedded blanks. The entire value will be searchable as
|         a single piece of data. If you want to search or sort
|         records by last name, enter the last name first.
|
| EXAMPLES: Janet Cooper-King..Reply.....Cooper-King Janet
|           Tim Johnson.....Reply.....Johnson Tim
|           Default.....Reply.....=
|
+----- REPLY AS ILLUSTRATED -----+

====>
    
```

Type **14** and press **Enter** to obtain the name of the assisted-entry panel for the Problem status field.

Creating a Data Model of a Problem Record

```
BLG0B100                PROBLEM REPORTER ENTRY                PROBLEM: _____
Enter problem reporter data; cursor placement or input line entry allowed.

 1. Reported by.....<R> SMITH_____ 13. Problem type..... _____
 2. Reporter dept..... _____ 14. Problem status...<R> _____
 3. Reporter phone..... _____ 15. User problem number.. _____
 4. Date occurred..... _____ 16. Initial priority..... _____
 5. Time occurred..... _____ 17. Outage..... _____
 6. Network name..... _____ 18. Rerun time..... _____
 7. System name..... _____ 19. Network impact..... _____
 8. Program name..... _____ 20. System impact..... _____
 9. Device name..... _____ 21. Program impact..... _____
10. Key item affected... _____ 22. Device impact..... _____
11. Date fix required... _____ 23. User form number..... _____
12. Time fix required... _____ 24. Location code..... _____
                                     26. Outage type..... _____

25. Description.....<R> _____

====> 14
```

Note that the name of the assisted-entry panel is **BLG6STAT**. Type a current status (use **initial** in this example) and press **Enter** when prompted for a current status.

```
+ BLG6STAT ----- CURRENT STATUS ----- STAC/-+
|
| USE...Specify the problem, change, or activity record status.
|
| NOTE...Any commands issued here must be preceded by a ';'
|
|     REPLY: INITIAL...The record has been entered.
|             OPEN.....The record has been assigned or opened.
|             CLOSED....The record has been closed or completed.
|
+----- REPLY AS DEFINED -----+

====> initial
```

Type **25** and press **Enter** to obtain the name of the assisted-entry panel for the Description field.

```

BLG0B100                PROBLEM REPORTER ENTRY                PROBLEM: _____
Enter problem reporter data; cursor placement or input line entry allowed.

 1. Reported by.....<R> SMITH_____ 13. Problem type..... _____
 2. Reporter dept..... _____ 14. Problem status....<R> INITIAL
 3. Reporter phone..... _____ 15. User problem number.. _____
 4. Date occurred..... _____ 16. Initial priority.... _
 5. Time occurred..... _____ 17. Outage..... _____
 6. Network name..... _____ 18. Rerun time..... _____
 7. System name..... _____ 19. Network impact..... _____
 8. Program name..... _____ 20. System impact..... _____
 9. Device name..... _____ 21. Program impact..... _____
10. Key item affected... _____ 22. Device impact..... _____
11. Date fix required... _____ 23. User form number..... _____
12. Time fix required... _____ 24. Location code..... _____
                                     26. Outage type..... _

25. Description.....<R> _____

===> 25
    
```

Note that the name of the assisted-entry panel is BLG6DSAB. Type a description (use **sample description** in this example) and press **Enter** when prompted for a Description Abstract.

```

+ BLG6DSAB ----- DESCRIPTION ABSTRACT ----- FREEFORM +-
|
| USE...Enter description of record. Please note restrictions.
|
| FORM...Freeform textual data, maximum of 45 characters.
|
| NOTE...Any commands issued here must be preceded by a ';'.
|           Commas are not allowed and periods are treated as
|           blanks. Depending on your installation, words longer
|           than 16 or 32 characters will be truncated (for
|           inquiries only). Special characters are treated as
|           blanks.
|
+----- REPLY AS ILLUSTRATED -----+

===> sample description
    
```

From the Problem Reporter Entry panel BLG0B100, type **;end;end** and press **Enter** to file the record.

Creating a Data Model of a Problem Record

```
BLG0B100                PROBLEM REPORTER ENTRY                PROBLEM: _____
Enter problem reporter data; cursor placement or input line entry allowed.

 1. Reported by.....<R> SMITH_____ 13. Problem type..... _____
 2. Reporter dept..... _____ 14. Problem status...<R> INITIAL
 3. Reporter phone..... _____ 15. User problem number.. _____
 4. Date occurred..... _____ 16. Initial priority..... _
 5. Time occurred..... _____ 17. Outage..... _____
 6. Network name..... _____ 18. Rerun time..... _____
 7. System name..... _____ 19. Network impact..... _____
 8. Program name..... _____ 20. System impact..... _____
 9. Device name..... _____ 21. Program impact..... _____
10. Key item affected... _____ 22. Device impact..... _____
11. Date fix required... _____ 23. User form number..... _____
12. Time fix required... _____ 24. Location code..... _____
                                26. Outage type..... _

25. Description.....<R> SAMPLE DESCRIPTION_____

====> ;end,;end
```

Note the record number ID. For this example, it is 00000001.

Now begin the data attribute record dialog; from the Primary Options Menu, type **5** and press **Enter**.

```
BLG0EN20                --- PRIMARY OPTIONS MENU ---          APPLICATION: MANAGEMENT
OPTIONS:

 1. OVERVIEW.....Display general information and product enhancements.
 2. PROFILE.....Display or alter invocation or session defaults.
 3. APPLICATION....Change application, list available applications.
 4. CLASS.....Change current class, list available classes.
 5. ENTRY.....Create a record.
 6. INQUIRY.....Search for records.
 7. UTILITY.....Copy, display, print, delete, and update records.
 8. GLOSSARY.....Display a list of searchable words in the database.
 9. PMF.....Modify or create panels.

      Select an option, enter a command, or type QUIT to exit.

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BLG03058I Record 00000001 was stored successfully.

====> 5
```

In order to work with Data Model records, type **5** and press **Enter** on panel BLG00000.


```

+ BLG00000 -----ENTRY----- 1 OF 1-+
|
| USE....Identify the type of description (record) to be entered.
|
| 1.PROBLEM.....Enter data processing problem description.
| 2.CHANGE.....Enter change request for system/procedure.
| 3.CONFIG.....Enter description of system configuration,
|               financial data, or service organization.
| 4.RULES.....Enter description of escalation rules.
| 5.DATA MODEL.....Enter description of a data model.
| 6.PEOPLE.....Enter description of a person.
| 7.SOLUTION.....Enter solution record.
|
+----- SELECT ITEM -----+

```

====> 5

Type **2** and press **Enter** on panel BLG00040 to work with a data attribute record.

```

+ BLG00040 ----- DATA MODEL ENTRY ----- 1 OF 1-+
|
| USE....Identify the type of data model record to be entered.
|
| 1.DATA VIEW.....Enter Data View record description.
| 2.ATTRIBUTE.....Enter data attribute record description.
| 3.VALIDATION.....Enter validation record description.
|
+----- SELECT ITEM -----+

```

====> 2

Type the chosen record name (for example, **BLG#REQN**) and a Description; then type **BLG6REQN** in field 7, the Copy assisted-entry panel field, and press **Enter**. This copies the data contained in BLG6REQN (the “field attributes”) into data attribute record BLG#REQN.

Note: The fourth character of the name is a “trigger” character which indicates that the name being entered is a data attribute *record* and not a *panel*. The name is a data attribute *record* if this character matches the data attribute character specified with the MODELDB keyword in the session parameter member.

Note: If you copy an assisted-entry panel that collects the structured word index from caller, you must add the structured word index to the attribute record.

Then type **;end** and press **Enter** to go to the Data Attribute Summary panel, BLG0VU70.

Creating a Data Model of a Problem Record

```
BLG0V700          DATA ATTRIBUTE RECORD ENTRY          RECORD: BLG#REQN

Enter data attribute record data; cursor placement or input line entry allowed.

1. Data attribute record name.<R> BLG#REQN
2. Contact name..... _____
3. Contact phone..... _____
4. Contact department..... _____
5. Location code..... _____
6. Description.....<R> PROBLEM REPORTER _____

7. Copy assisted-entry panel..... BLG6REQN

8. ODBC column name..... _____
9. Field prompt..... _____

When you finish, type END to save or CANCEL to discard any changes.

====> ;end
```

Type **7** and press **Enter** to display the panel. This will show the text copied from the assisted-entry panel in an edit session.

```
BLG0VU70          DATA ATTRIBUTE SUMMARY              RECORD: BLG#REQN

Contact name..... _____  Entry priv. class..... _____
Contact phone..... _____  Date entered..... _____
Contact dept..... _____   Time entered..... _____
Location code..... _____   Date last altered..... _____

Description..... PROBLEM REPORTER
Field prompt..... _____

Select one of the following choices, or type END to save or CANCEL
to discard any changes.

1. Data attribute record.      6. Validation control data.
2. Response processing.       7. Panel display.
3. Structured word and       9. File record.
   validation collection.
4. Panel flow.                10. Help text.
5. Validation data extended   11. Validation data basic.

====> 7
```

The Tivoli Information Management for z/OS editor is automatically selected for you on this panel, regardless of your user profile setting.

Change the panel name in the upper left from BLG6REQN to BLG#REQN. This will permit you to know if the panel is shown by the assisted-entry *panel* or by the data attribute *record*.

Then type **;end** and press **Enter** to return to BLG0VU70.

```

BLG1TPNL          DATA ATTRIBUTE PANEL DISPLAY TEXT          LINE 1 OF 12

Enter ;HELP for details on how to edit this text.

1      1...+...|...+...|...+...|...+...|...+...|...+...|...
2      BLG#REQN          REPORTER NAME          PERS/
3
4      USE...Enter name of the person entering problem, change, etc.
5
6      FORM...Up to 40 characters, including special characters and
7          embedded blanks. The entire value will be searchable as
8          a single piece of data. If you want to search or sort
9          records by last name, enter the last name first.
10     EXAMPLES:  Janet Cooper-King..Reply.....Cooper-King Janet
11                Tim Johnson.....Reply.....Johnson Tim
12                Default.....Reply.....=
13
14                REPLY AS ILLUSTRATED

Line Cnds: A=After C=Copy D=Delete I=Insert M=Move R=Repeat
Type DOWN or UP to scroll the panel, or type END to exit.

==> ;end
    
```

Type **9** and press **Enter** to file the record.

```

BLG0VU70          DATA ATTRIBUTE SUMMARY          RECORD: BLG#REQN

Contact name..... _____ Entry priv. class..... _____
Contact phone..... _____ Date entered..... _____
Contact dept..... _____ Time entered..... _____
Location code..... _____ Date last altered..... _____

Description..... PROBLEM REPORTER
Field prompt..... _____

Select one of the following choices, or type END to save or CANCEL
to discard any changes.

1. Data attribute record.      6. Validation control data.
2. Response processing.       7. Panel display.
3. Structured word and      9. File record.
   validation collection.
4. Panel flow.              10. Help text.
5. Validation data extended. 11. Validation data basic.

==> 9
    
```

Repeat the previous steps, this time for BLG#STAT. This copies the data contained in BLG6STAT (the “field attributes”) into data attribute record BLG#STAT.

Creating a Data Model of a Problem Record

```
BLG0V700          DATA ATTRIBUTE RECORD ENTRY          RECORD: BLG#STAT
Enter data attribute record data; cursor placement or input line entry allowed.

1. Data attribute record name.<R> BLG#STAT
2. Contact name..... _____
3. Contact phone..... _____
4. Contact department..... _____
5. Location code..... _____
6. Description.....<R> PROBLEM STATUS _____

7. Copy assisted-entry panel..... BLG6STAT

8. ODBC column name..... _____
9. Field prompt..... _____

When you finish, type END to save or CANCEL to discard any changes.

====> ;end
```

Type **9** and press **Enter** to file the record.

```
BLG0VU70          DATA ATTRIBUTE SUMMARY          RECORD: BLG#STAT

Contact name..... _____   Entry priv. class..... _____
Contact phone..... _____   Date entered..... _____
Contact dept..... _____   Time entered..... _____
Location code..... _____   Date last altered..... _____

Description..... PROBLEM STATUS
Field prompt..... _____

Select one of the following choices, or type END to save or CANCEL
to discard any changes.

1. Data attribute record.      6. Validation control data.
2. Response processing.       7. Panel display.
3. Structured word and       9. File record.
   validation collection.
4. Panel flow.                10. Help text.
5. Validation data extended.  11. Validation data basic.
```

Repeat these steps once again for **BLG#DSAB** to create yet another data attribute record. This copies the data contained in **BLG6DSAB** (the “field attributes”) into data attribute record **BLG#DSAB**.

```

BLG0V700          DATA ATTRIBUTE RECORD ENTRY          RECORD: BLG#DSAB
Enter data attribute record data; cursor placement or input line entry allowed.

1. Data attribute record name..<R> BLG#DSAB
2. Contact name..... _____
3. Contact phone..... _____
4. Contact department..... _____
5. Location code..... _____
6. Description.....<R> PROBLEM DESCRIPTION _____

7. Copy assisted-entry panel..... BLG6DSAB

8. ODBC column name..... _____
9. Field prompt..... _____

When you finish, type END to save or CANCEL to discard any changes.

====> ;end
    
```

Type **9** and press **Enter** to file the record.

```

BLG0VU70          DATA ATTRIBUTE SUMMARY          RECORD: BLG#DSAB

Contact name..... _____      Entry priv. class..... _____
Contact phone..... _____      Date entered..... _____
Contact dept..... _____        Time entered..... _____
Location code..... _____        Date last altered..... _____

Description..... PROBLEM DESCRIPTION
Field prompt..... _____

Select one of the following choices, or type END to save or CANCEL
to discard any changes.

1. Data attribute record.          6. Validation control data.
2. Response processing.           7. Panel display.
3. Structured word and            9. File record.
   validation collection.
4. Panel flow.                   10. Help text.
5. Validation data extended.      11. Validation data basic.

====> 9
    
```

You have created three data attribute records (BLG#REQN, BLG#STAT, and BLG#DSAB), one for each of the three fields to be included in the data model.

Build Data Attribute Records for Freeform Text Fields

In building this data attribute record, you may want to add freeform text information. Again, you need to obtain some information to be added to the data attribute record. In order to obtain this information, you will need to go through the steps to update a problem record and flow to the panel which precedes entering freeform text.

From the Primary Options Menu, type **7** and press **Enter** for the Utility function.

Creating a Data Model of a Problem Record

```
BLG0EN20          --- PRIMARY OPTIONS MENU ---      APPLICATION: MANAGEMENT

OPTIONS:

  1. OVERVIEW.....Display general information and product enhancements.
  2. PROFILE.....Display or alter invocation or session defaults.
  3. APPLICATION...Change application, list available applications.
  4. CLASS.....Change current class, list available classes.
  5. ENTRY.....Create a record.
  6. INQUIRY.....Search for records.
  7. UTILITY.....Copy, display, print, delete, and update records.
  8. GLOSSARY.....Display a list of searchable words in the database.
  9. PMF.....Modify or create panels.

      Select an option, enter a command, or type QUIT to exit.

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====> 7
```

Type **5** and press **Enter** to update the problem record that you created earlier.

```
+ BLG1UT00 ----- UTILITY -----+
|
| RECORD UTILITY DIALOG ENTERED, SELECT ITEM
|
|  1. DISPLAY.....Display a record in a database.
|  2. PRINT.....Print an existing record.
|  3. COPY.....Create a duplicate of an original record.
|  4. DELETE.....Delete a record from a database.
|  5. UPDATE.....Update an existing record.
|
|----- SELECT ITEM -----+

====> 5
```

Provide the record identifier, which in this example, was a record ID of **00000001**.

```

BLG1UT01                UTILITY ENTRY DIALOG                UTILITY
Enter UTILITY information; cursor placement or input line entry allowed.

1. Database.....<R> 5
2. Record ID.....<R> 00000001

To start the function, press Enter without field modification.

===>
    
```

Type **8** and press **Enter** to begin freeform text entry.

```

BLG0BU00                PROBLEM SUMMARY                PROBLEM: 00000001
Reported by..... SMITH                Problem status..... INITIAL
Assignee name..... _____          Current phase..... _____
Tracked by..... _____             Current priority..... _____
Network name..... _____            Owning priv. class..... _____
System name..... _____             Entry priv. class..... _____
Program name..... _____            Date entered..... _____
Device name..... _____              Time entered..... _____
Key item affected..... _____         Date last altered..... _____

Description..... SAMPLE DESCRIPTION

Select one of the following, type END to save your changes, or type CANCEL
to discard your changes.
1. Reporter data.                6. Supplemental data.
2. Status data.                  7. Synopsis data.
3. Close data.                   8. Freeform text.
4. Symptom data.                 9. File record.
5. Resolution data.              10. Create solution and file record.

===> 8
    
```

From panel BLG0B010, type **1** and press **Enter** to enter freeform description. Note the panel name, BLG0B010.

```

+ BLG0B010 ----- PROBLEM TEXT ENTRY ----- 1 OF 1--+
|
|          PROBLEM TEXT DIALOG ENTERED, SELECT OPTION
|
|  OPTIONS:
|
|    1. DESCRIPTION...Enter freeform description of problem.
|    2. STATUS.....Enter status, running commentary, etc.
|    3. RESOLUTION....Enter freeform resolution description.
|    4. ADDRESS.....Physical location of the problem.
|    5. END.....Freeform text entry dialog is complete.
|
+----- SELECT OPTION -----+

===> 1
    
```



```

BLGOV700          DATA ATTRIBUTE RECORD ENTRY          RECORD: DES#TEXT
Enter data attribute record data; cursor placement or input line entry allowed.

1. Data attribute record name..<R> DES#TEXT
2. Contact name..... _____
3. Contact phone..... _____
4. Contact department..... _____
5. Location code..... _____
6. Description.....<R> FREEFORM TEXT DESCRIPTION _____

7. Copy assisted-entry panel..... _____

8. ODBC column name..... _____
9. Field prompt..... _____
   When you finish, type END to save or CANCEL to discard any changes.

===> ;end
    
```

On panel BLGOVU70 type **2** and press **Enter** for Response processing.

```

BLGOVU70          DATA ATTRIBUTE SUMMARY          RECORD: DES#TEXT

Contact name..... _____   Entry priv. class..... _____
Contact phone..... _____   Date entered..... _____
Contact dept..... _____   Time entered..... _____
Location code..... _____   Date last altered..... _____

Description..... FREEFORM TEXT DESCRIPTION
Field prompt..... _____

Select one of the following choices, or type END to save or CANCEL
to discard any changes.

    1. Data attribute record.      6. Validation control data.
    2. Response processing.        7. Panel display.
    3. Structured word and        9. File record.
       validation collection.
    4. Panel flow.                10. Help text.
    5. Validation data extended.  11. Validation data basic.

===> 2
    
```

On panel BLGOV710 type **16** and press **Enter** to indicate that this is freeform text.

Creating a Data Model of a Problem Record

```
BLG0V710                RESPONSE PROCESSING                RECORD: DES#TEXT

Enter response control data; cursor placement or input line entry allowed.

1. Reply value (create)..... ___ 11. Collect as string data... ___
2. Reply value (inquiry).... ___ 12. Data is a date..... ___
3. Reply value meaning..... ___ 13. Data type..... ___
4. Replace previous reply... ___ 14. Data is direct add data.. ___
5. Journal reply..... ___ 15. Data is list data..... ___
6. Journal sequence..... ___ 16. Data is freeform text.... ___
7. Cognize response..... ___ 17. Prefix index..... ___
8. Cognize only p-word..... ___   Prefix word..... ___
9. Force search on 'any'.... ___   Validation..... ___
10. OR operator allowed..... ___ 18. Case-sensitive validation? ___
                                   19. Collected data case ..... ___
                                   20. Cognize in mixed case?... ___
                                   21. Cognize unparsed string?.. ___
                                   22. Reply is always data..... ___

When you finish, type END to save or CANCEL to discard any changes.

====> 16
```

On panel BLG6TEXT type **yes** and press **Enter** to confirm that this is freeform text.

```
+ BLG6TEXT ----- FREEFORM TEXT ----- TEXT/--+
|
| USE...Identify if this record describes freeform text.
|
|
| REPLY: YES.....Yes, this record describes freeform text.
|          NO.....No, this record does not describe freeform
|          text.
|
+----- REPLY AS DEFINED -----+

====> yes
```

Field 16 is filled in as a result. Type **end** and press **Enter**.

```

BLG0V710                RESPONSE PROCESSING                RECORD: DES#TEXT

Enter response control data; cursor placement or input line entry allowed.

1. Reply value (create)..... ___ 11. Collect as string data... ___
2. Reply value (inquiry).... ___ 12. Data is a date..... ___
3. Reply value meaning..... ___ 13. Data type..... ___
4. Replace previous reply... ___ 14. Data is direct add data.. ___
5. Journal reply..... ___ 15. Data is list data..... ___
6. Journal sequence..... ___ 16. Data is freeform text.... yes
7. Cognize response..... ___ 17. Prefix index..... ___
8. Cognize only p-word..... ___   Prefix word..... ___
9. Force search on 'any'.... ___   Validation..... ___
10. OR operator allowed..... ___ 18. Case-sensitive validation? ___
                                   19. Collected data case ..... ___
                                   20. Cognize in mixed case?... ___
                                   21. Cognize unparsed string?.. ___
                                   22. Reply is always data..... ___

When you finish, type END to save or CANCEL to discard any changes.

====> ;end
    
```

On panel BLG0VU70 type **3** and press **Enter** for Structured word and validation collection.

```

BLG0VU70                DATA ATTRIBUTE SUMMARY            RECORD: DES#TEXT

Contact name..... _____ Entry priv. class..... ___
Contact phone..... _____ Date entered..... ___
Contact dept..... _____ Time entered..... ___
Location code..... _____ Date last altered..... ___

Description..... FREEFORM TEXT DESCRIPTION
Field prompt..... _____

Select one of the following choices, or type END to save or CANCEL
to discard any changes.

1. Data attribute record.        6. Validation control data.
2. Response processing.          7. Panel display.
3. Structured word and          9. File record.
   validation collection.
4. Panel flow.                  10. Help text.
5. Validation data extended.     11. Validation data basic.

====> 3
    
```

On page 554, the structured-word index for the Description was found to be **0E01**. On panel BLG0V720 type **1,0E01** and press **Enter** to fill in the structured word index field.

Creating a Data Model of a Problem Record

```
BLG0V720      STRUCTURED WORD AND VALIDATION COLLECTION      RECORD: DES#TEXT
Enter structured word data; cursor placement or input line entry allowed.

1. Structured word index..... ____
   Structured word..... _____
   Structured word acronym..... _____

Validation:
2. Record structured word index..... ____
   Record structured word..... _____
3. Record name..... _____
4. Data structured word index..... ____
   Data structured word..... _____
5. Description structured word index.. ____
   Description structured word..... _____

When you finish, type END to save or CANCEL to discard any changes.

====> 1,0E01
```

The structured word and structured word acronym fields now contain information found via the structured word index. When completed, type **;end** and press **Enter** to return to panel BLG0VU70.

```
BLG0V720      STRUCTURED WORD AND VALIDATION COLLECTION      RECORD: DES#TEXT
Enter structured word data; cursor placement or input line entry allowed.

1. Structured word index..... 0E01
   Structured word..... XIM0TX0S00
   Structured word acronym..... IM = SUBMI

Validation:
2. Record structured word index..... ____
   Record structured word..... _____
3. Record name..... _____
4. Data structured word index..... ____
   Data structured word..... _____
5. Description structured word index.. ____
   Description structured word..... _____

When you finish, type END to save or CANCEL to discard any changes.

====> ;end
```

On panel BLG0VU70 type **4** and press **Enter** for Panel flow.

```

BLG0VU70          DATA ATTRIBUTE SUMMARY          RECORD: DES#TEXT

Contact name..... _____  Entry priv. class..... _____
Contact phone..... _____  Date entered..... _____
Contact dept..... _____   Time entered..... _____
Location code..... _____  Date last altered..... _____

Description..... FREEFORM TEXT DESCRIPTION
Field prompt..... _____

Select one of the following choices, or type END to save or CANCEL
to discard any changes.

    1. Data attribute record.      6. Validation control data.
    2. Response processing.       7. Panel display.
    3. Structured word and       9. File record.
       validation collection.
    4. Panel flow.              10. Help text.
    5. Validation data extended. 11. Validation data basic.

===> 4
    
```

On panel BLG0V730 type **1,BLG1TDES** and press **Enter** to fill in the freeform text panel name (when creating data attribute records for other text fields, you can enter the name of any table panel that is set to collect freeform text).

```

BLG0V730          PANEL FLOW UPDATE          RECORD: DES#TEXT

Enter panel flow control data; cursor placement or input line entry allowed.

    1. Create target..... _____
    2. Inquiry target..... _____
    3. Return to caller..... _____
    4. Dialog end..... _____
    5. Force SRC generate end... _____
    6. Program exit name..... _____
    7. Help panel..... _____
    8. HTML help file..... _____
    9. Null reply..... _____
   10. Desktop associated TSP/TSX..... _____
   11. Desktop program exit..... _____

When you finish, type END to save or CANCEL to discard any changes.

===> 1,BLG1TDES
    
```

Note: Fields 8, 10, and 11 on BLG0V730 are unique to the Desktop. These fields are not currently supported for interactive host users.

After you have done this, type **;end,9** and press **Enter** to file the record.

Creating a Data Model of a Problem Record

```
BLG0V730                PANEL FLOW UPDATE                RECORD: DES#TEXT

Enter panel flow control data; cursor placement or input line entry allowed.

      1. Create target..... BLG1TDES
      2. Inquiry target..... _____
      3. Return to caller..... _
      4. Dialog end..... _
      5. Force SRC generate end... _
      6. Program exit name..... _____
      7. Help panel..... _____
      8. HTML help file..... _____
      9. Null reply..... _____
     10. Desktop associated TSP/TSX..... _____
     11. Desktop program exit..... _____

When you finish, type END to save or CANCEL to discard any changes.

====> ;end,9
```

Message BLG03058I confirms that the record was stored successfully.

At this point, you have completed building the data attribute record for freeform text. You have now completed four data attribute records:

- Reported by
- Problem status
- Description
- Freeform text

```
BLG0EN20                --- PRIMARY OPTIONS MENU ---    APPLICATION: MANAGEMENT

OPTIONS:

      1. OVERVIEW.....Display general information and product enhancements.
      2. PROFILE.....Display or alter invocation or session defaults.
      3. APPLICATION...Change application, list available applications.
      4. CLASS.....Change current class, list available classes.
      5. ENTRY.....Create a record.
      6. INQUIRY.....Search for records.
      7. UTILITY.....Copy, display, print, delete, and update records.
      8. GLOSSARY.....Display a list of searchable words in the database.
      9. PMF.....Modify or create panels.

      Select an option, enter a command, or type QUIT to exit.

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BLG03058I Record DES#TEXT was stored successfully.
====>
```

Stage 2 -- Build the Data View Record

The data view record is used by the API to define a record type and is quite similar to the static PIDT in function. Besides collecting all the fields, it also describes which fields are required. Assuming your API application must create, update, retrieve, and search for records of this type, at least two data view records should be created for your sample problem record:

- One for *create* where the selected fields are collected, and the required fields are marked as “required”.
- Another for *retrieve*, *inquiry*, and *update*, which includes the selected fields; none are marked as “required”.

For this example, you will create just one data view record.

On the Primary Options Menu BLG0EN20, type **5** and press **Enter**.

```

BLG0EN20          --- PRIMARY OPTIONS MENU ---    APPLICATION: MANAGEMENT
OPTIONS:
  1. OVERVIEW.....Display general information and product enhancements.
  2. PROFILE.....Display or alter invocation or session defaults.
  3. APPLICATION...Change application, list available applications.
  4. CLASS.....Change current class, list available classes.
  5. ENTRY.....Create a record.
  6. INQUIRY.....Search for records.
  7. UTILITY.....Copy, display, print, delete, and update records.
  8. GLOSSARY.....Display a list of searchable words in the database.
  9. PMF.....Modify or create panels.

      Select an option, enter a command, or type QUIT to exit.

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====> 5
    
```

On panel BLG00000, type **5** and press **Enter**.

```

+ BLG00000 -----ENTRY----- 1 OF 1--+
| USE....Identify the type of description (record) to be entered.
| 1.PROBLEM.....Enter data processing problem description.
| 2.CHANGE.....Enter change request for system/procedure.
| 3.CONFIG.....Enter description of system configuration,
|               financial data, or service organization.
| 4.RULES.....Enter description of escalation rules.
| 5.DATA MODEL.....Enter description of a data model.
| 6.PEOPLE.....Enter description of a person.
| 7.SOLUTION.....Enter solution record.
+----- SELECT ITEM -----+

====> 5
    
```

On panel BLG00040, type **1** and press **Enter**.

Creating a Data Model of a Problem Record

```

+ BLG00040 ----- DATA MODEL ENTRY ----- 1 OF 1-+
|
| USE....Identify the type of data model record to be entered.
|
| 1.DATA VIEW.....Enter Data View record description.
| 2.ATTRIBUTE.....Enter data attribute record description.
| 3.VALIDATION.....Enter validation record description.
|
+----- SELECT ITEM -----+

```

====> 1

You need to determine the record s-word.To do this, suspend this dialog, display the problem record you previously created, and enter the view internals command. For instance, type **;sus,display r 0000001,view internals** and press **Enter**.

```

BLG0V600          DATA VIEW RECORD ENTRY          RECORD: _____
Enter data view record data; cursor placement or input line entry allowed.

 1. Data view record name.....<R> AX19149_
 2. Contact name..... _____
 3. Contact phone..... _____
 4. Contact department..... _____
 5. Location code..... _____
 6. Record s-word index.....<R> _____ Record s-word.... _____
 7. Product s-word index..... _____ Product s-word... _____
 8. Default separator character.. _ Product Acronym.. _____
 9. Record access panel..... _____
10. Description.....<R> PROBLEM RECORD DATA VIEW _____

11. Create record file time TSP... _____
12. Update record file time TSP... _____
13. Allow ODBC access?..... _____
14. Child data view record name... _____

When you finish, type END to save or CANCEL to discard any changes.

====>;sus,display r 0000001,view internals

```

Note that the record s-word index is X'0032' where the visible phrase RECS=PROBLEM is collected.

Type **;res** and press **Enter** to return to panel BLG0V600.


```

BLG1TVID                                VIEW INTERNAL DATA                                LINE 1 OF 71
PANEL   PANEL REL COG-  FLAGS   SWORD  STRUCTURED  PREFIX WORD OR
NAME    TYP/RSP LEV NIZE F  M  D   INDEX   WORD        VISIBLE PHRASE
BLG0EN20 D/ 5   06 B/ 18/00/88 S002C  BA //S/TSI  ENTRY
SDDSROOT C/   00 N/ 12/04/10 S0000                                000000B4
BLG00000 S/ 1   06 B/ 18/04/08 S0032  BA //S/TXS  RECS=PROBLEM
BLG0B001 S/ 1   06 B/ 19/00/00 S0CFC  BC IMDIAENT0 REPORTER
BLG0B100 D/ 1   06 N/ 41/00/08 S0B59                                00000000
BLG6REQN A/ 2   06 B/U 00/04/00 S0B59  BC IM0I0PS00 PERS/WOOD
BLG0B100 D/13  06 N/ 41/00/00 S0C09                                00000000
BLG6PTYP A/ 2   06 B/U 00/04/00 S0C09  BC IMGCT0000 TYPE/TEST
BLG0B100 D/ 2   06 N/ 41/00/00 S0B9B                                00000000
BLG6RQDP A/ 2   06 B/U 00/04/00 S0B9B  BC IM0I0GS00 GROS/TEST
BLG0B100 D/14  06 N/ 41/00/08 S0BEE                                00000000
BLG6STAT A/ 2   06 B/U 00/04/08 S0BEE  BC IMS0SSC00 STAC/OPEN

Type DOWN or UP to scroll the panel, or type END to exit the panel.

====> ;res
    
```

Provide the information that you know on the data view record entry panel, BLG0V600. (The value of Field 6, the Record s-word index, was obtained from the VIEW INTERNALS command.) When you have provided this information, type **;end** and press **Enter**.

```

BLG0V600                                DATA VIEW RECORD ENTRY                                RECORD: AX19149
Enter data view record data; cursor placement or input line entry allowed.

1. Data View record name.....<R> AX19149_
2. Contact name.....
3. Contact phone.....
4. Contact department.....
5. Location code.....
6. Record s-word index.....<R> 0032      Record s-word.... Z//S/TXS
7. Product s-word index.....           Product s-word...
8. Default separator character... _      Product Acronym..
9. Record access panel.....
10. Description.....<R> PROBLEM RECORD DATA VIEW

11. Create record file time TSP...
12. Update record file time TSP...
13. Allow ODBC access?.....
14. Child data view record name...

When you finish, type END to save or CANCEL to discard any changes.

====> ;end
    
```

If you want to define any authorization codes for any transactions within the APIs, type **2** and press **Enter** on the BLG0VU60 panel. This restricts unauthorized users from accessing the records for those transactions.

Creating a Data Model of a Problem Record

```
BLG0VU60          DATA VIEW SUMMARY          RECORD: AX19149

Contact name..... _____      Entry priv. class..... _____
Contact phone..... _____      Date entered..... _____
Contact dept..... _____        Time entered..... _____
Location code..... _____        Date last altered..... _____

Description..... PROBLEM RECORD DATA VIEW

      Select one of the following choices, or type END to save or CANCEL
      to discard any changes.

          1. Data view record.          4. Desktop tables.
          2. Authorization codes.       5. Desktop field groups.
          3. Data attribute records.     6. Desktop panel layouts.

                                   9. File record.

====> 2
```

These codes are equivalent to those specified in the CODE field when running the utility BLGUT8. The following codes are for problem records:

- Create = 0110
- Update = 0120
- Display = 0140
- Inquiry = 0140

If any other value (or no value) is specified, no one will be allowed access. Then type **;end** and press **Enter**.

```
BLG0V610          AUTHORIZATION CODE ENTRY    RECORD: AX19149

Enter authorization code data; cursor placement or input line entry allowed.

          1. Create authorization code..... 0110
          2. Update authorization code..... 0120
          3. Retrieve authorization code... 0140
          4. Inquiry authorization code.... 0140

      When you finish, type END to save or CANCEL to discard any changes.

====> ;end
```

On panel BLG0VU60, type **3** and press **Enter** to enter the Data Attribute RNIDs.

```

BLG0VU60                DATA VIEW SUMMARY                RECORD: AX19149

Contact name..... _____  Entry priv. class..... _____
Contact phone..... _____  Date entered..... _____
Contact dept..... _____   Time entered..... _____
Location code..... _____   Date last altered..... _____

Description..... PROBLEM RECORD DATA VIEW

Select one of the following choices, or type END to save or CANCEL
to discard any changes.

    1. Data view record.          4. Desktop tables.
    2. Authorization codes.      5. Desktop field groups.
    3. Data attribute records.    6. Desktop panel layouts.
    9. File record.

====> 3
    
```

On panel BLGLDATT, type the record IDs of the data attribute records associated with this data view record.

```

BLGLDATT                DATA ATTRIBUTE RECORDS ENTRY        LINE 1 OF 9

USE...Enter a list of data attribute records included in this data model.
FORM...Record ID of data attribute record.

                                RECORD: AX19149

      Data      Reply   Not   Auth   Description   ODBC
      Attribute  Req     Logic Code          Column
      Record ID  _____  _____  _____  _____  Name
.....
.....
.....
.....
.....
.....
.....
.....
.....
.....

Line Cmds: A=After B=Before C=Copy D=Delete E=Erace I=Insert
           L=Line Entry M=Move R=Repeat
Type DOWN, UP, LEFT, or RIGHT to scroll the panel, or type END to exit.

====>
    
```

1. In the Data Attribute Record ID column, type **BLG#REQN**, **BLG#STAT**, **BLG#DSAB** (or whatever you chose for record IDs) on separate rows.
2. In the Reply Required column for each Data Attribute Record ID, indicate whether you want to require the user to enter data in those fields. If you are creating a data view record for a Create, Update, or Inquiry function, you can also require specific values:

Note: Note that any of these values that contains an **I** means that an argument must be specified for that field when doing an inquiry; this may limit flexibility.

- C** Create only
- U** Update only
- I** Inquiry only
- CU** Create and Update

Creating a Data Model of a Problem Record

CI Create and Inquiry

UI Update and Inquiry

CUI All functions (in previous releases, this is equivalent to specifying **YES**)

- In the Not Logic column for each Data Attribute Record ID, type **YES** in the Not Logic column if you want a not sign to be placed in front of any data the user enters within the API when searching (this is not a common occurrence). This field is equivalent to the not logic indicator specified when running the utility BLGUT8.
- Type **DES#TEXT** in the Data Attribute Record ID column for description text.

```

BLGLDATT          DATA ATTRIBUTE RECORDS ENTRY          LINE 1 OF 9

USE...Enter a list of data attribute records included in this data model.
FORM...Record ID of data attribute record.

                                           RECORD: AX19149

      Data
Attribute  Reply  Not  Auth  Description  ODBC
Record ID  Req   Logic Code
..... BLG#REQN  YES   ___   ___   PROBLEM REPORTER_____
..... BLG#STAT  YES   ___   ___   PROBLEM STATUS_____
..... BLG#DSAB  YES   ___   ___   PROBLEM DESCRIPTION_____
..... DES#TEXT  ___   ___   ___   FREEFORM TEXT DESCRIPTION_____
.....
.....
.....

Line Cmds: A=After B=Before C=Copy D=Delete E=Erace I=Insert
           L=Line Entry M=Move R=Repeat
Type DOWN, UP, LEFT, or RIGHT to scroll the panel, or type END to exit.

====>
  
```

The Description fields now contain information from the data attribute records.

Type **;end** and press **Enter** to complete this process.

```

BLGLDATT          DATA ATTRIBUTE RECORDS ENTRY          LINE 1 OF 9

USE...Enter a list of data attribute records included in this data model.
FORM...Record ID of data attribute record.

                                           RECORD: AX19149

      Data
Attribute  Reply  Not  Auth  Description  ODBC
Record ID  Req   Logic Code  Name
..... BLG#REQN  YES   ___   ___   PROBLEM REPORTER_____
..... BLG#STAT  YES   ___   ___   PROBLEM STATUS_____
..... BLG#DSAB  YES   ___   ___   PROBLEM DESCRIPTION_____
..... DES#TEXT  ___   ___   ___   FREEFORM TEXT DESCRIPTION_____
.....
.....
.....

ine Cmds: A=After B=Before C=Copy D=Delete E=Erace I=Insert
           L=Line Entry M=Move R=Repeat
Type DOWN, UP, LEFT, or RIGHT to scroll the panel, or type END to exit.

====> ;end
  
```

Type **9** and press **Enter** to file the record.

```

BLG0VU60          DATA VIEW SUMMARY          RECORD: AX19149

Contact name..... _____  Entry priv. class..... _____
Contact phone..... _____  Date entered..... _____
Contact dept..... _____  Time entered..... _____
Location code..... _____  Date last altered..... _____

Description..... PROBLEM RECORD DATA VIEW

Select one of the following choices, or type END to save or CANCEL
to discard any changes.

    1. Data view record.          4. Desktop tables.
    2. Authorization codes.      5. Desktop field groups.
    3. Data attribute records.   6. Desktop panel layouts.
    9. File record.

====> 9
    
```

Note the confirmation message BLG03058I indicating that Record AX19149 was stored successfully.

```

BLG0EN20          --- PRIMARY OPTIONS MENU ---  APPLICATION: MANAGEMENT

OPTIONS:

    1. OVERVIEW.....Display general information and product enhancements.
    2. PROFILE.....Display or alter invocation or session defaults.
    3. APPLICATION....Change application, list available applications.
    4. CLASS.....Change current class, list available classes.
    5. ENTRY.....Create a record.
    6. INQUIRY.....Search for records.
    7. UTILITY.....Copy, display, print, delete, and update records.
    8. GLOSSARY.....Display a list of searchable words in the database.
    9. PMF.....Modify or create panels.

Select an option, enter a command, or type QUIT to exit.

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BLG03058I Record AX19149  was stored successfully.
====>
    
```

This concludes the second stage. In the first stage, you built data attribute records for required fields and freeform text. In this, the second stage, you built the data view record.

Stage 3 -- Using Data Attribute Records to Replace Assisted-Entry Panels

You can use the data attribute record instead of the assisted-entry panel so that if you update the data attribute, you can just update the record and not modify the assisted-entry panel. This, in fact, makes the assisted-entry panel unnecessary.

Just do a panel xref report on the three assisted-entry panels (BLG6REQN, BLG6STAT, and BLG6DSAB) that were identified in “Stage 1 -- Creating Data Attribute Records” on page 541. Then modify each panel listed in the report to point to the data attribute record instead of the assisted-entry panel.

Creating a Data Model of a Problem Record

For this example, you will update the create/update panels.

From the primary options menu, BLG0EN20, type **9,1,1,blg0b100,2,rpanels,,4** and press **Enter** to update panel BLG0B100.

Note: This assumes that the panel is in your RPANELS data set. You may need to substitute the name of another data set.

Update the REPORTED BY field, which is field 1.

```
BLM1TSU7                CONTROL LINE SUMMARY                LINE 1 OF 29

CONTROL                FIELD      WORD  PREF  AUTH  TARGET  REPLY PROGRAM
LINE                  TYPE      INDEX INDEX CODE  PANEL  REQD  EXIT

'' COMMON LINE
'' NULL ENTRY          000B  0000  0000  BLG0BU00 NO    BLG02024
'' PROBLEM: _____ DISPLAY  0000  01E9  0000
U' 1. Reported by....  ENTRY   0B59  0000  0000  BLG6REQN YES
'' 13. Problem type... ENTRY   0C09  0000  0000  BLG6PTYP NO
'' 2. Reporter dept... ENTRY   0B9B  0000  0000  BLG6RQDP NO
'' 14. Problem status. ENTRY   0BEE  0000  0000  BLG6STAT YES
'' 3. Reporter phone.. ENTRY   0B2D  0000  0000  BLG6PHON NO
'' 15. User problem nu ENTRY   000A  01E9  0000  BLG6URN0 NO
'' 4. Date occurred... ENTRY   0C3D  0000  0000  BLG6OCCD NO
'' 16. Initial priorit ENTRY   0BE6  0000  0000  BLG6PRII NO

Line Cnds: D=Delete U=Update
Type DOWN, UP, LEFT, or RIGHT to scroll the panel, or type END to exit.

====>
```

Type **1** and press **Enter** for Panel flow processing.

```
BLM8CU73                FIELD CONTROL SUMMARY                PANEL: BLG0B100

FIELD: 1. Reported by.....<R>  __

Dialog begin..... NO          Structured word index..... 0B59
Dialog end..... NO          Structured word..... XIM0I0PS00
Target panel..... BLG6REQN    Prefix word index..... 0000
Branch and link..... YES      Prefix word..... _____
Required field..... YES      Field type..... ENTRY
Authorization code.... 0000    Program exit symbol..... _____

Select one of the choices, or type END to save or CANCEL to discard changes.

1. Panel flow processing.
2. Data collection processing.

====> 1
```

Update field **3** for the Target panel.

```

BLM8CU7A                PANEL FLOW PROCESSING                PANEL: BLG0B100
Enter panel flow control data; cursor placement or input line entry allowed.

FIELD: 1. Reported by.....<R>  _

1. Authorization code..... 0000
2. Response required..... YES
3. Target panel..... BLG6REQN
4. Branch and link..... YES
5. Field type.....<R> ENTRY  _
6. Dialog begin..... NO_
7. Dialog end..... NO_
8. Override dialog target... NO_
9. Target is data entry.... NO_
10. Force SRC generate end... NO_
11. Program exit symbol.....  _

===> 3
    
```

On the assisted-entry panel for CREATE TARGET, type the data attribute RNID for the problem reporter (from your previous example, **BLG#REQN**). Then type **;end;** and press **Enter** to return to panel BLMITSU7.

```

+ BLM6CRTA ----- CREATE TARGET ----- NO PREFIX+
|
| USE....Enter target panel name to be displayed in create mode.
|
| FORM...AAAAAAA - 8 characters (alphanumeric, @, #, or $), one
|                  reply per entry.
|                  First character must be alphabetic.
|
| EXAMPLES: BLG0B000.....Reply.....blg0b000
|           BLG0C120.....Reply.....blg0c120
|           BLG0E000.....Reply.....blg0e000
|
+----- REPLY AS ILLUSTRATED -----+

===> blg#reqn
    
```

Update field 14 for Problem status.

Creating a Data Model of a Problem Record

```

BLM1TSU7                CONTROL LINE SUMMARY                LINE 1 OF 29

CONTROL LINE           FIELD TYPE           WORD INDEX  PREF INDEX  AUTH CODE  TARGET PANEL  REPLY REQD  PROGRAM EXIT

'' COMMON LINE
'' NULL ENTRY                000B 0000 0000  BLG0BU00  NO  BLG02024
'' PROBLEM: _____ DISPLAY  0000 01E9 0000
'' 1. Reported by.... ENTRY  0B59 0000 0000  BLG#REQN  YES
'' 13. Problem type... ENTRY  0C09 0000 0000  BLG6PTYT  NO
'' 2. Reporter dept... ENTRY  0B9B 0000 0000  BLG6RQDP  NO
u' 14. Problem status. ENTRY  0BEE 0000 0000  BLG6STAT  YES
'' 3. Reporter phone.. ENTRY  0B2D 0000 0000  BLG6PHON  NO
'' 15. User problem nu ENTRY  000A 01E9 0000  BLG6URN0  NO
'' 4. Date occurred... ENTRY  0C3D 0000 0000  BLG6OCCD  NO
'' 16. Initial priorit ENTRY  0BE6 0000 0000  BLG6PRII  NO

Line Cmds: D=Delete U=Update
Type DOWN, UP, LEFT, or RIGHT to scroll the panel, or type END to exit.

====>

```

Type **1** and press **Enter** for Panel flow processing.

```

BLM8CU73                FIELD CONTROL SUMMARY                PANEL: BLG0B100

FIELD: 14. Problem status..<R> __

Dialog begin..... NO           Structured word index..... 0B59
Dialog end..... NO           Structured word..... XIM0I0PS00
Target panel..... BLG6REQN     Prefix word index..... 0000
Branch and link..... YES       Prefix word..... _____
Required field..... YES       Field type..... ENTRY
Authorization code.... 0000     Program exit symbol..... _____

Select one of the choices, or type END to save or CANCEL to discard changes.

1. Panel flow processing.
2. Data collection processing.

====> 1

```

Type **3** and press **Enter** for Target panel.


```

BLM8CU7A                PANEL FLOW PROCESSING                PANEL: BLG0B100
Enter panel flow control data; cursor placement or input line entry allowed.

FIELD: 14. Problem status....<R>

1. Authorization code..... 0000
2. Response required..... YES
3. Target panel..... BLG6STAT
4. Branch and link..... YES
5. Field type.....<R> ENTRY ____
6. Dialog begin..... NO_
7. Dialog end..... NO_
8. Override dialog target... NO_
9. Target is data entry.... NO_
10. Force SRC generate end... NO_
11. Program exit symbol..... _____

===> 3
    
```

From the assisted-entry panel for Target panel, type the data attribute RNID for the problem status (from the previous example, BLG#STAT).

```

+ BLM6CRTA ----- CREATE TARGET ----- NO PREFIX+
|
| USE....Enter target panel name to be displayed in create mode.
|
| FORM...AAAAAAA - 8 characters (alphanumeric, @, #, or $), one
|                   reply per entry.
|                   First character must be alphabetic.
|
| EXAMPLES: BLG0B000.....Reply.....blg0b000
|           BLG0C120.....Reply.....blg0c120
|           BLG0E000.....Reply.....blg0e000
|
+----- REPLY AS ILLUSTRATED -----+

===> blg#stat
    
```

After this change, panel BLMUCU7A contains the updated information. Type ;end;end and press **Enter** to return to panel BLM1TSU7.

Creating a Data Model of a Problem Record

```
BLM8CU7A                PANEL FLOW PROCESSING                PANEL: BLG0B100

Enter panel flow control data; cursor placement or input line entry allowed.

FIELD: 14. Problem status...<R>

1. Authorization code..... 0000
2. Response required..... YES
3. Target panel..... BLG#STAT
4. Branch and link..... YES
5. Field type.....<R> ENTRY ____
6. Dialog begin..... NO_
7. Dialog end..... NO_
8. Override dialog target... NO_
9. Target is data entry.... NO_
10. Force SRC generate end... NO_
11. Program exit symbol..... _____

====> ;end,;end
```

Update field 25 for Description.

```
BLM1TSU7                CONTROL LINE SUMMARY                LINE 23 OF 29

CONTROL          FIELD          WORD  PREF  AUTH  TARGET  REPLY PROGRAM
LINE            TYPE          INDEX INDEX CODE  PANEL  REQD  EXIT

'' 22. Device impact.. ENTRY          0BE0 0000 0000  BLG6DIMP NO
'' 11. Date fix requir ENTRY          0C49 0000 0000  BLG6REQD NO
'' 23. User form numbe ENTRY          0D14 0000 0000  BLG6UPRN NO
'' 12. Time fix requir ENTRY          0C72 0000 0000  BLG6REQT NO
'' 24. Location code.. ENTRY          0C0C 0000 0000  BLG6PLOC NO
'' 26. Outage type.... ENTRY          0C13 0000 0000  BLG6OUTY NO
u' 25. Description.... ENTRY          0E0F 0000 0000  BLG6DSAB YES

Line Cnds: D=Delete U=Update
Type DOWN, UP, LEFT, or RIGHT to scroll the panel, or type END to exit.

====>
```

Type **1** and press **Enter** for Panel flow processing.

```

BLM8CU73                FIELD CONTROL SUMMARY                PANEL: BLG0B100

FIELD: 25. Description.....<R> _

Dialog begin..... NO                Structured word index..... 0E0F
Dialog end..... NO                Structured word..... XIM0TXCA00
Target panel..... BLG6DSAB        Prefix word index..... 0000
Branch and link..... YES          Prefix word.....
Required field..... YES          Field type..... ENTRY
Authorization code.... 0000        Program exit symbol.....

Select one of the choices, or type END to save or CANCEL to discard changes.

1. Panel flow processing.
2. Data collection processing.

====> 1
    
```

Update field 3 for Target panel.

```

BLM8CU7A                PANEL FLOW PROCESSING                PANEL: BLG0B100

Enter panel flow control data; cursor placement or input line entry allowed.

FIELD: 25. Description.....<R> _

1. Authorization code..... 0000
2. Response required..... YES
3. Target panel..... BLG6DSAB
4. Branch and link..... YES
5. Field type.....<R> ENTRY
6. Dialog begin..... NO
7. Dialog end..... NO
8. Override dialog target... NO
9. Target is data entry.... NO
10. Force SRC generate end... NO
11. Program exit symbol.....

====> 3
    
```

Type the data attribute RNID for the problem status (from the previous example, **BLG#DSAB**) and press **Enter**.

Creating a Data Model of a Problem Record

```
+ BLM6CRTA ----- CREATE TARGET ----- NO PREFIX-+
|
| USE...Enter target panel name to be displayed in create mode.
|
| FORM...AAAAAAAA - 8 characters (alphanumeric, @, #, or $), one
|                 reply per entry.
|                 First character must be alphabetic.
|
| EXAMPLES:  BLG0B000.....Reply.....blg0b000
|            BLG0C120.....Reply.....blg0c120
|            BLG0E000.....Reply.....blg0e000
|
+----- REPLY AS ILLUSTRATED -----+
```

====> blg#dsab

Type **;**end;**;**end and press **Enter** to return to panel BLM1TSU7.

```
BLM8CU7A                PANEL FLOW PROCESSING                PANEL: BLG0B100
Enter panel flow control data; cursor placement or input line entry allowed.
```

```
FIELD: 25. Description.....<R> _
1. Authorization code..... 0000
2. Response required..... YES
3. Target panel..... BLG#DSAB
4. Branch and link..... YES
5. Field type.....<R> ENTRY ____
6. Dialog begin..... NO_
7. Dialog end..... NO_
8. Override dialog target... NO_
9. Target is data entry.... NO_
10. Force SRC generate end... NO_
11. Program exit symbol..... _____
```

====> ;end,;end

Type **;**end,**6** and press **Enter** to file the panel. Copy the panel to your test panel data set.

```

BLM1TSU7                CONTROL LINE SUMMARY                LINE 23 OF 29

CONTROL          FIELD      WORD  PREF  AUTH  TARGET  REPLY PROGRAM
LINE            TYPE        INDEX INDEX CODE  PANEL  REQD  EXIT

'' 22. Device impact.. ENTRY      0BE0 0000 0000  BLG6DIMP NO
'' 11. Date fix requir ENTRY      0C49 0000 0000  BLG6REQD NO
'' 23. User form numbe ENTRY      0D14 0000 0000  BLG6UPRN NO
'' 12. Time fix requir ENTRY      0C72 0000 0000  BLG6REQT NO
'' 24. Location code.. ENTRY      0C0C 0000 0000  BLG6PLOC NO
'' 26. Outage type.... ENTRY      0C13 0000 0000  BLG6OUTY NO
'' 25. Description.... ENTRY      0E0F 0000 0000  BLG#DSAB YES

Line Cnds: D=Delete U=Update
Type DOWN, UP, LEFT, or RIGHT to scroll the panel, or type END to exit.

====> ;end,6
    
```

Now you can replace the freeform text collection in panel BLG0B010 to use your data attribute record DES#TEXT. You must alter BLG0B010 to flow to a control panel that will use the data attribute record. From the primary options menu, BLG0EN20, type **9,1,1,blg0b010,2,rpanels,,4** and press **Enter** to update panel BLG0B010.

Note: This assumes that the panel is in your RPANELS data set. You may need to substitute the name of another data set.

Update the control line which collects s-word X'0E01'.

```

BLM1TSU2                CONTROL LINE SUMMARY                LINE 1 OF 7

CONTROL          WORD  STRUCTURED  CREATE  INQUIRY  PROGRAM
LINE            INDEX   WORD        TARGET  TARGET   EXIT

'' COMMON LINE
'' NULL ENTRY      000A                BLG1A109
U' 1. DESCRIPTION  0E01  XIM0TX0S00  BLG1A109  BLG1TDES  BLG01208
'' 2. STATUS       0E02  XIM0TX0A00  BLG1A109  BLG1TSTT  BLG01208
'' 3. RESOLUTION   0E03  XIM0TX0R00  BLG1A109  BLG1TRES  BLG01208
'' 4. ADDRESS      0E07  XIM0TX0L00  BLG1A109  BLG1TADD  BLG01208
'' 5. END          000A                BLG1A109

Line Cnds: D=Delete U=Update
Type DOWN, UP, LEFT, or RIGHT to scroll the panel, or type END to exit.

====>
    
```

Type **1** and press **Enter** for Panel flow processing.

Creating a Data Model of a Problem Record

```
BLM8CU23                OPTION CONTROL SUMMARY                PANEL: BLG0B010

OPTION: 1. DESCRIPTION

Dialog begin..... YES          Structured word index..... 0E01
Dialog end..... NO             Structured word..... XIM0TX0S00
Create target..... BLG1A109     Apply not logic..... NO
Inquiry target..... BLG1TDES    Cognize response..... YES
Branch and link..... NO         Force SRC generate end... NO
Authorization code..... 0000     Program exit symbol..... BLG01208
Target is data entry.... NO

Select one of the choices, or type END to save or CANCEL to discard changes.

1. Panel flow processing.
2. Data collection processing.

====> 1
```

Clear field 3 and 10 (you can do this by typing **3,10**) to delete all of the control information.

```
BLM8CU2A                PANEL FLOW PROCESSING                PANEL: BLG0B010

Enter panel flow control data; cursor placement or input line entry allowed.

OPTION: 1. DESCRIPTION

1. Authorization code..... 0000
2. Create target..... BLG1A109
3. Inquiry target..... BLG1TDES
4. Branch and link..... NO_
5. Dialog begin..... YES
6. Dialog end..... NO_
7. Override dialog target... NO_
8. Target is data entry.... NO_
9. Force SRC generate end... NO_
10. Program exit symbol..... BLG01208

====> 3,-,10,-
```

Note that the Create target value is BLG1A109. Overtyping that value with a new control panel name, **BLGDTEXT**.

Freeform text cannot be called from a data-entry panel when included in a data attribute record. Therefore, you must create a control panel to call it.

Type **;end** and press **Enter** to return to panel BLM8CU23.

```

BLM8CU2A                PANEL FLOW PROCESSING                PANEL: BLG0B010
Enter panel flow control data; cursor placement or input line entry allowed.

OPTION: 1. DESCRIPTION

1. Authorization code..... 0000
2. Create target..... BLGDTEXT
3. Inquiry target..... _____
4. Branch and link..... NO_
5. Dialog begin..... YES
6. Dialog end..... NO_
7. Override dialog target... NO_
8. Target is data entry.... NO_
9. Force SRC generate end... NO_
10. Program exit symbol..... _____

===>
    
```

Type **2** and press **Enter** for Data collection processing.

```

BLM8CU23                OPTION CONTROL SUMMARY                PANEL: BLG0B010

OPTION: 1. DESCRIPTION

Dialog begin..... YES          Structured word index..... 0E01
Dialog end..... NO            Structured word..... XIM0TX0S00
Create target..... BLGDTEXT    Apply not logic..... NO
Inquiry target..... _____ Cognize response..... YES
Branch and link..... NO        Force SRC generate end.... NO
Authorization code..... 0000    Program exit symbol..... _____
Target is data entry.... NO

Select one of the choices, or type END to save or CANCEL to discard changes.

1. Panel flow processing.
2. Data collection processing.

===> 2
    
```

Type **3**, and press **Enter** to clear field 3.

Creating a Data Model of a Problem Record

```
BLM8CU2B          DATA COLLECTION PROCESSING          PANEL: BLG0B010
Enter collection control data; cursor placement or input line entry allowed.

OPTION: 1. DESCRIPTION

1. Structured word index... 0E01          Structured word.. XIM0TX0S00
2. Apply not logic..... NO_          Word acronym..... IM = SUBMIT TE
3. Cognize response..... YES
4. Replace previous reply.. NO_

When you finish, type END to save or CANCEL to discard any changes.

====> 3,-
```

Type **000A** and press **Enter** for BRANCH into field 1.

1,000A

```
BLM8CU2B          DATA COLLECTION PROCESSING          PANEL: BLG0B010
Enter collection control data; cursor placement or input line entry allowed.

OPTION: 1. DESCRIPTION

1. Structured word index... 0E01          Structured word.. XIM0TX0S00
2. Apply not logic..... NO_          Word acronym..... IM = SUBMIT TE
3. Cognize response..... _____
4. Replace previous reply.. NO_

When you finish, type END to save or CANCEL to discard any changes.

====> 1,000A
```

Note that the Structured word index now contains **000A**. File the panel.


```

BLM8CU2B          DATA COLLECTION PROCESSING          PANEL: BLG0B010
Enter collection control data; cursor placement or input line entry allowed.

OPTION: 1. DESCRIPTION

1. Structured word index... 000A          Structured word.. _____
2. Apply not logic..... NO_          Word acronym..... CODE - BRANCH
3. Cognize response..... _____
4. Replace previous reply.. NO_

When you finish, type END to save or CANCEL to discard any changes.

===>
    
```

A message confirming that the panel has been filed is received. Copy the panel to your test panel data set.

```

BLM8CU00          PANEL NAME ENTRY          UPDATE
Identify panel to be updated; cursor placement or input line entry allowed.

1. Panel name.....<R> BLG0B010
2. Data set definition label..... RPANELS_

To enter the panel update dialog, press Enter without field modifications.

BLM04015I Panel BLG0B010 was written to the WRITE panel data set.
===>
    
```

Now, you must create the new **BLGDTEXT** control panel needed for freeform text. This is because freeform text cannot be called from a data-entry panel when included in a data attribute panel.

From the primary options menu, **BLG0EN20**, type **9,1,1,blgdtext,,8,con** and press **Enter** to create a control panel.

Creating a Data Model of a Problem Record

```
BLG0EN20          --- PRIMARY OPTIONS MENU ---      APPLICATION: MANAGEMENT

OPTIONS:

  1. OVERVIEW.....Display general information and product enhancements.
  2. PROFILE.....Display or alter invocation or session defaults.
  3. APPLICATION...Change application, list available applications.
  4. CLASS.....Change current class, list available classes.
  5. ENTRY.....Create a record.
  6. INQUIRY.....Search for records.
  7. UTILITY.....Copy, display, print, delete, and update records.
  8. GLOSSARY.....Display a list of searchable words in the database.
  9. PMF.....Modify or create panels.

      Select an option, enter a command, or type QUIT to exit.

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====> 9,1,1,blgdtext,,8,con
```

Update the first control line.

```
BLM1TSCU          FUNCTION LINE SUMMARY          LINE 1 OF 1

  FUNC FUNC S-WORD PREFIX MULT APPLY AUTH TRUE  FALSE MESSAGE PROGRAM
  TYPE CODE INDEX INDEX B E NOT  CODE TARGET TARGET PANEL  EXIT/TSP
'1' **** ****  ****  **** * * *  **** ***** ***** ***** *****
u' FLOW 000A 0000 0000 N N N  0000 BLG1M118
** **** ****  ****  **** * * *  **** ***** ***** ***** *****

Line Cmds: A=After C=Copy D=Delete I=Insert M=Move R=Repeat U=Update
Type DOWN, UP, LEFT, or RIGHT to scroll the panel, or type END to exit.

====>
```

Type **1** and press **Enter** for Control line processing.

```

BLM8CU63                CONTROL LINE SUMMARY                PANEL: BLDTEXT

Control line type..... FLOW          S-word index..... 0000
Function code index.... 000A          Structured word..... _____
True target panel..... BLG1M118      Prefix word index.... 0000
False target panel..... _____   Prefix word..... _____
Begin multiple test.... NO           Validation..... _____
End multiple test..... NO            Program exit/TSP name... _____
Authorization code..... 0000         Apply not logic..... NO

Select one of the choices, or type END to save or CANCEL to discard changes.

1. Control flow processing.
2. Data collection processing.
3. Test data processing.

===> 1
    
```

Type your data attribute RNID in field 5 by typing **5,des#text** and then pressing **Enter**.

```

BLM8CU6A                CONTROL FLOW PROCESSING            PANEL: BLDTEXT

Enter control flow information; cursor placement or input line entry allowed.

1. Control line type....<R> FLOW
2. Function code index.... 000A      Function acronym... CODE - BRANCH
3. Dialog end..... NO_
4. Override dialog target... NO_
5. True target panel..... BLG1M118
6. False target panel..... _____
7. Authorization code..... 0000
8. Program exit/TSP name.... _____
9. Message panel..... _____

When you finish, type END to save or CANCEL to discard any changes.

===> 5,des#text
    
```

Note that field 5 contains the updated value. Type **;end;;end** and press **Enter** to return to BLM1TSCU.

Creating a Data Model of a Problem Record

```

BLM8CU6A                CONTROL FLOW PROCESSING                PANEL: BLDTEXT

Enter control flow information; cursor placement or input line entry allowed.

1. Control line type....<R> FLOW
2. Function code index..... 000A      Function acronym... CODE - BRANCH
3. Dialog end..... NO_
4. Override dialog target... NO_
5. True target panel..... DES#TEXT
6. False target panel..... _____
7. Authorization code..... 0000
8. Program exit/TSP name.... _____
9. Message panel..... _____

                When you finish, type END to save or CANCEL to discard any changes.

====> ;end,;end

```

Insert another control line after the one displayed.

```

BLM1TSCU                FUNCTION LINE SUMMARY                LINE 1 OF 1

  FUNC FUNC S-WORD PREFIX MULT APPLY AUTH TRUE  FALSE MESSAGE PROGRAM
  TYPE CODE INDEX  INDEX  B  E NOT  CODE TARGET TARGET PANEL  EXIT/TSP

' ' **** *  ****  **** * * *  **** *  **** *  **** *  **** *
I' FLOW 000A 0000 0000 N N N  0000 DES#TEXT
** **** *  ****  **** * * *  **** *  **** *  **** *  **** *

Line Cmds: A=After C=Copy D=Delete I=Insert M=Move R=Repeat U=Update
Type DOWN, UP, LEFT, or RIGHT to scroll the panel, or type END to exit.

====>

```

Type **1** and press **Enter** for control flow processing.

```

BLM8CU63                CONTROL LINE SUMMARY                PANEL: BLDTEXT

Control line type..... FLOW          S-word index..... ____
Function code index.... 000A          Structured word..... ____
True target panel..... BLG1M118       Prefix word index..... ____
False target panel..... _____   Prefix word..... ____
Begin multiple test.... NO            Validation..... ____
End multiple test..... NO             Program exit/TSP name... ____
Authorization code..... 0000          Apply not logic..... NO

Select one of the choices, or type END to save or CANCEL to discard changes.

1. Control flow processing.
2. Data collection processing.
3. Test data processing.

===> 1
    
```

Type the create target panel **blg1a109** noted on page 576 in the true target panel field 5 by typing **5,blg1a109**. (BLG1A109 is the panel that BLG0B010 flowed to after invoking freeform text). Then type **;end** and press **Enter** to return to BLM8CU63.

```

BLM8CU6A                CONTROL FLOW PROCESSING                PANEL: BLDTEXT

Enter control flow information; cursor placement or input line entry allowed.

1. Control line type....<R> FLOW
2. Function code index.... 000A      Function acronym... _____
3. Dialog end..... NO_
4. Override dialog target... ____
5. True target panel..... BLG1M118
6. False target panel..... _____
7. Authorization code..... 0000
8. Program exit/TSP name.... ____
9. Message panel..... _____

When you finish, type END to save or CANCEL to discard any changes.

===> 5,blg1a109
    
```

Then type **;end,;end,;end,6** and press **Enter** to file the panel. Copy the panel to your test panel data set.

Creating a Data Model of a Problem Record

```
BLM8CU63                CONTROL LINE SUMMARY                PANEL: BLDTEXT

Control line type..... FLOW          S-word index..... ____
Function code index.... 000A          Structured word..... _____
True target panel..... BLD1A109       Prefix word index..... ____
False target panel..... _____    Prefix word..... _____
Begin multiple test.... NO            Validation..... _____
End multiple test..... NO             Program exit/TSP name.... _____
Authorization code..... 0000           Apply not logic..... NO

Select one of the choices, or type END to save or CANCEL to discard changes.

1. Control flow processing.
2. Data collection processing.
3. Test data processing.

====> ;end,;end,;end,6
```

Now do a test to make sure that everything worked.

Create a problem record, and select each field to display your newly built assisted-entry panel using the data model records that you created.

```
BLG0EN20                --- PRIMARY OPTIONS MENU ---        APPLICATION: MANAGEMENT

OPTIONS:

1. OVERVIEW.....Display general information and product enhancements.
2. PROFILE.....Display or alter invocation or session defaults.
3. APPLICATION....Change application, list available applications.
4. CLASS.....Change current class, list available classes.
5. ENTRY.....Create a record.
6. INQUIRY.....Search for records.
7. UTILITY.....Copy, display, print, delete, and update records.
8. GLOSSARY.....Display a list of searchable words in the database.
9. PMF.....Modify or create panels.

Select an option, enter a command, or type QUIT to exit.

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====> 5
```

Type **1** and press **Enter** to enter a Problem.

```

+ BLG00000 -----ENTRY----- 1 OF 1+
|
| USE....Identify the type of description (record) to be entered.
|
| 1.PROBLEM.....Enter data processing problem description.
| 2.CHANGE.....Enter change request for system/procedure.
| 3.CONFIG.....Enter description of system configuration,
|               financial data, or service organization.
| 4.RULES.....Enter description of escalation rules.
| 5.DATA MODEL.....Enter description of a data model.
| 6.PEOPLE.....Enter description of a person.
| 7.SOLUTION.....Enter solution record.
|
+----- SELECT ITEM -----+

```

====> 1

Type **1** and press **Enter** for the assisted-entry panel for the Reported by field.

```

BLG0B100                PROBLEM REPORTER ENTRY                PROBLEM: _____
Enter problem reporter data; cursor placement or input line entry allowed.

 1. Reported by.....<R> _____ 13. Problem type..... _____
 2. Reporter dept..... _____ 14. Problem status....<R> _____
 3. Reporter phone.... _____ 15. User problem number.. _____
 4. Date occurred..... _____ 16. Initial priority.... _
 5. Time occurred..... _____ 17. Outage..... _____
 6. Network name..... _____ 18. Rerun time..... _____
 7. System name..... _____ 19. Network impact..... _____
 8. Program name..... _____ 20. System impact..... _____
 9. Device name..... _____ 21. Program impact..... _____
10. Key item affected... _____ 22. Device impact..... _____
11. Date fix required... _____ 23. User form number.... _____
12. Time fix required... _____ 24. Location code..... _____
                                26. Outage type..... _

25. Description.....<R> _____

====> 1

```

Type the name **roberts** and press **Enter**. (Because the panel name is BLG#REQN, you know that you are using the new data attribute *record* and not the assisted-entry *panel*.)

Creating a Data Model of a Problem Record

```
BLG1TPNL          DATA ATTRIBUTE PANEL DISPLAY TEXT          LINE 1 OF 12

Enter ;HELP for details on how to edit this text.

1  1...+....|....+....|....+....|....+....|....+....|....+....|....
2  BLG#REQN          REPORTER NAME          PERS/
3
4  USE...Enter name of the person entering problem, change, etc.
5
6  FORM...Up to 40 characters, including special characters and
7      embedded blanks. The entire value will be searchable as
8      a single piece of data. If you want to search or sort
9      records by last name, enter the last name first.
10
11  EXAMPLES: Janet Cooper-King..Reply.....Cooper-King Janet
12             Tim Johnson.....Reply.....Johnson Tim
13             Default.....Reply.....=
14
14          REPLY AS ILLUSTRATED

Line Cnds: A=After C=Copy D=Delete I=Insert M=Move R=Repeat
Type DOWN or UP to scroll the panel, or type END to exit.

====> roberts
```

Type **14** and press **Enter** for the assisted-entry field for the Problem status field.

```
BLG0B100          PROBLEM REPORTER ENTRY          PROBLEM: _____

Enter problem reporter data; cursor placement or input line entry allowed.

1. Reported by.....<R> ROBERTS_____
2. Reporter dept..... _____
3. Reporter phone..... _____
4. Date occurred..... _____
5. Time occurred..... _____
6. Network name..... _____
7. System name..... _____
8. Program name..... _____
9. Device name..... _____
10. Key item affected... _____
11. Date fix required... _____
12. Time fix required... _____
13. Problem type..... _____
14. Problem status...<R> _____
15. User problem number.. _____
16. Initial priority..... _____
17. Outage..... _____
18. Rerun time..... _____
19. Network impact..... _____
20. System impact..... _____
21. Program impact..... _____
22. Device impact..... _____
23. User form number..... _____
24. Location code..... _____
25. Description.....<R> _____
26. Outage type..... _____

====> 14
```

Type **initial** on the command line and then press **Enter**.


```

+ BLG#STAT ----- CURRENT STATUS ----- STAC/++
|
| USE....Specify the problem, change, or activity record status.
|
| NOTE...Any commands issued here must be preceded by a ';'.
|
|     REPLY: INITIAL...The record has been entered.
|             OPEN.....The record has been assigned or opened.
|             CLOSED...The record has been closed or completed.
|
+----- REPLY AS DEFINED -----+

===> initial
    
```

Type **25** and press **Enter** for the assisted-entry panel of the Description field.

```

BLG0B100                PROBLEM REPORTER ENTRY                PROBLEM: _____
Enter problem reporter data; cursor placement or input line entry allowed.

1. Reported by.....<R> ROBERTS _____    13. Problem type..... _____
2. Reporter dept..... _____            14. Problem status....<R> INITIAL
3. Reporter phone..... _____          15. User problem number.. _____
4. Date occurred..... _____          16. Initial priority.... _
5. Time occurred..... _____          17. Outage..... _____
6. Network name..... _____           18. Rerun time..... _____
7. System name..... _____            19. Network impact..... _____
8. Program name..... _____           20. System impact..... _____
9. Device name..... _____            21. Program impact..... _____
10. Key item affected... _____        22. Device impact..... _____
11. Date fix required... _____        23. User form number..... _____
12. Time fix required... _____        24. Location code..... _____
                                           26. Outage type..... _____

25. Description.....<R> _____

===> 25
    
```

Type some sample text such as **this is a test problem description** on the command line and then press **Enter**.

Creating a Data Model of a Problem Record

```
+ BLG#DSAB ----- DESCRIPTION ABSTRACT ----- FREEFORM -+
|
| USE...Enter description of record. Please note restrictions.
|
| FORM...Freeform textual data, maximum of 45 characters.
|
| NOTE...Any commands issued here must be preceded by a ';'.
|           Commas are not allowed and periods are treated as
|           blanks. Depending on your installation, words longer
|           than 16 or 32 characters will be truncated (for
|           inquiries only). Special characters are treated as
|           blanks.
|
+----- REPLY AS ILLUSTRATED -----+
```

====> this is a test problem description

Type **;end** and press **Enter** to go to panel BLG0BU00.

```
BLG0B100                PROBLEM REPORTER ENTRY                PROBLEM: _____
Enter problem reporter data; cursor placement or input line entry allowed.

1. Reported by.....<R> ROBERTS_____ 13. Problem type..... _____
2. Reporter dept..... _____      14. Problem status...<R> INITIAL
3. Reporter phone..... _____     15. User problem number.. _____
4. Date occurred..... _____      16. Initial priority..... _
5. Time occurred..... _____      17. Outage..... _____
6. Network name..... _____       18. Rerun time..... _____
7. System name..... _____        19. Network impact..... _____
8. Program name..... _____       20. System impact..... _____
9. Device name..... _____        21. Program impact..... _____
10. Key item affected... _____    22. Device impact..... _____
11. Date fix required... _____    23. User form number.... _____
12. Time fix required... _____    24. Location code..... _____
                                       26. Outage type..... _____

25. Description.....<R> this is a test problem description_____

====> ;end
```

Type **8** and press **Enter** for the Freeform text field.

```

BLG0BU00          PROBLEM SUMMARY          PROBLEM: _____
Reported by..... ROBERTS          Problem status..... INITIAL
Assignee name..... _____      Current phase..... _____
Tracked by..... _____        Current priority..... _
Network name..... _____      Owing priv. class..... _____
System name..... _____        Entry priv. class..... _____
Program name..... _____       Date entered..... _____
Device name..... _____        Time entered..... _____
Key item affected..... _____   Date last altered..... _____

Description..... this is a test problem description

Select one of the following, type END to save your changes, or type CANCEL
to discard your changes.
    1. Reporter data.              6. Supplemental data.
    2. Status data.               7. Synopsis data.
    3. Close data.                8. Freeform text.
    4. Symptom data.             9. File record.
    5. Resolution data.          10. Create solution and file record.

====> 8
    
```

Type **1** and press **Enter** to enter Description text.

```

+ BLG0B010 ----- PROBLEM TEXT ENTRY ----- 1 OF 1--+
|
|          PROBLEM TEXT DIALOG ENTERED, SELECT OPTION
|
|  OPTIONS:
|
|    1. DESCRIPTION...Enter freeform description of problem.
|    2. STATUS.....Enter status, running commentary, etc.
|    3. RESOLUTION...Enter freeform resolution description.
|    4. ADDRESS.....Physical location of the problem.
|    5. END.....Freeform text entry dialog is complete.
|
+----- SELECT OPTION -----+

====> 1
    
```

Type **This is freeform text** on the command line and then press **Enter**.


```

BLG0BU00                PROBLEM SUMMARY                PROBLEM: _____
Reported by..... ROBERTS                Problem status..... INITIAL
Assignee name..... _____            Current phase..... _____
Tracked by..... _____              Current priority..... _____
Network name..... _____            Owning priv. class..... _____
System name..... _____              Entry priv. class..... _____
Program name..... _____             Date entered..... _____
Device name..... _____              Time entered..... _____
Key item affected..... _____         Date last altered..... _____

Description..... this is a test problem description

Select one of the following, type END to save your changes, or type CANCEL
to discard your changes.
    1. Reporter data.                    6. Supplemental data.
    2. Status data.                     7. Synopsis data.
    3. Close data.                       8. Freeform text.
    4. Symptom data.                    9. File record.
    5. Resolution data.                  10. Create solution and file record.

====> 9
    
```

Now display the record (by typing **display r xxxx,view internals** on the command line and pressing **Enter**) to see that all of the information was added.

```

BLG1TVID                VIEW INTERNAL DATA                LINE 1 OF 25
PANEL  PANEL  REL COG-  FLAGS  SWORD  STRUCTURED  PREFIX WORD OR
NAME   TYP/RSP  LEV NIZE F  M  D  INDEX  WORD        VISIBLE PHRASE
BLG0EN20 D/ 5   06 B/ 18/00/88 S002C  BA //S/TSI  ENTRY
SDDSR00T C/   00 N/ 12/04/10 S0000
BLG00000 S/ 1   06 B/ 18/04/08 S0032  BA //S/TXS  RECS=PROBLEM
BLG0B001 S/ 1   06 B/ 19/00/00 S0CFC  BC IMDIAENT0 REPORTER
BLG0B100 D/ 1   06 N/ 41/00/08 S0B59
BLG#REQN A/ 2   06 B/U 00/04/08 S0B59  BC IM0I0PS00 PERS/ROBERTS
BLG0B100 D/14  06 N/ 41/00/08 S0BEE
BLG#STAT A/ 2   06 B/U 00/04/08 S0BEE  BC IMS0SSC00 STAC/INITIAL
BLG0B100 D/25  06 N/ 41/00/08 S0E0F
BLG#DSAB A/ 2   06 B/ 00/04/08 S0E0F  BC IM0TXCA00 this is a test problem
                                                description
BLG0B100 D/ E   06 N/ 01/00/00 S000B

Type DOWN or UP to scroll the panel, or type END to exit the panel.

====>
    
```

Stage 4 -- Data Attribute Records for Direct Add Fields

Up to this time, you have used “panel processing” to build your sample record. You have not changed any of the file processing for the sample record. In the following steps, you will create direct add fields which are added to the record during file processing.

Note: If data attribute records are used as direct add fields, then normal file processing is not performed for change records when change approval processing is being performed. That is, if ALL of these five direct adds—DATE/, TIME/, CLAE/, DATM/, and TIMM/—are changed to data attribute records, then date modified, time modified, and user ID are not saved in the record.

In the previous stages, you relied on “traditional” panel processing. Now you are preparing to bypass panel processing by adding new data attribute records for the direct add records.

Creating a Data Model of a Problem Record

You can use the concept of bypass panel processing only with the APIs. Refer to the *Tivoli Information Management for z/OS Application Program Interface Guide* for more information on bypass panel processing.

Next, you will find the file information. Display the view internals for any problem record you have previously created. For example, type **display r 00000001,view internals** and press **Enter**.

```
BLG0EN20          --- PRIMARY OPTIONS MENU ---      APPLICATION: MANAGEMENT

OPTIONS:

  1. OVERVIEW.....Display general information and product enhancements.
  2. PROFILE.....Display or alter invocation or session defaults.
  3. APPLICATION....Change application, list available applications.
  4. CLASS.....Change current class, list available classes.
  5. ENTRY.....Create a record.
  6. INQUIRY.....Search for records.
  7. UTILITY.....Copy, display, print, delete, and update records.
  8. GLOSSARY.....Display a list of searchable words in the database.
  9. PMF.....Modify or create panels.

      Select an option, enter a command, or type QUIT to exit.

      Tivoli Information Management for z/OS Version 7 Release 1
      5697-SD9 (C) Copyright IBM Corp., 1981, 2001.
====> display r 00000001,view internals
```

You are looking for data that is entered at file time. This panel does not contain the information you need; scroll to the next panel.

```
BLG1TVID          VIEW INTERNAL DATA          LINE 1 OF 26

PANEL   PANEL  REL COG-  FLAGS  SWORD  STRUCTURED  PREFIX WORD OR
NAME    TYP/RSP  LEV NIZE  F  M  D  INDEX   WORD        VISIBLE PHRASE

BLG0EN20 D/ 5   06  B/ 18/00/88 S002C  BA //S/TSI  ENTRY
SDDSR00T C/   00  N/ 12/04/10 S0000                0000002B
BLG00000 S/ 1   06  B/ 18/04/00 S0032  BA //S/TXS  RECS=PROBLEM
BLG0B001 S/ 1   06  N/ 19/00/00 S0CFC  BC IMDIAENT0 REPORTER
BLG0B100 D/ 1   06  N/ 41/00/00 S0B59                BC IM0I0PS00 PERS/F027
BLG6REQN A/ 2   06  B/U 00/04/00 S0B59  BC IM0I0PS00 PERS/F027
BLG0B100 D/14  06  N/ 41/00/00 S0BEE                BC IMS0SSC00 STAC/OPEN
BLG6STAT A/ 2   06  B/U 00/04/00 S0BEE  BC IMS0SSC00 STAC/OPEN
BLG0B100 D/25  06  N/ 41/00/00 S0E0F                BC IM0TXCA00 D460 TEST - CLAE=PART00
BLG6DSAB A/ 2   06  B/ 00/04/00 S0E0F                1
BLG0B100 D/ E   06  N/ 01/00/04 S000B

      Type DOWN or UP to scroll the panel, or type END to exit the panel.

====>
```

This panel shows that panel BLG1A111 adds data entered at file time. The s-word for the date is X'0C34'. Display panel BLG1A111 in PMF by typing **;init,9,1,1,blg1a111,,1,con** and pressing **Enter**.

```

BLG1TVID                                VIEW INTERNAL DATA                                LINE 13 OF 26

PANEL  PANEL REL COG-  FLAGS  SWORD  STRUCTURED  PREFIX WORD OR
NAME    TYP/RSP LEV NIZE F  M  D  INDEX  WORD        VISIBLE PHRASE

BLGSDBCP D/ 9  06 N/ 19/00/54 S0CF1  BC ISSCPN009 File record
BLG1A111 C/ 2  06 B/U 0C/00/00 S0C34  BC IM00SDC00 DATE/02/01/1998
BLG1A111 C/ 2  06 B/U 0C/00/00 S0C61  BC IM00STC00 TIME/13:58
BLG1A111 C/ 2  06 B/U 0C/00/00 S0BB1  BC IM010CCS0 CLAE/PART001
BLG1A111 C/ 2  06 B/U 0D/00/00 S0C35  BC IM00SDM00 DATM/02/01/1998
BLG1A111 C/ 2  06 B/U 0D/00/00 S0C62  BC IM00STM00 TIMM/13:58
BLG1A111 C/ 2  06 B/U 0D/00/00 S0B5E  BC IM010PM00 USER/F027
BLG1A111 C/ 2  06 B/U 0D/00/00 S0D90  BC PROBN0D90 ESCL/1
BLG1A115 C/ 2  00 N/ 0D/04/10 S0000  BC ISRAC3010 5
BLGCFILE S/  00 B/ 99/04/10 S0000  BC ISSCPR002 MANAGEMENT
BLGCPITD A/ 2  00 B/U 8D/04/10 S0174  BC IM010CPO  PTID/001
BLGCFILE C/ 2  00 N/ 8D/04/10 S0000  BC IM00SST00 AC5C2BB9CEFE0414

Type DOWN or UP to scroll the panel, or type END to exit the panel.

====> ;init,9,1,1,blg1a111,,1,con
    
```

Update the line that ADDs s-word X'0C34'.

```

BLM1TSCU                                FUNCTION LINE SUMMARY                                LINE 1 OF 17

FUNC  FUNC S-WORD  PREFIX  MULT  APPLY  AUTH  TRUE  FALSE  MESSAGE  PROGRAM
TYPE  CODE  INDEX  INDEX  B  E  NOT  CODE  TARGET  TARGET  PANEL  EXIT/TSP

'' **** * 0000 0561 N N N 0000 ***** B LGIACAN
'' FLOW 002A 0000 0340 Y N N 0000
'' TEST 0000 0000 0340 Y N N 0000
'' FLOW 001B 0000 0000 N Y N 0000 B LGTSPPE
'' TEST 0000 0000 0340 Y N Y 0000
'' FLOW 001B 0000 0000 N Y N 0000 B LGTSPPU
'' TEST 0000 0000 0340 Y N N 0000
U' ADD 0000 0C34 00D8 N N N 0000
'' ADD 0000 0C61 028B N N N 0000
'' ADD 0000 0BB1 007A N Y N 0000
'' FLOW 000B 0000 0000 N N N 0000 B LG01147
'' ADD 0000 0C35 00DF N N N 0000

Line Cmds: A=After C=Copy D=Delete I=Insert M=Move R=Repeat U=Update
Type DOWN, UP, LEFT, or RIGHT to scroll the panel, or type END to exit.

====>
    
```

Display the control information for the date to see data which you will add into the data attribute record.

Creating a Data Model of a Problem Record

```

BLM8CU6B          DATA COLLECTION PROCESSING          PANEL: BLG1A111

Enter 'add word' control data; cursor placement or input line entry allowed.

1. Structured word index.... 0C34      Structured word.... XIM00SDC00
2. Prefix index..... 00D8          Word acronym..... IM = CREATE DATE
3. Journal reply..... NO           Prefix word..... DATE/
4. Journal sequence..... ORDER      Validation..... =DATE
5. Cognize response..... YES
6. Cognize only p-word..... NO_
7. Replace previous reply... NO_
8. Data is a date..... NO_

          When you finish, type END to save or CANCEL to discard any changes.

====>

```

The following table summarizes fields and control information added by BLG1A111. The table also includes information for all direct add data attributes added at file time. You will work only with the Date Created attribute. The others are generated in the same manner.

Table 45. BLG1A111 Fields and Control Information

P-Word	P-Word Index	S-Word Index	Journal Reply	Journal Sequence	Replace Reply Data	Cognize Responses	Data is Direct Add
DATE/	00D8	0C34	No		No	Yes	Yes
TIME/	028B	0C61	No		No	Yes	Yes
CLAE/	007A	0BB1	No		No	Yes	Yes
DATM/	00DF	0C35	Yes	First	Yes	Yes	Yes
TIMM/	0291	0C62	Yes	First	Yes	Yes	Yes
USER/	02C4	0B5E	Yes	First	Yes	Yes	Yes
ESCL/	0444	0D90	Yes	Order	Yes	Yes	Yes

Begin the data attribute record dialog by typing **;init,5,5,2** and pressing **Enter** to go to panel BLG0V700.

On BLV0V700, type a record name (for example, DAT#CRTD) and a description. Then type **;end** and press **Enter** when you have provided this input.


```

BLG0V700          DATA ATTRIBUTE RECORD ENTRY          RECORD: DAT#CRTD
Enter data attribute record data; cursor placement or input line entry allowed.

1. Data attribute record name..<R> DAT#CRTD
2. Contact name..... _____
3. Contact phone..... _____
4. Contact department..... _____
5. Location code..... _____
6. Description.....<R> DATE CREATED _____

7. Copy assisted-entry panel..... _____

8. ODBC column name..... _____
9. Field prompt..... _____

When you finish, type END to save or CANCEL to discard any changes.

====> ;end
    
```

On panel BLG0VU70 type **2** and press **Enter** for Response processing.

```

BLG0VU70          DATA ATTRIBUTE SUMMARY          RECORD: DAT#CRTD

Contact name..... _____      Entry priv. class..... _____
Contact phone..... _____      Date entered..... _____
Contact dept..... _____      Time entered..... _____
Location code..... _____      Date last altered..... _____

Description..... DATE CREATED
Field prompt..... _____

Select one of the following choices, or type END to save or CANCEL
to discard any changes.

1. Data attribute record.          6. Validatiopn control data.
2. Response processing.            7. Panel display.
3. Structured word and            9. File record.
   validation collection.
4. Panel flow.                    10. Help text.
5. Validation data extended.       11. Validation data basic.

====> 2
    
```

On panel BLG0V710 type the values contained in Table 45 on page 594 regarding the DATE/ p-word. When you have finished, type **;end** and press **Enter** to return to panel BLG0VU70.

Creating a Data Model of a Problem Record

```
BLG0V710                RESPONSE PROCESSING                RECORD: DAT#CRTD

Enter response control data; cursor placement or input line entry allowed.

1. Reply value (create)..... ___      11. Collect as string data... ___
2. Reply value (inquiry).... ___      12. Data is a date..... ___
3. Reply value meaning..... ___      13. Data type..... ___
4. Replace previous reply... NO_      14. Data is direct add data.. YES
5. Journal reply..... NO_           15. Data is list data..... ___
6. Journal sequence..... ___        16. Data is freeform text.... ___
7. Cognize response..... YES       17. Prefix index..... 00D8
8. Cognize only p-word..... ___     Prefix word..... DATE/
9. Force search on 'any'.... ___     Validation.=DATE
10. OR operator allowed..... ___     18. Case-sensitive validation? ___
                                       19. Collected data case ..... ___
                                       20. Cognize in mixed case?... ___
                                       21. Cognized unparsed string?.. ___
                                       22. Reply is always data..... ___

When you finish, type END to save or CANCEL to discard any changes.

====> ;end
```

On panel BLG0VU70 type **3** and press **Enter**.

```
BLG0VU70                DATA ATTRIBUTE SUMMARY                RECORD: DAT#CRTD

Contact name..... _____      Entry priv. class..... ___
Contact phone..... _____      Date entered..... ___
Contact dept..... _____      Time entered..... ___
Location code..... _____      Date last altered..... ___

Description..... DESCRIPTION
Field prompt..... _____

Select one of the following choices, or type END to save or CANCEL
to discard any changes.

1. Data attribute record.           6. Validation control data.
2. Response processing.             7. Panel display.
3. Structured word and             9. File record.
   validation collection.
4. Panel flow.                     10. Help text.
5. Validation data extended.       11. Validation data basic.

====> 3
```

On panel BLG0V720 type **1,0C34** to fill in the structured word index (the s-word value **0C34** comes from Table 45 on page 594). When you have finished, type **;end** and press **Enter ;end** to return to panel BLG0VU70 so that you can file the record.

```

BLG0V720          STRUCTURED WORD AND VALIDATION COLLECTION          RECORD: DAT#CRTD
Enter structured word data; cursor placement or input line entry allowed.

      1. Structured word index..... 0C34
         Structured word..... XIM00SDC00
         Structured word acronym..... IM = CREAT

Validation:
      2. Record structured word index..... ____
         Record structured word..... _____
      3. Record name..... _____
      4. Data structured word index..... ____
         Data structured word..... _____
      5. Description structured word index.. ____
         Description structured word..... _____

When you finish, type END to save or CANCEL to discard any changes.

====> ;end
    
```

Next, you can build a data attribute record for some of the data collected when a record is being created. This is not really necessary, but the information can be added to make a record created with the API look more like one created interactively.

To do this, find the create dialog selection information. Type **5** and press **Enter** on panel BLG0EN20.

Note that s-word index X'002C' is collected; it is cognized.

Next, begin the data attribute record dialog by typing **;init,5,5,2** and pressing **Enter** to go to panel BLG0V700.

```

BLG1TVID          VIEW INTERNAL DATA          LINE 1 OF 1

PANEL  PANEL REL COG-  FLAGS  SWORD STRUCTURED  PREFIX WORD OR
NAME   TYP/RSP LEV NIZE F  M  D  INDEX   WORD          VISIBLE PHRASE

BLG0EN20 D/ 5  06 B/ 18/00/88 S002C  BA //S/TSI  ENTRY
*** BOTTOM OF DATA ***

Type DOWN or UP to scroll the panel, or type END to exit the panel.

====> ;init,5,5,2
    
```

Type the chosen record name (for example, CREATESD) and a description; then type **;end** on the command line and press **Enter**.

Creating a Data Model of a Problem Record

```
BLG0V700          DATA ATTRIBUTE RECORD ENTRY          RECORD: CREATESD

Enter data attribute record data; cursor placement or input line entry allowed.

1. Data attribute record name.<R> CREATESD
2. Contact name..... _____
3. Contact phone..... _____
4. Contact department..... _____
5. Location code..... _____
6. Description.....<R> S-WORD ADDED FOR CREATE DIALOG _____
7. Copy assisted-entry panel..... _____
8. ODBC column name..... _____
9. Field prompt..... _____

When you finish, type END to save or CANCEL to discard any changes.

====> ;end
```

On panel BLG0VU70, type **2** and press **Enter** for Response processing.

```
BLG0VU70          DATA ATTRIBUTE SUMMARY          RECORD: CREATESD

Contact name..... _____      Entry priv. class..... _____
Contact phone..... _____      Date entered..... _____
Contact dept..... _____        Time entered..... _____
Location code..... _____        Date last altered..... _____

Description..... S-WORD ADDED FOR CREATE DIALOG
Field prompt..... _____

Select one of the following choices, or type END to save or CANCEL
to discard any changes.

1. Data attribute record.          6. Validation control data.
2. Response processing.            7. Panel display.
3. Structured word and            9. File record.
   validation collection.
4. Panel flow.                    10. Help text.
5. Validation data extended.       11. Validation data basic.

====> 2
```

Type **7,yes** (to indicate that the response is cognized) and type **14,yes** (to indicate that this is direct add data). Then type **;end** and press **Enter** to return to panel BLG0VU70.

```

BLG0V710                RESPONSE PROCESSING                RECORD: CREATSD
Enter response control data; cursor placement or input line entry allowed.

1. Reply value (create)..... ___ 11. Collect as string data... ___
2. Reply value (inquiry).... ___ 12. Data is a date..... ___
3. Reply value meaning..... ___ 13. Data type..... ___
4. Replace previous reply... ___ 14. Data is direct add data.. ___
5. Journal reply..... ___ 15. Data is list data..... ___
6. Journal sequence..... ___ 16. Data is freeform text.... ___
7. Cognize response..... ___ 17. Prefix index..... ___
8. Cognize only p-word..... ___   Prefix word..... ___
9. Force search on 'any'.... ___   Validation..... ___
10. OR operator allowed..... ___ 18. Case-sensitive validation? ___
19. Collected data case ..... ___
20. Cognize in mixed case?... ___
21. Cognize unparsed string?.. ___
22. Reply is always data..... ___

When you finish, type END to save or CANCEL to discard any changes.
====> 7,yes,14,yes,;end
    
```

On panel BLG0VU70, type **3** and press **Enter**.

```

BLG0VU70                DATA ATTRIBUTE SUMMARY                RECORD: CREATSD

Contact name..... _____ Entry priv. class..... ___
Contact phone..... _____ Date entered..... ___
Contact dept..... _____ Time entered..... ___
Location code..... _____ Date last altered..... ___

Description..... S-WORD ADDED FOR CREATE DIALOG
Field prompt..... _____

Select one of the following choices, or type END to save or CANCEL
to discard any changes.

1. Data attribute record.        6. Validation control data.
2. Response processing.          7. Panel display.
3. Structured word and          9. File record.
   validation collection.
4. Panel flow.                  10. Help text.
5. Validation data extended.     11. Validation data basic.

====> 3
    
```

On panel BLG0V720, type **1,002c** in the structured word index field); then type **;end** and press **Enter**.

Creating a Data Model of a Problem Record

```
BLG0V720      STRUCTURED WORD AND VALIDATION COLLECTION      RECORD: CREATESD
Enter structured word data; cursor placement or input line entry allowed.

1. Structured word index..... 002C
   Structured word..... _____
   Structured word acronym..... _____

Validation:
2. Record structured word index..... ____
   Record structured word..... _____
3. Record name..... _____
4. Data structured word index..... ____
   Data structured word..... _____
5. Description structured word index.. ____
   Description structured word..... _____

When you finish, type END to save or CANCEL to discard any changes.

====>
```

The Structured word and Structured word acronym are filled in a result of having provided the Structured word index on the previous panel. Type **;end** and press **Enter** to return to panel BLG0VU70.

```
BLG0V720      STRUCTURED WORD AND VALIDATION COLLECTION      RECORD: CREATESD
Enter structured word data; cursor placement or input line entry allowed.

1. Structured word index..... 002C
   Structured word..... Z//S/TSI
   Structured word acronym..... VI=IDEN-TS

Validation:
2. Record structured word index..... ____
   Record structured word..... _____
3. Record name..... _____
4. Data structured word index..... ____
   Data structured word..... _____
5. Description structured word index.. ____
   Description structured word..... _____

When you finish, type END to save or CANCEL to discard any changes.

====>
```

Type **9** and press **Enter** to file the record.

```

BLG0VU70          DATA ATTRIBUTE SUMMARY          RECORD: CREATSD

Contact name..... _____      Entry priv. class..... _____
Contact phone..... _____      Date entered..... _____
Contact dept..... _____      Time entered..... _____
Location code..... _____      Date last altered..... _____

Description..... S-WORD ADDED FOR CREATE DIALOG
Field prompt..... _____

Select one of the following choices, or type END to save or CANCEL
to discard any changes.

    1. Data attribute record.          6. Validation control data.
    2. Response processing.           7. Panel display.
    3. Structured word and           9. File record.
       validation collection.
    4. Panel flow.                   10. Help text.
    5. Validation data extended.     11. Validation data basic.

====> 9
    
```

Stage 5 -- Incorporating the Direct Add Field Information into the Data Model

The record access panel name is BLG1A115 where s-word XISRAC3010 is collected. Use this s-word to find the record access panel name. The “product” is listed below the record access panel and is **MANAGEMENT**, with s-word XISSCP002. Look in the dictionary for the s-word index for this s-word; in this example, the s-word index is X'0C20'.

```

BLG1TVID          VIEW INTERNAL DATA          LINE 61 OF 71

PANEL   PANEL REL COG-  FLAGS   SWORD  STRUCTURED  PREFIX WORD OR
NAME    TYP/RSP  LEV NIZE F  M  D   INDEX   WORD        VISIBLE PHRASE

BLG1A111 C/ 2   06 B/U 0C/00/00 S0C34  BC IM00SDC00 DATE/04/23/1998
BLG1A111 C/ 2   06 B/U 0C/00/00 S0C61  BC IM00STC00 TIME/13:24
BLG1A111 C/ 2   06 B/U 0C/00/00 S0BB1  BC IM0I0CCS0 CLAE/MASTER
BLG1A111 C/ 2   06 B/U 0D/00/00 S0C35  BC IM00SDM00 DATM/04/23/1998
BLG1A111 C/ 2   06 B/U 0D/00/00 S0C62  BC IM00STM00 TIMM/13:24
BLG1A111 C/ 2   06 B/U 0D/00/00 S0B5E  BC IM0I0PM00 USER/GSWOOD
BLG1A111 C/ 2   06 B/U 0D/00/00 S0D90  BC PROBND090 ESCL/1
BLG1A115 C/ 2   00 N/  0D/04/10 S0000  BC ISRAC3010 5
BLGCFILE S/   00 B/  99/04/10 S0000  BC ISSCP002 MANAGEMENT
BLGCFILE C/ 2   00 N/  8D/04/10 S0000  BC IM00SST00 ACC32F8A6E2F1F12
BLGCFILE C/ 2   00 N/  8D/04/10 S0000  BC IM00SST01 ACC32F8A6E2F1F12
*** BOTTOM OF DATA ***

Type DOWN or UP to scroll the panel, or type END to exit the panel.

====>
    
```

Update the data view record and fill in the information that you know on the data view record entry panel, BLG0V600. The value of Field 7, the Product s-word index, was obtained from the dictionary search that was done for the s-word **XISSCP002**. When you have completed this panel, type ;end and press **Enter**.

Creating a Data Model of a Problem Record

```
BLG0V600          DATA VIEW RECORD ENTRY          RECORD: AX19149

Enter data view record data; cursor placement or input line entry allowed.

 1. Data View record name.....<R> AX19149_
 2. Contact name..... _____
 3. Contact phone..... _____
 4. Contact department..... _____
 5. Location code..... _____
 6. Record s-word index.....<R> 0032      Record s-word... Z//S/TXS
 7. Product s-word index..... 0C20      Product s-word... XISSCPR002
 8. Default separator character.. _      Product Acronym.. IS = INFO/MGT
 9. Record access panel..... BLG1A115
10. Description.....<R> PROBLEM RECORD DATA VIEW _____

11. Create record file time TSP... _____
12. Update record file time TSP... _____
13. Allow ODBC access?..... _____
14. Child data view record name... _____

      When you finish, type END to save or CANCEL to discard any changes.

====> ;end
```

From BLG0VU60, type **3** and press **Enter**.

```
BLG0VU60          DATA VIEW SUMMARY          RECORD: AX19149

Contact name..... _____      Entry priv. class..... _____
Contact phone..... _____      Date entered..... _____
Contact dept..... _____      Time entered..... _____
Location code..... _____      Date last altered..... _____

Description..... PROBLEM RECORD DATA VIEW

      Select one of the following choices, or type END to save or CANCEL
      to discard any changes.

      1. Data view record.          4. Desktop tables.
      2. Authorization codes.      5. Desktop field groups.
      3. Data attribute records.    6. Desktop panel layouts.

                                   9. File record.

====> 3
```

On panel BLGLDATT, type the record IDs of the other data attribute records that you created previously.


```

BLGLDATT          DATA ATTRIBUTE RECORDS ENTRY          LINE 1 OF 9

USE....Enter a list of data attribute records included in this data model.
FORM...Record ID of data attribute record.

                                           RECORD: AX19149

      Data
      Attribute  Reply  Not  Auth  Description  ODBC
      Record ID  Req   Logic Code
.....
.....  BLG#REQN  YES   ___   ___   PROBLEM REPORTER  _____
.....  BLG#STAT  YES   ___   ___   PROBLEM STATUS    _____
.....  BLG#DSAB  YES   ___   ___   PROBLEM DESCRIPTION  _____
.....  DES#TEXT  ___   ___   ___   FREEFORM TEXT DESCRIPTION  _____
.....  CREATESD  ___   ___   ___   _____
.....  _____  ___   ___   ___   _____
.....  _____  ___   ___   ___   _____

Line Cnds:  A=After  B=Before  C=Copy  D=Delete  E=Erase  I=Insert
            L=Line Entry  M=Move  R=Repeat
Type DOWN, UP, LEFT, or RIGHT to scroll the panel, or type END to exit.

===>
    
```

Move CREATESD to put the create dialog s-word before the other rows (this is not necessary, but keeps the data in the same order as your current records). Type **yes** in the Reply Required column. This ensures that this direct add data is automatically added by the APIs.

Type **dat#crtd** at the end of the list of data attribute record IDs so that the file-time information is included in the data model. If you want this file-time information to be included every time you create a record, type **yes** in the Reply Required column.

```

BLGLDATT          DATA ATTRIBUTE RECORDS ENTRY          LINE 1 OF 9

USE....Enter a list of data attribute records included in this data model.
FORM...Record ID of data attribute record.

                                           RECORD: AX19149

      Data
      Attribute  Reply  Not  Auth  Description  ODBC
      Record ID  Req   Logic Code
.....
.....  CREATESD  YES   ___   ___   S-WORD ADDED FOR CREATE DIALOG  _____
.....  BLG#REQN  YES   ___   ___   PROBLEM REPORTER  _____
.....  BLG#STAT  YES   ___   ___   PROBLEM STATUS    _____
.....  BLG#DSAB  YES   ___   ___   PROBLEM DESCRIPTION  _____
.....  DES#TEXT  ___   ___   ___   FREEFORM TEXT DESCRIPTION  _____
.....  DAT#CRTD  YES   ___   ___   _____
.....  _____  ___   ___   ___   _____
.....  _____  ___   ___   ___   _____

Line Cnds:  A=After  B=Before  C=Copy  D=Delete  E=Erase  I=Insert
            L=Line Entry  M=Move  R=Repeat
Type DOWN, UP, LEFT, or RIGHT to scroll the panel, or type END to exit.

===>
    
```

Type **;end** on the command line and press **Enter** to complete this process.

Creating a Data Model of a Problem Record

```

BLGLDATT                DATA ATTRIBUTE RECORDS ENTRY                LINE 1 OF 9

USE...Enter a list of data attribute records included in this data model.
FORM...Record ID of data attribute record.

                                RECORD: AX19149

      Data
Attribute  Reply  Not  Auth      Description      ODBC
Record ID  Req   Logic Code
''''''  CREATESD  YES  ___  ___  S-WORD ADDED FOR CREATE DIALOG  ___
''''''  BLG#REQN  YES  ___  ___  PROBLEM REPORTER                ___
''''''  BLG#STAT  YES  ___  ___  PROBLEM STATUS                  ___
''''''  BLG#DSAB  YES  ___  ___  PROBLEM DESCRIPTION            ___
''''''  DES#TEXT  ___  ___  ___  FREEFORM TEXT DESCRIPTION      ___
''''''  DAT#CRTD  YES  ___  ___  ___                            ___
''''''  ___      ___  ___  ___  ___                            ___
''''''  ___      ___  ___  ___  ___                            ___

Line Cmds:  A=After B=Before C=Copy D=Delete E=Erase I=Insert
            L=Line Entry M=Move R=Repeat
Type DOWN, UP, LEFT, or RIGHT to scroll the panel, or type END to exit.

====> ;end

```

Type **9** and press **Enter** to file the record.

This data view record can be used by your API application.

```

BLG0VU60                DATA VIEW SUMMARY                RECORD: AX19149

Contact name..... _____  Entry priv. class.... _____
Contact phone..... _____  Date entered..... _____
Contact dept..... _____   Time entered..... _____
Location code..... _____   Date last altered.... _____

Description..... PROBLEM RECORD DATA VIEW
Select one of the following choices, or type END to save or CANCEL
to discard any changes.

      1. Data view record.          4. Desktop tables.
      2. Authorization codes.      5. Desktop field groups.
      3. Data attribute records.    6. Desktop panel layouts.

                                9. File record.

====> 9

```

Stage 6 -- Using the Direct Add Data Attribute Records Interactively

Now you can replace the file time information in panel BLG1A111 to use the CREATESD data attribute record that you set up in Stage 4. You can merely modify the data attribute record if you want to change a setting, instead of modifying all of the control panels that add that data.

From the Primary Options Menu BLG0EN20, type **9,1,1,blg1a111,2,rpanels,,1,con** on the command line and press **Enter**.

Note: This assumes that the panel is in your RPANELS data set. You may need to substitute the name of another data set.

```

BLG0EN20          --- PRIMARY OPTIONS MENU ---      APPLICATION: MANAGEMENT

OPTIONS:

  1. OVERVIEW.....Display general information and product enhancements.
  2. PROFILE.....Display or alter invocation or session defaults.
  3. APPLICATION....Change application, list available applications.
  4. CLASS.....Change current class, list available classes.
  5. ENTRY.....Create a record.
  6. INQUIRY.....Search for records.
  7. UTILITY.....Copy, display, print, delete, and update records.
  8. GLOSSARY.....Display a list of searchable words in the database.
  9. PMF.....Modify or create panels.

      Select an option, enter a command, or type QUIT to exit.

      Tivoli Information Management for z/OS Version 7 Release 1
      5697-SD9 (C) Copyright IBM Corp., 1981, 2001.

====> 9,1,1,blg1a111,2,rpanels,,1,con
    
```

Update the control line which does the first direct ADD of s-word X'0C34'.

```

BLM1TSCU          FUNCTION LINE SUMMARY              LINE 1 OF 17

  FUNC FUNC S-WORD PREFIX MULT APPLY AUTH  TRUE  FALSE  MESSAGE  PROGRAM
  TYPE CODE INDEX  INDEX  B  E NOT  CODE  TARGET TARGET  PANEL   EXIT/TSP

'' **** ****  ****  ****  *  *  *  ****  *****  *****  *****  *****
'' FLOW 002A  0000  0561  N  N  N  0000          BLG1ACAN
'' TEST 0000  0000  0340  Y  N  N  0000
'' FLOW 001B  0000  0000  N  Y  N  0000          BLGTSPPPE
'' TEST 0000  0000  0340  Y  N  Y  0000
'' FLOW 001B  0000  0000  N  Y  N  0000          BLGTSPPU
'' TEST 0000  0000  0340  Y  N  N  0000
U' ADD  0000  0C34  00D8  N  N  N  0000
'' ADD  0000  0C61  028B  N  N  N  0000
'' ADD  0000  0BB1  007A  N  Y  N  0000
'' FLOW 000B  0000  0000  N  N  N  0000          BLG01147
'' ADD  0000  0C35  00DF  N  N  N  0000

Line Cmds: A=After C=Copy D=Delete I=Insert M=Move R=Repeat U=Update
Type DOWN, UP, LEFT, or RIGHT to scroll the panel, or type END to exit.

====>
    
```

Type **1** and press **Enter**.

Creating a Data Model of a Problem Record

```
BLM8CU63                CONTROL LINE SUMMARY                PANEL: BLG1A111

Control line type..... ADD          S-word index..... 0C34
Function code index.... 0000        Structured word..... XIM00SDC00
True target panel..... _____   Prefix word index..... 00D8
False target panel.... _____   Prefix word..... DATE/
Begin multiple test.... NO          Validation..... =DATE
End multiple test..... NO          Program exit/TSP name.... _____
Authorization code..... 0000        Apply not logic..... NO

Select one of the choices, or type END to save or CANCEL to discard changes.

1. Control flow processing.
2. Data collection processing.
3. Test data processing.

====> 1
```

Type the data attribute RNID **dat#crtd** in Field 5. Then type **;end;;end;;end;;end,6,** and press **Enter** to file the panel.

```
BLM8CU6A                CONTROL FLOW PROCESSING                PANEL: BLG1A111

Enter control flow information; cursor placement or input line entry allowed.

1. Control line type.....<R> ADD_
2. Function code index..... 0000    Function acronym... _____
3. Dialog end..... NO_
4. Override dialog target... NO_
5. True target panel..... DAT#CRTD
6. False target panel..... _____
7. Authorization code..... 0000
8. Program exit/TSP name.... _____
9. Message panel..... _____

When you finish, type END to save or CANCEL to discard any changes.

====> ;end;;end;;end;;end,6,
```

When the panel is successfully filed, a confirmation message will be displayed. Then copy the panel to your test panel data set.

```

BLM8CU00          PANEL NAME ENTRY          UPDATE
Identify panel to be updated; cursor placement or input line entry allowed.

1. Panel name.....<R> BLG1A111
2. Data set definition label..... RPANELS_

To enter the panel update dialog, press Enter without field modifications.

BLM04015I Panel BLG1A111 was written to the WRITE panel data set.
===>

```

Additional Considerations

There are other entries added to your records when you create or update them. You may want those entries included in your data model. An example is the entry which is added when you select Problem Reporter Data (selection 1) on panel BLG0BU00. Follow the directions for adding a direct add entry for s-word index X'002C' to add it to the record. You should use the view internals command with a record you want to map to make sure any important data is included. You should consider whether any data is searched using your inquiry panels (if it is cognized when it is collected during the search, then the search uses it; if it is not cognized, then the search does not use it). The s-word for problem reporter data is not used for a search, and so is not important for this example. But it may be important for *your* data model and search processing.

Building Data Model Records with the BLGTDMBL TSX

To help simplify the task of defining data model records for existing applications, a tool is available to help you create data model records. The tool is a terminal simulator EXEC (TSX) named BLGTDMBL (for data model builder) which scans your application's panel flow and creates data model records for your application. The TSX is available in the SBLMTSX data set library and is run by starting Tivoli Information Management for z/OS in batch mode.

To run this TSX, follow these procedures:

1. In your JCL to start Tivoli Information Management for z/OS in batch mode, ensure that the BLGTSX data set containing the BLGTDMBL TSX is allocated. (The *Tivoli Information Management for z/OS Planning and Installation Guide and Reference* provides an example of JCL used to start Tivoli Information Management for z/OS in batch mode.)
2. Allocate a sequential data set (or define a member of a partitioned data set) that will be used to supply input parameters (described below) for the TSX. Include a SYSIN DD statement in your JCL to reference this input data set. For example:

```
//SYSIN DD DISP=SHR,DSN=dsname
```
3. Use this ISPSTART statement in the SYSTSIN DD statement:

```
ISPSTART PGM(BLGINIT) PARM('SESS(xx) TSP(BLGTDMBL) IRC(QUIT)')
```

where xx is the session member name.

Note: If IRC(QUIT) is omitted, the batch job will end with RC=16.

4. Submit the batch job.

Input Parameters

The input parameters can be specified in an input data set or inline in your JCL. Parameters are coded as **keyword=value**. One or more parameters can be specified on a single line, separated by blanks. If more than one function is specified, only the last one is used. Supported keywords are as follows:

FUNCTION

Defines what the TSX should do. Valid values are as follows:

CREATE

Does the following:

- Scans through the panels
- Locates existing data attribute records that can be used or creates new data attribute records if necessary
- Creates a data view record that contains all of the data attribute records
- Prints a list of the data attribute records and the panel to which each relates.

Note: If an attribute record is encountered while doing FUNCTION=CREATE,, the existing attribute record is included in the data view record that is created; that is, a duplicate attribute record is not created.

SCAN Similar to CREATE, but does not create data model records. Use SCAN to see what will be done when the CREATE function is performed.

FLOW

Scans the panels without doing an analysis of what data model records are needed or creating any records. Use this option to see the panel flow that will be followed and to check that the correct panels will be processed before doing a CREATE.

FLOW

Use this parameter only with the CREATE function or the SCAN function; if you are using the FLOW function, this parameter is ignored because the flow is always shown with the FLOW function. This parameter defines whether a line should be shown for each panel encountered in the panel flow. Specify a value of **Y** to show the flow output. Any other value does not show output. This parameter is optional.

VIEWRNID

Defines the record number ID of the data view record to be created. This parameter is required.

RECSWIX

Defines the record type s-word index (Snnnn) for the data view record. If more than one RECSWIX keyword is specified, only the last one is used. This parameter is required.

RNIDPRFX

Defines the 4-character prefix to use for the record number IDs of all created data attribute records. The fourth character must be a special character (for example, #) and must be defined on the MODELDB keyword of the BLGPARMs macro of the session-parameters member when you use the records. If more than one RNIDPRFX keyword is specified, only the last one is used. This parameter is required.

Note: For more information about the BLGPARMs macro, refer to the *Tivoli Information Management for z/OS Planning and Installation Guide and Reference*.

DVCRTIRC

Defines the immediate response chain (IRC) required to get to the Data View Record Entry panel (BLG0V600) from the primary option menu (that is, where the INITIALIZE command takes you). The default is 5,5,1. If more than one DVCRTIRC keyword is specified, only the last one is used. This parameter is optional.

DACRTIRC

Defines the IRC required to get to the Data Attribute Record Entry panel (BLG0V700) from the primary option menu (where the INITIALIZE command takes you). The default is 5,5,2. If more than one DACRTIRC keyword is specified, only the last one is used. This parameter is optional.

START

Defines the name of a panel from which the tool should begin scanning panels. This panel will often be a summary panel. More than one start panel can be defined by specifying additional START keywords. At least one **START** keyword is required.

STOP

Defines the name of a panel which stops the BLGTDMBL TSX from processing the current branch of the panel flow. For example, you could use this if your problem management panel flow includes selections that branch into change management panels. Set the STOP keyword to be the first change management panel encountered on a path so that no change management panels will be processed when you are building data model records for problem management. More than one stop panel can be defined by specifying additional STOP keywords. This parameter is optional.

Output

The BLGTDMBL TSX produces the following output:

Panel flow

If you are using the FLOW function or have specified **FLOW=Y** for the CREATE or SCAN function, one line is shown for each panel processed. The format of the line is as follows:

```
type nest ----> name title
```

type A 3-character panel type (for example, AEP for assisted-entry panel).

nest The nesting level of the panel in the flow.

----> An arrow, the length of which increases by one for each additional level of nesting.

name The panel name.

title The panel title.

Created attribute list

A table is shown with one line for each data attribute record that was created (for FUNCTION=CREATE) or would be created (for FUNCTION=SCAN). This list is not shown for FUNCTION=FLOW.

Data view attribute list

A table is shown with one line for each data attribute record that was included (for FUNCTION=CREATE) or would be included (for FUNCTION=SCAN) in the created data view record. This list is not shown for FUNCTION=FLOW.

Data attribute records

For FUNCTION=CREATE, new data attribute records are created for any field that cannot use an existing data attribute record. The names of data attribute records are generated as follows:

For direct add fields

The prefix specified with the RNIDPRFX keyword followed by the 4-digit s-word index. If the generated name is already used, the first digit of the s-word index is replaced by the first character between G and Z which generates a unique record number ID.

For other fields

The prefix specified with the RNIDPRFX keyword followed by the last 4 characters of the assisted-entry panel name. If the generated name is already used, the last character (or two if necessary) is replaced by the first number between 1 and 99 which generates a unique record number ID.

Data view record

For FUNCTION=CREATE, a new data view record is created. The value specified for VIEWRNID is used as the record number ID. The data attribute list is filled in with all the new or existing data attribute records for the data view. The authorization code and required flag are set to match the processing in the panel flow.

Examples of BLGTDMBL output can be found in “BLGTDMBL (FUNCTION=FLOW) Output” on page 611, “BLGTDMBL (FUNCTION=CREATE) Output” on page 612, and “BLGTDMBL (FUNCTION=SCAN) Output” on page 614.

Usage Notes

1. For attribute records created from assisted-entry panels, the Description field will be set as follows:
 - If the panel was called from a data entry panel, the text between the field number and the field is used. If the text ends with <R>, the <R> is removed, then any trailing periods are removed, then any trailing blanks are removed. If there is no remaining text, then the title of the assisted-entry panel is used.
 - If the panel was called from a table panel, the assisted-entry panel title is used. For attribute records created from control panel ADD control lines, the Description field is set to **Direct add for Snnnn**, where **n** is the structured word index associated with the field.

In all cases, if the above methods do not find a non-blank value, ??? is used. The Field Prompt field is always set to the same value as the Description field.

- Some program exit calls require that a control panel name be specified as one of the target panels, but use that control panel as a parameter list rather than as a true control panel. In these cases, the target control panel will not be processed by BLGTDMBL because it is not a part of the panel flow. This is a list of program exits and the target panels for each that are not processed:

BLG01249 BLG01326 BLG01329 BLG01376

Both Create and Inquiry targets

BLG01450

Create target only (Inquiry target is an actual target and therefore is processed)

BLG01151 BLG01273 BLG01437 BLG01438 BLG01439

Inquiry target only (Create target is an actual target and therefore is processed)

- Predefined validation patterns, such as =NAME and =PHONE, should be the first pattern in the list. PMF does not enforce this restriction for assisted-entry panels, so it is possible to have existing assisted-entry panels which have a predefined validation pattern such as =NAME that is not the first pattern in the list. Data attribute records, however, do enforce the restriction and BLGTDMBL will fail when trying to create a data attribute record from an assisted-entry panel which has the predefined validation pattern somewhere other than first in the list.

BLGTDMBL (FUNCTION=FLOW) Output

This is an example of output from the BLGTDMBL tool showing panel flow:

Using the following input parameters:

```
VIEWRNID=PROBDATA RNIDPRFX=XYZ#
RECSWIX=S0032
FUNCTION=FLOW    FLOW = Y
START=BLG0B402
STOP=BLG00030
```

The following output was received:

```
Processing options:
FUNCTION = FLOW           FLOW      = Y
VIEWRNID = PROBDATA      RECSWIX = S0032       RNIDPRFX = XYZ#
DVCRTIRC = 5,5,1        DACRTIRC = 5,5,2
START    = BLG0B402
STOP     = BLG00030

DEP  1  --> BLG0B402    PROBLEM SYMPTOM DATA
AEP  2  ---> BLG6PSAB   SYMPTOM ABSTRACT
TBL  2  ---> BLGLDEVL   DEVICE NAME ENTRY
AEP  3  ----> BLG6DEVL  DEVICE NAME
TBL  2  ---> BLGLPRID  PROGRAM IDENTITY ENTRY
AEP  3  ----> BLG6PRID  PROGRAM IDENTITY
TBL  2  ---> BLGLDTYP  DEVICE TYPE ENTRY
AEP  3  ----> BLG6DTYP  DEVICE TYPE
TBL  2  ---> BLGLLVLP  SOFTWARE LEVEL ENTRY
AEP  3  ----> BLG6LVLP  SOFTWARE LEVEL
TBL  2  ---> BLGLDFEA  FEATURE NAME ENTRY
AEP  3  ----> BLG6DFEA  FEATURE NAME
TBL  2  ---> BLGLROUS  SOFTWARE ROUTINE NAME ENTRY
AEP  3  ----> BLG6ROUS  SOFTWARE ROUTINE NAME
TBL  2  ---> BLGLDVSr  SERIAL NUMBER ENTRY
AEP  3  ----> BLG6DVSr  SERIAL NUMBER
TBL  2  ---> BLGLSTMT  SOFTWARE STATEMENT ENTRY
AEP  3  ----> BLG6STMT  SOFTWARE STATEMENT
TBL  2  ---> BLGLOPCS  OPERATION CODE ENTRY
AEP  3  ----> BLG6OPCS  OPERATION CODE
```

Building Data Model Records with BLGTDMBL

TBL 2 --->	BLGLLTYE	LINE/LOOP TYPE ENTRY
AEP 3 ---->	BLG6LTYE	LINE/LOOP TYPE
TBL 2 --->	BLGLABND	ABEND CODE ENTRY
AEP 3 ---->	BLG6ABND	ABEND CODE
TBL 2 --->	BLGLLIDE	LOOP ID ENTRY
AEP 3 ---->	BLG6LIDE	LOOP ID
TBL 2 --->	BLGLERCE	ERROR CODE ENTRY
AEP 3 ---->	BLG6ERCE	ERROR CODE
TBL 2 --->	BLGLLCRM	LINE/CIRCUIT NUMBER ENTRY
AEP 3 ---->	BLG6LCRM	LINE/CIRCUIT NUMBER
TBL 2 --->	BLGLSWRC	SOFTWARE RETURN CODE ENTRY
AEP 3 ---->	BLG6SWRC	SOFTWARE RETURN CODE
TBL 2 --->	BLGLLSPE	LINE SPEED ENTRY
AEP 3 ---->	BLG6LSPE	LINE SPEED
TBL 2 --->	BLGLSWCC	SOFTWARE COMPLETION CODE ENTRY
AEP 3 ---->	BLG6SWCC	SOFTWARE COMPLETION CODE
TBL 2 --->	BLGLMSGC	MESSAGE IDENTITY ENTRY
AEP 3 ---->	BLG6MSGC	MESSAGE IDENTITY
TBL 2 --->	BLGLSYMC	EXTERNAL SYMPTOM ENTRY
AEP 3 ---->	BLG6SYMC	EXTERNAL SYMPTOM
TBL 2 --->	BLGLPUBS	PUBLICATION IDENTITY ENTRY
AEP 3 ---->	BLG6PUBS	PUBLICATION IDENTITY
TBL 2 --->	BLGLENVS	ENVIRONMENT CONDITION ENTRY
AEP 3 ---->	BLG6ENVS	ENVIRONMENT CONDITION

Number of targets checked:	44
Number of unique panels processed:	44
Number of missing panels found:	0
Number of stop panels encountered:	0

BLGTDMBL (FUNCTION=CREATE) Output

This is a create example of output from the BLGTDMBL tool with flow output on:

Using the following input parameters:

```
VIEWRNID=PROBCLOS RNIDPRFX=XYZ#
RECSWIX=S0032
FUNCTION=CREATE FLOW = Y
START=BLG0B300
STOP=BLG00030
```

The following output was received:

```
Processing options:
FUNCTION = CREATE      FLOW      = Y
VIEWRNID = PROBCLOS  RECSWIX   = S0032    RNIDPRFX = XYZ#
DVCRTIRC = 5,5,1     DACRTIRC = 5,5,2
START     = BLG0B300
STOP      = BLG00030

DEP 1 --> BLG0B300      PROBLEM CLOSE ENTRY
AEP 2 ---> BLG600CR     RESOLVER/CLOSER NAME
  BLG20325I TSX BLGTDMBL will create record XYZ#00CR for panel BLG600CR, index S0B5B
AEP 2 ---> BLG6STAT     CURRENT STATUS
  BLG20324I TSX BLGTDMBL will use existing record BLM&STAT for panel BLG6STAT, index S0BEE
AEP 2 ---> BLG600CG     RESOLVER/CLOSER DEPARTMENT
  BLG20325I TSX BLGTDMBL will create record XYZ#00CG for panel BLG600CG, index S0B9D
AEP 2 ---> BLG600CC     CAUSE/COMPLETION CODE
  BLG20325I TSX BLGTDMBL will create record XYZ#00CC for panel BLG600CC, index S0C0E
AEP 2 ---> BLG6PHON     TELEPHONE NUMBERS
  BLG20325I TSX BLGTDMBL will create record XYZ#PHON for panel BLG6PHON, index S0B2F
AEP 2 ---> BLG60APN     PROGRAM NAME
  BLG20324I TSX BLGTDMBL will use existing record BLM&0APN for panel BLG60APN, index S0CA8
AEP 2 ---> BLG6CLAR     PRIVILEGE CLASS
  BLG20325I TSX BLGTDMBL will create record XYZ#CLAR for panel BLG6CLAR, index S0BB3
AEP 2 ---> BLG6DEVN     DEVICE NAME
  BLG20324I TSX BLGTDMBL will use existing record BLM&DEVN for panel BLG6DEVN, index S0CA9
```

```

AEP 2 ---> BLG600CD      DATE CLOSED
BLG20324I TSX BLGTDMBL will use existing record BLM&00CD for panel BLG600CD, index S0C38
AEP 2 ---> BLG6DUPN      ORIGINAL PROBLEM NUMBER
BLG20325I TSX BLGTDMBL will create record XYZ#DUPN for panel BLG6DUPN, index S0CD0
AEP 2 ---> BLG600CT      TIME CLOSED
BLG20324I TSX BLGTDMBL will use existing record BLM&00CT for panel BLG600CT, index S0C65
AEP 2 ---> BLG6CSCN      CAUSE CHANGE NUMBER
BLG20325I TSX BLGTDMBL will create record XYZ#CSCN for panel BLG6CSCN, index S0CD1
AEP 2 ---> BLG6TOTT      TOTAL TIME
BLG20325I TSX BLGTDMBL will create record XYZ#TOTT for panel BLG6TOTT, index S0C93
AEP 2 ---> BLG60SCN      FIX CHANGE NUMBER
BLG20325I TSX BLGTDMBL will create record XYZ#0SCN for panel BLG60SCN, index S0CD2
AEP 2 ---> BLG6DPCT      DUPLICATE COUNT
BLG20324I TSX BLGTDMBL will use existing record BLM&DPCT for panel BLG6DPCT, index S0D28
AEP 2 ---> BLG6DNOT      DATE REPORTER NOTIFIED
BLG20325I TSX BLGTDMBL will create record XYZ#DNOT for panel BLG6DNOT, index S0C48
AEP 2 ---> BLG6APLT      OUTAGE
BLG20325I TSX BLGTDMBL will create record XYZ#APLT for panel BLG6APLT, index S0C8D
AEP 2 ---> BLG6APRT      RERUN TIME
BLG20325I TSX BLGTDMBL will create record XYZ#APRT for panel BLG6APRT, index S0C8E
AEP 2 ---> BLG6VNPDP      VENDOR PD TIME
BLG20325I TSX BLGTDMBL will create record XYZ#VNPDP for panel BLG6VNPDP, index S0D8A
    
```

```

                Number of targets checked:      20
Number of unique panels processed:      20
                Number of missing panels found:  0
Number of stop panels encountered:      0
    
```

The following attribute records were created:

RecordID	Panel	Typ	Index	Field Description
XYZ#00CR	BLG600CR	AEP	S0B5B	Resolved by
XYZ#00CG	BLG600CG	AEP	S0B9D	Resolver dept
XYZ#00CC	BLG600CC	AEP	S0C0E	Cause code
XYZ#PHON	BLG6PHON	AEP	S0B2F	Resolver phone
XYZ#CLAR	BLG6CLAR	AEP	S0BB3	Resolver class
XYZ#DUPN	BLG6DUPN	AEP	S0CD0	Original prob. number
XYZ#CSCN	BLG6CSCN	AEP	S0CD1	Cause change number
XYZ#TOTT	BLG6TOTT	AEP	S0C93	Total time
XYZ#0SCN	BLG60SCN	AEP	S0CD2	Fix change number
XYZ#DNOT	BLG6DNOT	AEP	S0C48	Date rep. notified
XYZ#APLT	BLG6APLT	AEP	S0C8D	Outage
XYZ#APRT	BLG6APRT	AEP	S0C8E	Rerun time
XYZ#VNPDP	BLG6VNPDP	AEP	S0D8A	Vendor PD time

Data View PROBCLOS will contain the following attributes:

Record ID	Field Name	Dict Index	Auth Code	Req
XYZ#00CR	Resolved by	S0B5B	0160	Y
BLM&STAT	Problem status	S0BEE		Y
XYZ#00CG	Resolver dept	S0B9D	0160	
XYZ#00CC	Cause code	S0C0E	0160	Y
XYZ#PHON	Resolver phone	S0B2F	0160	
BLM&0APN	Program name	S0CA8		
XYZ#CLAR	Resolver class	S0BB3	0160	
BLM&DEVN	Device name	S0CA9		
BLM&00CD	Date closed	S0C38	0160	Y
XYZ#DUPN	Original prob. number	S0CD0		
BLM&00CT	Time closed	S0C65	0160	
XYZ#CSCN	Cause change number	S0CD1		
XYZ#TOTT	Total time	S0C93		
XYZ#0SCN	Fix change number	S0CD2		
BLM&DPCT	Duplicate count	S0D28		

```

XYZ#DNOT Date rep. notified      S0C48
XYZ#APLT Outage                  S0C8D
XYZ#APRT Rerun time              S0C8E
XYZ#VNPD Vendor PD time         S0D8A
    
```

BLGTDMBL (FUNCTION=SCAN) Output

This is a scan example of output from the BLGTDMBL tool. It reports data attribute and data view records that will be created or used; in this example, FLOW=Y is not specified (that is, flow output is not displayed):

Using the following input parameters:

```

VIEWRNID=PROBRPRT RNIDPRFX=XYZ#
RECSWIX=S0032
FUNCTION=SCAN
START=BLG0B100
STOP=BLG00030
    
```

The following output was received:

Processing options:

```

FUNCTION = SCAN      FLOW      = N
VIEWRNID = PROBRPRT RECSWIX  = S0032      RNIDPRFX = XYZ#
DVCRTIRC = 5,5,1    DACRTIRC = 5,5,2
START    = BLG0B100
STOP     = BLG00030
    
```

```

BLG20325I TSX BLGTDMBL will create record XYZ#REQN for panel BLG6REQN, index S0B59
BLG20324I TSX BLGTDMBL will use existing record BLM&PTYP for panel BLG6PTYP, index S0C09
BLG20324I TSX BLGTDMBL will use existing record BLM&RQDP for panel BLG6RQDP, index S0B9B
BLG20324I TSX BLGTDMBL will use existing record BLM&STAT for panel BLG6STAT, index S0BEE
BLG20324I TSX BLGTDMBL will use existing record BLM&PHON for panel BLG6PHON, index S0B2D
BLG20324I TSX BLGTDMBL will use existing record BLM&URN0 for panel BLG6URN0, index S0CCF
BLG20324I TSX BLGTDMBL will use existing record BLM&OCCD for panel BLG6OCCD, index S0C3D
BLG20325I TSX BLGTDMBL will create record XYZ#PRII for panel BLG6PRII, index S0BE6
BLG20324I TSX BLGTDMBL will use existing record BLM&OCCT for panel BLG6OCCT, index S0C6A
BLG20324I TSX BLGTDMBL will use existing record XYZ#APLT for panel BLG6APLT, index S0C8D
BLG20324I TSX BLGTDMBL will use existing record BLM&NETN for panel BLG6NETN, index S0CA3
BLG20324I TSX BLGTDMBL will use existing record XYZ#APRT for panel BLG6APRT, index S0C8E
BLG20324I TSX BLGTDMBL will use existing record BLM&SYSN for panel BLG6SYSN, index S0CA5
BLG20325I TSX BLGTDMBL will create record XYZ#NIMP for panel BLG6NIMP, index S0BDD
BLG20324I TSX BLGTDMBL will use existing record BLM&OAPN for panel BLG6OAPN, index S0CA8
BLG20325I TSX BLGTDMBL will create record XYZ#SIMP for panel BLG6SIMP, index S0BDE
BLG20324I TSX BLGTDMBL will use existing record BLM&DEVN for panel BLG6DEVN, index S0CA9
BLG20325I TSX BLGTDMBL will create record XYZ#AIMP for panel BLG6AIMP, index S0BDF
BLG20324I TSX BLGTDMBL will use existing record BLM&KIAF for panel BLG6KIAF, index S0CBF
BLG20325I TSX BLGTDMBL will create record XYZ#DIMP for panel BLG6DIMP, index S0BE0
BLG20325I TSX BLGTDMBL will create record XYZ#REQD for panel BLG6REQD, index S0C49
BLG20325I TSX BLGTDMBL will create record XYZ#UPRN for panel BLG6UPRN, index S0D14
BLG20325I TSX BLGTDMBL will create record XYZ#REQT for panel BLG6REQT, index S0C72
BLG20324I TSX BLGTDMBL will use existing record BLM&PLOC for panel BLG6PLOC, index S0C0C
BLG20325I TSX BLGTDMBL will create record XYZ#OUTY for panel BLG6OUTY, index S0C13
BLG20325I TSX BLGTDMBL will create record XYZ#DSAB for panel BLG6DSAB, index S0E0F
    
```

```

                Number of targets checked:      27
Number of unique panels processed:      27
                Number of missing panels found:  0
Number of stop panels encountered:      0
    
```

The following attribute records will be created:

RecordID	Panel	Typ	Index	Field Description
XYZ#REQN	BLG6REQN	AEP	S0B59	Reported by
XYZ#PRII	BLG6PRII	AEP	S0BE6	Initial priority
XYZ#NIMP	BLG6NIMP	AEP	S0BDD	Network impact
XYZ#SIMP	BLG6SIMP	AEP	S0BDE	System impact

```

XYZ#AIMP  BLG6AIMP  AEP  S0BDF  Program impact
XYZ#DIMP  BLG6DIMP  AEP  S0BE0  Device impact
XYZ#REQD  BLG6REQD  AEP  S0C49  Date fix required
XYZ#UPRN  BLG6UPRN  AEP  S0D14  User form number
XYZ#REQT  BLG6REQT  AEP  S0C72  Time fix required
XYZ#OUTY  BLG6OUTY  AEP  S0C13  Outage type
XYZ#DSAB  BLG6DSAB  AEP  S0E0F  Description
    
```

Data View PROBRPRT will contain the following attributes:

Record ID	Field Name	Dict Index	Auth Code	Req
XYZ#REQN	Reported by	S0B59		Y
BLM&PTYP	Problem type	S0C09		
BLM&RQDP	Reporter dept	S0B9B		
BLM&STAT	Problem status	S0BEE		Y
BLM&PHON	Reporter phone	S0B2D		
BLM&URN0	User problem number	S0CCF		
BLM&OCCD	Date occurred	S0C3D		
XYZ#PRII	Initial priority	S0BE6		
BLM&OCCT	Time occurred	S0C6A		
XYZ#APLT	Outage	S0C8D		
BLM&NETN	Network name	S0CA3		
XYZ#APRT	Rerun time	S0C8E		
BLM&SYSN	System name	S0CA5		
XYZ#NIMP	Network impact	S0BDD		
BLM&0APN	Program name	S0CA8		
XYZ#SIMP	System impact	S0BDE		
BLM&DEVN	Device name	S0CA9		
XYZ#AIMP	Program impact	S0BDF		
BLM&KIAF	Key item affected	S0CBF		
XYZ#DIMP	Device impact	S0BE0		
XYZ#REQD	Date fix required	S0C49		
XYZ#UPRN	User form number	S0D14		
XYZ#REQT	Time fix required	S0C72		
BLM&PLOC	Location code	S0C0C		
XYZ#OUTY	Outage type	S0C13		
XYZ#DSAB	Description	S0E0F		Y

Generating Data Attribute Record Reports with the BLGTDARL TSX

In order to generate a report containing accurate information about attribute records, a terminal simulator EXEC (TSX) named BLGTDARL is provided in the SBLMTSX data set library. BLGTDARL will generate a report containing the attribute records, their description, journal reply, s-word, s-word index, p-word, p-word index, and referencing panels. This means that information about data attribute records can be gathered dynamically and thus provide you with the most current information.

The TSX runs a panel-to-panel cross-reference report. The panel cross-reference report provides an input file containing all the attribute records and the PMF panels that reference the attribute records. This report is processed one line at a time to gather information about each attribute record. For each attribute record, the TSX collects information about the description, the s-word, the s-word index, the p-word, the p-word index, and the journal reply. This information is then placed in an output file as a table.

Input Parameters

This TSX can be run from the command line or in batch. From the Tivoli Information Management for z/OS command line, use the RUN command to run TSX BLGTDARL, passing as a parameter the high level qualifier for the data set name for the output. The data set definition label for the cross-reference report may be included as a second parameter, or

Generating Data Attribute Record Reports with BLGTDARL

the default value may be used. The panel range from which to pull attribute records can be included as a third parameter, or the default value may be used. Use the following command stream:

```
RUN BLGTDARL dsnout dsntype panelrange
```

dsnout

The high level qualifier of the data set that the output from the TSX will be allocated to. It is a required parameter. The TSX will use this high level qualifier in conjunction with a predefined low level qualifier to allocate a data set to which the report will be written.

dsntype

The data set definition label from which to pull the PMF panel to panel cross-reference report. It is an optional parameter. The default is READ.

panelrange

The range of panels that the report will work from. The default is BLG&.

In batch mode, use the sample JCL BLHRCDSJ with these changes to the parameters.

```
//SYSIN DD *
  ISPSTART PGM(BLGINIT) PARM(SESS(xx) CLASS(MASTER) +
  IRC(RUN BLGTDARL dsnout dsntype panelrange,;QUIT))
/*
```

where SESS(xx) is the suffix for the session parameters member used by Tivoli Information Management for z/OS.

Output

The BLGTDARL TSX produces a list of the attribute record, description, journal reply, s-word, s-word index, p-word, p-word index, and reference panel written to **dsnout.BLGTDARL.OUTPUT**. This is an example of the output file. (When the output is created, it is assumed that the page is 130 columns wide; in this example, the output has been condensed.)

```
03/08/01                                DATA SET LABEL:  RPANELS      PANEL RANGE:  BLG&
16:49:21                                DATA SET NAME:   HEATHER.BLGTDARL.OUTPUT
```

DESCRIPTION	RNID	JRNL	SWORD INDEX	S-WORD	PWORD	P-WORD INDEX	REFERENCING PANELS
Approval Status	BLG&APST	YES	12DF	XIM0APST	0510	APST/	BLGLAPVR
					0511	APST/	
					0512	APST/	
Profile External Date Format	BLG&DFMT		116A	XPROFC116A			BLG0P700
Description	BLG&DSAB		0E0F	XIM0TXCA00			BLH0X010
Time Zone DST End Day of Week	BLG&DSED		130C	XIMTZEDW			BLGLDSSD BLGLDSTS
Time Zone DST End Day of Month	BLG&DSEE		130D	XIMTZEDM			BLGLDSSD BLGLDSTS
Time Zone DST End Month	BLG&DSEM		130A	XIMTZEMO			BLGLDSSD BLGLDSTS
Time Zone DST End Time	BLG&DSET		130E	XIMTZELT			BLGLDSSD BLGLDSTS
Time Zone DST End Week	BLG&DSEW		130B	XIMTZEWK			BLGLDSSD BLGLDSTS
Time Zone DST Schedule ID	BLG&DSID		1301	XIMTZSID	082D	DSTS/	BLGLDSSD BLGLDSTS
Time Zone DST Start Day of Week	BLG&DSSD		1306	XIMTZSDW			BLGLDSSD BLGLDSTS
Time Zone DST Start Day of Month	BLG&DSSE		1307	XIMTZSDM			BLGLDSSD BLGLDSTS
Time Zone DST Schedule Index	BLG&DSSI		1313	XIMTZDSS			BLGLTZDD BLGLTZDF
Time Zone DST Start Month	BLG&DSSM		1304	XIMTZSMO			BLGLDSSD BLGLDSTS
Time Zone DST Start Time	BLG&DSST		1308	XIMTZSLT			BLGLDSSD BLGLDSTS
Time Zone DST Start Week	BLG&DSSW		1305	XIMTZSWK			BLGLDSSD BLGLDSTS
Time Zone DST From Year	BLG&FRYR		1302	XIMTZFYR			BLGLDSSD BLGLDSTS
Time Zone DST To Year	BLG&TOYR		1303	XIMTZTYR			BLGLDSSD BLGLDSTS
Time Zone DST Adjustment	BLG&TZAJ		1312	XIMTZDSA			BLGLTZDD BLGLTZDF

Time Zone Definition Comment	BLG&TZCM	1314	XIMTZCOM	BLGLTZDD	BLGLTZDF
Time Zone Symbol	BLG&TZSY	1310	XIMTZSYM	BLGLTZDD	BLGLTZDF
Time Zone UT Offset	BLG&TZUO	1311	XIMTZUTO	BLGLTZDD	BLGLTZDF

Installation and Tailoring Considerations

The TSX BLGTDARL contains a user-modifiable section. You may need to change the values assigned to variables in that section.

```

/*****BEGIN USER MODIFIABLE AREA*****/
/* The following variables define the Information Management */
/* commands used by this REXX Exec. If you have used the COMMAND */
/* record to change the name of any of these commands, you must */
/* also change the values here. Make sure the commands you use */
/* in uppercase and have no leading or trailing blanks. You can */
/* change the value between the single quotes. Do not make any */
/* changes on the left hand side of the equal sign. For example, */
/* if you have used the COMMAND record to rename the INITIALIZE */
/* command to the BEGIN command, the variable init_command would */
/* now be defined as: */
/*   init_command = 'BEGIN'; */
/*****/
cancel_command = ';CANCEL'
init_command = ';INITIALIZE'
search_command = ';SEARCH'
display_command = ';DISPLAY R'
profile_command = ';PROFILE' /* @P6A*/

/*****/
/* The following variables define Immediate Response Change (IRC) */
/* keystrokes used by this REXX Exec. */
/* Please verify that the IRCs below match the customized panel flow */
/* on your system or change as necessary. If you determine that a */
/* change is necessary, you may change the value between the single */
/* quotes. Do not make any changes on the left hand side of the */
/* equal sign. For example, if the keystroke sequence to switch */
/* from MANAGEMENT to SYSTEM is 98,1 instead of 3,1 the variable */
/* create_command would now be defined as: */
/*   create_command = '98,1,5,2,2'; */
/*****/
/* Modify the following line so that the IRC matches the keystrokes */
/* required to start on the SYSTEM BLG0EN10 panel. */
/*****/
back_to_prime = '3,2';

/*****/
/* Modify the following line so that the IRC matches the keystrokes */
/* required to display the panel cross reference report in the */
/* MANAGEMENT product. */
/*****/
repcommand = '9,5,4,'

/*****/
/* Modify the following line so that the low level qualifier for the */
/* output data set matches your system standards. */
/*****/
lowlevel = '.BLGTDARL.OUTPUT'

/*****/
/* Modify the following line so that the unit or device type matches */
/* your system specifications. */
/*****/
devicetype = 'SYSBA'

/*****/
debug = 0 /* No debugging messages DEBUG = 0 */
/* General debugging messages DEBUG = 1 */
/*****END USER MODIFIABLE AREA*****/

```

Function Exit

If the TSX is successful, then the only messages that occur are informational about the progress of the TSX. If the TSX is unsuccessful, messages will be kept in a batch run environment, or, if run via the command line, will be seen immediately. If an error occurs that prohibits the TSX from continuing, the TSX will exit immediately.



Relating Publications to Specific Tasks

Your data processing organization can have many different users performing many different tasks. The books in the Tivoli Information Management for z/OS library contain task-oriented scenarios to teach users how to perform the duties specific to their jobs.

The following table describes the typical tasks in a data processing organization and identifies the Tivoli Information Management for z/OS publication that supports those tasks. See “The Tivoli Information Management for z/OS Library” on page 625 for more information about each book.

Typical Tasks

Table 46. Relating Publications to Specific Tasks

If You Are:	And You Do This:	Read This:
Planning to Use Tivoli Information Management for z/OS	Identify the hardware and software requirements of Tivoli Information Management for z/OS. Identify the prerequisite and corequisite products. Plan and implement a test system.	<i>Tivoli Information Management for z/OS Planning and Installation Guide and Reference</i>
Installing Tivoli Information Management for z/OS	Install Tivoli Information Management for z/OS. Define and initialize data sets. Create session-parameters members.	<i>Tivoli Information Management for z/OS Planning and Installation Guide and Reference</i> <i>Tivoli Information Management for z/OS Integration Facility Guide</i>
	Define and create multiple Tivoli Information Management for z/OS BLX-SPs.	<i>Tivoli Information Management for z/OS Planning and Installation Guide and Reference</i>
	Define and create APPC transaction programs for clients.	<i>Tivoli Information Management for z/OS Client Installation and User's Guide</i>
	Define coupling facility structures for sysplex data sharing.	<i>Tivoli Information Management for z/OS Planning and Installation Guide and Reference</i>
Diagnosing problems	Diagnose problems encountered while using Tivoli Information Management for z/OS	<i>Tivoli Information Management for z/OS Diagnosis Guide</i>

Table 46. Relating Publications to Specific Tasks (continued)

If You Are:	And You Do This:	Read This:
Administering Tivoli Information Management for z/OS	Manage user profiles and passwords. Define and maintain privilege class records. Define and maintain rules records.	<i>Tivoli Information Management for z/OS Program Administration Guide and Reference</i> <i>Tivoli Information Management for z/OS Integration Facility Guide</i>
	Define and maintain USERS record. Define and maintain ALIAS record. Implement GUI interface. Define and maintain command aliases and authorizations.	<i>Tivoli Information Management for z/OS Program Administration Guide and Reference</i>
	Implement and administer Notification Management. Create user-defined line commands. Define logical database partitioning.	<i>Tivoli Information Management for z/OS Program Administration Guide and Reference</i>
	Create or modify GUI workstation applications that can interact with Tivoli Information Management for z/OS. Install the Tivoli Information Management for z/OS Desktop on user workstations.	<i>Tivoli Information Management for z/OS Desktop User's Guide</i>
Maintaining Tivoli Information Management for z/OS	Set up access to the data sets. Maintain the databases. Define and maintain privilege class records.	<i>Tivoli Information Management for z/OS Planning and Installation Guide and Reference</i> <i>Tivoli Information Management for z/OS Program Administration Guide and Reference</i>
	Define and maintain the BLX-SP. Run the utility programs.	<i>Tivoli Information Management for z/OS Operation and Maintenance Reference</i>
Programming applications	Use the application program interfaces.	<i>Tivoli Information Management for z/OS Application Program Interface Guide</i>
	Use the application program interfaces for Tivoli Information Management for z/OS clients.	<i>Tivoli Information Management for z/OS Client Installation and User's Guide</i>
	Create Web applications using or accessing Tivoli Information Management for z/OS data.	<i>Tivoli Information Management for z/OS World Wide Web Interface Guide</i>

Table 46. Relating Publications to Specific Tasks (continued)

If You Are:	And You Do This:	Read This:
Customizing Tivoli Information Management for z/OS	Design and implement a Change Management system. Design and implement a Configuration Management system. Design and implement a Problem Management system.	<i>Tivoli Information Management for z/OS Problem, Change, and Configuration Management</i>
	Design, create, and test terminal simulator panels or terminal simulator EXECs. Customize panels and panel flow.	<i>Tivoli Information Management for z/OS Terminal Simulator Guide and Reference</i> <i>Tivoli Information Management for z/OS Panel Modification Facility Guide</i>
	Design, create, and test Tivoli Information Management for z/OS formatted reports.	<i>Tivoli Information Management for z/OS Data Reporting User's Guide</i>
	Create a bridge between NetView [®] and Tivoli Information Management for z/OS applications. Integrate Tivoli Information Management for z/OS with Tivoli distributed products.	<i>Tivoli Information Management for z/OS Guide to Integrating with Tivoli Applications</i>
Assisting Users	Create, search, update, and close change, configuration, or problem records. Browse or print Change, Configuration, or Problem Management reports.	<i>Tivoli Information Management for z/OS Problem, Change, and Configuration Management</i>
	Use the Tivoli Information Management for z/OS Integration Facility.	<i>Tivoli Information Management for z/OS Integration Facility Guide</i>
Using Tivoli Information Management for z/OS	Learn about the Tivoli Information Management for z/OS panel types, record types, and commands. Change a user profile.	<i>Tivoli Information Management for z/OS User's Guide</i>
	Learn about Problem, Change, and Configuration Management records.	<i>Tivoli Information Management for z/OS Problem, Change, and Configuration Management</i>
	Receive and respond to Tivoli Information Management for z/OS messages.	<i>Tivoli Information Management for z/OS Messages and Codes</i>
	Design and create reports.	<i>Tivoli Information Management for z/OS Data Reporting User's Guide</i>



Tivoli Information Management for z/OS Courses

Education Offerings

Tivoli Information Management for z/OS classes are available in the United States and in the United Kingdom. For information about classes outside the U.S. and U.K., contact your local IBM® representative or visit <http://www.training.ibm.com> on the World Wide Web.

United States

IBM Education classes can help your users and administrators learn how to get the most out of Tivoli Information Management for z/OS. IBM Education classes are offered in many locations in the United States and at your own company location.

For a current schedule of available classes or to enroll, call 1-800-IBM TEACH (1-800-426-8322). On the World Wide Web, visit:

<http://www.training.ibm.com>

to see the latest course offerings.

United Kingdom

In Europe, the following public courses are held in IBM's central London education centre at the South Bank at regular intervals. On-site courses can also be arranged.

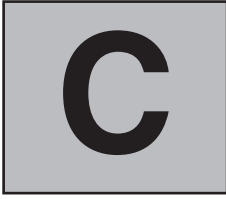
For course schedules and to enroll, call Enrollments Administration on 0345 581329, or send an e-mail note to:

contact_educ_uk@vnet.ibm.com

On the World Wide Web, visit:

<http://www.europe.ibm.com/education-uk>

to see the latest course offerings.



Where to Find More Information

The Tivoli Information Management for z/OS library is an integral part of Tivoli Information Management for z/OS. The books are written with particular audiences in mind. Each book covers specific tasks.

The Tivoli Information Management for z/OS Library

The publications shipped automatically with each Tivoli Information Management for z/OS Version 7.1 licensed program are:

- *Tivoli Information Management for z/OS Application Program Interface Guide*
- *Tivoli Information Management for z/OS Client Installation and User's Guide **
- *Tivoli Information Management for z/OS Data Reporting User's Guide **
- *Tivoli Information Management for z/OS Desktop User's Guide*
- *Tivoli Information Management for z/OS Diagnosis Guide **
- *Tivoli Information Management for z/OS Guide to Integrating with Tivoli Applications **
- *Tivoli Information Management for z/OS Integration Facility Guide **
- *Tivoli Information Management for z/OS Licensed Program Specification*
- *Tivoli Information Management for z/OS Master Index, Glossary, and Bibliography*
- *Tivoli Information Management for z/OS Messages and Codes*
- *Tivoli Information Management for z/OS Operation and Maintenance Reference*
- *Tivoli Information Management for z/OS Panel Modification Facility Guide*
- *Tivoli Information Management for z/OS Planning and Installation Guide and Reference*
- *Tivoli Information Management for z/OS Program Administration Guide and Reference*
- *Tivoli Information Management for z/OS Problem, Change, and Configuration Management**
- *Tivoli Information Management for z/OS Reference Summary*
- *Tivoli Information Management for z/OS Terminal Simulator Guide and Reference*
- *Tivoli Information Management for z/OS User's Guide*
- *Tivoli Information Management for z/OS World Wide Web Interface Guide*

Note: Publications marked with an asterisk (*) are shipped in softcopy format only.

Also included is the Product Kit, which includes the complete online library on CD-ROM.

To order a set of publications, specify order number SBOF-7028-00.

Additional copies of these items are available for a fee.

Publications can be requested from your Tivoli or IBM representative or the branch office serving your location. Or, in the U.S., you can call the IBM Publications order line directly by dialing 1-800-879-2755.

The following descriptions summarize all the books in the Tivoli Information Management for z/OS library.

Tivoli Information Management for z/OS Application Program Interface Guide, SC31-8737-00, explains how to use the low-level API, the high-level API, and the REXX interface to the high-level API. This book is written for application and system programmers who write applications that use these program interfaces.

Tivoli Information Management for z/OS Client Installation and User's Guide, SC31-8738-00, describes and illustrates the setup and use of Tivoli Information Management for z/OS's remote clients. This book shows you how to use Tivoli Information Management for z/OS functions in the AIX[®], CICS[®], HP-UX, OS/2[®], Sun Solaris, Windows NT[®], and OS/390 UNIX[®] System Services environments. Also included in this book is complete information about using the Tivoli Information Management for z/OS servers.

Tivoli Information Management for z/OS Data Reporting User's Guide, SC31-8739-00, describes various methods available to produce reports using Tivoli Information Management for z/OS data. It describes Tivoli Decision Support for Information Management (a Discovery Guide for Tivoli Decision Support), the Open Database Connectivity (ODBC) Driver for Tivoli Information Management for z/OS, and the Report Format Facility. A description of how to use the Report Format Facility to modify the standard reports provided with Tivoli Information Management for z/OS is provided. The book also illustrates the syntax of report format tables (RFTs) used to define the output from the Tivoli Information Management for z/OS REPORT and PRINT commands. It also includes several examples of modified RFTs.

Tivoli Information Management for z/OS Desktop User's Guide, SC31-8740-00, describes how to install and use the sample application provided with the Tivoli Information Management for z/OS Desktop. The Tivoli Information Management for z/OS Desktop is a Java-based graphical user interface for Tivoli Information Management for z/OS. Information on how to set up data model records to support the interface and instructions on using the Desktop Toolkit to develop your own Desktop application are also provided.

Tivoli Information Management for z/OS Diagnosis Guide, GC31-8741-00, explains how to identify a problem, analyze its symptoms, and resolve it. This book includes tools and information that are helpful in solving problems you might encounter when you use Tivoli Information Management for z/OS.

Tivoli Information Management for z/OS Guide to Integrating with Tivoli Applications, SC31-8744-00, describes the steps to follow to make an automatic connection between NetView and Tivoli Information Management for z/OS applications. It also explains how to customize the application interface which serves as an application enabler for the NetView Bridge and discusses the Tivoli Information Management for z/OS NetView AutoBridge. Information on interfacing Tivoli Information Management for z/OS with other Tivoli management software products or components is provided for Tivoli Enterprise Console, Tivoli Global Enterprise Manager, Tivoli Inventory, Tivoli Problem Management, Tivoli Software Distribution, and Problem Service.

Tivoli Information Management for z/OS Integration Facility Guide, SC31-8745-00, explains the concepts and structure of the Integration Facility. The Integration Facility provides a task-oriented interface to Tivoli Information Management for z/OS that makes the

Tivoli Information Management for z/OS applications easier to use. This book also explains how to use the panels and panel flows in your change and problem management system.

Tivoli Information Management for z/OS Master Index, Glossary, and Bibliography, SC31-8747-00, combines the indexes from each hardcopy book in the Tivoli Information Management for z/OS library for Version 7.1. Also included is a complete glossary and bibliography for the product.

Tivoli Information Management for z/OS Messages and Codes, GC31-8748-00, contains the messages and completion codes issued by the various Tivoli Information Management for z/OS applications. Each entry includes an explanation of the message or code and recommends actions for users and system programmers.

Tivoli Information Management for z/OS Operation and Maintenance Reference, SC31-8749-00, describes and illustrates the BLX-SP commands for use by the operator. It describes the utilities for defining and maintaining data sets required for using the Tivoli Information Management for z/OS licensed program, Version 7.1.

Tivoli Information Management for z/OS Panel Modification Facility Guide, SC31-8750-00, gives detailed instructions for creating and modifying Tivoli Information Management for z/OS panels. It provides detailed checklists for the common panel modification tasks, and it provides reference information useful to those who design and modify panels.

Tivoli Information Management for z/OS Planning and Installation Guide and Reference, GC31-8751-00, describes the tasks required for installing Tivoli Information Management for z/OS. This book provides an overview of the functions and optional features of Tivoli Information Management for z/OS to help you plan for installation. It also describes the tasks necessary to install, migrate, tailor, and start Tivoli Information Management for z/OS.

Tivoli Information Management for z/OS Problem, Change, and Configuration Management, SC31-8752-00, helps you learn how to use Problem, Change, and Configuration Management through a series of training exercises. After you finish the exercises in this book, you should be ready to use other books in the library that apply more directly to the programs you use and the tasks you perform every day.

Tivoli Information Management for z/OS Program Administration Guide and Reference, SC31-8753-00, provides detailed information about Tivoli Information Management for z/OS program administration tasks, such as defining user profiles and privilege classes and enabling the GUI user interface.

Tivoli Information Management for z/OS Reference Summary, SC31-8754-00, is a reference booklet containing Tivoli Information Management for z/OS commands, a list of p-words and s-words, summary information for PMF, and other information you need when you use Tivoli Information Management for z/OS.

Tivoli Information Management for z/OS Terminal Simulator Guide and Reference, SC31-8755-00, explains how to use terminal simulator panels (TSPs) and EXECs (TSXs) that let you simulate an entire interactive session with a Tivoli Information Management for z/OS program. This book gives instructions for designing, building, and testing TSPs and TSXs, followed by information on the different ways you can use TSPs and TSXs.

Tivoli Information Management for z/OS User's Guide, SC31-8756-00, provides a general introduction to Tivoli Information Management for z/OS and databases. This book has a series of step-by-step exercises to show beginning users how to copy, update, print, create, and delete records, and how to search a database. It also contains Tivoli Information Management for z/OS command syntax and descriptions and other reference information.

Tivoli Information Management for z/OS World Wide Web Interface Guide, SC31-8757-00, explains how to install and operate the features available with Tivoli Information Management for z/OS that enable you to access a Tivoli Information Management for z/OS database using a Web browser as a client.

Other related publications include the following:

Tivoli Decision Support: Using the Information Management Guide is an online book (in portable document format) that can be viewed with the Adobe Acrobat Reader. This book is provided with Tivoli Decision Support for Information Management (5697-IMG), which is a product that enables you to use Tivoli Information Management for z/OS data with Tivoli Decision Support. This book describes the views and reports provided with the Information Management Guide.

IBM Redbooks™ published by IBM's International Technical Support Organization are also available. For a list of redbooks related to Tivoli Information Management for z/OS and access to online redbooks, visit Web site <http://www.redbooks.ibm.com> or <http://www.support.tivoli.com>

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