

Entire System Server

User's Guide

Version 3.8.1

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This document applies to Entire System Server Version 3.8.1 and all subsequent releases.

Specifications contained herein are subject to change and these changes will be reported in subsequent release notes or new editions.

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1 About this Documentation

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Document Conventions

| Convention | Description |
|----------------|--|
| Bold | Identifies elements on a screen. |
| Monospace font | Identifies service names and locations in the format <code>folder.subfolder.service</code> , APIs, Java classes, methods, properties. |
| <i>Italic</i> | Identifies: Variables for which you must supply values specific to your own situation or environment. New terms the first time they occur in the text. References to other documentation sources. |
| Monospace font | Identifies: Text you must type in. Messages displayed by the system. Program code. |
| { } | Indicates a set of choices from which you must choose one. Type only the information inside the curly braces. Do not type the { } symbols. |
| | Separates two mutually exclusive choices in a syntax line. Type one of these choices. Do not type the symbol. |
| [] | Indicates one or more options. Type only the information inside the square brackets. Do not type the [] symbols. |
| ... | Indicates that you can type multiple options of the same type. Type only the information. Do not type the ellipsis (...). |

Online Information and Support

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Product Training

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You can collaborate with Software GmbH experts on our Tech Community website at <https://tech-community.softwareag.com>. From here you can, for example:

- Browse through our vast knowledge base.
- Ask questions and find answers in our discussion forums.
- Get the latest Software GmbH news and announcements.
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- Download products, updates and fixes.
- Search the Knowledge Center for technical information and tips.
- Subscribe to early warnings and critical alerts.
- Open and update support incidents.
- Add product feature requests.

Data Protection

Software AG products provide functionality with respect to processing of personal data according to the EU General Data Protection Regulation (GDPR). Where applicable, appropriate steps are documented in the respective administration documentation.

2 User's Guide

This documentation covers the following topics:

- Introduction* Provides an overview of the Entire System Server functionality.
- Getting Started* Contains information necessary to communicate with the various operating system services provided by the Entire System Server.
- Online Tutorial* Serves as a starting help for users and contains available views, a help text for each view specific to each operating system, and a sample program for each view.
- View Descriptions* Explains how the description of each view is organized, describes global fields and provides an overview of available views according to their functional area.
- Related Literature*

3 Introduction

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- How the Entire System Server Works 9
- How to Access Operating System Services 11
- How a Natural User Benefits from the Entire System Server 11
- Integration 12

This chapter covers the following topics:

Contents of this Documentation

This documentation contains all information relevant to Entire System Server users. Before you start reading the following sections, you are advised to read the background information contained in the Entire System Server Concepts and Facilities documentation.

For the sake of convenience, however, a brief system overview and a description of how Entire System Server works is given in the following subsections. Some hints as to how the different types of Natural users can make use of Entire System Server are also included.

Subsequent sections cover the following topics:

- **Getting Started**

Describes the statements to access the Entire System Server, and gives some examples illustrating the use of the Entire System Server.

- **Online Tutorial**

Describes the online tutorial delivered with the Entire System Server.

- **View Descriptions**

Lists the Entire System Server views and gives a detailed description of addressable fields.

- **Operator Commands**

Describes the operator commands that can be used to control the Entire System Server.

System Overview

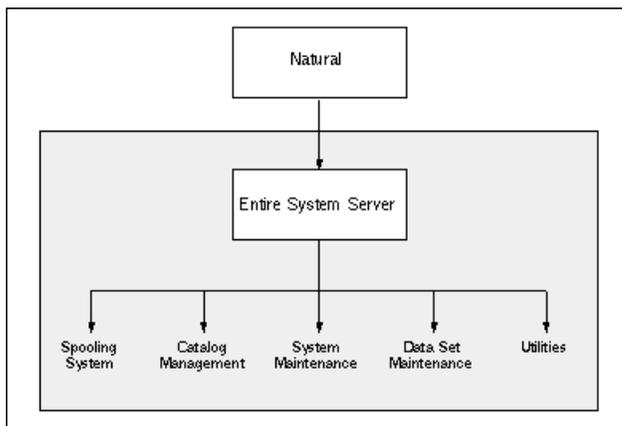
The Software GmbH product Entire System Server is a self-contained software package that provides operating system services in a Natural environment. When installed on computers that are linked up in an Entire Net-Work, the Entire System Server supports distributed computing environments that can encompass heterogeneous operating systems.

The Entire System Server makes data center management facilities available to Natural users (system programmers, application developers, computer operators), who now have access to network data not available before in a Natural environment. Entire System Server services include:

- access to jobs in input and output queues;
- submission of batch jobs;

- access to system console and operator command input;
- disk management;
- catalog management;
- read and write access to conventional files;
- utility functions (IDCAMS, AMASPZAP, IEBCOPY, ARCHIVE);
- network operations.

The following figure illustrates how Entire System Server enhances the Natural environment:



How the Entire System Server Works

Entire System Server provides operating system information and services in the form of views. Depending on the type of service requested, displayed items can be further processed using operator commands, or used by a Natural program.

Entire System Server views consist of fields which are given a name. A Natural program can use this name to reference the associated item.

For example, Entire System Server provides a view of VTOC information, in which the various items are identified by field name. You can use the Natural `FIND` statement in a Natural program to select VTOC information. In the request, you can specify a volume serial number to identify the volume, and a node number to identify the particular Entire System Server in a computer network. Individual items are requested by specifying their field names. The following Natural program illustrates this for Volume `VOL001` and Node `148`:

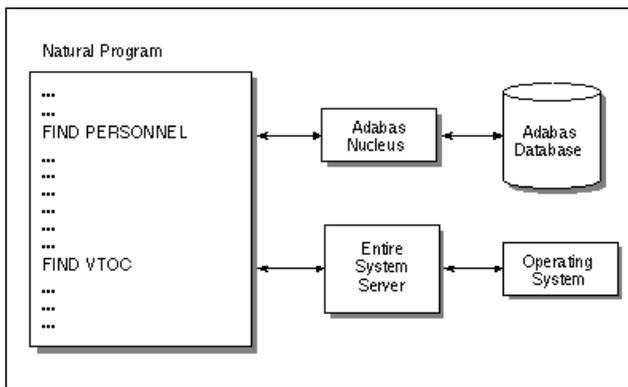
```
FIND VTOC WITH VOLSER='VOL001'  
          AND NODE=148  
  SORT BY DSNAME  
  DISPLAY DSNAME DSORG LRECL BLKSIZE PERCENT-USED  
LOOP  
END
```

Internally, the presentation of such operating system information is implemented as follows:

Each Entire System Server in the network is assigned a database ID (node number) which is specified for the views it provides.

The Natural FIND statement (as in the above example) results in an Adabas call which the Entire System Server recognizes and intercepts based on the database ID. The Adabas call is passed to a special region, which serves Entire System Server requests: instead of database records, operating system information and system services are returned.

In other words, Natural behaves as if the view addressed by the FIND statement were an Adabas file: Natural builds the various Adabas control blocks and issues Adabas calls. The Entire System Server handles Adabas calls in the same way as Adabas itself. The following figure illustrates this concept:



Whereas the first FIND statement in the above figure returns personnel data from an Adabas database, the second FIND statement accesses operating system information.

In order to make the Entire System Server more efficient, the Adabas calls are intercepted to provide buffering between the Natural program and the Entire System Server nucleus. Natural places the requested service into the Adabas format, search and value buffers, and the result is returned to the record buffer.

How to Access Operating System Services

Natural programs can access the Entire System Server using either of the following statements:

| Natural Statement | Meaning |
|-------------------|--|
| FIND | Select operating system information for the specified view(s). |
| PROCESS | Perform operating system activities using the specified view(s). |

The Entire System Server in turn accesses the requested operating system service. Each operating system service is presented as a view defined to the Entire System Server.

- When directed at Entire System Server, the Natural statements listed above can be used with some additional options. These are described in detail in section *Getting Started*.
- A detailed description of each view available through Entire System Server is given in the section *View Descriptions*.
- Example Natural programs with calls to the Entire System Server can be found in the online tutorial delivered with the Entire System Server.

How a Natural User Benefits from the Entire System Server

The additional information and services provided by the Entire System Server are accessible via views as appropriate to each supported operating system. It is therefore not difficult to see how the Entire System Server can benefit the Natural user, whether a system programmer, a computer operator or an application programmer. A brief outline follows in the subsections below.

System Programmers and Computer Operators

The computer operator benefits especially from the access to job management items; these include job variables, job switches and the job queue, SYSLIST files and spool information, as well as the access to the console and active job information. Applications can be realized to allow an operator to perform functions with an easy-to-use Natural tool.

With the Entire System Server, the system programmer has a very powerful instrument for maintaining and monitoring network-wide system resources and information from a single location. A special benefit is the ability to further process information retrieved through Entire System Server in the Natural environment.

For example, a system programmer can write programs to give statistics about disk usage, monitor spooling systems, inspect job address space, run the ARCHIVE utility, use inter-task communication (ITC), etc. The names of the views described in this documentation speak for themselves, and any

experienced system programmer will recognize the many possibilities that the Entire System Server offers for the work in this particular environment.

Application Programmers

The range of file management views provided by the Entire System Server are of special importance to the application programmer. Names of operating system files can be assigned dynamically at execution time (batch and online). With the `FILE-ALLOCATE` view, an operating system file can be created at any time.

Another benefit for application programming is the group of views that make batch processing available to online applications. Using the `SUBMIT` view, application programmers can run jobs on any computer in the network and monitor them using the `ACTIVE-JOBS` view. The results can be inspected from within the application using the `SPOOL-QUEUE`, `READ-SPOOL` or `READ-FILE` views as appropriate.

One useful feature for application programmers is the access to information stored in sequential files. Using the views `READ-FILE` and `WRITE-FILE`, application programmers can work with sequential files in a synchronized way. This even holds true in TP environments which otherwise would not support access to sequential files.

Integration

The Entire System Server is fully integrated into the Entire technology, Software GmbH's concept for realizing Open Enterprise Computing. This means that the Entire System Server can operate in a computer network if the different computers are interlinked with Software GmbH's Entire Net-Work. Different physical machines are addressed by using different Entire System Server node numbers. This enables one Entire System Server application to control a multi-CPU environment which may include heterogeneous operating systems.

As the logical companion of Natural, the Entire System Server is fully compatible with other tools available for the Natural environment such as:

- Predict
- Natural Security
- Super Natural
- Entire Connection

Entire System Server also interfaces with security packages such as RACF, ACF2 and TOP SECRET, etc.

Entire System Server can be used with Natural in batch mode, when using Natural with a TP monitor such as Com-plete, CICS, IMS or *open*UTM, when using Natural with TSO or TIAM, or with a program that uses Adabas direct commands.

Calls from UNIX platforms are supported, for example, for Entire Operations.

4 Getting Started

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- Using Entire System Server in a Multi-Computer Environment 19
- Using Entire System Server Update View Processors 19
- Examples 23

This section contains information necessary to communicate with the various operating system services provided by the Entire System Server. The examples included show the use of the Entire System Server. The examples consist of Natural programs that reference Entire System Server views, and show the resulting output.

An example program for every available view is contained in an online tutorial delivered with the Entire System Server (see Section [Online Tutorial](#) for more information).

This chapter covers the following topics:

Syntax Used to Access Entire System Server

Entire System Server views can be accessed from any Natural program using the Natural statement `PROCESS` or `FIND`. Which statement you will use depends on the type of view accessed, the access mode required, and the number of records selected.

- The `PROCESS` statement is intended for use only for views related to performing an activity.
- The `FIND` statement can be used to retrieve information, which may consist of a set of records.

PROCESS Statement

The `PROCESS` statement is used to request a function (for example, allocate, update, or delete system data, issue operator commands,) using the appropriate operating system service.

```
PROCESS view-name USING field-name=value  
      GIVING field-name
```

Example:

```
PROCESS FILE-ALLOCATE USING  
      DSNAME = 'USER.123',  
      VOLSER = 'SAG001',  
      NODE   = 151  
      GIVING ERROR-CODE
```

Using the view `FILE-ALLOCATE`, a dataset named `USER.123` is allocated on a volume with the serial number `SAG001`, on the machine identified by the Entire System Server node ID `151`, and a code is returned.

FIND Statement

The `FIND` statement can be used to display data from views that require specification of fields. Selectable fields are indicated in the view descriptions by a `D` in the `Descriptor` column (see [View Descriptions](#)).

```
FIND ... view-name WITH ... search criteria
```

Data is selected based on the specified search criteria (see next subsection).

Example:

```
FIND ACTIVE-JOBS WITH NODE      = 151
                        AND JOB-NAME = COMPLETE
....
END-FIND
```

Using the `ACTIVE-JOBS` view, the job named `COMPLETE` on the machine identified by the Entire System Server node ID 151 is selected for display.

Search Criteria with the FIND Statement

When `FIND` is used to access the Entire System Server, search criteria can be used to specify values for alphanumeric fields. Two search criteria are available:

- * Acts as placeholder for one or more characters in the position;
- _ Acts as placeholder for one character.

The following examples demonstrate the use of these search criteria:

Example 1:

```
FIND VTOC WITH VOLSER = 'V3380A' AND DSNAME = 'L99*LOAD*'
```

All datasets on volume `V3380A` whose names start with `L99` followed by anything, followed by `LOAD`, followed by anything, are selected; for example:

- `L99COM.LOAD.NPR`
- `L99.SAG.LOAD.DOCS`
- `L99NPROC.LOAD`

Example 2:

```
FIND VTOC WITH VOLSER = 'V3380A' AND DSNAME = '*SOURCE'
```

All datasets on volume V3380A whose names end with SOURCE are selected; for example:

- A1234.SOURCE
- SAG.PP.SOURCE
- AB.MYSOURCE

Example 3:

```
FIND ACTIVE-JOBS WITH JOB-NAME = 'L_ _AB*'
```

All jobs whose first characters are L, followed by any 2 characters, followed by AB, followed by anything are selected; for example:

- L12ABJOB
- LAAABX
- LXXAB2YC

Example 4:

```
FIND ↵
```

```
NATPROC-USERS WITH USER-ID = '_ _ _ _ _'
```

All users of the Entire System Server whose identifiers contain exactly 5 characters are selected.

The FIND statement does not create an ISN list as in the case of Adabas. Therefore, all functions related to ISN lists are not supported; for example, RETAIN, *NUMBER.

As Entire System Server does not support ISN lists as it is done in Adabas, the meaning of the field *NUMBER is different.

There are in general 3 possibilities:

1. *NUMBER = 0 means for Natural: fall in NO RECORDS FOUND clause and Entire System Server did not find any record which fulfilled the search criteria.
2. *NUMBER = 1 means for Natural one record found. It will be returned for views with one wanted action such as FILE-ATTRIBUTES, CATALOG-UPDATE.
3. *NUMBER = large value: there are different large values for different views such as CATALOG, READ-FILE and READ-SPOOL

Using Entire System Server in a Multi-Computer Environment

If you have more than one computer at your installation, you may have more than one Entire System Server node installed (ask your system programmer). Note that the node ID identifies each Entire System Server node uniquely.

It is possible to direct a Entire System Server request from a Natural program to a specific node. To do this, specify `NODE=nnn` in the appropriate `FIND` statement; for example:

```
FIND VTOC WITH VOLSER='DISK01' AND NODE=151
```

This statement is executed in Node 151. If the `NODE` field is not specified, the default node is used (DBID specified in the DDM).

An alternative method is to use the `NODE-NAME` field when referencing Entire System Server nodes on other machines. `NODE-NAME` is a character field and allows programs to be written without regard to a specific node number. If a particular machine needs to have its node changed, the only update that is required is to the mapping module `ESYNODTB` (see also Entire System Server *Installation and Customization* documentation). No Natural programs need to be changed and restowed.

An example of `NODE-NAME` is

```
FIND VTOC WITH VOLSER='SMS236' AND NODE-NAME = 'PROD'
```

If both `NODE` and `NODE-NAME` are specified, the `NODE` specification takes precedence.

A Natural program can even access multiple nodes. For example, using the `COPY-FILE` view, you can copy a file from one node to another.

Using Entire System Server Update View Processors

General

Most of the views provided by `ESY` obtain data from the Operating System and return these data to the Natural program. Those views belong to the group of retrieval views. Another group of views allows you to modify Operating System objects in a certain way. These views belong to the group of update views.

All multi-record views with an Adabas file number greater than or equal to 200 belong to update views. These views require a special programming technique. A number of other update views support a single record request only (for example, `CATALOG-UPDATE`, `VTOC-UPDATE`) and do not need special programming considerations.

The field `FUNCTION` is provided in all update views. It should contain blanks while creating the object, and the value `CLOSE` if the object has been properly created. If no `CLOSE` has been requested, the object is still in open state and not completely built.

We recommend using the Natural statement `PROCESS` to request update view services.

```
PROCESS update_view USING
      NODE = #NODE
      , FUNCTION = #FUNCTION
...

```

A Session with Multiple `PROCESS` Statements

If more than one `PROCESS` statement is implemented in a Natural program and the requests are related to one session only, for example, to create a single dataset, the `PROCESS` statements must be indicated as belonging together.

A typical example is the `PROCESS WRITE-FILE USING FUNCTION=' '` in one subroutine to create several records and `PROCESS WRITE-FILE USING FUNCTION='CLOSE'` in a different subroutine. The field `IDENTIFIER` must be used and filled with the same 8-byte character string to indicate a session dealing with the same dataset in different locations of a Natural program.

Another issue is implementing nested loops requesting update view services. A separate `IDENTIFIER` must be used in every loop level to make the calls linked to several sessions if for example `WRITE-FILE` is used in different loop levels. If no `IDENTIFIER` is provided, unpredictable results might occur in nested loops.

Segmenting Data

If records have to be written to a dataset, the view `WRITE-FILE` must be used to do it. The field `RECORD` is defined as an alphanumeric field with a maximum length of 253 bytes only. Datasets probably contain records larger than 253 bytes. Therefore, the pieces of such records have to be delivered in segments.

Setting fields `SEGMENT-NUMBER` and `SEGMENT-LENGTH` allows you to create records longer than 253 bytes. Assuming a record length of 500 bytes, two view calls are needed.

`SEGMENT-NUMBER=1, SEGMENT-LENGTH=250, RECORD bytes 1-250` filled with data, create the first part of the record, `SEGMENT-NUMBER=2, SEGMENT-LENGTH=250, RECORD bytes 1-250` the second part of the record.

Smaller segments could also be used (for example, 5 segments each 100 bytes long) but this would increase the number of calls and reduce the performance.

Sample WRITE-FILE Program

The following sample program reads an LMS element on one node and copies the data to another LMS element on another node. It deals with segments returned by the view READ-FILE. If an error occurs, the copying is stopped immediately.

```

DEFINE DATA LOCAL
1 READ-FILE VIEW OF READ-FILE
  2 ERROR-CODE
  2 ERROR-TEXT
  2 SYSTEM-CODE
  2 SYSTEM-MESSAGE-CODE
  2 DSNAME
  2 ELEMENT
  2 ELEMENT-TYPE
  2 ELEMENT-VERSION
  2 RECORD
  2 RECORD-LENGTH
  2 RECORD-NUMBER
  2 SEGMENT-LENGTH
  2 SEGMENT-NUMBER
  2 END-OF-FILE
  2 PRODUCT
  2 KEY
1 WRITE-FILE VIEW OF WRITE-FILE
  2 ERROR-CODE
  2 ERROR-TEXT
  2 SYSTEM-CODE
  2 SYSTEM-MESSAGE-CODE
  2 DSNAME
  2 ELEMENT
  2 ELEMENT-TYPE
  2 ELEMENT-VERSION
  2 RECORD
  2 RECORD-LENGTH
  2 RECORD-NUMBER
  2 SEGMENT-LENGTH
  2 SEGMENT-NUMBER
  2 PRODUCT
  2 DISP
  2 KEY
  2 FUNCTION
*
1 #I-DSNAME      (A54) INIT <'$NPR.NPRvrs.DEV'>
1 #I-ELEMENT     (A64) INIT <'XCOMMAIN'>
1 #I-ELEMENT-TYPE (A8)  INIT <'P'>
1 #I-NODE        (N3)  INIT <113>
1 #I-PRODUCT     (A1)  INIT <'M'>
*
1 #O-DISP        (A3)  INIT <'NEW'>
1 #O-DSNAME      (A54) INIT <'$PRD.NPRvrs.DEV'>

```

```

1 #O-FUNCTION      (A8)  INIT <' '>
1 #O-ELEMENT      (A64) INIT <'XCOMMAIN'>
1 #O-NODE         (N3)  INIT <114>
1 #O-PRODUCT      (A1)  INIT <'M'>
*
1 #CLOSE-NEEDED  (L)   INIT <FALSE>
*
END-DEFINE
*
* Main loop reading the segments of the input file to
* write the data to output on the target node.
*
FIND READ-FILE WITH NODE          = #I-NODE
                        AND DSNAME = #I-DSNAME
                        AND ELEMENT = #I-ELEMENT
                        AND ELEMENT-TYPE = #I-ELEMENT-TYPE
                        AND PRODUCT = #I-PRODUCT
*
  IF READ-FILE.ERROR-CODE NE 0
    WRITE READ-FILE.ERROR-CODE
      READ-FILE.ERROR-TEXT
      READ-FILE.SYSTEM-CODE
      READ-FILE.SYSTEM-MESSAGE-CODE
    IF #CLOSE-NEEDED EQ FALSE
      ESCAPE ROUTINE
    END-IF
  END-IF
*
  IF READ-FILE.END-OF-FILE EQ 'YES' OR
    READ-FILE.ERROR-CODE NE 0
    ASSIGN #O-FUNCTION = 'CLOSE'
  END-IF
*
  PROCESS WRITE-FILE USING
    NODE          = #O-NODE
    , DSNAME      = #O-DSNAME
    , DISP        = #O-DISP
    , FUNCTION    = #O-FUNCTION
    , PRODUCT     = #O-PRODUCT
    , ELEMENT     = #O-ELEMENT
    , ELEMENT-TYPE = READ-FILE.ELEMENT-TYPE
    , ELEMENT-VERSION = READ-FILE.ELEMENT-VERSION
    , RECORD      = READ-FILE.RECORD
    , RECORD-LENGTH = READ-FILE.RECORD-LENGTH
    , RECORD-NUMBER = READ-FILE.RECORD-NUMBER
    , SEGMENT-LENGTH = READ-FILE.SEGMENT-LENGTH
    , SEGMENT-NUMBER = READ-FILE.SEGMENT-NUMBER
    , KEY         = READ-FILE.KEY
*
  IF WRITE-FILE.ERROR-CODE NE 0
    WRITE WRITE-FILE.ERROR-CODE
      WRITE-FILE.ERROR-TEXT

```

```

WRITE-FILE.SYSTEM-CODE
WRITE-FILE.SYSTEM-MESSAGE-CODE
ESCAPE ROUTINE
END-IF
*
IF READ-FILE.ERROR-CODE NE 0
    ESCAPE ROUTINE
END-IF
*
ASSIGN #CLOSE-NEEDED = TRUE
*
END-FIND
*
END

```

Examples

Example programs and their results are shown below for each of the functional areas of Entire System Server. The programs are taken from the Entire System Server online tutorial. A full list of field names for the various operating systems is contained in the view descriptions; see [View Descriptions](#).

File Management: COPY-FILE

Program MCOPYFI uses the COPY-FILE view to copy files from one node to another within a computer network:

```

* Program    MCOPYFI
* View      COPY-FILE
*
* Function   Copy files from node to node
*
* -----
*
DEFINE DATA
    GLOBAL USING TUTO
    LOCAL USING COPYFI-L
END-DEFINE
*
REPEAT
    INPUT (AD=MI'_' ZP=OFF)
           // ##TITLE (AD=OI IP = OFF)
           // ' from' (I)
           // ' Dataset....:' COPY-FILE.FROM-DSNAME
           / ' Member.....:' COPY-FILE.FROM-MEMBER
           / ' Volser.....:' COPY-FILE.FROM-VOLSER
           / ' Node.....:' COPY-FILE.FROM-NODE
           // ' to' (I)

```

```

// ' Dataset....:' COPY-FILE.TO-DSNAME
/ ' Member....:' COPY-FILE.TO-MEMBER
/ ' Volser....:' COPY-FILE.TO-VOLSER
/ ' Node.....:' COPY-FILE.TO-NODE
PROCESS COPY-FILE USING FROM-DSNAME = COPY-FILE.FROM-DSNAME
, FROM-MEMBER = COPY-FILE.FROM-MEMBER
, FROM-VOLSER = COPY-FILE.FROM-VOLSER
, FROM-NODE = COPY-FILE.FROM-NODE
, TO-DSNAME = COPY-FILE.TO-DSNAME
, TO-MEMBER = COPY-FILE.TO-MEMBER
, TO-VOLSER = COPY-FILE.TO-VOLSER
, TO-NODE = COPY-FILE.TO-NODE
, NODE = ##NODE
REINPUT ERROR-TEXT
*
END-REPEAT
END

```

This program prompts you for specification of the source and destination names, and notifies you of the successful copy function with a message:

```
ESY5000 COPY COMPLETED SUCCESSFULLY
```

System Maintenance: NET-OPER

Program MNETOPR executes certain operator commands and displays system response:

```

* Program MNETOPR
* View NET-OPER
*
* Function Execute NET operator commands and display response
*
* -----
*
DEFINE DATA
GLOBAL USING TUTO
LOCAL USING NETOP-L
END-DEFINE
*
REPEAT
INPUT (AD=MI'_' )
// ##TITLE (AD=OI IP=OFF)
// 'Command:' / ' ' NET-OPER.COMMAND (AL=79)
// 'Purge previous messages ?' NET-OPER.PURGE-PREVIOUS '(y/n)'
*
FIND NET-OPER WITH COMMAND = NET-OPER.COMMAND
AND NODE = ##NODE
AND PURGE-PREVIOUS = NET-OPER.PURGE-PREVIOUS
*
IF ERROR-CODE > 0

```

```

        ASSIGN ##MSG-NR = 1000
        ASSIGN ##MSG-TXT1 = ERROR-TEXT
        STOP
    END-IF
*
    IF LINE-STATUS NE 'YES'
        NEWPAGE
    END-IF
*
    WRITE NOTITLE TIME-STAMP LINE (AL=70)
*
    END-FIND
END-REPEAT
END

```

Example output from the program MNETOPR using input D NET,LINES:

```

09:02:12 D NET,LINES
09:01:38 IST097I  DISPLAY  ACCEPTED
09:01:38 IST350I  VTAM DISPLAY - DOMAIN TYPE= LINES
09:01:38 IST354I  PU T4/5 MAJOR NODE = ISTPUS
09:01:38 IST170I  LINES:
09:01:38 IST080I  050-L    ACTIV----I 052-L    ACTIV----I
09:01:38 IST231I  CA MAJOR NODE = FCHAN
09:01:38 IST170I  LINES:
09:01:38 IST232I  FACAL    , ACTIV----E, CUA = 930
09:01:38 IST354I  PU T4/5 MAJOR NODE = NCPF00
09:01:38 IST170I  LINES:
09:01:38 IST080I  NATL1    RESET-N--- SIML1    RESET-N--- BRUL1    RESET-N---
09:01:38 IST080I  BERL1    RESET-N--- HANL1    RESET-N--- AMSL1    RESET-N---
09:01:38 IST080I  MUEL2    RESET-N--- STUL2    RESET-N--- STUL3    RESET-N---
09:01:38 IST080I  DEML1    RESET-N--- HAML2    RESET-N--- NIKL1    RESET-N---
09:01:38 IST080I  NIKL3    RESET-N--- NIKL4    RESET-N--- HAML1    RESET-N---
09:01:38 IST080I  STUL1    RESET-N--- WIEL1    RESET-N--- DEML2    RESET-N---
09:01:38 IST080I  LNKRESL  ACTIV----E
09:01:38 IST354I  PU T4/5 MAJOR NODE = NCPE01
09:01:38 IST170I  LINES:
09:01:38 IST080I  VXEL1    RESET-N--- NIKL5    RESET-N--- NIKL6    RESET-N---
09:01:38 IST080I  NETL1    RESET-N--- NUEL1    RESET-N--- FRIL1    RESET-N---
09:01:38 IST080I  FRIL2    RESET-N--- FRIL3    RESET-N--- FRIL4    RESET-N---

```

System Maintenance: CONSOLE

Program MCONSOL displays the operator console:

```

* Program   MCONSOL
* View     CONSOLE
*
* Function  Operator Console
*
* -----
*
DEFINE DATA
  GLOBAL USING TUTO
  LOCAL  USING CONSOLEL
END-DEFINE
*
SET KEY PF12 NAMED 'Node'
*
REPEAT
  RESET #LINE (*)
  RESET #CV-LINE (*)
  FIND CONSOLE WITH NODE      = ##NODE
                        AND FUNCTION = 'DISPLAY'
  PERFORM CHECK-ERROR
  ASSIGN #LINE (20) = TEXT
  ASSIGN #LINE (1:19) = #LINE(2:20)
END-FIND
*
  FIND CONSOLE WITH NODE      = ##NODE
                        AND FUNCTION = 'DIS-WTOR'
  PERFORM CHECK-ERROR
  ASSIGN #I = *COUNTER
  ASSIGN #LINE (#I) = TEXT
  ASSIGN #CV-LINE (#I) = (AD=I)
END-FIND
*
  RESET #LINE (20)
  #CV-LINE (20)
  FOR #I 1 19
    FOR #J = #I 20
      IF #LINE (#I) = ' '
        ASSIGN #LINE (#I:19) = #LINE (#I+1:20)
        ASSIGN #CV-LINE (#I:19) = #CV-LINE (#I+1:20)
        RESET #LINE (20)
          #CV-LINE (20)
      ELSE
        ESCAPE BOTTOM
      END-IF
    END-FOR
  END-FOR
END-FOR
*

```

```

PERFORM SCREEN-IO
*
END-REPEAT
*
DEFINE SUBROUTINE SCREEN-IO
  INPUT WITH TEXT *###MSG-NR,###MSG-TXT1, ###MSG-TXT2
  USING MAP 'CONSOLE&'
  RESET ###MSG-NR ###MSG-TXT1 ###MSG-TXT2
  IF #COMMAND-LINE NE ' '
    ASSIGN #FUNCTION = 'OP-CMD'
    PERFORM ISSUE-OPERATOR-COMMAND
    RESET #COMMAND-LINE
  END-IF
  IF *PF-KEY = 'PF12'
    CALLNAT 'TUTODB' ##NODE ##MSG ##TUTO
  END-IF
END-SUBROUTINE
*
DEFINE SUBROUTINE ISSUE-OPERATOR-COMMAND
  PROCESS CONSOLE USING NODE      = ##NODE
  , FUNCTION = #FUNCTION
  , TEXT = #COMMAND-LINE
  GIVING ERROR-CODE ERROR-TEXT
  PERFORM CHECK-ERROR
END-SUBROUTINE
*
DEFINE SUBROUTINE CHECK-ERROR
  IF CONSOLE.ERROR-CODE > 0
    ASSIGN ##MSG-TXT1 = CONSOLE.ERROR-TEXT
    ASSIGN ##MSG-NR = 1000
  END-IF
END-SUBROUTINE
*
END

```

Output from the program MCONSOL:

```

----- Operator-Console ----- Node 148
- STC 2141 NET0120 - VTAM LINK LNKA TO NODE ANODE STAT=ACTIVE
- STC 2141 NET0120 - VTAM LINK LNKVM TO NODE UNKNOWN STAT=OPEN
- STC 2141 NET0120 - VTAM LINK LNKKOP TO NODE UNKNOWN STAT=OPEN
- JOB 2344 IEF404I IMSGEN05 - ENDED - TIME=10.22.44
- JOB 2345 IEF403I IMSGEN06 - STARTED - TIME=10.22.45
STC 2112 F FNETWK,CONN LNKU --> UQ K CMD FROM HRO
- STC 2141 NET0137 - LINK LNKU CONNECT INITIATED
- STC 2141 NET0137 - LINK LNKR CONNECT INITIATED
STC 2124 IST663I CDINIT REQUEST TO EHOST FAILED, SENSE=08010000
IST664I REAL OLU=SAGNET.FNETWK ALIAS DLU=SAGNET.UNETWK
IST889I SID = CB6722CE854CF71C
IST314I END
STC 2124 IST663I CDINIT REQUEST TO EGAT FAILED, SENSE=08010000
IST664I REAL OLU=SAGNET.FNETWK ALIAS DLU=SAGNET.RNETWK

```

```

IST889I SID = CB6722CE854CF71E
IST314I END
STC 2112 P NPR123                --> UQ K CMD FROM WKK
STC 2112 IEE341I NPR123   NOT ACTIVE
00- STC 2231 === INACTIVE USER HAL   HAS BEEN PURGED ===

```

Spool Management: READ-SPOOL

Program MRSP00L displays information for a specified job:

```

* Program    MRSP00L
* View      READ-SPOOL
*
* Function   Read SYSOUT records from JES
*
* -----
*
DEFINE DATA
  GLOBAL USING TUTO
  LOCAL USING RSP00L-L
  LOCAL 1 #JOBN      (N5)
        1 #JOB       (A8)
        1 #TYPE     (A2)
        1 #DS       (N3)
        1 #STRING   (A50)
        1 #SEL      (A1/1:6)
        1 #CODE     (A2/1:6) CONST (1) <'SI'>
                                   (2) <'JL'>
                                   (3) <'SM'>
                                   (4) <'SO'>
                                   (5) <'CC'>
                                   (6) <'AL'>
        1 #I        (I1)
END-DEFINE
*
REPEAT
  INPUT WITH TEXT *##MSG-NR,
                 ##MSG-TXT1,
                 ##MSG-TXT2
  USING MAP 'MRSP00L&'
  RESET ##MSG
*
  IF #STRING = ' '
    ASSIGN #STRING = '*'
  END-IF
*
  IF SELECTION NOT UNIQUE #SEL (*)
    REINPUT *1011
  ELSE
    FOR #I = 1 TO 6
      IF #SEL (#I) NE ' '

```

```

        ASSIGN #TYPE = #CODE (#I)
    END-IF
END-FOR
END-IF
*
FIND READ-SPOOL WITH JOB-NAME    = #JOB
                        AND JOB-NUMBER = #JOBN
                        AND TYPE       = #TYPE
                        AND DATA-SET  = #DS
                        AND NODE       = ##NODE
                        AND RECORD     = #STRING
    IF ERROR-CODE > 0
        REINPUT ERROR-TEXT
    END-IF
    DISPLAY NOTITLE NOHDR RECORD (AL=79)
END-FIND
END-REPEAT
*
END

```

Output from the program MRSPPOOL:

The program displays the following output with all datasets specified in the prompt:

```

 1          J E S 2  J O B  L O G  --  S Y S T E M  D A E F  --  N
----- JOB
5812 IEF097I OPPLG181 - USER ACF2BAT  ASSIGNED
14.03.58 JOB 5812 $HASP373 OPPLG181 STARTED - INIT 22 - CLASS W - SYS DAEF
14.03.58 JOB 5812
IEF403I OPPLG181 - STARTED - TIME=14.03.58
14.03.58 JOB 5812 *IEF233A M 803,P18111,,OPPLG181,RES518,DB181.PLOG07
14.10.51 JOB 5812
-
--TIMINGS
14.10.51 JOB 5812 -JOBNAME STEPNAME PROCSTEP    RC  EXCP  CONN    TCB    S
14.10.51 JOB 5812 -OPPLG181 PLG181  RES518      00  7122  22575   .03    .
14.10.54 JOB 5812 $DRM007 WARNING - DRM DATABASE IS ACTIVE
14.11.03 JOB 5812 +ADAN02 00008 NUCLEUS-RUN WITHOUT PROTECTION-LOG
14.11.03 JOB 5812 +ADAN03 00008 ADABAS COMING UP
14.11.03 JOB 5812 +ADAN01 00008 A D A B A S IS ACTIVE
14.11.03 JOB 5812 +ADAN01 00008 MODE = SINGLE I S O L A T E D
14.11.05 JOB 5812 $DRM200 SDR PLG181 updated successfully.
14.11.05 JOB 5812 +DRM201 Tsn P18111
14.11.05 JOB 5812 +DRM202 Seq 1 Label 7 File 7 Used 53 Writes 0
14.11.05 JOB 5812 +ADAL01 00008 93.02.05 14:11:04 CLOG NOT ACTIVE
14.11.11 JOB 5812 -OPPLG181 DRMUPD              00   320   1034   .00    .
14.11.11 JOB 5812 IEF234E K 803,P18111,PVT,OPPLG181
14.11.11 JOB 5812 IEF404I OPPLG181 - ENDED - TIME=14.11.11
14.11.11 JOB 5812 -OPPLG181 ENDED. NAME-                TOTAL TCB CPU T
14.11.11 JOB 5812 $HASP395 OPPLG181 ENDED
0----- JES2 JOB STATISTICS -----

```


5 Online Tutorial

- Online Tutorial Menu 32
- Online Tutorial Function Keys 32
- Online Tutorial Commands 33
- Online Help 33

The Entire System Server is delivered with an online tutorial as a starting help for users. It contains available views, a help text for each view specific to each operating system, and a sample program for each view. All sample programs can be displayed, edited and executed. They illustrate the use made of the Entire System Server, and can be taken as starting points for more elaborate applications.



Note: When using the Entire System Server online tutorial, the Natural session parameter LE, which controls the action to be taken if the limit of retrieved records was exceeded in a database access statement processing loop, must be set to OFF.

This chapter covers the following topics:

Online Tutorial Menu

You can activate the online tutorial by logging on to the library SYSNPE in your Natural environment and issuing the MENU command.

This displays the online tutorial menu, and you are prompted for the Entire System Server node number. You will usually leave the default (but see the subsection [Using Entire System Server in a Multi-Computer Environment](#)).

The content of the menu may vary according to your particular operating environment: the online tutorial provides those views relevant to your site.

Press Enter to select the node number in the prompt window.

Meaning of the information in the columns:

| Column Heading | Meaning |
|---------------------|--|
| View | Name of the view. |
| Program | Name of the sample program that illustrates use of the view. |
| Program Description | Description of the program's function. |

Online Tutorial Function Keys

The PF key line at the bottom of the online tutorial provides the following functions:

| PF Key | Function | Description |
|--------|----------|--|
| PF3 | Exit | Leave the online tutorial. |
| PF5 | User | Display user-defined view and program names. |
| PF7 | Up | Scroll the list of views backwards. |
| PF8 | Down | Scroll the list of views forward. |
| PF10 | Lang | Select the tutorial in another language from a prompt window. |
| PF12 | Node | Select another Entire System Server node by typing the node number in the prompt window. |

Online Tutorial Commands

From the online tutorial menu, you can display view definitions and sample programs. You can also edit the programs and execute them to see the result. Additionally, you can display a help text for each view and select the text as relevant to the supported operating systems.

These functions are performed by means of line commands. Available line commands are listed at the bottom of the online Tutorial Menu, above the PF key line. You can perform a function by entering the appropriate line command in the input field preceding the view name.

The table below lists the available line commands:

| Line Command | Function | Description |
|--------------|---------------|--|
| E | Edit | Edit the example program. You can see the results of your edited program using the line command X. |
| H | Help | Display an explanation of the selected view's function; see the subsection Online Help . |
| L | List | Display the example program (no modification possible). |
| V | List Userview | Display the selected view description (names and attributes of the fields). For a comprehensive description of views and fields, see View Descriptions . |
| X | Execute | Display the results of the example program. |

Online Help

The online tutorial provides online help for each view.

To display the online help text, issue the line command H in the input field preceding the view name.

The online help texts all have the same format, containing information on the purpose of the view, supported operating systems, and some additional information.

The following functions can be performed from this screen by pressing the appropriate PF key:

| PF Key | Description |
|---------------|--|
| PF3 | Leave the help screen and return to the tutorial menu. |
| PF5 | Display general help text, that is, information relevant to all supported operating systems. |
| PF6, PF7, PF8 | Display operating system specific information. |

6 View Descriptions

- General Information 36
- View Summary 40

This section gives a detailed description of every view available through Entire System Server. The section is structured as follows:

- The selection box below lists all view descriptions in alphabetical order. Each view description subsection gives a full description of the view, listing first all field names according to operating system. An overview of error messages relevant to the view is given, followed by a detailed description of each field in alphabetical order.
- The subsection *General Information* explains how the description of each view is organized, and describes global fields (that is, fields relevant to each view).
- The subsection *View Summary* provides an overview of available views, listing them according to their functional area.

Alphabetical List of Specific View Descriptions

ACCOUNTING *ACTIVE-JOBS* *ADDRESS-SPACE* *ALLOCATIONS*
ARCHIVE *AUTHORIZED-LIBRARIES* *CATALOG* *CATALOG-UPDATE*
CHECK-SECURITY *COMMON-DATA* *CONSOLE* *CONSOLE-LOG*
COPY-FILE *DEVICE-NAMES* *ENTER-PROCEDURE* *EVENTING*
FILE-ALLOCATE *FILE-ATTRIBUTES* *FILE-MAINTENANCE* *HELP-INFO*
IDCAMS *IEBCOPY* *ITC* *JOB-SWITCHES*
JOB-VARIABLES *LIB-DIRECTORY* *LIB-UPDATE* *LIB-ZAP*
LOADED-MODULES *LOAD-MODULE* *MAIN-STORAGE* *NATPROC-LOGON*
NATPROC-USERS *NET-OPER* *PRINT-DOCUMENT* *READ-FILE*
READ-SPOOL *READ-UNIX-FILE* *RECEIVE-EMAIL* *RESOURCE-CONTROL*
SEND-EMAIL *SEND-MESSAGE* *SPOOL-FILES* *SPOOL-QUEUE*
SPOOL-UPDATE *SUBMIT* *SYSTEM-COMMAND* *SYSTEM-INFO*
TASK-INFO *TCB* *UNIT-ATTRIBUTES* *USER-ATTRIBUT*
UNIX-DIRECTORY *VTOC* *VTOC-UPDATE* *WRITE-FILE*
WRITE-SPOOL *WRITE-UNIX-FILE*

This chapter covers the following topics:

General Information

- [Global Fields](#)
- [Global Error Codes](#)
- [Order of Information returned by Views](#)

The description of each view in this section begins with a header subsection containing the following general information about the view:

| Item | Meaning |
|-----------|---|
| File | The file number assigned to the view within Entire System Server. This number must not be changed. |
| Opsys | Operating system(s) to which the view applies. |
| Statement | The statement you must use in your Natural programs to access the view. This is either <code>FIND</code> or <code>PROCESS</code> , depending on the view and the required function. |
| Task | A short description of the purpose of the view. This description is based on the online help text provided for each view in the online tutorial (see Online Tutorial). |



Note: The view name may be changed by the Entire System Server Administrator. The file number and access statement cannot be changed.

Example:

You will find this header subsection for the view `ACTIVE-JOBS`:

| Item | Meaning |
|-----------|--|
| File | 29 |
| Statement | <code>FIND</code> |
| Task | Retrieve the tasks that are currently active in the system and get information about them (for example, the amount of CPU time already used by the tasks). |

Each view description contains the following information for fields defined to the view:

| Item | Meaning | | | | | | | | | | |
|-----------------------|---|---|--------------|---|--------|---|------|---|---------|---|------|
| Dictionary Field Name | The name of the field in Natural. | | | | | | | | | | |
| F/L | Field format and length: <table border="1"> <tbody> <tr> <td>A</td> <td>Alphanumeric</td> </tr> <tr> <td>B</td> <td>Binary</td> </tr> <tr> <td>D</td> <td>Date</td> </tr> <tr> <td>N</td> <td>Numeric</td> </tr> <tr> <td>T</td> <td>Time</td> </tr> </tbody> </table> | A | Alphanumeric | B | Binary | D | Date | N | Numeric | T | Time |
| A | Alphanumeric | | | | | | | | | | |
| B | Binary | | | | | | | | | | |
| D | Date | | | | | | | | | | |
| N | Numeric | | | | | | | | | | |
| T | Time | | | | | | | | | | |
| Mu | For fields that can be specified more than once, this column gives the maximum number of occurrences. | | | | | | | | | | |
| DE | Descriptor. D in this column means that this field name can be specified in the <code>WITH</code> clause of the <code>FIND</code> statement or the <code>USING</code> clause of the <code>PROCESS</code> statement. These fields support the search criteria available for the <code>FIND</code> statement (see Getting Started) where this is appropriate. | | | | | | | | | | |

| Item | Meaning |
|---------|---|
| Remarks | General remarks concerning the field, for example, whether it is required, or whether it is dependent on a particular function. |

Example:

The following table is the overview of some fields for view COPY-FILE:

| Dictionary Field Name | F/L | Mu | DE | Remarks |
|-----------------------|-----|----|----|----------|
| Fields: | | | | |
| ERROR-CODE | N3 | | | |
| ERROR-TEXT | A58 | | | |
| NODE | N3 | | D | |
| NODE-NAME | A16 | | D | |
| SYSTEM-MESSAGE-CODE | A10 | | | |
| FROM-DSNAME | A54 | | D | Required |
| FROM-PRODUCT | A1 | | D | |
| FROM-PASSWORD | A32 | | D | |
| TO-DSNAME | A54 | | D | Required |

Global Fields

Certain fields are common to all views. These are known as *global fields* and do not appear in the full description of each field in this section (though they are included in the field overview for each view). The global fields are:

| Field Name | Type/Length |
|------------|-------------|
| ERROR-CODE | (N3) |

Message code returned. For the meaning of message codes, see the Entire System Server *Messages and Codes* documentation.

| Field Name | Type/Length |
|------------|-------------|
| ERROR-TEXT | (A58) |

Message text. For the meaning of message, see the Entire System Server *Messages and Codes* documentation. .

| Field Name | Type/Length |
|------------|-------------|
| NODE | (N3) |

Number of the Entire System Server node to be addressed. Typically, the node number is required if you are working in a distributed environment and you wish to perform a function on a different computer in the network (see also *Using the Entire System Server* in the *Entire System Server Installation and Customization* documentation).

| Field Name | Type/Length |
|-------------|-------------|
| NODE - NAME | (A16) |

Name of the Entire System Server node to be addressed. This field is optional. For further information, see *Using Entire System Server in a Multi-Computer Environment* in the section *Getting Started*.

| Field Name | Type/Length |
|---------------------|-------------|
| SYSTEM-MESSAGE-CODE | (A10) |

System error code specific to the operating system. A code returned in the `ERROR-CODE` field can translate to any of a number of operating-system-specific system codes.

If any call to Entire System Server gets an error code of 508 with the error text `ESY5508 ADABAS response code :1:` returned from ESY, then the field `SYSTEM-MESSAGE-CODE` is filled with the appropriate Adabas response code in the form `ADA nnn` , where nnn is the Adabas response code.

Global Error Codes

Certain error codes may be returned with any view. These are known as *Global Error Codes*. Each view description in this section contains a table with possible error codes relevant to the view. The table below contains a list of global error codes. A full explanation of error codes is given in the *Entire System Server Messages and Codes* documentation.

| Code | Text |
|------|---|
| 0 | Request completed successfully |
| 507 | Too many parallel ESY requests. |
| 508 | Adabas response code xxx returned from ESY. |
| 510 | Logon required. |
| 520 | No core available (ASIZE). |
| 521 | NATPNI/NATPNIP unresolved. |
| 774 | No core available. |
| 776 | Request was cancelled. |
| 777 | Request has abended. |

| Code | Text |
|------|--|
| 999 | Entire System Server node <i>nnn</i> not active. |

Order of Information returned by Views

Unless otherwise noted, the default return order of information returned by view processors accessed by FIND (but not FIND (1) for reading views) is not guaranteed to be in any specific order. The views that have a guarantee of default order are:

- CONSOLE
- CONSOLE-LOG
- IDCAMS
- IEBCOPY
- LIB-DIRECTORY
- LIB-ZAP
- NET-OPER
- READ-FILE
- READ-SPOOL
- SYSTEM-COMMAND

More information regarding a specific order of returned information can be found in the appropriate view description.

If information needs to be returned in a specific order, the Natural SORT statement can be used. See the Natural Statements manual for more information.

All views accessed by PROCESS or FIND (1) (update views) will deliver data in the order received by the program.

View Summary

- [File and Catalog Management](#)
- [Spool / Job Management](#)
- [System Maintenance](#)
- [Miscellaneous](#)

This subsection summarizes Entire System Server views according to their functional area. Together with the view name, the operating systems to which the view applies is given. The third column gives a short description of the view's function.

File and Catalog Management

| View Name | Description | File No. |
|------------------|--|----------|
| CATALOG | List catalog information. | 8 |
| CATALOG-UPDATE | Perform catalog maintenance. | 10 |
| COPY-FILE | Copy files. Copying can be performed from node to node. | 37 |
| FILE-ALLOCATE | Allocate dataset to disk. | 9 |
| FILE-ATTRIBUTES | Display attributes of a dataset. | 1 |
| FILE-MAINTENANCE | Compress dataset or release unused space. | 18 |
| IDCAMS | Run IDCAMS utility. | 14 |
| IEBCOPY | Run IEBCOPY utility. | 17 |
| LIB-DIRECTORY | Read directory entries. | 3 |
| LIB-UPDATE | Perform operations on directory. | 5 |
| LOAD-MODULE | Read information on load module. 44 | |
| READ-FILE | Read records from a dataset. | 2 |
| READ-UNIX-FILE | This view makes it possible to read data from files in the z/OS UNIX file system. | 96 |
| UNIT-ATTRIBUTES | Read information on I/O units. | 6 |
| UNIX-DIRECTORY | This view makes it possible to display directory information related to a z/OS UNIX file system. | 97 |
| VTOC | Read VTOC entries for a volume. | 4 |
| VTOC-UPDATE | Maintain VTOC entries. | 7 |
| WRITE-FILE | Write records to a dataset. | 204 |
| WRITE-UNIX-FILE | This view makes it possible to write data to files in the z/OS UNIX file system. | 215 |

Spool / Job Management

| View Name | Description | File No. |
|--------------|--|----------|
| ACTIVE-JOBS | Read information on active jobs. | 29 |
| ALLOCATIONS | Read allocations for a job. | 22 |
| READ-SPOOL | Read spool records for a job. | 12 |
| SPOOL-FILES | Read and maintain spool files for a given job. | 36 |
| SPOOL-QUEUE | Read entire spool queue. | 11 |
| SPOOL-UPDATE | Change status of job. | 13 |
| SUBMIT | Submit job. | 200 |
| WRITE-SPOOL | Write records to spool. | 203 |

System Maintenance

| View Name | Description | File No. |
|----------------|---|----------|
| ACCOUNTING | Read accounting information. | 34 |
| ADDRESS-SPACE | Read address space information. | 21 |
| CONSOLE | Perform operations on operator console. | 35 |
| CONSOLE-LOG | Read console log. | 25 |
| DEVICE-NAMES | Read generic device names. | 30 |
| LIB-ZAP | Run superzap utility (AMASPZAP). | 16 |
| LOADED-MODULES | Read modules loaded by a job. | 23 |
| MAIN-STORAGE | Read main storage content for a job. | 20 |
| NET-OPER | Execute VTAM operator commands and display results. | 15 |
| SYSTEM-INFO | Read system information. | 26 |
| TCB | Read task information for a job. | 24 |

Miscellaneous

| View Name | Description | File No. |
|----------------------|--|----------|
| AUTHORIZED-LIBRARIES | Display a list of APF authorized data sets. | 50 |
| COMMON-DATA | Perform operations on shared main storage data. | 33 |
| CHECK-SECURITY | Query external security system as to whether user is allowed to access resource. | 45 |
| EVENTING | Perform program-to-program communication. | 40 |
| NATPROC-LOGON | Perform logon/logoff to Entire System Server. | 190 |
| NATPROC-USERS | Read Entire System Server users currently active and optionally cancel users. | 191 |
| RECEIVE-EMAIL | This view provides the support for receiving e-mails using IMAP protocol | 70 |
| RESOURCE-CONTROL | Manage resources using ENQ/DEQ. | 32 |
| SEND-EMAIL | This view provides the support for sending electronic mails. | 212 |
| SEND-MESSAGE | Send message to console and/or Com-plete, TSO or TIAM user. | 19 |
| SYSTEM-COMMAND | Execute TSO commands. | 46 |

7 ACCOUNTING

| | |
|------------------------------|----|
| ▪ Fields | 44 |
| ▪ Relevant Error Codes | 45 |
| ▪ Field Descriptions | 45 |

| | |
|------------------|------------------------|
| File | 34 |
| Statement | FIND |
| Task | Read from SMF records. |

Fields

| Dictionary Field Name | F/L | Mu | DE | Remarks |
|-----------------------|------|----|----|---------------------------------|
| ERROR-CODE | N3 | | | |
| ERROR-TEXT | A58 | | | |
| NODE | N5 | | D | |
| NODE-NAME | A16 | | D | |
| ACTIVE | A3 | | D | Relevant with FILE-ID='LIST'. |
| DATE | N5 | | D | |
| DATX | D | | D | |
| DIRECTION | A1 | | D | |
| DSNAME | A44 | | D | Required unless FILE-ID='LIST'. |
| FILE-ID | A8 | | D | Required. |
| JOB-NAME | A8 | | D | |
| RBA | N9 | | D | |
| RECORD-LENGTH | N5 | | D | |
| RECORD-TYPE | N3 | | D | Required. |
| RECORD | A253 | | D | |
| SEGMENT-LENGTH | B2 | | D | |
| SEGMENT-NUMBER | N5 | | D | |
| START-RBA | N9 | | D | |
| SUB-TYPE | N3 | | D | |
| SYSTEM-ID | A4 | | D | |
| TIME | N6 | | D | |
| TIMX | T | | D | |
| TOTAL-BLOCKS | N7 | | D | Relevant with FILE-ID='LIST'. |
| USED-BLOCKS | N7 | | D | Relevant with FILE-ID='LIST'. |
| VOLSER | A6 | | D | Relevant with FILE-ID='LIST'. |

Relevant Error Codes

| Code | Text |
|------|---|
| 640 | Error generating VSAM control blocks. |
| 641 | Error :1: while opening SMF or VSAM file. |
| 642 | Error :1: while reading SMF or VSAM file. |
| 643 | SMF not active / not recording. |
| 644 | Invalid file ID. |
| 645 | Invalid RBA was specified. |
| 650 | Invalid sequential file. |
| 701 | DSNAME missing. |
| 781 | Unable to obtain storage for work area extension. |
| 902 | Dynamic allocation failed. |
| 990 | Field record not found in format buffer. |
| 993 | Cannot open file. |

Field Descriptions

| Field Name | Type/Length |
|------------|-------------|
| ACTIVE | (A3) |

Relevant for FILE-ID='LIST'. Possible options:

| Option | Explanation |
|--------|----------------------------------|
| NO | This is not the active SMF file. |
| YES | This is the active SMF file. |

The individual types, lengths and operating systems for the fields are as follows:

| Field Name | Type/Length |
|------------|-------------|
| DATE | (N5) |

The date of the record in the format *YYDDDD*, taken from the SMF record prefix.

| Field Name | Type/Length |
|------------|-------------|
| DATX | (D) |

The date in internal format, taken from the SMF record prefix.

| Field Name | Type/Length |
|------------|-------------|
| DIRECTION | (A1) |

Retrieval direction. Possible values:

| Value | Explanation |
|-------|-------------------------|
| F | Read forward (default). |
| B | Read backwards. |

The individual types, lengths and operating systems for the fields are as follows:

| Field Name | Type/Length |
|------------|-------------|
| DSNAME | (A44) |

- For FILE-ID='LIST', the names of the SMF data sets are returned in this field.
- For FILE-ID='MANX', specify the name of the SMF data set from which the SMF records are to be read.
- For FILE-ID='LOGS', specify the name of the SMF log stream from which the SMF records are to be read.
- For FILE-ID='SEQ', specify the name of the sequential data set from which the SMF records are to be read.

| Field Name | Type/Length |
|------------|-------------|
| FILE-ID | (A8) |

Possible values:

| Value | Explanation |
|-------|---|
| LIST | Return a list of SMF data sets and other relevant data. |
| MANX | Read records from the SMF data set specified in DSNAME. |
| LOGS | Read records from the SMF log stream specified in DSNAME. |
| SEQ | Read dumped SMF records from the sequential data set specified in DSNAME. |

The individual types, lengths and operating systems for the fields are as follows:

| Field Name | Type/Length |
|------------|-------------|
| JOB - NAME | (A8) |

This field follows the SMF record prefix. For most record types, it contains the job name.

| Field Name | Type/Length |
|------------|-------------|
| RBA | (N9) |

Relative byte address of the record.

| Field Name | Type/Length |
|------------|-------------|
| RECORD | (A253) |

The SMF record / segment.

| Field Name | Type/Length |
|-----------------|-------------|
| RECORD - LENGTH | (N5) |

Length of the entire record (not the segment length).

| Field Name | Type/Length |
|---------------|-------------|
| RECORD - TYPE | (N3) |

The type of the record, taken from the SMF record prefix.

| Field Name | Type/Length |
|------------------|-------------|
| SEGMENT - NUMBER | (N5) |

Segment number within the record.

| Field Name | Type/Length |
|------------------|-------------|
| SEGMENT - LENGTH | (B2) |

Length of the segment.

| Field Name | Type/Length |
|-------------|-------------|
| START - RBA | (N9) |

The relative byte address of the first record to be read. If omitted, the file is read from the start or end, depending on the setting of `DIRECTION`.

| Field Name | Type/Length |
|------------|-------------|
| SUB-TYPE | (N3) |

SMF subtype.

| Field Name | Type/Length |
|------------|-------------|
| SYSTEM-ID | (A4) |

System ID, taken from the SMF record prefix.

| Field Name | Type/Length |
|------------|-------------|
| TIME | (N6) |

The time of the record in the format *HH:MM:SS*, taken from the SMF record prefix.

| Field Name | Type/Length |
|------------|-------------|
| TIMX | (T) |

The time of the record in the format *YYDDDD*, taken from the SMF record prefix.

Relevant when FILE-ID='LIST'. Number of blocks allocated to the SMF file.

| Field Name | Type/Length |
|-------------|-------------|
| USED-BLOCKS | (N7) |

Relevant when FILE-ID='LIST'. Number of blocks used in the SMF file.

| Field Name | Type/Length |
|------------|-------------|
| VOLSER | (A6) |

Relevant when FILE-ID='LIST'. Volume serial number of the SMF file.

8 ACTIVE-JOBS

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| | |
|------------------|---|
| File | 29 |
| Statement | FIND |
| Task | Retrieve the tasks that are currently active in the system and get information about them; for example, the amount of CPU time already used by the tasks. |

Fields

| Dictionary Field Name | F/L | Mu | DE | Remarks |
|------------------------|------|----|----|------------------------|
| ERROR-CODE | N3 | | | |
| ERROR-TEXT | A58 | | | |
| NODE | N5 | | D | |
| NODE-NAME | A16 | | D | |
| CPU-USED | N7.2 | | D | |
| DISPATCHING-PRIORITY | B1 | | D | |
| JOB-ID | A8 | | D | |
| JOB-NAME | A8 | | D | |
| JOB-NUMBER | N7 | | D | |
| STATUS | A8 | | D | |
| SYSTEM-MESSAGE-CODE | A10 | | | |
| TYPE | A6 | | D | |
| REGION-ALLOCATED-BELOW | N7 | | D | |
| REGION-LIMIT-BELOW | N7 | | D | |
| REGION-ALLOCATED-ABOVE | N7 | | D | |
| REGION-LIMIT-ABOVE | N7 | | D | |
| Dictionary Field Name | F/L | Mu | DE | Remarks |
| ADDRESS | B4 | | | |
| ASID | N4 | | D | |
| CLASSES | A6 | | D | Relevant with TYPE=JOB |
| DISPATCHABLE | A3 | | D | |
| ECPU-USED | N7.2 | | D | |
| JES-INIT-ID | A4 | | D | Relevant with TYPE=JOB |
| PROC-NAME | A8 | | D | |
| QUESCE | A3 | | | |
| REGION | N7 | | D | |
| RESOURCE-GROUP | A8 | | | |
| SERVER | A3 | | | |

| Dictionary Field Name | F/L | Mu | DE | Remarks |
|-----------------------|------|----|----|-----------------|
| SERVICE-CLASS | A8 | | | |
| SERVICE-CLASS-PERIODE | N3 | | | |
| SIO-CUNT | N11 | | D | |
| STEP-NAME | A8 | | D | |
| TCB | B4 | | D | |
| WORKLOAD | A8 | | | |
| ZIIP-USED | N7.2 | | D | Normalized time |
| ZIIP-GP-USED | N7.2 | | D | |

Relevant Error Codes

| Code | Text |
|------|-----------------------------------|
| 830 | JES interface is not active. |
| 831 | Error during queue initialization |

Field Descriptions

| Field Name | Format/Length |
|------------|---------------|
| ADDRESS | (B4) |

ASCB address.

| Field Name | Format/Length |
|------------|---------------|
| ASID | (N4) |

Address space identifier.

| Field Name | Format/Length | Remarks |
|------------|---------------|--|
| CLASSES | (A6) | Relevant when TYPE=JOBS: batch initiator classes |

| Field Name | Format/Length |
|------------|---------------|
| CPU-USED | (N7.2) |

| Field Name | Format/Length |
|--------------|---------------|
| DISPATCHABLE | (A3) |

Dispatchability of address space. Possible values:

| Value | Explanation |
|-------|-----------------------------------|
| NO | Address space is not dispatchable |
| YES | Address space is dispatchable |

| Field Name | Format/Length |
|----------------------|---------------|
| DISPATCHING-PRIORITY | (B1) |

Dispatching priority.

| Field Name | Format/Length |
|------------|---------------|
| ECPU-USED | (N7.2) |

The amount of CPU consumed by the address space / task including preemptable-class CPU time (format *SSSS.HH*).

| Field Name | Format/Length |
|-------------|---------------|
| JES-INIT-ID | (A4) |

Relevant when TYPE=JOB: JES batch initiator identifier.

| Field Name | Format/Length |
|------------|---------------|
| JOB-ID | (A8) |

Job number in alphanumeric format. In case of numeric job numbers, the job number will also be returned in field JOB-NUMBER.

| Field Name | Format/Length |
|------------|---------------|
| JOB-NAME | (A8) |

Name of the job. This is taken from the job card.

| Field Name | Format/Length |
|-------------|---------------|
| PROC - NAME | (A8) |

Name of the procedure currently being executed.

| Field Name | Format/Length |
|------------|---------------|
| QUIESCE | (A3) |

Quiesce Indicator (YES/NO) (indicates if address space is quiesced). Relevant when TYPE=JOB: JES batch initiator identifier.

| Field Name | Format/Length |
|------------|---------------|
| REGION | (N7) |

Amount of real storage used by the address space in Kbytes.

| Field Name | Format/Length |
|------------------------|---------------|
| REGION-ALLOCATED-BELOW | (N7) |

Amount of virtual storage allocated below the 16 MB line (in KB).

| Field Name | Format/Length |
|--------------------|---------------|
| REGION-LIMIT-BELOW | (N7) |

Amount of virtual storage that can be allocated below the 16 MB line (in KB).

| Field Name | Format/Length |
|------------------------|---------------|
| REGION-ALLOCATED-ABOVE | (N7) |

Amount of virtual storage allocated above the 16 MB line (in KB).

| Field Name | Format/Length |
|--------------------|---------------|
| REGION-LIMIT-ABOVE | (N7) |

Amount of virtual storage that can be allocated above the 16 MB line (in KB).

| Field Name | Format/Length |
|------------------|---------------|
| RESOURCE - GROUP | (A8) |

Resource Group Name .

| Field Name | Format/Length |
|------------|---------------|
| SERVER | (A8) |

Server indicator (YES/NO) indicates whether or not resource goals are being honored.

| Field Name | Format/Length |
|-----------------|---------------|
| SERVICE - CLASS | (A8) |

Service class name .

| Field Name | Format/Length |
|--------------------------|---------------|
| SERVICE - CLASS - PERIOD | (N3) |

Service class period .

| Field Name | Format/Length |
|-------------|---------------|
| SIO - COUNT | (N11) |

Number of I/O operations performed so far.

| Field Name | Format/Length |
|------------|---------------|
| STATUS | (A8) |

Possible values:

| Value | Explanation |
|--------------|---------------------------------|
| <i>blank</i> | Address space is swapped in. |
| NON - SWAP | Address space is non-swappable. |
| SWAP - OUT | Address space is swapped out. |
| TERM | Address space is terminating. |
| V=R | Running in real memory. |

| Field Name | Format/Length |
|------------|---------------|
| STEP-NAME | (A8) |

Name of the step currently being executed.

| Field Name | Format/Length |
|------------|---------------|
| TCB | (B4) |

TCB address of first ready task for this address space.

| Field Name | Format/Length |
|------------|---------------|
| TYPE | (A6) |

Type of job. Possible values:

| Job Type | Explanation |
|-----------------|---|
| JOB INI STC TSU | Batch job JES initiator started task TSO user |

| Field Name | Format/Length |
|------------|---------------|
| WORKLOAD | (A8) |

Workload name .

| Field Name | Format/Length |
|------------|---------------|
| ZIIP-USED | (N7.2) |

[Normalized] Enclave zIIP time - the amount of time the enclave has run on zIIP (format SSSSS.HH).

To reset the zIIP times at job step, reset the fields in the job step initiation exit IEFUS1. An example is supplied by IBM in SYS1.SAMPLIB(IEEUSI). You can reset the zIIP time at job step with any program running in Key 0.

| Field Name | Format/Length |
|--------------|---------------|
| ZIIP-GP-USED | (N7.2) |

Eligible zIIP time on GP - the amount of time the enclave has run on GP, which was eligible to run on zIIP (format SSSSS.HH).

Examples

```
...
FIND ACTIVE-JOBS WITH NODE = 148
                    AND CPU-USED < 1000
*
  IF ACTIVE-JOBS.ERROR-CODE NE 0
    WRITE ACTIVE-JOBS.ERROR-TEXT
    ESCAPE ROUTINE
  END-IF
*
  DISPLAY ACTIVE-JOBS.JOB-NAME
          ACTIVE-JOBS.JOB-ID
          ACTIVE-JOBS.TYPE
          ACTIVE-JOBS.STATUS
          ACTIVE-JOBS.CPU-USED
  END-FIND
...
```

Result :

| JOB-NAME | JOB-ID | TYPE | CPU | STATUS |
|----------|--------|------|-------|----------|
| ... | | | | |
| XCOM148 | 2975 | STC | 68.04 | NON-SWAP |
| INIT | | INI | | IDLE |
| DELINDEX | 2988 | JOB | 13.45 | |
| WKK | 2802 | TSU | 2.95 | SWAP-OUT |
| ... | | | | |

9 ADDRESS-SPACE

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- Field Descriptions 58

| | |
|------------------|---|
| File | 21 |
| Statement | FIND |
| Task | Retrieve information about all active address space. You can use this view to monitor the activities on a system. |

Fields

| Dictionary Field Name | F/L | Mu | DE | Remarks |
|-----------------------|------|----|----|---------|
| ERROR-CODE | N3 | | | |
| ERROR-TEXT | A58 | | | |
| NODE | N5 | | D | |
| NODE-NAME | A16 | | D | |
| ADDRESS | B4 | | | |
| JOB-NAME | A8 | | D | |
| TCB | B4 | | D | |
| ASID | N4 | | D | |
| STATUS | A8 | | D | |
| DISP | A3 | | D | |
| TYPE | A3 | | D | |
| CPU | N7.2 | | D | |
| REGION | N5 | | D | |

Field Descriptions

| Field Name | Format/Length |
|------------|---------------|
| ADDRESS | (B4) |

Space control block address.

| Field Name | Format/Length |
|------------|---------------|
| ASID | (N4) |

Address space identifier.

| | |
|-----|--------|
| CPU | (N7.2) |
|-----|--------|

Amount of CPU consumed by address space, in the format *SSSSSS.HH*.

| Field Name | Format/Length |
|------------|---------------|
| DISP | (A3) |

Dispatchability of address space. Possible values:

| Value | Explanation |
|-------|------------------------------------|
| NO | Address space is not dispatchable. |
| YES | Address space is dispatchable. |

| Field Name | Format/Length |
|------------|---------------|
| JOB-NAME | (A8) |

Name of the job, taken from the job card or procedure name.

| Field Name | Format/Length |
|------------|---------------|
| REGION | (N5) |

Amount of real storage used in the address space in Kbytes.

| Field Name | Format/Length |
|------------|---------------|
| STATUS | (A8) |

Status of address space. Possible values:

| Value | Explanation |
|--------------|---------------------------------|
| <i>blank</i> | Address space is swapped in. |
| NON-SWAP | Address space is non-swappable. |
| SWAP-OUT | Address space is swapped out. |
| TERM | Address space is terminating. |
| V=R | Running in real memory. |

| Field Name | Format/Length |
|------------|---------------|
| TCB | (B4) |

TCB address of first ready task for this address space.

| Field Name | Format/Length |
|------------|---------------|
| TYPE | (A3) |

Type of job. Possible values:

| Value | Explanation |
|-------|---------------|
| JOB | Batch job. |
| STC | Started task. |
| TSU | TSO user. |

10 ALLOCATIONS

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ALLOCATIONS

| | |
|------------------|--|
| File | 22 |
| Statement | FIND |
| Task | Reads information relating to files allocated to the specified job via DD statements. Files allocated dynamically are also returned. |

Fields

| Dictionary Field Name | F/L | Mu | DE | Remarks |
|-----------------------|------|----|----|-----------|
| ERROR-CODE | N3 | | | |
| ERROR-TEXT | A58 | | | |
| NODE | N5 | | D | |
| NODE-NAME | A16 | | D | |
| DDNAME | A8 | | D | |
| VOLSER | A6 | | D | |
| DSNAME | A54 | | D | |
| CLASS | A8 | | D | |
| ACCESS | A8 | | D | |
| LRECL | N5 | | D | |
| BLKSIZE | N5 | | D | |
| DSORG | A4 | | D | |
| JOB-NAME | A8 | | D | Required. |
| STEP-NAME | A8 | | | |
| PROC-NAME | A8 | | | |
| UNIT | A3 | | D | |
| MEMBER | A10 | | D | |
| IO-COUNT | N11 | | D | |
| RECFM | A5 | | D | |
| TCB-ADDRESS | B4 | | D | |
| PATH-NAME | A253 | | D | |

Relevant Error Codes

| Code | Text |
|------|----------------------|
| 805 | Invalid TCB address. |

Field Descriptions

| Field Name | Format/Length |
|------------|---------------|
| ACCESS | (A8) |

Dataset is currently open as:

| Value | Explanation |
|--------------|----------------------------------|
| <i>blank</i> | Not open. |
| INOUT | Open for input, then for output. |
| INPUT | Open for input only. |
| OUTIN | Open for output, then for input. |
| OUTPUT | Open for input only. |
| RDBACK | Read backwards. |
| UPDATE | Open for update. |
| VSAM | VSAM dataset. |

| Field Name | Format/Length |
|------------|---------------|
| BLKSIZE | (N5) |

| Field Name | Format/Length |
|------------|---------------|
| CLASS | (A8) |

Dataset classification. Possible options:

ALLOCATIONS

| Option | Explanation |
|--------|---------------------|
| DUMMY | Dummy dataset. |
| SYSIN | JES SYSIN dataset. |
| SYSOUT | JES SYSOUT dataset. |

| Field Name | Format/Length |
|------------|---------------|
| DDNAME | (A8) |

Data definition name.

| Field Name | Format/Length |
|------------|---------------|
| DSNAME | (A54) |

Dataset name for DDNAME.

| Field Name | Format/Length |
|------------|---------------|
| DSORG | (A4) |

If the dataset is open, organization of dataset.

| Field Name | Format/Length |
|------------|---------------|
| IO-COUNT | (N11) |

Number of I/O operations performed so far.

| | | |
|----------|------|--|
| JOB-NAME | (A8) | |
|----------|------|--|

Name of job.

| Field Name | Format/Length |
|------------|---------------|
| LRECL | (N5) |

| Field Name | Format/Length |
|------------|---------------|
| MEMBER | (A10) |

Member name used for DDNAME, for example, DSNAME(MEMBER).

| Field Name | Format/Length |
|------------|---------------|
| PATH-NAME | (A253) |

The path name of a z/OS UNIX file. This may be a generic path name.

| Field Name | Format/Length |
|------------|---------------|
| PROC-NAME | (A8) |

Current procedure name.

| Field Name | Format/Length |
|------------|---------------|
| RECFM | (A5) |

| Field Name | Format/Length |
|------------|---------------|
| STEP-NAME | (A8) |

Current step name.

| Field Name | Format/Length |
|-------------|---------------|
| TCB-ADDRESS | (B4) |

TCB address of the requested job.

| Field Name | Format/Length |
|------------|---------------|
| UNIT | (A3) |

Unit on which DDNAME is allocated.

| Field Name | Format/Length |
|------------|---------------|
| VOLSER | (A6) |

Volume on which DDNAME is allocated.

11 AUTHORIZED-LIBRARIES

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- Field Descriptions 68
- Example: Using AUTHORIZED-LIBRARIES View 69

| | |
|------------------|---|
| File | 50 |
| Statement | FIND |
| Task | Display a list of APF authorized data sets. |

Fields

| Dictionary Field Name | F/L | Mu | DE | Remarks |
|-----------------------|-----|----|----|---------------------|
| ERROR-CODE | N3 | | | |
| ERROR-TEXT | A58 | | | |
| NODE | N5 | | D | |
| NODE-NAME | A16 | | D | |
| SYSTEM-MESSAGE-CODE | A10 | | | |
| DSNAME | A44 | | D | Data set or library |
| VOLSER | A6 | | D | Volume or *SMS* |
| DEVICE | B4 | | | |
| FILE-SYSTEM | A3 | | D | |
| PREFIX | A3 | | D | |
| SERIES | A8 | | D | |

Relevant Error Codes

| Code | Text |
|------|-------------------------------------|
| 782 | CSVAPF LIST <retcode>< reason-code> |

Field Descriptions

| Field Name | Format/Length |
|------------|---------------|
| DSNAME | (A44) |

Name of the data set or its prefix.

All APF authorized data sets are returned as an unordered list.

| Field Name | Format/Length |
|------------|---------------|
| VOLSER | (A6) |

Volume of the data set, or *SMS* if the volume resides on an SMS controlled device.

Example: Using AUTHORIZED-LIBRARIES View

Assume the following datasets exist:

The example program ...

```
FIND AUTHORIZED-LIBRARIES WITH
  DSNAME=PPEX.*
```

```
DISPLAY DSNAME VOLSER
```

... returns the following information:

| DSNAME | VOLSER |
|----------------------|--------|
| PPEX.IAF901.LOAD | *SMS* |
| PPEX.IAF901.LOAD.DEV | *SMS* |
| PPEX.IMS.RESLIB | DBDC10 |
| PPEX.MLC124.LOAD | *SMS* |

12 CATALOG

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| | |
|------------------|---|
| File | 8 |
| Statement | FIND |
| Task | This view displays the catalog information of a specified file. |

Fields

| Dictionary Field Name | F/L | Mu | DE | Remarks |
|-----------------------|-----|----|----|----------|
| ERROR-CODE | N3 | | | |
| ERROR-TEXT | A58 | | | |
| NODE | N5 | | D | |
| NODE-NAME | A16 | | D | |
| SYSTEM-MESSAGE-CODE | A10 | | | |
| DSNAME | A54 | | D | Required |
| VOLSER | A6 | | D | |
| TYPE | A8 | | D | |
| Dictionary Field Name | F/L | Mu | DE | Remarks |
| DEVICE | B4 | | | |
| FILE-SYSTEM | A3 | | D | |
| PREFIX | A3 | | D | |
| SERIES | A8 | | D | |
| Dictionary Field Name | F/L | Mu | DE | Remarks |
| CLASS | A4 | | D | |
| NUMBER-OF-VOLUMES | N3 | | | |
| OPTION | A8 | | D | |
| USER-CATALOG | A44 | | D | |
| VOLUME-SEQUENCE | N3 | | | |

Relevant Error Codes

| Code | Text |
|------|---|
| 562 | Catalog entry not found. |
| 566 | Syntax error in catalog name. |
| 567 | Invalid OPTION, specify LONG or USERCAT |
| 786 | Unable to obtain / release storage for CSI work area. |
| 787 | CSI request failed, Module :1:, Reason :2:, RC :3: |
| 788 | Unable to substitute :1:, RC :2: |
| 789 | Unable to get UCB copy for :1:, RC :2: |

Field Descriptions

| Field Name | Format/Length |
|------------|---------------|
| CLASS | (A4) |

Device class (for example, DASD).

| Field Name | Format/Length |
|------------|---------------|
| DEVICE | (B4) |

The internal UCBTYP device code which identifies the device type on which the dataset resides.

| Field Name | Format/Length |
|------------|---------------|
| DSNAME | (A54) |

Dataset name or dataset name prefix.

If the value specified is a prefix, information on all datasets with that prefix (including DSNAME itself) is retrieved (see the field PREFIX),

As an extension to the search criteria described in [Search Criteria with the FIND Statement](#) in Section [Getting Started](#), a double asterisk (**) may be used to represent zero or more qualifiers, whereas a single asterisk is used to specify either a qualifier or one or more characters within a qualifier. A double asterisk cannot precede or follow any characters; it must be preceded or followed by either a period or a blank.



Note: Dataset names are returned in the order of their corresponding catalog records, i.e. not necessarily in ascending order.

| Field Name | Format/Length |
|-------------|---------------|
| FILE-SYSTEM | (A3) |

Indicates if the catalog entry describes a z/OS UNIX file system data set (HFS or #). Possible values:

| | |
|--------------|-----------------------------|
| <i>blank</i> | Not a file system data set. |
| HFS | HFS data set. |
| zFS | zFS data set. |

| Field Name | Format/Length |
|-------------------|---------------|
| NUMBER-OF-VOLUMES | (N3) |

Number of volumes of dataset.

| Field Name | Format/Length |
|------------|---------------|
| OPTION | (A8) |

Possible options:

| Option | Explanation |
|---------|---|
| LONG | Scan entire catalog. This is required if a file name value such as *MACLIB* is specified. The catalog whose name is given in USER-CATALOG is scanned. If the user catalog name is not specified, the system catalog is scanned. |
| USERCAT | Return names of all user catalogs in the USER-CATALOG field. |

| Field Name | Format/Length |
|------------|---------------|
| PREFIX | (A3) |

Possible options:

| Option | Explanation |
|--------|---|
| YES | Default. Information on datasets with the value of the DSNAME field as prefix is retrieved. |
| NO | Value of the DSNAME field is taken as absolute dataset name, not a prefix. |

| Field Name | Format/Length |
|------------|---------------|
| SERIES | (A8) |

Device series (for example, 3330-1).

| Field Name | Format/Length |
|------------|---------------|
| TYPE | (A8) |

Dataset type. Possible values:

| | |
|---------|------------------------|
| ALIAS | Alias. |
| AIX | Alternate index |
| CLUSTER | VSAM cluster. |
| DATA | VSAM data component. |
| GDG | Generation data group. |
| GDS | Generation dataset. |
| INDEX | VSAM index component. |
| NONVSAM | Non-VSAM dataset. |
| PATH | VSAM path. |
| USERCAT | User catalog. |

| Field Name | Format/Length |
|--------------|---------------|
| USER-CATALOG | (A44) |

Name of the user catalog in which the dataset is cataloged (see also `OPTION` field).

| Field Name | Format/Length |
|------------|---------------|
| VOLSER | (A6) |

Volume serial number of dataset. This field supports search criteria.

| Field Name | Format/Length |
|-----------------|---------------|
| VOLUME-SEQUENCE | (N3) |

Volume sequence (tape datasets only).

Example: Using CATALOG View

Assume the following datasets exist:

- A.B.C
- A.B.C.D
- A.B.C.E

The example program ...

```
FIND CATALOG WITH
  DSNAME=<....>
  PREFIX=<....>
DISPLAY DSNAME
```

... returns the following information:

| DSNAME | PREFIX | RETURNED DSNAMEs |
|--------|--------|--|
| A.B.C | NO | A.B.C |
| A.B.C | YES | A.B.C A.B.C.D A.B.C.E |
| A.B | YES | A.B.C A.B.C.D A.B.C.E |
| A.B | NO | (none) Error 5562 - Catalog entry not found. |

| DSNAME | PREFIX | RETURNED DSNAMEs |
|--------|--------|--|
| A.B.C | NO | A.B.C |
| A.B.C | YES | A.B.C A.B.C.D A.B.C.E |
| A.B | YES | A.B.C A.B.C.D A.B.C.E |
| A.B | NO | (none) Error 5562 - Catalog entry not found. |

13 CATALOG-UPDATE

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| | |
|------------------|--|
| File | 10 |
| Statement | PROCESS |
| Task | Perform catalog maintenance functions. |

Fields

| Dictionary Field Name | F/L | Mu | DE | Remarks |
|-----------------------|------|----|----|-----------|
| ERROR-CODE | N3 | | | |
| ERROR-TEXT | A58 | | | |
| NODE | N5 | | D | |
| NODE-NAME | A16 | | D | |
| SYSTEM-MESSAGE-CODE | A10 | | | |
| DSNAME | A54 | | D | Required. |
| VOLUMES | A240 | | D | |
| DEVICE | A8 | | D | |
| FILE-SEQUENCE | N3 | | D | |
| FUNCTION | A8 | | D | Required. |

Relevant Error Codes

| Code | Text |
|------|----------------------------|
| 571 | DSNAME operand missing. |
| 600 | Unknown operation. |
| 602 | Device is invalid. |
| 603 | Index/Alias missing. |
| 604 | No volumes specified. |
| 658 | Dataset is not catalogued. |

Field Descriptions

| Field Name | Format/Length |
|------------|---------------|
| DEVICE | (A8) |

Device code, for example, 3400-3.

| Field Name | Format/Length |
|------------|---------------|
| DSNAME | (A54) |

Fully qualified dataset name.

| Field Name | Format/Length |
|---------------|---------------|
| FILE-SEQUENCE | (N3) |

Used for tape files. This value is used for the first volume only.

| Field Name | Format/Length |
|------------|---------------|
| FUNCTION | (A8) |

Function to be performed. Possible values:

| Value | Explanation |
|---------|------------------------------|
| CATLG | Catalog new entry. |
| RECATLG | Recatalog an existing entry. |
| UNCATLG | Remove a catalog entry. |

| Field Name | Format/Length |
|------------|---------------|
| VOLUMES | (A240) |

Volume list. The maximum is 40 entries of 6 bytes each.

Number of versions of a file saved in a backup archive.

14 CHECK-SECURITY

| | |
|----------------------------|----|
| ▪ Fields | 82 |
| ▪ Field Descriptions | 82 |

| | |
|------------------|---|
| File | 45 |
| Statement | PROCESS |
| Task | Asks an external security system (RACF, ACF2, TOP-SECRET) whether user is authorized to use a given resource, for example, a dataset. |

Fields

| Dictionary Field Name | F/L | Mu | DE | Remarks |
|-----------------------|------|----|----|---------|
| ERROR-CODE | N3 | | | |
| ERROR-TEXT | A58 | | | |
| NODE | N5 | | D | |
| NODE-NAME | A16 | | D | |
| SYSTEM-MESSAGE-CODE | A10 | | | |
| Dictionary Field Name | F/L | Mu | DE | Remarks |
| ENTITY | A200 | | D | |
| CLASS | A8 | | D | |
| ATTRIBUTE | A8 | | D | |
| INSTALLATION-PARMS | A250 | | D | |
| ALLOWED | A8 | | | |

Field Descriptions

| Field Name | Format/Length |
|------------|---------------|
| ALLOWED | (A8) |

Output field. Access allowed indicator. One of these values will appear in this field:

| Value | Explanation |
|------------------|------------------------------------|
| ERROR- <i>nn</i> | Error returned by security system. |
| NO | Access not allowed. |
| NOSEC | Security not installed. |
| YES | Access allowed. |

| Field Name | Format/Length |
|------------|---------------|
| ATTRIBUTE | (A8) |

Entity attribute. Check whether user is allowed to access the resource with one of the following attributes as defined in the security system:

| Attribute | Explanation |
|-----------|---|
| ALTER | Permission to change external attributes of resource. |
| CONTROL | Permission to create resource. |
| READ | Permission to read resource. |
| UPDATE | Permission to update resource. |

| Field Name | Format/Length |
|------------|---------------|
| CLASS | (A8) |

Class of entity, for example DATASET. Default is FACILITY.

| Field Name | Format/Length |
|------------|---------------|
| ENTITY | (A200) |

Entity to be security checked.

| Field Name | Format/Length |
|--------------------|---------------|
| INSTALLATION-PARMS | (A250) |

Installation parameters to be passed to security system.

15 COMMON-DATA

| | |
|---|----|
| ▪ Fields | 86 |
| ▪ Relevant Error Codes | 86 |
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| | |
|------------------|--|
| File | 33 |
| Statement | FIND, PROCESS |
| Task | Share memory between multiple applications. This memory is accessed by a unique name and is split up into data slots. When this view is to be used, the startup parameter CDATELEN must have a value of greater than 0 (zero). |

Fields

| Dictionary Field Name | F/L | Mu | DE | Remarks |
|-----------------------|------|----|----|--|
| ERROR-CODE | N3 | | | |
| ERROR-TEXT | A58 | | | |
| NODE | N5 | | D | |
| NODE-NAME | A16 | | D | |
| SYSTEM-MESSAGE-CODE | A10 | | | |
| DATA-ID | A12 | | D | Required for all functions except LIST. |
| NUMBER-OF-ENTRIES | N5 | | D | Relevant for functions CREATE and LIST. |
| ENTRY-LENGTH | N3 | | D | Relevant for functions CREATE and LIST. |
| ENTRY-NUMBER | N5 | | D | Relevant for functions MODIFY and GET. |
| DATA | A250 | | D | Relevant for functions MODIFY and GET. |
| CURRENT-ENTRIES | N5 | | D | Relevant for functions MODIFY, GET, LIST, CLOSE. |
| DELETE-ENTRY | A3 | | D | Relevant for function MODIFY. |
| PROTECT | A8 | | D | |
| FUNCTION | A8 | | D | Required field. |

Relevant Error Codes

| Code | Text |
|------|---|
| 600 | Unknown function. |
| 621 | Identifier missing / duplicate / not found. |
| 622 | NUMBER-OF-ENTRIES missing or invalid. |
| 623 | ENTRY-LENGTH missing or invalid. |
| 624 | ENTRY-NUMBER missing or invalid. |
| 625 | Cannot allocate area. |
| 626 | DATA missing. |
| 627 | Field position + length > 250. |

| Code | Text |
|------|---------------------------------|
| 629 | Area is protected. |
| 746 | Serialization running in error. |

Field Descriptions

| Field Name | Format/Length |
|-----------------|---------------|
| CURRENT-ENTRIES | (N5) |

Output field. The value of CURRENT-ENTRIES is set from the functions CLOSE, MODIFY, GET and LIST.

| Field Name | Format/Length |
|------------|---------------|
| DATA | (A250) |

Relevant for the functions MODIFY and GET. The contents of the entry.

Function MODIFY is expecting the input record in DATA.

Function GET provides the contents of the record in output field DATA.

| Field Name | Format/Length |
|------------|---------------|
| DATA-ID | (A12) |

DATA-ID identifies the name associated with an area of records in the COMMON-DATA. Required as input field in all functions except LIST.

Function LIST returns all existing DATA-IDs.

| Field Name | Format/Length |
|--------------|---------------|
| DELETE-ENTRY | (A3) |

Only used in the function MODIFY as input field.

Functions MODIFY and DELETE-ENTRY='YES' are used to remove the requested record identified by ENTRY-NUMBER.

| Field Name | Format/Length |
|----------------|---------------|
| ENTRY - LENGTH | (N3) |

The length of each entry in the area. Required input field in the function CREATE. Used as output field in functions CLOSE, MODIFY, GET, LIST.

| Field Name | Format/Length |
|----------------|---------------|
| ENTRY - NUMBER | (N5) |

Relevant for functions MODIFY and GET.

ENTRY - NUMBER is required as input field if the function MODIFY and DELETE-ENTRY='YES' is used. Otherwise it is not required and is determined implicitly.

The example program below exploits this feature. ENTRY - NUMBER is omitted for the function MODIFY to write all data records and for function GET to read all data records.

| Field Name | Format/Length |
|------------|---------------|
| FUNCTION | (A8) |

Function to be performed. Possible options:

| Option | Explanation |
|--------|---|
| CLOSE | Free unused space in a given area. |
| CREATE | Create a new area identified by DATA - ID with size (NUMBER - OF - ENTRIES * ENTRY - LENGTH). |
| DELETE | Delete area identified by DATA - ID. |
| GET | Get record from given area. |
| LIST | Generate list of active areas. |
| MODIFY | Add, modify or delete a record in a given area. |

| Field Name | Format/Length |
|-----------------------|---------------|
| NUMBER - OF - ENTRIES | (N5) |

The maximum number of entries in the area. Required as input field in function CREATE.

Used as output field in functions CLOSE, MODIFY, GET, LIST.

| Field Name | Format/Length |
|------------|---------------|
| PROTECT | (A8) |

Field used to set or display protection attributes of an area in COMMON-DATA.

It is an input field when function CREATE is requested. It is an output field to display protection attributes via function LIST. If protection is omitted, all users are permitted to issue all functions to that area.

The following options are available to restrict the use of an area for other users:

| Option | Explanation |
|--------|--|
| DELETE | Area is DELETE protected. The functions GET, LIST and MODIFY are permitted. Other users can read and modify area but cannot delete it. |
| MODIFY | Area is MODIFY protected. Functions GET and LIST are permitted. Other users can issue function GET to read that area. It is not possible to modify and to delete it. |
| READ | Area is READ protected. Other users cannot issue any function except LIST. It is not possible to read, modify and delete that area. |

Example

The following example illustrates the usage of the different COMMON-DATA functions.

It consists of the following steps:

- list existing COMMON-DATA areas and status information FUNCTION='LIST'
- create an area in the COMMON-DATA pool FUNCTION='CREATE'
- write 5 records into the area FUNCTION='MODIFY'
- remove the third record FUNCTION='MODIFY'
- compress the area to the used size of 4 records FUNCTION='CLOSE'
- list the area and status information FUNCTION='LIST'
- display the contents of the records in the area FUNCTION='GET'
- remove the area and all records FUNCTION='DELETE'

```

DEFINE DATA LOCAL
1 COMMON-DATA VIEW OF COMMON-DATA
  2 ERROR-CODE
  2 ERROR-TEXT
  2 SYSTEM-CODE
  2 SYSTEM-MESSAGE-CODE
  2 NODE
  2 CURRENT-ENTRIES
  2 DATA
  2 DATA-ID
  2 DELETE-ENTRY
  2 ENTRY-LENGTH
  2 ENTRY-NUMBER
  2 FUNCTION
  2 NUMBER-OF-ENTRIES
  2 PROTECT
*
1 #DATA (A250)
1 #DATA-ID (A12) INIT <'MSGBOX1'>
1 #ERROR-ID (A30)
1 #MSGTEXT (A14) INIT <'Message number'>
1 #NODE (N3) INIT <148>
1 #I (N1)
1 #AREA-EXISTS (L) INIT <FALSE>
1 #PUT-HEADER (L) INIT <TRUE>
*
END-DEFINE
*****
*
* List all available areas in the COMMON-DATA pool and check if
* our DATA-ID is already created.
*
*****
MOVE 'COMMON-DATA Function LIST (*):' TO #ERROR-ID
*
FIND COMMON-DATA WITH NODE = #NODE
                    AND DATA-ID = '*'
                    AND FUNCTION = 'LIST'
*
  IF COMMON-DATA.ERROR-CODE NE 0
    PERFORM ERROR-HANDLER
    ESCAPE ROUTINE
  END-IF
*
  IF #PUT-HEADER EQ TRUE
*
    ASSIGN #PUT-HEADER = FALSE
    WRITE '+-----+'
      / '! COMMON-DATA LIST Overview before starting our example !'
      / '+-----+'
      // 'Common-Data-Area Number of Entries Current Entries'
        'Length of Entry'

```

```

/ ' _____ '
: _____ '
END-IF
*
WRITE COMMON-DATA.DATA-ID
  17X COMMON-DATA.NUMBER-OF-ENTRIES
  11X COMMON-DATA.CURRENT-ENTRIES
  12X COMMON-DATA.ENTRY-LENGTH
*
IF COMMON-DATA.DATA-ID EQ #DATA-ID
  ASSIGN #AREA-EXISTS = TRUE
END-IF
*
END-FIND
*
* Exit if area already created
*
IF #AREA-EXISTS EQ TRUE
  WRITE / '*** Sample cannot run. DATA-ID already created. ***'
  ESCAPE ROUTINE
END-IF
*
NEWPAGE
*****
* _____ *
* Create an area in the COMMON-DATA pool. _____ *
* _____ *
*****
MOVE 'COMMON-DATA Function CREATE' TO #ERROR-ID
*
PROCESS COMMON-DATA USING
  NODE = #NODE
  , DATA-ID = #DATA-ID
  , ENTRY-LENGTH = 100
  , FUNCTION = 'CREATE'
  , NUMBER-OF-ENTRIES = 10
*
IF COMMON-DATA.ERROR-CODE NE 0
  PERFORM ERROR-HANDLER
  ESCAPE ROUTINE
END-IF
*****
* _____ *
* Write 5 messages into the COMMON-DATA area. _____ *
* _____ *
*****
MOVE 'COMMON-DATA Function MODIFY (PUT):' TO #ERROR-ID
*
FOR #I = 1 TO 5
*
  COMPRESS #MSGTEXT #I INTO #DATA
*

```

```

PROCESS COMMON-DATA USING
    NODE = #NODE
    , DATA = #DATA
    , DATA-ID = #DATA-ID
    , FUNCTION = 'MODIFY'
*
IF COMMON-DATA.ERROR-CODE NE 0
    PERFORM ERROR-HANDLER
    ESCAPE ROUTINE
END-IF
END-FOR
*****
*
* Oops, message number 3 was wrong. Remove it.
*
*****
MOVE 'COMMON-DATA Function MODIFY (DELETE):' TO #ERROR-ID
*
PROCESS COMMON-DATA USING
    NODE = #NODE
    , DATA-ID = #DATA-ID
    , DELETE-ENTRY = 'YES'
    , ENTRY-NUMBER = 3
    , FUNCTION = 'MODIFY'
*
IF COMMON-DATA.ERROR-CODE NE 0
    PERFORM ERROR-HANDLER
    ESCAPE ROUTINE
END-IF
*****
*
* Compress allocated area to the size really used for messages.
*
*****
MOVE 'COMMON-DATA Function CLOSE:' TO #ERROR-ID
*
PROCESS COMMON-DATA USING
    NODE = #NODE
    , DATA = #DATA
    , DATA-ID = #DATA-ID
    , FUNCTION = 'CLOSE'
*
IF COMMON-DATA.ERROR-CODE NE 0
    PERFORM ERROR-HANDLER
    ESCAPE ROUTINE
END-IF
*****
*
* List our entry to check the status.
*
*****
MOVE 'COMMON-DATA Function LIST (1):' TO #ERROR-ID

```

```

*
FIND COMMON-DATA WITH NODE = #NODE
                    AND DATA-ID = #DATA-ID
                    AND FUNCTION = 'LIST'
*
  IF COMMON-DATA.ERROR-CODE NE 0
    PERFORM ERROR-HANDLER
    ESCAPE ROUTINE
  END-IF
*
  IF COMMON-DATA.DATA-ID NE #DATA-ID
    ESCAPE TOP
  END-IF
*
  WRITE '+-----+'
    / '! Status of our area in COMMON-DATA                !'
    / '+-----+'
    // 'Common-Data-Area Number of Entries Current Entries'
    'Length of Entry'
    / ' _____ '
    ' _____ '
*
  WRITE COMMON-DATA.DATA-ID
    17X COMMON-DATA.NUMBER-OF-ENTRIES
    11X COMMON-DATA.CURRENT-ENTRIES
    12X COMMON-DATA.ENTRY-LENGTH
*
END-FIND
*
NEWPAGE
*****
*
* Get all our entries (non-destructive GET).
*
*****
ASSIGN #PUT-HEADER = TRUE
MOVE 'COMMON-DATA Function GET:' TO #ERROR-ID
*
FIND COMMON-DATA WITH NODE = #NODE
                    AND DATA-ID = #DATA-ID
                    AND DELETE-ENTRY = 'NO'
                    AND FUNCTION = 'GET'
*
  IF COMMON-DATA.ERROR-CODE NE 0
    PERFORM ERROR-HANDLER
    ESCAPE ROUTINE
  END-IF
*
  IF #PUT-HEADER EQ TRUE
*
    ASSIGN #PUT-HEADER = FALSE
    WRITE '+-----+'

```

```

      / '! Contents of our area in COMMON-DATA                !'
      / '+-----+
      // 'Entry-number Data                                '
      / ' _____ '
END-IF
*
  WRITE COMMON-DATA.ENTRY-NUMBER
    7X COMMON-DATA.DATA (AL=50)
*
END-FIND
*****
*
* Remove area in the COMMON-DATA pool.
*
*****
MOVE 'COMMON-DATA Function DELETE' TO #ERROR-ID
*
PROCESS COMMON-DATA USING
  NODE = #NODE
  , DATA-ID = #DATA-ID
  , FUNCTION = 'DELETE'
*
IF COMMON-DATA.ERROR-CODE NE 0
  PERFORM ERROR-HANDLER
  ESCAPE ROUTINE
END-IF
*****
*
* ERROR-HANDLER
*
*****
DEFINE SUBROUTINE ERROR-HANDLER
  WRITE #ERROR-ID
    COMMON-DATA.ERROR-CODE
    COMMON-DATA.ERROR-TEXT
    COMMON-DATA.SYSTEM-CODE
    COMMON-DATA.SYSTEM-MESSAGE-CODE
END-SUBROUTINE
*
END      ←

```

Output from above sample program:

```

Page 1                                00-11-10 09:02:02
+-----+
! COMMON-DATA LIST Overview before starting our example !
+-----+

Common-Data-Area  Number of Entries  Current Entries  Length of Entry
-----
TEST-BOX                7                0                250

```

```

CONTAINER                20                0                50

Page 2                                00-11-10 09:02:02

+-----+
! Status of our area in COMMON-DATA      !
+-----+

Common-Data-Area  Number of Entries  Current Entries  Length of Entry
-----
MSGBOX1          4                4                100

Page 3 00-11-10 09:02:02
+-----+
! Contents of our area in COMMON-DATA    !
+-----+

Entry-number  Data
-----
1            Message number 1
2            Message number 2
3            Message number 4
4            Message number 5

```

Five records have been written to the area MSGBOX1. After removing the third record and compressing the area, four records are available containing the messages 1, 2, 4, 5.

Supplementary Information about COMMON-DATA

What does COMMON-DATA do?

COMMON-DATA allows you to establish areas to save data records with a fixed record length. These records can be accessed from different applications. The usage is determined by the applications only, for example, when to create and to destroy data records. It is a service for an effective data exchange. The areas are labeled with unique names provided in field DATA-ID.

Which Natural statements must be used with the various FUNCTIONS?

The functions LIST and GET should be requested with a FIND statement. All other functions (CLOSE, CREATE, DELETE, MODIFY) are designed as single requests and should be performed with a PROCESS statement.

How does writing to COMMON-DATA work?

The function `MODIFY` is used to write records into the data area. The records will be saved in sequential order. The `ENTRY-NUMBER` can be omitted for writing records with the function `MODIFY`. The creation of the `COMMON-DATA` records with explicitly defined entry numbers requires an ascending sequential order. For example, it is not possible to write a record with Entry Number 3 if only Entry Number 1 has been written already.

16 CONSOLE

- Fields 98
- Relevant Error Codes 99
- Field Descriptions 99
- Default Order of Data Returned 104

| | |
|------------------|--|
| File | 35 |
| Statement | FIND, PROCESS |
| Task | Read operator console or issue console commands. |

Fields

| Dictionary Field Name | F/L | Mu | DE | Remarks |
|-----------------------|------|----|----|--|
| ERROR-CODE | N3 | | | |
| ERROR-TEXT | A58 | | | |
| NODE | N5 | | D | |
| NODE-NAME | A16 | | D | |
| SYSTEM-MESSAGE-CODE | A10 | | | |
| FUNCTION | A8 | | D | Required. |
| JOB-ID | A8 | | D | Relevant with FUNCTION=DISPLAY, DIS-WTOR. |
| JOB-NAME | A8 | | D | Relevant with FUNCTION=WTOR. |
| JOB-TYPE | A6 | | D | Relevant with FUNCTION=DISPLAY, DIS-WTOR. |
| NETTO-TEXT | A253 | | D | Relevant with FUNCTION=DISPLAY, DIS-WTOR. |
| READ-DIRECTION | A1 | | D | Relevant with FUNCTION=DISPLAY. |
| RECORD-NUMBER | N9 | | D | Relevant with FUNCTION=DISPLAY. |
| REPLY-FLAG | A1 | | | Relevant with FUNCTION=DISPLAY, DIS-WTOR. |
| REPLY-ID | A8 | | D | Relevant with FUNCTION=DIS-WTOR. |
| TEXT | A253 | | D | Relevant for function OP-CMD, default length: 80 characters. |
| TEXT-LENGTH | N3 | | D | Relevant for function OP-CMD, maximum value = 120 |
| TIMX | T | | D | |
| WAIT-TIME | B4 | | D | Relevant with FUNCTION=DISPLAY. |
| CONSOLE-ID | B1 | | D | Relevant with FUNCTION=DISPLAY. |
| REPLY | A80 | | | Relevant with FUNCTION=WTOR. |
| RESPONSE-FLAG | A1 | | | |
| HOLD-FLAG | A1 | | | |
| DESCR-CODE-STRING | A16 | | D | |
| ROUTE-CODE-STRING | A28 | | D | |
| SEQUENCE-NUMBER | A8 | | | |
| TEXT-FLAG | A1 | | | |
| TIME-STAMP | A8 | | D | Relevant with FUNCTION=DIS-WTOR. |

Relevant Error Codes

| Code | Text |
|------|-------------------------------------|
| 530 | Access denied by Security Facility. |
| 600 | Unknown function. |
| 630 | Console not defined or inactive. |
| 699 | GETVIS failed. |
| 778 | Not APF authorized. |

Field Descriptions

| Field Name | Format/Length |
|------------|---------------|
| CONSOLE-ID | (B1) |

Only relevant for the DISPLAY function. The identifier of the console to be displayed. If the identifier is omitted, the master console is displayed.

| Field Name | Format/Length |
|-------------------|---------------|
| DESCR-CODE-STRING | (A16) |

Descriptor codes for the console message. Each byte of the string corresponds to one of the descriptor codes 1-16. A byte contains 1 if the corresponding descriptor code is assigned, or 0 if it is not assigned.

| Field Name | Format/Length |
|------------|---------------|
| FUNCTION | (A8) |

The function to be performed. Possible values are:

| Value | Explanation |
|----------|-----------------------------------|
| DISPLAY | Display console screen image. |
| DIS-WTOR | Display pending operator replies. |
| OP-CMD | Issue operator command. |
| WTO | Write to operator. |
| WTOR | Write to operator with reply. |

The default length of a command line is 80 characters. However, it can be expanded up to 120 characters if field TEXT-LENGTH is accordingly specified as displayed in the following sample code for function OP-CMD:

```
PROCESS CONSOLE USING NODE = #NODE
, FUNCTION = 'OP-CMD'
, TEXT = #COMMAND-LINE
, TEXT-LENGTH = 120
GIVING ERROR-CODE ERROR-TEXT
```

| Field Name | Format/Length |
|------------|---------------|
| HOLD-FLAG | (A1) |

Indicates if message is held by the system (has descriptor codes 1, 2, 3 or 11). Possible values:

| Value | Explanation |
|-------|-------------|
| N | No |
| Y | Yes |

| Field Name | Format/Length |
|------------|---------------|
| JOB-ID | (A8) |

Only relevant for function DISPLAY and DIS-WTOR. Job number (TSN) of job for which the message was created.

| Field Name | Format/Length |
|------------|---------------|
| JOB-NAME | (A8) |

Only relevant for function DIS-WTOR. The job that issued the WTOR.

| Field Name | Format/Length |
|------------|---------------|
| JOB-TYPE | (A6) |

Only relevant for function DISPLAY and DIS-WTOR. Type of job for which message was created, if this job is still active.

| Field Name | Format/Length |
|------------|---------------|
| NETTO-TEXT | (A253) |

Only relevant for function DISPLAY and DIS-WTOR. Message text without the additional information added by the operating system at the creation of the console message.

| Field Name | Format/Length |
|----------------|---------------|
| READ-DIRECTION | (A1) |

Only relevant for function DISPLAY. Direction for reading console messages. Possible values:

| Value | Explanation |
|-------|---|
| B | Default. Backwards (that is, towards oldest message). |
| F | Forwards (that is, towards message last received). |

The starting position of READ-DIRECTION can be specified in the RECORD-NUMBER field.

| Field Name | Format/Length |
|---------------|---------------|
| RECORD-NUMBER | (N9) |

Only relevant for function DISPLAY. The number of the console message is returned in this field. If used as input (descriptor), a start position can be given. Possible values:

| Value | Explanation |
|--------------|--|
| 0: | Start with latest record. |
| <i>n</i> : | Start with record <i>n</i> . |
| - <i>n</i> : | Start with latest record minus <i>n</i> records. |

If the last record + 1 is selected and the value of the field WAIT-TIME is greater than 0, the system waits for the next message.

If the specified start position lies before the oldest available record, the oldest record is taken as the start position.

| Field Name | Format/Length |
|------------|---------------|
| REPLY | (A80) |

Only relevant for function WTOR: the operator reply.

| Field Name | Format/Length |
|--------------|---------------|
| REPLY - FLAG | (A1) |

Only relevant for function DISPLAY and DIS-WTOR. Possible values:

| Value | Explanation |
|-------|----------------------------|
| N | Message requires no reply. |
| Y | Message requires a reply. |

| Field Name | Format/Length |
|------------|---------------|
| REPLY - ID | (A8) |

Only relevant for function DIS-WTOR. The identifier which must be used to reply to a write-to-operator-with-reply.

| Field Name | Format/Length |
|-----------------|---------------|
| RESPONSE - FLAG | (A1) |

Indicates whether message text is the response to a command. Possible values:

| Value | Explanation |
|-------|-------------|
| N | No |
| Y | Yes |

| Field Name | Format/Length |
|-----------------------|---------------|
| ROUTE - CODE - STRING | (A28) |

Routing codes for the console message. Each byte of the string corresponds to one of the routing codes 1 - 28. A byte contains 1 if the corresponding routing code is assigned, or 0 if it is not assigned.

| Field Name | Format/Length |
|-------------------|---------------|
| SEQUENCE - NUMBER | (A8) |

Sequence number of the message since the last IPL.

| Field Name | Format/Length |
|------------|---------------|
| TEXT | (A253) |

The command to be entered for function `OP-CMD` (operator command), default length = 80 characters.

| Field Name | Format/Length |
|------------|---------------|
| TEXT-FLAG | (A1) |

Describes the type of message text. Possible values:

| Value | Explanation |
|-------|---------------------------|
| C | Control text (multi-line) |
| D | Data text (" ") |
| E | End text (" ") |
| L | Label text (" ") |
| M | First line (" ") |
| N | Normal text (single line) |

| Field Name | Format/Length |
|-------------|---------------|
| TEXT-LENGTH | (N3) |

Length of field `TEXT`, maximum value = 120 characters. Note that using this field an operator command can exceed the default length (80 characters) up to a maximum length of 120 characters.

| Field Name | Format/Length |
|------------|---------------|
| TIME-STAMP | (A8) |

Only relevant for function `DIS-WTOR`. Time stamp of the console message in format `HH:MM:SS`.

| Field Name | Format/Length |
|------------|---------------|
| TIMX | (T) |

Time stamp in Natural internal format.

| Field Name | Format/Length |
|------------|---------------|
| WAIT-TIME | (B4) |

Only relevant for function `DISPLAY`. Time in seconds to wait for the next message (see also the field `RECORD-NUMBER`). If no message arrives within the specified time, `ERROR-CODE 537` is issued.

Up to ten delimiter characters to be used for tokenizing the record.

Default Order of Data Returned

Messages are returned in timestamp order (oldest to newest).

17

CONSOLE-LOG

- Fields 106
- Relevant Error Codes 107
- Field Descriptions 107
- Default Order of Data Returned 111

| | |
|------------------|--|
| File | 25 |
| Statement | FIND |
| Task | Retrieve current and past console log data, for example, start and end of jobs and tasks, as well as important error and abend messages. |

Fields

| Dictionary Field Name | F/L | Mu | DE | Remarks |
|-----------------------|------|----|----|----------------------------|
| ERROR-CODE | N3 | | | |
| ERROR-TEXT | A58 | | | |
| NODE | N5 | | D | |
| NODE-NAME | A16 | | D | |
| DATA-SET | N5 | | D | |
| LOG-TIME | A8 | | D | |
| LOG-TEXT | A128 | | D | |
| LOG-ROUTE-CODE | A8 | | D | |
| LOG-RECORD-TYPE | A1 | | D | |
| LOG-REQUEST-TYPE | A1 | | D | |
| LOG-DATX | D | | D | |
| LOG-TIMX | T | | D | |
| RECORD-NUMBER | N9 | | D | |
| RECORD-LENGTH | N3 | | D | |
| RECORD | A253 | | D | |
| POSITION | B1 | | D | |
| TOKEN-VECTOR | A225 | | D | |
| NUMBER-OF-TOKENS | N3 | | D | |
| TOKEN-DELIMITERS | A10 | | D | |
| SCAN | A3 | | D | |
| SCAN-LIMIT | N7 | | D | |
| SCAN-TYPE | A1 | | D | |
| SCAN-LENGTH | N3 | | D | Relevant with SCAN-TYPE=A. |
| SCAN-COLUMN-FROM | N3 | | D | Relevant with SCAN-TYPE=A. |
| SCAN-COLUMN-TO | N3 | | D | Relevant with SCAN-TYPE=A. |
| DATA-SET-KEY | N11 | | D | |
| LOG-JOB-NUMBER | N7 | | D | |
| LOG-JOB-NAME | A8 | | D | |

| Dictionary Field Name | F/L | Mu | DE | Remarks |
|-----------------------|-----|----|----|---------|
| LOG-REPLY-ID | A8 | | D | |
| LOG-SOURCE | A8 | | D | |

Relevant Error Codes

| Code | Text |
|------|---|
| 533 | Requested number or records scanned. |
| 537 | Time limit reached. |
| 699 | GETVIS failed. |
| 711 | Logical Error occurred in Common JES Interface. |
| 712 | Request to Common JES Interface failed. |
| 717 | GENCB for ACB or RPL failed with RC:1:and RSN:2: |
| 719 | Unable to :1: SYSOUT dataset. |
| 724 | Requested job not found. |
| 731 | Error occurred during spool GET, RPLFDBK :1: |
| 781 | Unable to obtain storage for work area extension. |
| 830 | JES interface not active. |

Field Descriptions

| Field Name | Format/Length |
|------------|---------------|
| DATA-SET | (N5) |

Requested dataset number of job SYSLOG.

| Field Name | Format/Length |
|--------------|---------------|
| DATA-SET-KEY | (N1) |

Unique dataset identification, offering much faster access than the dataset number. The dataset key can be obtained from the SPOOL-FILES view using job name SYSLOG.

| Field Name | Format/Length |
|------------|---------------|
| LOG-DATX | (D) |

Date in Natural internal format.

| Field Name | Format/Length |
|--------------|---------------|
| LOG-JOB-NAME | (A8) |

Job name corresponding to the job number contained in the record. This only applies if the job is still active at calling time.

| Field Name | Format/Length |
|----------------|---------------|
| LOG-JOB-NUMBER | (N7) |

Job number, if contained in record.

| Field Name | Format/Length |
|-----------------|---------------|
| LOG-RECORD-TYPE | (A1) |

Possible values:

| Value | Explanation |
|-------|---|
| N | Single-line message. |
| W | Single-line message with reply. |
| D | Data line of multi-line message. |
| E | Data/end line of multi-line message. |
| L | Label line of multi-line message. |
| M | The first line of a multi-line message. |
| O | Log command input. |
| S | Continuing previous line. |
| X | Entry from a source other than hardcopy or log command. |

| Field Name | Format/Length |
|------------|---------------|
| LOG-SOURCE | (A8) |

Source of the CONSOLE-LOG: SYSLOG or OPERLOG. SYSLOG is the default.

| Field Name | Format/Length |
|--------------|---------------|
| LOG-REPLY-ID | (A8) |

Reply ID of WTOR.

| Field Name | Format/Length |
|------------------|---------------|
| LOG-REQUEST-TYPE | (A1) |

Possible values :

| Value | Explanation |
|-------|-----------------------------|
| C | Command issued by operator. |
| R | Command response. |
| I | Command issued internally. |

| Field Name | Format/Length |
|----------------|---------------|
| LOG-ROUTE-CODE | (A8) |

Route codes.

| Field Name | Format/Length |
|------------|---------------|
| LOG-TEXT | (A128) |

The pure log record.

| Field Name | Format/Length |
|------------|---------------|
| LOG-TIME | (A8) |

Time stamp in log record.

| Field Name | Format/Length |
|------------|---------------|
| LOG-TIMX | (T) |

Time in Natural internal format.

| Field Name | Format/Length |
|------------------|---------------|
| NUMBER-OF-TOKENS | (N3) |

Number of tokens in record.

| Field Name | Format/Length |
|------------|---------------|
| POSITION | (B1) |

Offset in log record. The RECORD field will contain log record starting at this offset.

| Field Name | Format/Length |
|------------|---------------|
| RECORD | (A253) |

Log record.

| Field Name | Format/Length |
|---------------|---------------|
| RECORD-LENGTH | (N3) |

Length of log record.

| Field Name | Format/Length |
|---------------|---------------|
| RECORD-NUMBER | (N9) |

Retrieve records from log starting at this relative record number. If a negative value (*-nnnnnnnn*) is specified, the *nnnnnnnn* most current log records are retrieved.

| Field Name | Format/Length |
|------------|---------------|
| SCAN | (A3) |

Specify YES to return the first record that meets the selection criteria and all the following records.

| Field Name | Format/Length |
|------------------|---------------|
| SCAN-COLUMN-FROM | (N3) |

Relevant if SCAN-TYPE=A. Specifies the column number where the scan is to start. Default is 1.

| Field Name | Format/Length |
|----------------|---------------|
| SCAN-COLUMN-TO | (N3) |

Relevant if SCAN-TYPE=A. Specifies the column number where the scan is to end. Default is the end of the record.

| Field Name | Format/Length |
|-------------|---------------|
| SCAN-LENGTH | (N3) |

Relevant if SCAN-TYPE=A. Specifies the length of the scan string in field RECORD.

| Field Name | Format/Length |
|------------|---------------|
| SCAN-LIMIT | (N7) |

Specifies the maximum number of records to be scanned before the record is selected. If the limit is reached and no record found, error code 533 is issued.

| Field Name | Format/Length |
|------------|---------------|
| SCAN-TYPE | (A1) |

Specify A to perform an absolute scan. The wildcard symbols asterisk (*) and underscore (_) are treated as normal characters.

| Field Name | Format/Length |
|--------------|---------------|
| TOKEN-VECTOR | (A225) |

Tokenized log record (15 tokens each with a length of 15 bytes).

| Field Name | Format/Length |
|------------------|---------------|
| TOKEN-DELIMITERS | (A10) |

Default Order of Data Returned

Messages are returned in the order in which they are found in the console hardcopy file.

18 COPY-FILE

| | |
|------------------------------|-----|
| ▪ Fields | 114 |
| ▪ Relevant Error Codes | 115 |
| ▪ Field Descriptions | 115 |

| | |
|------------------|---|
| File | 37 |
| Statement | PROCESS |
| Task | Copy files or library members. Both source and target files must exist before this function is executed. Load modules can only be copied from PDS to PDS, while program objects can only be copied from PDSE to PDSE. Mixing of PDS and PDSE formats is unavailable due to IBM restrictions. |

Fields

| Dictionary Field Name | F/L | Mu | DE | Remarks |
|-------------------------|-----|----|----|----------|
| ERROR-CODE | N3 | | | |
| ERROR-TEXT | A58 | | | |
| NODE | N5 | | D | |
| NODE-NAME | A16 | | D | |
| SYSTEM-MESSAGE-CODE | A10 | | | |
| FROM-DSNAME | A54 | | D | Required |
| FROM-PRODUCT | A1 | | D | |
| FROM-PASSWORD | A8 | | D | |
| TO-DSNAME | A54 | | D | Required |
| TO-PRODUCT | A1 | | D | |
| TO-PASSWORD | A8 | | D | |
| REPLACE | A3 | | D | |
| ERROR-NODE | N5 | | | |
| ERROR-VIEW | N3 | | | |
| FROM-VOLSER | A6 | | D | |
| FROM-TAPE-DDNAME | A8 | | D | |
| FROM-TAPE-FILE-SEQUENCE | B2 | | D | |
| FROM-USERID | A8 | | D | |
| FROM-USER-PASSWORD | A32 | | D | |
| FROM-MEMBER | A8 | | D | |
| FROM-NODE | N5 | | D | |
| TO-VOLSER | A6 | | D | |
| TO-TAPE-DDNAME | A8 | | D | |
| TO-TAPE-FILE-SEQUENCE | B2 | | D | |
| TO-USERID | A8 | | D | |
| TO-USER-PASSWORD | A32 | | D | |

| Dictionary Field Name | F/L | Mu | DE | Remarks |
|-----------------------|-----|----|----|---------|
| TO-MEMBER | A8 | | D | |
| TO-NODE | N5 | | D | |

Relevant Error Codes

| Code | Text |
|------|--|
| 530 | Access denied by Security Facility |
| 549 | Not a PDSE data set |
| 659 | Dataset is already cataloged |
| 670 | View not supported on one of the operating systems |
| 679 | Input and output files are incompatible |
| 683 | FAMS error, R15 = :1;, R0 = :2: |
| 685 | FAMS subtask abended |
| 699 | GETVIS failed |
| 701 | DSNAME missing |
| 772 | Requested dataset not found |
| 998 | Member not found |



Note: Any possible return code from READ-FILE, WRITE-FILE, LIB-DIRECTORY, LIB-UPDATE, SYSTEM-INFO and NATPROC-LOGON may also be returned.

Field Descriptions



Note: Specification of user ID and password are only required if they are different from the local user ID and password.

| Field Name | Format/Length |
|------------|---------------|
| ERROR-NODE | (N5) |

If an error occurred during processing, this contains the node which returned the error code.

| Field Name | Format/Length |
|------------|---------------|
| ERROR-VIEW | (N3) |

If an error occurred during processing, this contains the view number (called internally by COPY-FILE) which returned the error code. If it is zero, then the error was not returned by a called view.

| Field Name | Format/Length |
|-------------|---------------|
| FROM-DSNAME | (A54) |

Fully qualified input dataset name.

| Field Name | Format/Length |
|-------------|---------------|
| FROM-MEMBER | (A8) |

Name of the member to be copied.

| Field Name | Format/Length |
|------------|---------------|
| FROM-NODE | (N5) |

Entire System Server node ID from which to copy.

| Field Name | Format/Length |
|---------------|---------------|
| FROM-PASSWORD | (A8) |

Password for input dataset.

| Field Name | Format/Length |
|--------------|---------------|
| FROM-PRODUCT | (A1) |

Specify access method with FROM-LIBRARY:

| Value | Explanation |
|-------|--------------|
| L | CA-Librarian |
| P | CA-Panvalet |

| Field Name | Format/Length |
|------------------|---------------|
| FROM-TAPE-DDNAME | (A8) |

The DD name of the input tape as specified in the view FILE-ALLOCATE.

| Field Name | Format/Length |
|-------------------------|---------------|
| FROM-TAPE-FILE-SEQUENCE | (B2) |

The file number of the dataset to be read.

| Field Name | Format/Length |
|-------------|---------------|
| FROM-USERID | (A8) |

User ID in FROM-NODE.

| Field Name | Format/Length |
|--------------------|---------------|
| FROM-USER-PASSWORD | (A32) |

User password in FROM-NODE.

| Field Name | Format/Length |
|-------------|---------------|
| FROM-VOLSER | (A6) |

Volume serial number of the input dataset.

| Field Name | Format/Length |
|------------|---------------|
| REPLACE | (A3) |

Possible options:

| Option | Explanation |
|--------|---|
| NO | Add object to library. If an object with the same name already exists, issue error code. |
| REP | Replace object of the same name. If it does not exist, issue error code. |
| YES | Default. Add object to library. If an object with the same name already exists, replace it. |

| Field Name | Format/Length |
|------------|---------------|
| TO-DSNAME | (A54) |

Fully qualified output dataset name.

| Field Name | Format/Length |
|------------|---------------|
| TO-MEMBER | (A8) |

Name to be assigned to the member in the output dataset. By default, the name of the input member is taken.

| Field Name | Format/Length |
|------------|---------------|
| TO-NODE | (N5) |

Entire System Server node ID to which to copy.

| Field Name | Format/Length |
|-------------|---------------|
| TO-PASSWORD | (A8) |

Password for output dataset.

| Field Name | Format/Length |
|------------|---------------|
| TO-PRODUCT | (A1) |

Specify access method for TO-LIBRARY:

| Value | Explanation |
|-------|--------------|
| L | CA-Librarian |
| P | CA-Panvalet |

| Field Name | Format/Length |
|----------------|---------------|
| TO-TAPE-DDNAME | (A8) |

The DD name of the output tape as specified in the view FILE-ALLOCATE.

| Field Name | Format/Length |
|-----------------------|---------------|
| T0-TAPE-FILE-SEQUENCE | (B2) |

The file number of the dataset to be written.

| Field Name | Format/Length |
|------------|---------------|
| T0-USERID | (A8) |

User ID in T0-NODE.

| Field Name | Format/Length |
|------------------|---------------|
| T0-USER-PASSWORD | (A32) |

User password in T0-NODE.

| Field Name | Format/Length |
|------------|---------------|
| T0-VOLSER | (A6) |

Volume serial number of the output dataset.

19

DEVICE-NAMES

- Fields 122
- Field Descriptions 122

| | |
|------------------|--|
| File | 30 |
| Statement | FIND |
| Task | Display information for defined devices. |

Fields

| Dictionary Field Name | F/L | Mu | DE | Remarks |
|-----------------------|-----|----|----|---------|
| ERROR-CODE | N3 | | | |
| ERROR-TEXT | A58 | | | |
| NODE | N5 | | D | |
| NODE-NAME | A16 | | D | |
| NAME | A8 | | D | |
| TYPE | B4 | | D | |
| ADDRESS | B2 | | D | |

Field Descriptions

| Field Name | Format/Length |
|------------|---------------|
| ADDRESS | (B2) |

Unit address.

| Field Name | Format/Length |
|------------|---------------|
| NAME | (A8) |

Generic name defined during system generation.

| Field Name | Format/Length |
|------------|---------------|
| TYPE | (B4) |

Internal device type code.

20

EVENTING

- Fields 124
- Relevant Error Codes 124
- Field Descriptions 125

| | |
|------------------|---|
| File | 40 |
| Statement | FIND or PROCESS, depending on value in FUNCTION field. |
| Task | Allows communication between Natural programs or Natural applications. This DDM enables Natural programs to send data to and receive data from other Natural programs, even if the partner program is located on another system running a different operating system. |

Fields

| Dictionary Field Name | F/L | Mu | DE | Remarks |
|-----------------------|------|----|----|-------------------|
| ERROR-CODE | N3 | | | |
| ERROR-TEXT | A58 | | | |
| NODE | N5 | | D | |
| NODE-NAME | A16 | | D | |
| SYSTEM-MESSAGE-CODE | A10 | | | |
| FUNCTION | A8 | | D | Required, Unique. |
| EVENT-NAME | A8 | | * | * |
| MAX-TIME | B4 | | * | * |
| NUMBER-OF-WAITERS | N5 | | * | * |
| NUMBER-OF-MESSAGES | N5 | | * | * |
| MESSAGE-ARRAY | A250 | M7 | * | * |

* See [Field Descriptions](#), FUNCTION field: Matrix of statements, fields and functions.

Relevant Error Codes

| Code | Text |
|------|-------------------------------|
| 600 | Unknown function. |
| 886 | Event is in use. |
| 887 | Event is already defined. |
| 888 | Event name must be specified. |
| 890 | Event does not exist. |
| 891 | Timeout waiting for event. |
| 894 | Enable eventing failed. |
| 893 | Getmain failed. |

Field Descriptions

Which fields are relevant with which statement depends on the `FUNCTION` specified (see the description of the `FUNCTION` field, below).

| Field Name | Format/Length |
|------------|---------------|
| EVENT-NAME | (A8) |

Name of the event.

| Field Name | Format/Length |
|------------|---------------|
| FUNCTION | (A8) |

Specifies the action to be performed. Possible values:

| Value | Explanation |
|----------|-------------------------------------|
| DEFINE | Define an event |
| DELETE | Delete an event |
| LIST | List events |
| POST | Post event |
| RECEIVE | Receive messages from event |
| SEND | Send message to event |
| WAIT | Wait for post of event (or timeout) |
| SENDPOST | Both SEND and POST. |

Matrix of statements, fields and functions:

Key: R=Required, U=Unique, D=Descriptor

| PROCESS Statement | Functions | | | | |
|-------------------|-----------|--------|------|------|------|
| Fields | DEFINE | DELETE | SEND | WAIT | POST |
| EVENT-NAME | RUD | RUD | RUD | RUD | RUD |
| MAX-TIME | | | | UD | |
| MESSAGE-ARRAY | | | RUD | | |

| FIND Statement | Functions | |
|-----------------------|------------------|------|
| Fields | RECEIVE | LIST |
| EVENT-NAME | RUD | D |
| NUMBER-OF-WAITERS | | D |
| MESSAGE-ARRAY | D | |
| NUMBER-OF-MESSAGES | | D |

| Field Name | Format/Length |
|-------------------|----------------------|
| MAX-TIME | (B4) |

Maximum time (in seconds) you want to wait for a message to arrive. If no message arrives within this time you will get ERROR-CODE 891 (timeout).

| Field Name | Format/Length |
|-------------------|----------------------|
| MESSAGE-ARRAY | (A250) M7 |

Array of maximum 7 messages for SEND/RECEIVE functions.

| Field Name | Format/Length |
|--------------------|----------------------|
| NUMBER-OF-MESSAGES | (N5) |

Number of messages waiting to be received.

| Field Name | Format/Length |
|-------------------|----------------------|
| NUMBER-OF-WAITERS | (N5) |

Number of tasks waiting to be posted.

21 FILE-ALLOCATE

| | |
|------------------------------|-----|
| ▪ Fields | 128 |
| ▪ Relevant Error Codes | 129 |
| ▪ Field Descriptions | 129 |

| | |
|------------------|---|
| File | 9 |
| Statement | PROCESS |
| Task | Enables the allocation of files from a Natural session. |

Fields

| Dictionary Field Name | F/L | Mu | DE | Remarks |
|-----------------------|------|-----|----|--|
| ERROR-CODE | N3 | | | |
| ERROR-TEXT | A58 | | | |
| NODE | N5 | | D | |
| NODE-NAME | A16 | | D | |
| SYSTEM-MESSAGE-CODE | A10 | | | |
| DSNAME | A54 | | D | Required. |
| VOLSER | A6 | | D | VOLSER or UNIT is required. |
| DSORG | A4 | | D | |
| UNIT | A8 | | D | VOLSER or UNIT is required. |
| EXPIRATION-DATE | A8 | | D | |
| EXPIRATION-DATX | D | | D | |
| RECFM | A4 | | D | Required. |
| LRECL | N5 | | D | Required. |
| BLKSIZE | N5 | | D | Required. |
| ALLOCATION-TYPE | A3 | | D | Required. |
| PRIMARY-ALLOCATION | N10 | | D | Required. |
| SECONDARY-ALLOCATION | N10 | | D | Required. |
| DISP | A3 | | D | |
| DIRECTORY-BLOCKS | N7 | | D | Required for PO-type datasets (see DSORG field). |
| CATALOG | A3 | | D | |
| RLSE | A3 | | D | |
| CONTIG | A3 | | D | |
| ROUND | A3 | | D | |
| EXTENDED-TEXT | A250 | M/3 | D | |
| VOLUME-COUNT | N2 | | D | Required if writing multiple reels |
| VOLUME-SEQUENCE | N2 | | D | |
| DENSITY | A1 | | D | |
| LABEL | A4 | | D | |
| DDNAME | A8 | | D | |

| Dictionary Field Name | F/L | Mu | DE | Remarks |
|-----------------------|-----|----|----|---------|
| DSNTYPE | A8 | | D | |
| DSNTYPE-VERSION | N1 | | D | |
| EATTR | A3 | | D | |
| FREE | A3 | | D | |
| SMS-STORAGE-CLASS | A8 | | D | |
| SMS-MANAGEMENT-CLASS | A8 | | D | |
| SMS-DATA-CLASS | A8 | | D | |
| MAXGENS | N9 | | | |

Relevant Error Codes

| Code | Text |
|------|--|
| 530 | Access denied by Security Facility. |
| 701 | DSNAME missing. |
| 710 | Allocation failed. Reason=TAPES NOT ALLOWED. |

Field Descriptions

| Field Name | Type/Length |
|-----------------|-------------|
| ALLOCATION-TYPE | (A4) |

Space allocation type. Possible values:

| | |
|-----|-------------------|
| BLK | Block. |
| CYL | Cylinder. |
| TRK | Tracks (default). |

| Field Name | Type/Length |
|------------|-------------|
| BLKSIZE | (N5) |

FILE-ALLOCATE

| Field Name | Type/Length |
|------------|-------------|
| CATALOG | (A3) |

Specifies whether and how the dataset is cataloged. Possible options:

| Option | Explanation |
|--------|--|
| NO | Default. Dataset is not cataloged. |
| YES | Dataset is cataloged. If you specify generation dataset name (DATASET(+1)), the dataset is always cataloged. The dataset must already have been cataloged (see the view CATALOG-UPDATE, especially the field NUMBER-OF-GENERATIONS). |

| Field Name | Type/Length |
|------------|-------------|
| CONTIG | (A3) |

Specifies contiguous allocated space. Possible options:

| Option | Explanation |
|--------|---|
| NO | Default. Space is not allocated contiguously. |
| YES | Space is allocated contiguously. |

| Field Name | Type/Length |
|----------------|-------------|
| CREATE-JOBNAME | (A8) |

Job name used to create the data set described by its format 8 DSCB.

| Field Name | Type/Length |
|-----------------|-------------|
| CREATE-STEPNAME | (A8) |

Step name used to create the data set described by its format 8 DSCB.

| Field Name | Type/Length |
|------------|-------------|
| DDNAME | (A8) |

Internal DD name used by the Entire System Server. It must be specified on calls to READ-FILE and WRITE-FILE when allocating tape units.

| Field Name | Type/Length |
|------------|-------------|
| DSNTYPE | (A8) |

The type of data set to be allocated. Possible values:

| OptionValue | Explanation |
|-------------|---|
| BASIC | Basic format sequential data set (default). |
| LARGE | Large format sequential data set. |
| LIBRARY | Partitioned data set extended (PDSE). |

| Field Name | Type/Length |
|-----------------|-------------|
| DSNTYPE-VERSION | (N1) |

The data set version number for a library (PDSE). Possible values are 1 or 2.

| Field Name | Type/Length |
|------------|-------------|
| DENSITY | (A1) |

Tape density. Possible options:

| Option | Explanation |
|--------|-------------|
| 3 | 1600 BPI |
| 4 | 6250 BPI |

| Field Name | Type/Length |
|------------------|-------------|
| DIRECTORY-BLOCKS | (N7) |

Number of directory blocks for PDS.

| Field Name | Type/Length |
|------------|-------------|
| DISP | (A3) |

Disposition of the dataset. Possible values:

| Value | Explanation |
|-------|-----------------------|
| NEW | Allocate new dataset. |

| Field Name | Type/Length |
|------------|-------------|
| DSNAME | (A54) |

Fully qualified dataset name.

| Field Name | Type/Length |
|------------|-------------|
| DSORG | (A4) |

Dataset organization. Possible options:

| | |
|----|------------------------------|
| PO | Partitioned dataset (PDS). |
| PS | Default. Sequential dataset. |

| Field Name | Type/Length |
|------------|-------------|
| EATTR | (A3) |

Extended attributes. Possible values:

| Value | Explanation |
|-------|--|
| OPT | Data set can support extended attributes (format 8 and 9 DSCBs). |
| NO | Data set does not support extended attributes (default). |

| Field Name | Type/Length |
|-----------------|-------------|
| EXPIRATION-DATE | (A8) |

Expiration date in the format *YYDDD* or *YYYYDDD*. If *EXPIRATION-DATE* is specified with format *YYDDD*, it will be converted to the *YYYY/DDD* format using a fixed window from 1964 to 2063.

There is no default (i.e., no expiration date).

| Field Name | Type/Length |
|-----------------|-------------|
| EXPIRATION-DATX | (D) |

Expiration date in internal format.

| Field Name | Type/Length |
|---------------|-------------|
| EXTENDED-TEXT | (A250) |

Text lines (up to 3) containing error description.

| Field Name | Type/Length |
|------------|-------------|
| FREE | (A3) |

Specify YES to free the allocation for DDNAME.

| Field Name | Type/Length |
|------------|-------------|
| LABEL | (A4) |

Type of label processing.

| Field Name | Type/Length |
|------------|-------------|
| LRECL | (N5) |

Logical record length. The default is 0.

| Field Name | Type/Length |
|------------|-------------|
| MAXGENS | (N9) |

Maximum number of member generations for a PDSE version 2.

Possible values are 0 (no generations) or a value between 1 and the upper limit specified as MAXGENS_LIMIT in parmlib member IGDSMS_{xx}.

| Field Name | Type/Length |
|--------------------|-------------|
| PRIMARY-ALLOCATION | (N10) |

■ Primary space allocation (default is 0).

| Field Name | Type/Length |
|------------|-------------|
| RECFM | (A4) |

Record format.

The default is FB.

| Field Name | Type/Length |
|------------|-------------|
| RLSE | (A3) |

Specifies whether unused space is released after the dataset is closed. Possible options:

| Option | Explanation |
|--------|---|
| NO | Default. Unused space is not released. |
| YES | Unused space is released after dataset is closed. |

| Field Name | Type/Length |
|------------|-------------|
| ROUND | (A3) |

Specifies whether one or more whole cylinders are to be allocated. Possible options:

| Option | Explanation |
|--------|---|
| NO | Default. Allocated space need not be whole cylinders. |
| YES | Allocate one or more whole cylinders. |

| Field Name | Type/Length |
|----------------------|-------------|
| SECONDARY-ALLOCATION | (N10) |

Secondary space allocation (default is 0).

| Field Name | Type/Length |
|----------------|-------------|
| SMS-DATA-CLASS | (A8) |

Data class of SMS managed file.

| Field Name | Type/Length |
|----------------------|-------------|
| SMS-MANAGEMENT-CLASS | (A8) |

Management class of SMS managed file.

| Field Name | Type/Length |
|-------------------|-------------|
| SMS-STORAGE-CLASS | (A8) |

Storage class of SMS managed file.

| Field Name | Type/Length |
|------------|-------------|
| UNIT | (A8) |

Generic unit name on which the dataset is to be allocated, for example, *SYSDA*.

| Field Name | Type/Length |
|------------|-------------|
| VOLSER | (A6) |

Volume serial number where the file is to be located.

| Field Name | Type/Length |
|--------------|-------------|
| VOLUME-COUNT | (N2) |

Maximum number of output volumes to be allocated. Required if writing multiple reels.

| Field Name | Type/Length |
|-----------------|-------------|
| VOLUME-SEQUENCE | (N2) |

When a tape dataset is cataloged, you can supply a value of greater than 1 if processing is not the start with the first reel.

22 FILE-ATTRIBUTES

- Fields 138
- Relevant Error Codes 139
- Field Descriptions 140

FILE-ATTRIBUTES

| | |
|------------------|---|
| File | 1 |
| Statement | FIND |
| Task | Display attributes for a given file, for example, record format, block size, record length. |

Fields

| Dictionary Field Name | F/L | Mu | DE | Remarks |
|-----------------------|------|----|----|----------------------------------|
| ERROR-CODE | N3 | | | |
| ERROR-TEXT | A58 | | | |
| NODE | N5 | | D | |
| NODE-NAME | A16 | | D | |
| SYSTEM-MESSAGE-CODE | A10 | | | |
| VOLSER | A6 | | D | |
| DSNAME | A54 | | D | Required. |
| DSORG | A4 | | | |
| CREATION-DATE | A8 | | | |
| EXPIRATION-DATE | A8 | | | |
| LAST-TTR | B3 | | | |
| LAST-TTTR | B4 | | | |
| FILE-SIZE | N10 | | | |
| SECURITY | A5 | | | |
| SERIES | A8 | | | |
| CREATION-DATX | D | | | |
| EXPIRATION-DATX | D | | | |
| PRODUCT | A1 | | | |
| LRECL | N5 | | | |
| BLKSIZE | N5 | | | |
| RECFM | A5 | | | |
| PAGES-USED | N10 | | | PDSE only: Number of used pages. |
| PASSWORD | A8 | | D | |
| EXTENTS | A192 | | | |
| EXTENTS-ARRAY | A192 | 59 | | |
| CYLINDERS-ALLOCATED | N7 | | | |
| TRACKS-ALLOCATED | N3 | | | |
| UNIT | A3 | | | |
| NUMBER-OF-EXTENTS | N3 | | | |

| Dictionary Field Name | F/L | Mu | DE | Remarks |
|-------------------------|------|----|----|---|
| ALLOCATION-TYPE | A3 | | | |
| SECONDARY-QTY | N10 | | | Secondary allocation quantity in Unit of Allocation type. |
| PRIMARY-QTY | N10 | | | Primary allocation quantity in Unit of Allocation type. |
| PERCENT-USED | N3 | | | |
| LAST-REFERENCE | A8 | | | |
| LAST-REFERENCE-DATX | D | | | |
| NUMBER-OF-MEMBERS | N7 | | | |
| TOTAL-DIRECTORY-BLOCKS | N5 | | | |
| UNUSED-DIRECTORY-BLOCKS | N5 | | | |
| UPDATED-SINCE-BACKUP | A3 | | | |
| SMS | A3 | | | |
| OPTIONS | A80 | | | |
| SMS-STORAGE-CLASS | A8 | | | |
| SMS-MANAGEMENT-CLASS | A8 | | | |
| SMS-DATA-CLASS | A8 | | | |
| CREATE-JOBNAME | A8 | | | |
| CREATE-STEPNAME | A8 | | | |
| DSNTYPE | A8 | | | |
| DSNTYPE-VERSION | N1 | | | |
| EATTR | A3 | | | |
| VOLSER-ARRAY | A6 | 59 | | For multi-volume datasets on DASD |
| SERIES-ARRAY | A8 | 59 | | For multi-volume datasets on DASD |
| EXTENTS-ARRAY | A192 | 59 | | For multi-volume datasets on DASD |
| MAXGENS | N9 | | | |
| SHORT-INFO | A4 | | | |

Relevant Error Codes

| Code | Text |
|------|---|
| 500 | VSAM error |
| 506 | Data set is migrated. |
| 699 | GETVIS failed |
| 701 | DSNAME missing |
| 786 | Unable to obtain storage for CSI work area. |
| 787 | CSI request failed, Module :1;, Reason :2;, RC :3:. |

| Code | Text |
|------|-----------------------|
| 899 | I/O error during read |
| 993 | Open error |

Field Descriptions

| Field Name | Type/Length |
|-----------------|-------------|
| ALLOCATION-TYPE | (A4) |

Allocation type specified. Possible values:

| | |
|-----|-----------|
| ABS | Absolute |
| BLK | Block |
| CYL | Cylinders |
| TRK | Track |

| Field Name | Type/Length |
|------------|-------------|
| BLKSIZE | (N5) |

Block size.

| Field Name | Type/Length |
|----------------|-------------|
| CREATE-JOBNAME | (A8) |

Job name used to create the data set described by its format 8 DSCB.

| Field Name | Type/Length |
|-----------------|-------------|
| CREATE-STEPNAME | (A8) |

Step name used to create the data set described by its format 8 DSCB.

| Field Name | Type/Length |
|---------------|-------------|
| CREATION-DATE | (A8) |

Creation date in the format *DD/MM/YY*. If no creation date is specified, this field is filled with asterisks
***.

| Field Name | Type/Length |
|---------------|-------------|
| CREATION-DATX | (D) |

Creation date in Natural format.

| Field Name | Type/Length |
|---------------------|-------------|
| CYLINDERS-ALLOCATED | (N7) |

Number of integral cylinders allocated.

| Field Name | Type/Length |
|------------|-------------|
| DSNAME | (A54) |

Fully qualified dataset name.

| Field Name | Type/Length |
|------------|-------------|
| DSNTYPE | (A8) |

Data Set Type Specification.

| Field Name | Type/Length |
|-----------------|-------------|
| DSNTYPE-VERSION | (N1) |

The data set version number for a library (PDSE). Possible values are 1 or 2.

| Field Name | Type/Length |
|------------|-------------|
| DSORG | (A4) |

Dataset organization.

For example: PS, P0, VS.

| Field Name | Type/Length |
|------------|-------------|
| EATTR | (A3) |

Extended attributes. Possible values:

| Value | Explanation |
|-------|--|
| OPT | Data set can support extended attributes (format 8 and 9 DSCBs). |
| NO | Data set does not support extended attributes. (default). |

| Field Name | Type/Length |
|-----------------|-------------|
| EXPIRATION-DATE | (A8) |

Expiration date in the format *DD/MM/YY*. If no creation date is specified, this field is filled with asterisks ******.

| Field Name | Type/Length |
|-----------------|-------------|
| EXPIRATION-DATX | (D) |

Expiration date in Natural format.

| Field Name | Type/Length |
|------------|-------------|
| EXTENTS | (A192) |

Extent information, 16 entries of 12 bytes each. Each entry contains:

- Low cylinder and head (track) address of extent (binary CCHH)
- High cylinder and head (track) address of extent (binary CCHH)
- Number of cylinders in extent
- Number of additional tracks in extent

| Field Name | Type/Length |
|---------------|-------------|
| EXTENTS-ARRAY | (A192) 59 |

Array of extents for multi-volume datasets. Each element reflects one volume.

| Field Name | Type/Length |
|------------|-------------|
| FILE-SIZE | (N10) |

Number of tracks currently allocated. (CYLINDERS-ALLOCATED in tracks + TRACKS-ALLOCATED).

| Field Name | Type/Length |
|----------------|-------------|
| LAST-REFERENCE | (A8) |

Last reference date in format *DD/MM/YY*. If the last reference date is null, this field is filled with asterisks ******.

| Field Name | Type/Length |
|---------------------|-------------|
| LAST-REFERENCE-DATX | (D) |

Last reference date in Natural format.

| Field Name | Type/Length |
|------------|-------------|
| LAST-TTR | (B3) |

Last track.

| Field Name | Type/Length |
|------------|-------------|
| LAST-TTTR | (B4) |

■ Last used track and block on track (TTTR).

| Field Name | Type/Length |
|------------|-------------|
| LRECL | (N5) |

Logical record length.

| Field Name | Type/Length |
|------------|-------------|
| MAXGENS | (N9) |

Maximum number of member generations for a PDSE version 2.

Possible values are 0 (no generations) or a value between 1 and the upper limit specified as `MAXGENS_LIMIT` in parmlib member `IGDSMSxx`.

| Field Name | Type/Length |
|-------------------|-------------|
| NUMBER-OF-EXTENTS | (N3) |

Number of extents.

Values are 1 - 16

FILE-ATTRIBUTES

| Field Name | Type/Length |
|-------------------|-------------|
| NUMBER-OF-MEMBERS | (N7) |

Number of members in the dataset. If the dataset is not a partitioned dataset, this field shows 0.

| Field Name | Type/Length |
|------------|-------------|
| OPTIONS | (A80) |

Options for CA-Panvalet, CA-Librarian, etc.

| Field Name | Type/Length |
|------------|-------------|
| PAGES-USED | (N10) |

The number of pages allocated for members and directory information in a PDSE.

| Field Name | Type/Length |
|------------|-------------|
| PASSWORD | (A8) |

Specify password for protected datasets.

| Field Name | Type/Length |
|--------------|-------------|
| PERCENT-USED | (N3) |

Tracks used / tracks allocated.

| Field Name | Type/Length |
|-------------|-------------|
| PRIMARY-QTY | (A10) |

Primary allocation quantity in unit of allocation type.

| Field Name | Type/Length |
|------------|-------------|
| PRODUCT | (A1) |

Access method used. Possible values:

| Value | Explanation |
|-------|--------------|
| L | CA-Librarian |
| P | CA-Panvalet |

| Field Name | Type/Length |
|------------|-------------|
| RECFM | (A5) |

Record format.

| Field Name | Type/Length |
|-----------------|-------------|
| SECONDARY - QTY | (N10) |

Secondary allocation quantity in Unit of Allocation type.

| Field Name | Type/Length |
|------------|-------------|
| SECURITY | (A5) |

Security status. Possible values:

| Value | Explanation |
|-------|---|
| NONE | Not password-protected. |
| READ | Password-protected for read and write operations. |
| WRITE | Password-protected for write operations. |

| Field Name | Type/Length |
|--------------|-------------|
| SHORT - INFO | (A4) |

This enables calling file attributes also for PDS data sets without RACF read access for which some users might not have permission.

| Value | Explanation |
|-------|---|
| YES | The following values are not be returned for PO / POE data sets: TOTAL-DIRECTORY-BLOCKS UNUSED-DIRECTORY-BLOCKS NUMBER-OF-MEMBERS DSNTYPE-VERSION MAXGENS TOTGENS PERCENT-USED for HFS data sets: PERCENT-USED. |
| NO | Default. |

23 FILE-MAINTENANCE

- Fields 148
- Relevant Error Codes 148
- Field Descriptions 148

| | |
|------------------|--------------------------------|
| File | 18 |
| Statement | PROCESS |
| Task | Compress a PDS library online. |

Fields

| Dictionary Field Name | F/L | Mu | DE | Remarks |
|-----------------------|------|----|----|---------------------------------------|
| ERROR-CODE | N3 | | | |
| ERROR-TEXT | A58 | | | |
| NODE | N5 | | D | |
| NODE-NAME | A16 | | D | |
| SYSTEM-MESSAGE-CODE | A10 | | | |
| DSNAME | A54 | | D | Required. |
| PASSWORD | A8 | | D | |
| FUNCTION | A8 | | D | |
| VOLSER | A6 | | D | Required if dataset is not cataloged. |
| LINE | A121 | | D | |
| COMPLETION-CODE | B2 | | | |
| DISP | A3 | | | |

Relevant Error Codes

| Code | Text |
|------|---------------------|
| 778 | Not APF authorized. |

Field Descriptions

| Field Name | Type/Length |
|-----------------|-------------|
| COMPLETION-CODE | (B2) |

IEBCOPY completion code.

| Field Name | Type/Length |
|------------|-------------|
| DISP | (A3) |

Disposition to be used when compressing the file. Possible options:

- OLD
- SHR

| Field Name | Type/Length |
|------------|-------------|
| DSNAME | (A54) |

Fully qualified dataset name.

| Field Name | Type/Length |
|------------|-------------|
| FUNCTION | (A8) |

Possible values:

| Value | Explanation |
|----------|---|
| COMPRESS | Default. Compress dataset or file. |
| RECALL | Recall file stored with HSM (Hierarchical Storage Manager). |

| Field Name | Type/Length |
|------------|-------------|
| LINE | (A121) |

IEBCOPY output line. For a description of the line layout, see IEBCOPY documentation.

| Field Name | Type/Length |
|------------|-------------|
| PASSWORD | (A8) |

Password for dataset

| Field Name | Type/Length |
|------------|-------------|
| VOLSER | (A6) |

Volume serial number of the dataset.

24 IDCAMS

- Fields 152
- Relevant Error Codes 152
- Field Descriptions 152
- Default Order of Data Returned 153

| | |
|------------------|--|
| File | 14 |
| Statement | FIND |
| Task | Retrieve information on datasets using the IDCAMS utility. |

Fields

| Dictionary Field Name | F/L | Mu | DE | Remarks |
|-----------------------|------|----|----|-----------|
| ERROR-CODE | N3 | | | |
| ERROR-TEXT | A58 | | | |
| NODE | N5 | | D | |
| NODE-NAME | A16 | | D | |
| COMMAND | A253 | | D | Required. |
| LINE-LENGTH | N3 | | | |
| LINE | A133 | | D | |

Relevant Error Codes

| Code | Text |
|------|--------------------|
| 779 | IDCAMS has abended |

Field Descriptions

| Field Name | Type/Length |
|------------|-------------|
| COMMAND | (A253) |

Input command to IDCAMS. Each command must begin with a blank and multiple commands must be separated by a semicolon (;). See the *Access Method Service* documentation for more information.

| Field Name | Type/Length |
|------------|-------------|
| LINE | (A133) |

IDCAMS output line.

| Field Name | Type/Length |
|---------------|-------------|
| LINE - LENGTH | (N3) |

Length of output line.

Default Order of Data Returned

Each line of the output listing is presented in order.

25 IEBCOPY

| | |
|--|-----|
| ▪ Fields | 156 |
| ▪ Supported for Compatibility | 281 |
| ▪ Relevant Error Codes | 157 |
| ▪ Field Descriptions | 157 |
| ▪ Default Order of Data Returned | 159 |

| | |
|------------------|--|
| File | 17 |
| Statement | PROCESS |
| Task | Run the IEBCOPY utility under the Entire System Server and build input cards for IEBCOPY. Knowledge of IEBCOPY syntax is not required. |

Fields

| Dictionary Field Name | F/L | Mu | DE | Remarks |
|-----------------------|------|----|----|--|
| ERROR-CODE | N3 | | | |
| ERROR-TEXT | A58 | | | |
| NODE | N5 | | D | |
| NODE-NAME | A16 | | D | |
| FROM-DSNAME | A54 | | D | Required. |
| FROM-MEMBER | A10 | | D | Required. |
| FROM-VOLSER | A6 | | D | Required if dataset is not cataloged. |
| FROM-PASSWORD | A8 | | D | Required if dataset is password protected. |
| TO-DSNAME | A54 | | D | Required. |
| TO-MEMBER | A10 | | D | |
| TO-VOLSER | A6 | | D | Required if dataset is not cataloged. |
| TO-PASSWORD | A8 | | D | Required if dataset is password protected. |
| REPLACE | A3 | | D | |
| LINE | A121 | | D | |
| COMPLETION-CODE | B2 | | D | |

Supported for Compatibility

| Dictionary Field Name | F/L | Mu | DE | Remarks |
|-----------------------|-----|----|----|---------|
| IN-DSNAME | A54 | | D | |
| IN-MEMBER | A10 | | D | |
| IN-VOLSER | A6 | | D | |
| IN-PASSWORD | A8 | | D | |
| OUT-DSNAME | A54 | | D | |
| OUT-MEMBER | A10 | | D | |
| OUT-VOLSER | A6 | | D | |
| OUT-PASSWORD | A8 | | D | |

Relevant Error Codes

| Code | Text |
|------|--------------------|
| 778 | Not APF authorized |
| 551 | MEMBER missing |

Field Descriptions

| Field Name | Type/Length |
|-----------------|-------------|
| COMPLETION-CODE | (B2) |

IEBCOPY completion code.

| Field Name | Type/Length |
|-------------|-------------|
| FROM-DSNAME | (A54) |

Fully qualified input dataset name.

| Field Name | Type/Length |
|-------------|-------------|
| FROM-MEMBER | (A10) |

Name of member to be copied. Select all members in the dataset by specifying an asterisk *.

| Field Name | Type/Length |
|---------------|-------------|
| FROM-PASSWORD | (A8) |

Password for input dataset if the dataset is password protected.

| Field Name | Type/Length |
|-------------|-------------|
| FROM-VOLSER | (A6) |

Volume serial number of input dataset. Required if the dataset is not cataloged.

| Field Name | Type/Length |
|------------|-------------|
| LINE | (A121) |

IEBCOPY output line.

| Field Name | Type/Length |
|------------|-------------|
| REPLACE | (A3) |

Specifies whether the member in the output dataset is to be replaced. Possible options:

| Option | Explanation |
|--------|---|
| NO | Do not replace member if it already exists in the output dataset. |
| YES | Replace member if it already exists in the output dataset. |

| Field Name | Type/Length |
|------------|-------------|
| TO-DSNAME | (A54) |

Fully qualified output dataset name.

| Field Name | Type/Length |
|------------|-------------|
| TO-MEMBER | (A10) |

Name to be assigned to the member in the output dataset. If omitted, the output member name is used.

| Field Name | Type/Length |
|-------------|-------------|
| TO-PASSWORD | (A8) |

Password for output dataset if the dataset is password protected.

| Field Name | Type/Length |
|------------|-------------|
| TO-VOLSER | (A6) |

Volume serial number of output dataset. Required if the dataset is not cataloged.

Default Order of Data Returned

Each line of the output listing is presented in order.

26 LIB-DIRECTORY

| | |
|--|-----|
| ▪ Fields | 162 |
| ▪ Relevant Error Codes | 163 |
| ▪ Field Descriptions | 163 |
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| | |
|------------------|--|
| File | 3 |
| Statement | FIND |
| Task | This view reads the directory of the specified library and returns the entries record by record. |

Fields

| Dictionary Field Name | F/L | Mu | DE | Remarks |
|-----------------------|------|----|----|---|
| ERROR-CODE | N3 | | | |
| ERROR-TEXT | A58 | | | |
| NODE | N5 | | D | |
| NODE-NAME | A16 | | D | |
| SYSTEM-MESSAGE-CODE | A10 | | | |
| DSNAME | A54 | | D | Required. |
| PASSWORD | A8 | | D | |
| ALIAS | A8 | | D | |
| ALIAS-ORIGINAL | A8 | | D | |
| GENERATION | N9 | | D | |
| LONG-ALIAS | A3 | | D | |
| MEMBER | A10 | | D | |
| MEMBER-LONG-NAME | A253 | | D | Valid only if LONG-ALIAS = 'YES' requested. |
| MEMBER-TTR | B4 | | D | |
| MODULE-ATTRIBUTES | A80 | | D | |
| MODULE-LENGTH | N11 | | D | |
| NUMBER-OF-OCCURRENCES | N7 | | D | |
| OPTIONS | A80 | | D | |
| PRODUCT | A1 | | D | |
| RECORD | A200 | | D | |
| USER-DATA | A120 | | D | |
| USER-DATA-HEX | B120 | | D | |
| USER-DATA-LENGTH | N3 | | D | |
| VERSION | A2 | | D | |
| VOLSER | A6 | | D | Required only if dataset is not cataloged. |

Relevant Error Codes

| Code | Text |
|------|---|
| 500 | VSAM error |
| 550 | File not a PDS |
| 699 | GETVIS failed |
| 899 | I/O error during read |
| 906 | DESERV error, R15=XXXXXXXX, R0=XXXXXXXX |
| 991 | Unknown product |
| 993 | OPEN error |

Field Descriptions

| Field Name | Type/Length |
|------------|-------------|
| ALIAS | (A8) |

Possible values:

| Value | Explanation |
|-------|----------------------------------|
| YES | Member name is an alias name. |
| NO | Member name is an original name. |

| Field Name | Type/Length |
|----------------|-------------|
| ALIAS-ORIGINAL | (A8) |

If ALIAS=YES, original name of the member (load libraries only).

| Field Name | Type/Length |
|------------|-------------|
| DSNAME | (A54) |

Fully qualified dataset name.

| Field Name | Type/Length |
|------------|-------------|
| GENERATION | (N9) |

Generation number of member (only valid for PDSE version 2).

| Field Name | Type/Length |
|------------|-------------|
| LONG-ALIAS | (A3) |

If set to YES, will return member alias names longer than 8 bytes in length (see [MEMBER-LONG-NAME](#)). Default is NO.

| Field Name | Type/Length |
|------------|-------------|
| MEMBER | (A10) |

Name of member.

| Field Name | Type/Length |
|------------------|-------------|
| MEMBER-LONG-NAME | (A253) |

If LONG-ALIAS is set to YES, then this field will contain the first 253 bytes of member names, including those members whose name length is less than or equal to 8. If LONG-ALIAS is set to NO, then this field is equivalent to MEMBER.

| Field Name | Type/Length |
|------------|-------------|
| MEMBER-TTR | (B4) |

| Field Name | Type/Length |
|-------------------|-------------|
| MODULE-ATTRIBUTES | (A253) |

The module's attributes in keyword format. The relevant keywords are separated by one blank. Possible values:

| | | | |
|----------|---------------------------------|----------|---------------------------------|
| 1PAGE | First segment is page aligned. | AMODEANY | Phase has AMODE ANY. |
| 2PAGE | Second segment is page aligned. | AMODE24 | Phase has AMODE 24. |
| 1RMODE31 | First segment is RMODE 31. | AMODE31 | Phase has AMODE 31. |
| 2RMODE31 | Second segment is RMODE 31. | MSHPBYP | Member is MSHP bypassed. |
| AMODE24 | Phase has AMODE 24. | MSHPCTL | Member is MSHP controlled. |
| AMODE31 | Module/alias is AMODE 31. | RECTYPEF | Member has fixed record format. |
| AMODE64 | Module/alias is AMODE 64. | | |
| AMODEANY | Module/alias is AMODE ANY. | | |

| | | | |
|------------|---|----------|-------------------------------------|
| AUTH | APF-authorized. | RECTYPEU | Member has undefined record format. |
| COMPRESSED | Module is in COMPRESSED format. | RECTYPEV | Member has variable record format. |
| FETCHPACK | Module is FETCHOPT PACK. | RMODEANY | Phase has RMODE ANY. |
| FETCHPRIME | Module is FETCHOPT PRIME. | RMODE24 | Phase has RMODE 24. |
| FILLx | FILL option is set. The character following FILL is the value. Note: It may not be printable (a MOVE EDITED would be needed to convert the value to hexadecimal). | RMODE31 | Phase has RMODE 31. |
| LOADONLY | Only loadable. | SYSIPT | Member contains SYSIPT data. |
| MAMODE31 | If alias, main EP is AMODE 31. | | |
| MAMODE64 | If alias, main EP is AMODE 64. | | |
| MAMODEANY | If alias, main EP is AMODE ANY. | | |
| NOTEXEC | Not executable. | | |
| OVLY | Overlay. | | |
| PAGE | Module is page aligned. | | |
| REFR | Refreshable. | | |
| RENT | Reentrant. | | |
| REUS | Reusable. | | |
| RMODE24 | Phase has RMODE 24. | | |
| RMODE31 | Phase has RMODE 31. | | |
| RMODEANY | Module is RMODE ANY. | | |
| SCTR | Scatter. | | |
| SSI | Module has SSI data. | | |
| TEST | Test option (TSO). | | |

| Field Name | Type/Length |
|---------------|-------------|
| MODULE-LENGTH | (N11) |

Length of module in bytes.

| Field Name | Type/Length |
|-----------------------|-------------|
| NUMBER-OF-OCCURRENCES | (N7) |

Number of records which contain the requested string.

| Field Name | Type/Length |
|------------|-------------|
| OPTIONS | (A80) |

| Option | Explanation |
|--------|--|
| ARC | Get list of archived members (CA-Librarian access method). |

| Field Name | Type/Length |
|------------|-------------|
| PASSWORD | (A8) |

Password for protected datasets.

| Field Name | Type/Length |
|------------|-------------|
| PRODUCT | (A1) |

Access method used. Possible options:

| Option | Explanation |
|--------|--------------|
| L | CA-Librarian |
| P | CA-Panvalet |

| Field Name | Type/Length |
|------------|-------------|
| RECORD | (A200) |

String for which SCAN is to be performed.

| Field Name | Type/Length |
|------------|-------------|
| USER-DATA | (A120) |

User data for the member.

ISPF statistics entry (if any). For further information, refer to *ISPF statistics entry in a PDS directory* under *ISPF Messages and Codes Manual > Diagnostic Tools and Information > Diagnostic information* in the [z/OS ISPF BookShelf](#).

| Field Name | Type/Length |
|---------------|-------------|
| USER-DATA-HEX | (B120) |

User data for the member in hexadecimal format.

| Field Name | Type/Length |
|------------------|-------------|
| USER-DATA-LENGTH | (N3) |

Length of user data for the member.

| Field Name | Type/Length |
|------------|-------------|
| VERSION | (A2) |

Version of CA-Panvalet access method.

| Field Name | Type/Length |
|------------|-------------|
| VOLSER | (A6) |

Volume serial number.

Default Order of Data Returned

Members are presented in ascending order.

27 LIB-UPDATE

| | |
|------------------------------|-----|
| ▪ Fields | 170 |
| ▪ Relevant Error Codes | 170 |
| ▪ Field Descriptions | 171 |

| | |
|------------------|---|
| File | 5 |
| Statement | PROCESS |
| Task | Perform library update functions, for example, rename, purge directory entries. |

Fields

| Dictionary Field Name | F/L | Mu | DE | Remarks |
|-----------------------|-----|----|----|--|
| ERROR-CODE | N3 | | | |
| ERROR-TEXT | A58 | | | |
| NODE | N5 | | D | |
| NODE-NAME | A16 | | D | |
| SYSTEM-MESSAGE-CODE | A10 | | | |
| DSNAME | A54 | | D | Required. |
| FUNCTION | A8 | | D | Required. |
| VOLSER | A6 | | D | Required only if the dataset is not cataloged. |
| MEMBER | A10 | | D | Required. |
| NEWNAME-MEMBER | A10 | | D | Relevant with FUNCTION=RENAME. |
| GENERATION | N9 | | D | Relevant with FUNCTION=SCRATCH. |
| PRODUCT | A1 | | D | |
| ALIAS | A8 | | D | Relevant with FUNCTION=ALIAS. |
| ALIAS-EP | B4 | | D | Relevant with FUNCTION=ALIAS. |
| ALIAS-AMODE | A3 | | D | Relevant with FUNCTION=ALIAS. |
| PASSWORD | A8 | | D | |
| MEMBER-PASSWORD | A8 | | D | Relevant when PRODUCT=L. |
| OPTIONS | A80 | | D | Relevant when PRODUCT=L. |

Relevant Error Codes

| Code | Text |
|------|---|
| 541 | Member generation not found in directory. |
| 542 | GENERATION not valid for this library. |
| 543 | GENERATION not valid for FUNCTION =:1:. |
| 550 | File not a PDS. |
| 551 | MEMBER not specified. |

| Code | Text |
|------|--|
| 552 | NEWNAME / ALIAS missing. |
| 553 | I/O error on directory. |
| 554 | Member not found. |
| 555 | NEWNAME / ALIAS already exists. |
| 556 | File is in use. |
| 600 | Unknown function. |
| 608 | ISITMGD failed with RC :1: and reason :2:. |
| 699 | Not enough main storage available. |
| 991 | Unknown product. |
| 993 | OPEN error. |

Field Descriptions

| Field Name | Type/Length |
|------------|-------------|
| ALIAS | (A8) |

Relevant with FUNCTION=ALIAS. Name of alias to be created.

| Field Name | Type/Length |
|------------|-------------|
| ALIAS-EP | (B4) |

Relevant with FUNCTION=ALIAS. Entry point address to be assigned to the alias.

| Field Name | Type/Length |
|-------------|-------------|
| ALIAS-AMODE | (A3) |

Relevant with FUNCTION=ALIAS. AMODE to be assigned to the alias. Value can be one of 24, 31, 64 or ANY.

| Field Name | Type/Length |
|------------|-------------|
| DSNAME | (A54) |

Dataset name of the library to be updated.

| Field Name | Type/Length |
|------------|-------------|
| FUNCTION | (A8) |

Function to be performed. Possible options:

| Option | Explanation |
|---------|----------------------------------|
| ALIAS | Assign alias to existing member. |
| RENAME | Rename member/element. |
| SCRATCH | Scratch member/element. |

| Field Name | Type/Length |
|------------|-------------|
| GENERATION | (N9) |

Generation number of member (only valid for PDSE version 2 with MAXGENS > 0).

| Field Name | Type/Length |
|------------|-------------|
| MEMBER | (A10) |

Name of member to be processed.

| Field Name | Type/Length |
|-----------------|-------------|
| MEMBER-PASSWORD | (A8) |

Password for protected CA-Librarian member.

| Field Name | Type/Length |
|----------------|-------------|
| NEWNAME-MEMBER | (A10) |

Relevant for FUNCTION=RENAME. New name of member.

| Field Name | Type/Length |
|------------|-------------|
| OPTIONS | (A80) |

Options for CA-Librarian access method.

| Field Name | Type/Length |
|------------|-------------|
| PASSWORD | (A8) |

Password for protected dataset or file.

| Field Name | Type/Length |
|------------|-------------|
| PRODUCT | (A1) |

Access method used. Possible options:

| Option | Explanation |
|--------|--------------|
| L | CA-Librarian |
| P | CA-Panvalet |

| Field Name | Type/Length |
|------------|-------------|
| VOLSER | (A6) |

Volume serial number.

28 LIB-ZAP

| | |
|--|-----|
| ▪ Fields | 176 |
| ▪ Field Descriptions | 176 |
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| | |
|------------------|--|
| File | 16 |
| Statement | PROCESS |
| Task | Apply Zaps to load modules using AMASPZAP, without having to submit a batch job. |

Fields

| Dictionary Field Name | F/L | Mu | DE | Remarks |
|-----------------------|------|----|----|--|
| ERROR-CODE | N3 | | | |
| ERROR-TEXT | A58 | | | |
| NODE | N5 | | D | |
| NODE-NAME | A16 | | D | |
| DSNAME | A54 | | D | Required. |
| VOLSER | A6 | | D | Required if dataset is not cataloged. |
| LINE | A121 | | D | |
| COMMAND | A253 | | D | Required. |
| PASSWORD | A8 | | | Required if dataset is password-protected. |
| COMPLETION-CODE | B2 | | | |

Field Descriptions

| Field Name | Type/Length | Operating System |
|------------|-------------|------------------|
| COMMAND | (A253) | |

Input cards to AMASPZAP. Use a semicolon (;) to delimit cards. For example:

```
NAME MODULE;  
VER 2A 4700;  
REP 2A 47F0
```

If no command is specified, temporary file &TEMP.SI is read. In this manner, Zap cards can be written into the temporary file using the WRITE-FILE view, and AMASPZAP is invoked using the file as input.

| Field Name | Type/Length | Operating System |
|-----------------|-------------|------------------|
| COMPLETION-CODE | (B2) | |

Completion code returned from AMASPZAP.

| Field Name | Type/Length | Operating System |
|------------|-------------|------------------|
| DSNAME | (A54) | |

Fully qualified dataset name.

| Field Name | Type/Length | Operating System |
|------------|-------------|------------------|
| LINE | (A121) | |

AMASPZAP output line.

| Field Name | Type/Length | Operating System |
|------------|-------------|------------------|
| PASSWORD | (A8) | |

Password for dataset, if dataset is password protected.

| Field Name | Type/Length | Operating System |
|------------|-------------|------------------|
| VOLSER | (A6) | |

Volume serial number. Only required if dataset is not cataloged.

Default Order of Data Returned

Each line of the output listing is presented in order.

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LOADED-MODULES

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- Relevant Error Codes 180
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| | |
|------------------|--|
| File | 23 |
| Statement | FIND |
| Task | Returns a list of all modules which have been loaded into the requested address space. |

This chapter covers the following topics:

Fields

| Dictionary Field Name | F/L | Mu | DE | Remarks |
|-----------------------|-----|----|----|-----------|
| ERROR-CODE | N3 | | | |
| ERROR-TEXT | A58 | | | |
| NODE | N5 | | D | |
| NODE-NAME | A16 | | D | |
| SYSTEM-MESSAGE-CODE | A10 | | | |
| TCB-ADDRESS | B4 | | D | Required. |
| MODULE | A8 | | D | |
| TYPE | A4 | | D | |
| LOAD-ADDRESS | B4 | | D | |
| LENGTH | B3 | | D | |
| ENTRY-POINT | B4 | | D | |
| USE-COUNT | N3 | | D | |
| PSW | B4 | | D | |
| STATE | A7 | | D | |

Relevant Error Codes

| Code | Text |
|------|----------------------|
| 805 | Invalid TCB address. |

Field Descriptions

| Field Name | Type/Length |
|---------------|-------------|
| ENTRY - POINT | (B4) |

Entry point of the module.

| Field Name | Type/Length |
|------------|-------------|
| JOB - NAME | (A8) |

Name of the job.

| Field Name | Type/Length |
|------------|-------------|
| LENGTH | (B3) |

Length of the module.

| Field Name | Type/Length |
|----------------|-------------|
| LOAD - ADDRESS | (B4) |

Load address of the module.

| Field Name | Type/Length |
|------------|-------------|
| MODULE | (A8) |

Name of load module, interpreted by the fields TYPE, LOAD - ADDRESS and LENGTH.

| Field Name | Type/Length |
|------------|-------------|
| PSW | (B4) |

Current Program Status Word for a program (does not apply, if TYPE=LOAD).

| Field Name | Type/Length |
|------------|-------------|
| STATE | (A7) |

Run state of the program (does not apply, if TYPE=LOAD). Possible values:

LOADED-MODULES

| Value | Explanation |
|---------|---------------------------|
| RUN | Program is running. |
| SUSPEND | Program is suspended. |
| WAIT | Program is in wait state. |

| Field Name | Type/Length |
|-------------|-------------|
| TCB-ADDRESS | (B4) |

Address of Task Control Block.

| Field Name | Type/Length |
|------------|-------------|
| TYPE | (A4) |

Module type. Possible values:

| Value | Explanation |
|-------|--------------------------------------|
| IRB | Interrupt Request |
| LOAD | Module was loaded. |
| PRB | Program Request. |
| SIRB | System Interrupt Request. |
| SVRB | SuperVisor Request for SVC routines. |
| TIRB | Task Interrupt Request. |

| Field Name | Type/Length |
|------------|-------------|
| USE-COUNT | (N3) |

Use count of the module.

30

LOAD-MODULE

- Fields 184
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- Field Descriptions 185

| | |
|------------------|---|
| File | 44 |
| Statement | PROCESS |
| Task | Retrieves information on a load module residing on a specified dataset. |

Fields

| Dictionary Field Name | F/L | Mu | DE | Remarks |
|-----------------------|------|----|----|--|
| ERROR-CODE | N3 | | | |
| ERROR-TEXT | A58 | | | |
| NODE | N5 | | D | |
| NODE-NAME | A16 | | D | |
| FUNCTION | A8 | | D | |
| DSNAME | A54 | | D | |
| VOLSER | A6 | | D | Required if dataset is not cataloged. |
| MEMBER | A10 | | D | |
| PASSWORD | A8 | | D | |
| SEGMENT-LENGTH | B2 | | D | |
| BLOCK-OFFSET | B4 | | D | |
| CSECT-OFFSET | B4 | | D | |
| SEGMENT | A253 | | D | Relevant with FUNCTION=DATA. |
| ESD-NAME | A8 | | D | Relevant with FUNCTION=ESD or IDR. |
| ESD-NAME-LONG | A253 | | D | Relevant with FUNCTION=ESD or IDR or DATA. |
| ESD-TYPE | A2 | | D | Relevant with FUNCTION=ESD or VCON. |
| ESD-ADDRESS | B4 | | D | Relevant with FUNCTION=ESD. |
| ESD-LENGTH | N11 | | D | Relevant with FUNCTION=ESD. |
| ESD-AMODE | A3 | | D | Relevant with FUNCTION=ESD. |
| ESD-RMODE | A3 | | D | Relevant with FUNCTION=ESD. |
| ESD-LR-ID | N5 | | D | Relevant with FUNCTION=ESD. |
| ESD-ID | N5 | | D | Relevant with FUNCTION=ESD. |
| IN-CSECT | A8 | | D | Relevant with FUNCTION=VCON. |
| IN-CSECT-LONG | A253 | | D | Relevant with FUNCTION=VCON. |
| IDR-CALLER-ID | A80 | | D | Relevant with FUNCTION=IDR. |
| IDR-DATE | A8 | | D | Relevant with FUNCTION=IDR. |
| IDR-DATA | A40 | | D | Relevant with FUNCTION=IDR. |
| IDR-DATX | D | | D | Relevant with FUNCTION=IDR. |
| IDR-TYPE | A4 | | D | Relevant with FUNCTION=IDR. |

| Dictionary Field Name | F/L | Mu | DE | Remarks |
|-----------------------|-----|----|----|------------------------------|
| MODULE-LENGTH | N11 | | D | Relevant with FUNCTION=ATTR. |
| MODULE-ATTRIBUTES | A80 | | D | Relevant with FUNCTION=ATTR. |
| MODULE-SSI | B4 | | D | Relevant with FUNCTION=ATTR. |

Relevant Error Codes

| Code | Text |
|------|--------------------------------------|
| 534 | File is not a load library. |
| 580 | Binder API :1: call, rc :2:, rsn :3: |
| 600 | Unknown function. |
| 998 | Member not found. |

Field Descriptions

| Field Name | Type/Length |
|--------------|-------------|
| BLOCK-OFFSET | (B4) |

This field is the offset of the first returned byte in SEGMENT into the load module.

| Field Name | Type/Length |
|--------------|-------------|
| CSECT-OFFSET | (B4) |

The offset of this segment in the current CSECT.

| Field Name | Type/Length |
|-------------|-------------|
| ESD-ADDRESS | (B4) |

Relevant with FUNCTION=ESD. Address of the external symbol.

| Field Name | Type/Length |
|------------|-------------|
| ESD-AMODE | (A3) |

Relevant with FUNCTION=ESD. The AMODE assigned to the CSECT.

| Field Name | Type/Length |
|------------|-------------|
| ESD-ID | (N5) |

Relevant with FUNCTION=ESD. The ID of the external symbol.

| Field Name | Type/Length |
|------------|-------------|
| ESD-LENGTH | (N11) |

Relevant with FUNCTION=ESD. Length of the external symbol.

| Field Name | Type/Length |
|------------|-------------|
| ESD-LR-ID | (N5) |

Relevant with FUNCTION=ESD. The ID of the label reference (LR) symbol.

| Field Name | Type/Length |
|------------|-------------|
| ESD-NAME | (A8) |

Relevant with FUNCTION=ESD or IDR. The external symbol name.

| Field Name | Type/Length |
|---------------|-------------|
| ESD-NAME-LONG | (A253) |

Relevant with FUNCTION=ESD or IDR or DATA. Returns up to 253 bytes of a long ESD name.

| Field Name | Type/Length |
|------------|-------------|
| ESD-RMODE | (A3) |

Relevant with FUNCTION=ESD. The RMODE assigned to the CSECT.

| Field Name | Type/Length |
|------------|-------------|
| ESD-TYPE | (A2) |

Relevant with FUNCTION=ESD or VCON. Possible values:

| FUNCTION=ESD | | FUNCTION=VCON | |
|--------------|------------------------------------|---------------|---------------------------------------|
| CM | Common. | ER | External symbol is unresolved. |
| ER | External reference. | SD | External symbol is resolved. |
| LR | Label reference (i.e. Entry name). | WX | External symbol is unresolved (weak). |
| PC | Private code. | | |

| | |
|----|----------------------------------|
| PR | Pseudo reference. |
| SD | Section definition (i.e. CSECT). |
| WX | Weak external reference. |

| Field Name | Type/Length |
|------------|-------------|
| DSNAME | (A54) |

Fully qualified dataset name.

| Field Name | Type/Length |
|------------|-------------|
| FUNCTION | (A8) |

Function to be performed. Possible options:

| Option | Explanation |
|--------|---|
| ATTR | Return module attributes. |
| DATA | Return data on CSECTs. |
| ESD | Return names of external symbols and other related information as it appears in the external symbol dictionary. |
| IDR | Return information on applied Zaps and linkedit date/version. |
| VCON | Return information on external symbols as they appear in the relocation dictionary. |

| Field Name | Type/Length |
|---------------|-------------|
| IDR-CALLER-ID | (A80) |

Relevant with FUNCTION=IDR. Identifies the caller-ID for the Binder IDR data.

| Field Name | Type/Length |
|------------|-------------|
| IDR-DATA | (A40) |

Relevant with FUNCTION=IDR. The IDR data.

| Field Name | Type/Length |
|------------|-------------|
| IDR-DATE | (A8) |

Relevant with FUNCTION=IDR. The date of the Zap/linkage in format *DD/MM/YY*.

| Field Name | Type/Length |
|------------|-------------|
| IDR-DATX | (A8) |

Relevant with FUNCTION=IDR. The date of the Zap/linkage in internal format.

| Field Name | Type/Length |
|------------|-------------|
| IDR-TYPE | (A4) |

Relevant with FUNCTION=IDR. Possible types:

| Type | Explanation |
|------|--|
| LANG | Data produced by the language translator to identify the compiler or assembler. |
| LINK | Linkage entry. The IDR-DATA field contains linkedit name followed by version. |
| USER | User data created by IDENTIFY statement. The IDR-DATA field contains data (max. 40 bytes). |
| ZAP | AMASPZAP entry. The IDR-DATA field contains IDRDATA (length 8). |

| Field Name | Type/Length |
|------------|-------------|
| IN-CSECT | (A8) |

Relevant with FUNCTION=VCON. Name of the CSECT in which the reference to the external symbol appears.

| Field Name | Type/Length |
|---------------|-------------|
| IN-CSECT-LONG | (A253) |

Relevant with FUNCTION=VCON. Returns up to 253 bytes of a long CSECT name.

| Field Name | Type/Length |
|------------|-------------|
| MEMBER | (A10) |

Member name.

| Field Name | Type/Length |
|-------------------|-------------|
| MODULE-ATTRIBUTES | (A253) |

Relevant with FUNCTION=ATTR. The module's attributes in keyword format. The relevant keywords are separated by a blank. See the description for [MODULE-ATTRIBUTES](#) in the [LIB-DIRECTORY](#) view for values returned in this field.

| Field Name | Type/Length |
|-----------------|-------------|
| MODULE - LENGTH | (N11) |

Relevant with FUNCTION=ATTR. The module's length in bytes.

| Field Name | Type/Length |
|--------------|-------------|
| MODULE - SSI | (B4) |

Relevant with FUNCTION=ATTR. The module's SSI data.

| Field Name | Type/Length |
|------------|-------------|
| PASSWORD | (A8) |

Password for protected dataset.

| Field Name | Type/Length |
|------------|-------------|
| SEGMENT | (A253) |

Relevant with FUNCTION=DATA. Contains the data segment with length SEGMENT - LENGTH.

| Field Name | Type/Length |
|------------------|-------------|
| SEGMENT - LENGTH | (B2) |

The length of the record segment to be returned. At the end of the block/CSECT/module, the segment may be smaller.

SEGMENT - LENGTH might sometimes have a value greater than 253. This indicates the presence of a large area of the FILL character specified when binding the load module or program object (almost always X'00'; different values are indicated in the data returned by the MODULE - ATTRIBUTES field). Programs should interpret this as indicating that the FILL character is present for SEGMENT - LENGTH - 253 bytes beyond CSECT-OFFSET + 253.

| Field Name | Type/Length |
|------------|-------------|
| VOLSER | (A6) |

Volume serial number. Only required if the dataset is not cataloged.

31 MAIN-STORAGE

| | |
|------------------------------|-----|
| ▪ Fields | 192 |
| ▪ Relevant Error Codes | 192 |
| ▪ Field Descriptions | 193 |

MAIN-STORAGE

| | |
|------------------|--|
| File | 20 |
| Statement | FIND |
| Task | Read storage allocated to the requested address space or partition. No modifications are possible. |

Fields

| Dictionary Field Name | F/L | Mu | DE | Remarks |
|-----------------------|------|----|----|----------|
| ERROR-CODE | N3 | | | |
| ERROR-TEXT | A58 | | | |
| NODE | N5 | | D | |
| NODE-NAME | A16 | | D | |
| SYSTEM-MESSAGE-CODE | A10 | | | |
| ADDRESS | B4 | | D | Required |
| LENGTH | N3 | | D | Required |
| OFFSET | B4 | | D | |
| AREA | A250 | | D | |
| JOB-NAME | A8 | | D | Required |
| ADDRESS-64BIT | B8 | | D | |

Relevant Error Codes

| Code | Text |
|------|------------------------------------|
| 699 | Not enough main storage available. |
| 801 | Job not found. |
| 803 | Cannot access data. |

Field Descriptions

| Field Name | Type/Length |
|------------|-------------|
| ADDRESS | (B4) |

Starting main storage address. The actual address displayed is specified by a combination of the ADDRESS and OFFSET fields.

| Field Name | Type/Length |
|---------------|-------------|
| ADDRESS-64BIT | (B8) |

Starting main storage address in 64-bit format (used to display storage above 4 GB). The actual address displayed is specified by a combination of the ADDRESS-64BIT and OFFSET fields.

| Field Name | Type/Length |
|------------|-------------|
| AREA | (A250) |

Location to which the storage block is returned.

| Field Name | Type/Length |
|------------|-------------|
| JOB-NAME | (A8) |

Name of job which serves as address space identifier. This field is required.

| Field Name | Type/Length |
|------------|-------------|
| LENGTH | (N3) |

Length of main storage to be retrieved (maximum is 250).

| Field Name | Type/Length |
|------------|-------------|
| OFFSET | (B4) |

Offset related to address to be displayed. The actual address displayed is specified by a combination of the ADDRESS and OFFSET fields.

32 NATPROC-LOGON

| | |
|------------------------------|-----|
| ▪ Fields | 196 |
| ▪ Relevant Error Codes | 196 |
| ▪ Field Descriptions | 197 |

| | |
|------------------|--|
| File | 190 |
| Statement | PROCESS |
| Task | Logon to any Entire System Server accessible via Entire Net-Work |

Fields

| Dictionary Field Name | F/L | Mu | DE | Remarks |
|-----------------------|------|----|----|-----------|
| CPU | N5.2 | | | |
| ERROR-CODE | N3 | | | |
| ERROR-TEXT | A58 | | | |
| IO-COUNT | N7 | | | |
| NODE | N5 | | D | |
| NODE-NAME | A16 | | D | |
| SYSTEM-MESSAGE-CODE | A10 | | | |
| LOGON-ID | A8 | | D | Required. |
| PASSWORD | A32 | | D | Required |
| FUNCTION | A8 | | D | Required. |
| NEW-PASSWORD | A32 | | D | |
| RACF-GROUP | A8 | | D | |
| SECURITY-MESSAGE | A80 | | | |
| PASSPHRASE | A100 | | D | |
| NEW-PASSPHRASE | A100 | | D | |

Relevant Error Codes

| Code | Text |
|------|--|
| 509 | Logon failed - check LOGON-ID / PASSWORD |
| 511 | Function must be LOGON/LOGOFF |

Field Descriptions

| Field Name | Type/Length |
|------------|-------------|
| CPU | (N5.2) |

Amount of CPU consumed (format *SSSSS.HH*), returned with FUNCTION=LOGOFF.

| Field Name | Type/Length |
|------------|-------------|
| FUNCTION | (A8) |

Possible options:

| Field Name | Type/Length |
|------------|-------------|
| IO-COUNT | (N7) |

Number of I/O operations so far, returned with FUNCTION=LOGOFF.

| Option | Explanation |
|--------|-------------------------|
| LOGOFF | Logoff from the system. |
| LOGON | Logon to the system. |

| Field Name | Type/Length |
|------------|-------------|
| LOGON-ID | (A8) |

System user ID.

| Field Name | Type/Length |
|----------------|-------------|
| NEW-PASSPHRASE | (A100) |

New password phrase for user ID.

| Field Name | Type/Length |
|--------------|-------------|
| NEW-PASSWORD | (A32) |

New password for system user ID.

| Field Name | Type/Length |
|------------|-------------|
| PASSPHRASE | (A100) |

Password phrase for user ID.

| Field Name | Type/Length |
|------------|-------------|
| PASSWORD | (A32) |

Password for system user ID.

| Field Name | Type/Length |
|--------------|-------------|
| RACF - GROUP | (A8) |

Group to which the user ID is defined in RACF or security interface.

| Field Name | Type/Length |
|--------------------|-------------|
| SECURITY - MESSAGE | (A80) |

Message returned by security interface.

33 NATPROC-USERS

| | |
|------------------------------|-----|
| ▪ Fields | 200 |
| ▪ Relevant Error Codes | 201 |
| ▪ Field Descriptions | 201 |

| | |
|------------------|--|
| File | 191 |
| Statement | FIND / PROCESS |
| Task | Retrieve information about Entire System Server users and enable a user to be cancelled from the Entire System Server. |

Fields

| Dictionary Field Name | F/L | Mu | DE | Remarks |
|-----------------------|------|----|----|---------|
| ERROR-CODE | N3 | | | |
| ERROR-TEXT | A58 | | | |
| NODE | N5 | | D | |
| NODE-NAME | A16 | | D | |
| SYSTEM-MESSAGE-CODE | A10 | | | |
| USER-ID | A8 | | D | |
| ADABAS-ID | B4 | | D | |
| NATPROC-ID | A10 | | D | |
| LAST-ACTIVITY | N5 | | D | |
| CPU | N5.2 | | D | |
| IO-COUNT | N7 | | D | |
| ADABAS-EXTENDED-ID | B28 | | D | |
| FULL-SCAN | A3 | | D | |
| INTERNAL-TASK | A3 | | D | |
| TASK-ID | A16 | | D | |
| FUNCTION | A8 | | D | |
| ORIGIN-JOBNAME | A8 | | D | |
| TCB-ADDRESS | B4 | | D | |
| CORE-USED | N7 | | D | |
| CORE-FREE | N7 | | D | |

Relevant Error Codes

| Code | Text |
|------|---|
| 600 | Unknown function. |
| 649 | Entire System Server User not found or cannot be cancelled. |

Field Descriptions

| Field Name | Type/Length |
|--------------------|-------------|
| ADABAS-EXTENDED-ID | (B28) |

Extended Adabas user ID (28 bytes).

| Field Name | Type/Length |
|------------|-------------|
| ADABAS-ID | (B4) |

The Adabas user ID.

| Field Name | Type/Length |
|------------|-------------|
| CORE-FREE | (N7) |

Amount of free storage in the address space (in Kbytes). This value is only returned for the MAIN entry.

| Field Name | Type/Length |
|------------|-------------|
| CORE-USED | (N7) |

Amount of storage used by task (in Kbytes).

| Field Name | Type/Length |
|------------|-------------|
| CPU | (N5.2) |

Amount of CPU consumed (format: *SSSS.HH*).

| Field Name | Type/Length |
|------------|-------------|
| FUNCTION | (A8) |

Possible options:

| Option | Explanation |
|---------|--|
| CANCEL | Cancel user with the specified NATPROC - ID. |
| LASTERR | Get last error message. |

If no function is specified, a list of Entire System Server users is given.

| Field Name | Type/Length |
|------------|-------------|
| FULL-SCAN | (A3) |

FULL-SCAN is considered for FUNCTION = ' ' only (display list of ESY users). If FULL-SCAN is set to YES, all internal Entire System Server tasks are returned additionally. If NO or blank is supplied, only ESY users are returned.

| Field Name | Type/Length |
|---------------|-------------|
| INTERNAL-TASK | (A3) |

Possible values:

- YES if data of internal ESY task is returned.
- NO if data of NATPROC-USER is returned.

| Field Name | Type/Length |
|------------|-------------|
| IO-COUNT | (N7) |

Number of I/O operations so far. .

| Field Name | Type/Length |
|---------------|-------------|
| LAST-ACTIVITY | (N5) |

Time elapsed since last activity (in seconds).

| Field Name | Type/Length |
|------------|-------------|
| NATPROC-ID | (A10) |

The unique internal ID in the Entire System Server.

Value 'Task' is returned for an internal task, value NAT for a Natural subtask.

| Field Name | Type/Length |
|----------------|-------------|
| ORIGIN-JOBNAME | (A8) |

Name of TP system or batch job from which the user calls originate.

| Field Name | Type/Length |
|------------|-------------|
| TASK-ID | (A16) |

ID of the internal task is returned. This is usually the name of the load module or, if a NATURAL-SUB-TASK is returned, the NAT-USER data.

| Field Name | Type/Length |
|-------------|-------------|
| TCB-ADDRESS | (B4) |

TCB address of the subtask.

| Field Name | Type/Length |
|------------|-------------|
| USER-ID | (A8) |

Possible values:

| Value | Explanation |
|---------------|---|
| <i>userid</i> | The user ID. |
| ----- | The user is not logged on. |
| ****main | Entry for the Entire System Server main task. |

Example:

```

FIND NATPROC-USERS WITH NODE      = 199
                        AND FULL-SCAN = 'YES'
                        AND FUNCTION = ' '
*
IF ERROR-CODE EQ 0
IF #FIRST EQ 1
WRITE 'LogonID ESY Task-ID          TSN   LastAct CPU used'
      'IO count INTERNAL'
WRITE ' _____'
    
```

NATPROC-USERS

```
      ASSIGN #FIRST = 0  
    END-IF  
*  
    WRITE USER-ID NATPROC-ID TASK-ID JOB-ID LAST-ACTIVITY (NL=6)  
          CPU (NL=4.2) IO-COUNT (NL=7) INTERNAL-TASK  
    ...
```

The following output is created:

| LogonID | ESY | Task-ID | TSN | LastAct | CPU used | IO count | INTERNAL |
|---------|------|------------------|------|---------|----------|----------|----------|
| TS0S | TASK | ESYCONS | 3UG0 | 6 | 481.37 | 51 | YES |
| TS0S | TASK | ESYEVTM | 3809 | 0 | 65.46 | 38 | YES |
| TS0S | TASK | ESYMAIN | 3807 | 0 | 185.95 | 230 | YES |
| TS0S | TASK | ESYSERV | 3808 | 27 | 203.93 | 2783 | YES |
| TS0S | TASK | ESYSERV | 381I | 0 | 274.54 | 621 | YES |
| TS0S | NAT | NOMXTS0006300038 | 381E | 0 | 67.31 | 0 | YES |
| TS0S | NAT | NOM02S0006300038 | 381G | 0 | 24.32 | 0 | YES |
| TS0S | NAT | NOM03S0006300038 | 381H | 0 | 162.89 | 0 | YES |
| TS0S | | 0010 | | 37 | 15.44 | 0 | NO |
| TS0S | | 0011 | | 11 | 241.62 | 208 | NO |
| DC1 | | 0017 | | 0 | 0.02 | 0 | NO |
| W0S | | 0007 | | 27 | 137.48 | 0 | NO |

34 NET-OPER

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- Relevant Error Codes 207
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| | |
|------------------|---|
| File | 15 |
| Statement | FIND / PROCESS |
| Task | Issue VTAM commands and retrieve VTAM messages. Note that commands and messages are not logged to the system console. |

Fields

| Dictionary Field Name | F/L | Mu | DE | Remarks |
|-----------------------|------|-----|----|------------------------------|
| ERROR-CODE | N3 | | | |
| ERROR-TEXT | A58 | | | |
| NODE | N5 | | D | |
| NODE-NAME | A16 | | D | |
| COMMAND | A80 | | D | Required. |
| LINE-LENGTH | N3 | | D | |
| LINE | A126 | | D | |
| LINE-STATUS | A3 | | D | |
| PURGE-PREVIOUS | A3 | | D | |
| TIME-STAMP | A8 | | D | |
| TERMINATE-TIME | N5 | | D | |
| TOKEN-VECTOR | A225 | | D | |
| NUMBER-OF-TOKENS | N3 | | D | |
| TOKENS | A15 | M20 | D | See fields TOKEN- <i>n</i> . |
| TOKEN-1 | A15 | | D | |
| TOKEN-2 | A15 | | D | |
| TOKEN-3 | A15 | | D | |
| TOKEN-4 | A15 | | D | |
| TOKEN-5 | A15 | | D | |
| TOKEN-6 | A15 | | D | |
| TOKEN-7 | A15 | | D | |
| TOKEN-8 | A15 | | D | |
| TOKEN-9 | A15 | | D | |
| TOKEN-10 | A15 | | D | |
| TOKEN-11 | A15 | | D | |
| TOKEN-12 | A15 | | D | |
| TOKEN-13 | A15 | | D | |
| TOKEN-14 | A15 | | D | |

| Dictionary Field Name | F/L | Mu | DE | Remarks |
|-----------------------|-----|----|----|---------|
| TOKEN-15 | A15 | | D | |
| TOKEN-16 | A15 | | D | |
| TOKEN-17 | A15 | | D | |
| TOKEN-18 | A15 | | D | |
| TOKEN-19 | A15 | | D | |
| TOKEN-20 | A15 | | D | |

Relevant Error Codes

| Code | Text |
|------|--------------------------------|
| 840 | VTAM operator ACB is not open. |
| 841 | VTAM error in SENDCMD. |
| 842 | Invalid VTAM command. |

Field Descriptions

| Field Name | Type/Length |
|------------|-------------|
| COMMAND | (A80) |

VTAM command.

| Field Name | Type/Length |
|------------|-------------|
| LINE | (A126) |

Output line from VTAM. This line is split into segments, known as tokens. The field NUMBER-OF-TOKENS contains the token count, the TOKEN-1 to TOKEN-20 fields contain the corresponding tokens.

| Field Name | Type/Length |
|-------------|-------------|
| LINE-LENGTH | (N3) |

Length of output line.

| Field Name | Type/Length |
|-------------|-------------|
| LINE-STATUS | (A3) |

Line status. Possible values:

| Value | Explanation |
|-------|---|
| NO | No line has been returned. This means that no VTAM messages are currently queued for this user. |
| YES | A line has been returned. |

| Field Name | Type/Length |
|------------------|-------------|
| NUMBER-OF-TOKENS | (N3) |

Number of tokens in line.

| Field Name | Type/Length |
|----------------|-------------|
| PURGE-PREVIOUS | (A3) |

Action to be performed on messages. Possible options:

| Option | Explanation |
|--------|---|
| NO | The messages for this user are not purged. |
| YES | Purge any messages queued for this user before issuing a new command. |

| Field Name | Type/Length |
|----------------|-------------|
| TERMINATE-TIME | (N5) |

Terminate processing loop if no real lines have been returned within the specified period. The default is 60 seconds.

| Field Name | Type/Length |
|------------|-------------|
| TIME-STAMP | (A8) |

The time the message was received from VTAM in the format: *HH:MM:SS*.

| Field Name | Type/Length |
|-----------------|-------------|
| TOKEN- <i>n</i> | (A15) |

Tokens 1 to 20. These are returned in a multiple field (20 tokens of 15 bytes each).

| Field Name | Type/Length |
|------------|-------------|
| TOKENS | (A15) |

Tokenized VTAM output line (20 tokens with a length of 15 bytes each), see field `TOKEN-n`.

| Field Name | Type/Length |
|--------------|-------------|
| TOKEN-VECTOR | (A225) |

Tokenized VTAM output line (15 tokens of 15 bytes each).

Default Order of Data Returned

Records are returned in the order that VTAM issues messages.

35 READ-FILE

- Fields 212
- Relevant Error Codes 213
- Field Descriptions 213
- Default Order of Data Returned 218

READ-FILE

| | |
|------------------|---|
| File | 2 |
| Statement | FIND |
| Task | This view makes it possible to read all or a selected set of records from a sequential or partitioned disk file (for example, PDS). Using the SCAN fields, only those records containing the specified string are returned. |

Fields

| Dictionary Field Name | F/L | Mu | DE | Remarks |
|-----------------------|------|----|----|-----------------------------------|
| ERROR-CODE | N3 | | | |
| ERROR-TEXT | A58 | | | |
| NODE | N5 | | D | |
| NODE-NAME | A16 | | D | |
| SYSTEM-MESSAGE-CODE | A10 | | | |
| DSNAME | A54 | | D | Required. |
| RECORD | A253 | | D | |
| RECORD-LENGTH | N5 | | D | |
| SEGMENT-NUMBER | N5 | | D | |
| RECORD-NUMBER | N9 | | D | |
| END-OF-FILE | A3 | | D | |
| POSITION | N5 | | D | |
| PASSWORD | A8 | | D | |
| SEGMENT-LENGTH | N3 | | D | |
| BLOCK-LENGTH | N5 | | D | |
| SCAN | A3 | | D | |
| SCAN-LIMIT | N7 | | D | |
| SCAN-TYPE | A1 | | D | |
| SCAN-LENGTH | N3 | | D | Relevant with SCAN-TYPE=A. |
| SCAN-COLUMN-FROM | N5 | | D | Relevant with SCAN-TYPE=A. |
| SCAN-COLUMN-TO | N5 | | D | Relevant with SCAN-TYPE=A. |
| TIME-LIMIT | N5 | | D | |
| DIRECT | A3 | | D | |
| VOLSER | A6 | | D | Only if dataset is not cataloged. |
| MEMBER | A10 | | D | |
| PRODUCT | A1 | | D | |
| KEY | A253 | | D | |

| Dictionary Field Name | F/L | Mu | DE | Remarks |
|-----------------------|-----|----|----|---------|
| BLOCK-TTR | B3 | | D | |
| BLOCK-TOKEN | B4 | | D | |
| GENERATION | N9 | | D | |
| OPTIONS | A80 | | D | |
| BLOCK-NUMBER | N9 | | D | |
| SPANNED | A8 | | D | |

Relevant Error Codes

| Code | Text |
|------|--|
| 500 | VSAM error. |
| 533 | Requested number or records scanned. |
| 537 | Time limit reached. |
| 541 | Member generation not found in directory. |
| 551 | MEMBER not specified. |
| 556 | File is in use. |
| 687 | Bad variable record. |
| 699 | Not enough main storage available. |
| 701 | DSNAME missing. |
| 899 | Permanent I/O error while reading dataset. |
| 991 | Unknown product. |
| 993 | OPEN error. |
| 997 | File not PDS/Sequential. |
| 998 | Member not found. |

Field Descriptions

| Field Name | Type/Length |
|--------------|-------------|
| BLOCK-LENGTH | (N5) |

Length of block.

READ-FILE

| Field Name | Type/Length |
|--------------|-------------|
| BLOCK-NUMBER | (N9) |

Number of block.

| Field Name | Type/Length |
|------------|-------------|
| BLOCK-TTR | (B3) |

TTR of the block which was read.

| Field Name | Type/Length |
|-------------|-------------|
| BLOCK-TOKEN | (B4) |

Token value of the block which was read.

For a large format sequential data set, the token is in the format *TTTR* where *TTT* is the relative track address and *R* the number of the block on that track.

| Field Name | Type/Length |
|------------|-------------|
| DIRECT | (A3) |

Possible options:

| Option | Explanation |
|--------|---|
| NO | Default. The block is not read directly. |
| YES | If REFM=F and DSORG=PS or DA, the block is read directly according to RECORD-NUMBER and BLOCK-NUMBER. |

| Field Name | Type/Length |
|------------|-------------|
| DSNAME | (A54) |

Fully qualified dataset name.

| Field Name | Type/Length |
|-------------|-------------|
| END-OF-FILE | (A3) |

Contains YES, if the end of record is reached. The RECORD-NUMBER field then contains the number of records in the dataset.

| Field Name | Type/Length |
|------------|-------------|
| GENERATION | (N9) |

Generation number of member (only valid for PDSE version 2 with MAXGENS > 0).

| Field Name | Type/Length |
|------------|-------------|
| KEY | (A253) |

ISAM or VSAM key.

| Field Name | Type/Length |
|------------|-------------|
| MEMBER | (A10) |

If the dataset is a PDS, member name.

| Field Name | Type/Length |
|------------|-------------|
| OPTIONS | (A80) |

Specify X to cause expansion of all ++INCLUDE statements for CA-Panvalet.

| Field Name | Type/Length |
|------------|-------------|
| PASSWORD | (A8) |

Password for protected dataset.

| Field Name | Type/Length |
|------------|-------------|
| POSITION | (N5) |

Starting position within record. The RECORD field contains input record starting at this position.

| Field Name | Type/Length |
|------------|-------------|
| PRODUCT | (A1) |

Access mode used. Possible values:

| Value | Explanation |
|-------|--------------|
| L | CA-Librarian |
| P | CA-Panvalet |

| Field Name | Type/Length |
|------------|-------------|
| RECORD | (A253) |

Gives the retrieved record. The length of this field as it appears in the format buffer determines the portion of the record retrieved each time a record is requested. Field `SEGMENT-NUMBER` contains the segment number within the record. For example, the record is 240 bytes long and the calling program requests 80 bytes (in Natural reporting mode: `OBTAIN RECORD (A80)`). The calling program will then receive three segments.

| Field Name | Type/Length |
|---------------|-------------|
| RECORD-LENGTH | (N5) |

Length of entire record (not the segment length).

| Field Name | Type/Length |
|---------------|-------------|
| RECORD-NUMBER | (N9) |

Record position within the dataset.

| Field Name | Type/Length |
|------------|-------------|
| SCAN | (A3) |

Specify `YES` to return the first record that meets all selection criteria and all subsequent records.

| Field Name | Type/Length |
|------------------|-------------|
| SCAN-COLUMN-FROM | (N5) |

Relevant if `SCAN-TYPE=A`. Specifies the column number where the scan is to start. Default is 1.

| Field Name | Type/Length |
|----------------|-------------|
| SCAN-COLUMN-TO | (N5) |

Relevant if `SCAN-TYPE=A`. Specifies the column number where the scan is to end. Default is the end of the record.

| Field Name | Type/Length |
|-------------|-------------|
| SCAN-LENGTH | (N3) |

Relevant if `SCAN-TYPE=A`. Specifies the length of the scan string in field `RECORD`.

| Field Name | Type/Length |
|------------|-------------|
| SCAN-LIMIT | (N7) |

Specifies the maximum number of records to be scanned before the record is selected. If the limit is reached and no record found, Error Code 533 is issued.

| Field Name | Type/Length |
|------------|-------------|
| SCAN-TYPE | (A1) |

Specify A to perform an absolute scan. Wildcard symbols * (asterisk) and _ (underline) are treated as normal characters.

| Field Name | Type/Length |
|----------------|-------------|
| SEGMENT-LENGTH | (N3) |

Length of segment.

| Field Name | Type/Length |
|----------------|-------------|
| SEGMENT-NUMBER | (N5) |

Segment number within record.

| Field Name | Type/Length |
|------------|-------------|
| SPANNED | (A8) |

Spanned records, when RECFM is VBS or VS. Possible options:

| Option | Explanation |
|--------|--|
| FIRST | Record returned is the first part. |
| LAST | Record returned is the last part. |
| MIDDLE | Record returned is the middle part (not FIRST and not LAST). |
| NO | Record is not spanned. |

| Field Name | Type/Length |
|------------|-------------|
| TIME-LIMIT | (N5) |

Specifies the maximum number of seconds a given record is to be scanned for.

| Field Name | Type/Length |
|------------|-------------|
| VOLSER | (A6) |

Volume serial number.

Default Order of Data Returned

Records are returned in order from the start of the file.

36 READ-SPOOL

- Fields 220
- Relevant Error Codes 221
- Field Descriptions 221
- Default Order of Data Returned 224

READ-SPOOL

| | |
|------------------|--|
| File | 12 |
| Statement | FIND |
| Task | Read SYSOUT from spool. This view retrieves records from JES . Use the SPOOL - FILES view to retrieve a list of spool files relating to the specified job before executing READ - SPOOL. |

Fields

| Dictionary Field Name | F/L | Mu | DE | Remarks |
|-----------------------|------|----|----|--|
| ERROR - CODE | N3 | | | |
| ERROR - TEXT | A58 | | | |
| NODE | N5 | | D | |
| NODE - NAME | A16 | | D | |
| JOB - NAME | A8 | | D | Required if JOB - NUMBER is blank. |
| JOB - NUMBER | N7 | | D | Required if JOB - NAME is blank |
| JOB - ID | A8 | | D | Required if JOB - NAME and JOB - NUMBER are blank. |
| RECORD - NUMBER | N7 | | D | |
| TYPE | A2 | | D | Required. |
| RECORD - LENGTH | N5 | | D | |
| RECORD | A253 | | D | |
| POSITION | B1 | | D | |
| DATA - SET - KEY | N11 | | D | |
| SCAN | A3 | | D | |
| SCAN - LIMIT | N7 | | D | |
| SCAN - TYPE | A1 | | D | |
| SCAN - LENGTH | N3 | | D | Only relevant if SCAN - TYPE=A. |
| SCAN - COLUMN - FROM | N3 | | D | Only relevant if SCAN - TYPE=A. |
| SCAN - COLUMN - TO | N3 | | D | Only relevant if SCAN - TYPE=A. |
| TIME - LIMIT | N5 | | D | |
| DATA - SET | N5 | | D | |
| SEGMENT - NUMBER | N3 | | D | |
| SEGMENT - LENGTH | N3 | | D | |

Relevant Error Codes

| Code | Text |
|------|---|
| 533 | Requested number of records scanned. |
| 537 | Time limit reached. |
| 711 | Logical Error occurred in Common JES Interface. |
| 712 | Request to Common JES Interface failed. |
| 713 | Jobname and Job ID missing. One of them required. |
| 715 | Duplicate jobnames found. Please specify job ID. |
| 719 | Unable to :1: SYSOUT dataset. |
| 722 | Requested dataset not found. |
| 723 | Requested job in input queue. |
| 724 | Requested job not found. |
| 728 | You are not allowed to see this job. |
| 731 | Error occurred during spool get. |
| 781 | Unable to obtain storage for work area extension. |
| 830 | JES interface is not active. |

Field Descriptions

| Field Name | Type/Length |
|------------|-------------|
| DATA-SET | (N5) |

Requested dataset number (see also the DATA-SET-KEY field).

| Field Name | Type/Length |
|--------------|-------------|
| DATA-SET-KEY | (N11) |

Unique dataset identification. This offers much faster access than the dataset number. The dataset key can be obtained using the SPOOL-FILES view.

| Field Name | Type/Length |
|------------|-------------|
| JOB - NAME | (A8) |

Name of job. If you do not specify a job name, you must specify the JOB - NUMBER field.

| Field Name | Type/Length |
|------------|-------------|
| JOB - ID | (A8) |

Job number in alphanumeric format.

| Field Name | Type/Length |
|--------------|-------------|
| JOB - NUMBER | (N7) |

Job number assigned by the spooling system. If you do not specify a job number, you must specify the JOB - NAME field.

| Field Name | Type/Length |
|------------|-------------|
| POSITION | (B1) |

Offset in spool record (the RECORD field contains spool record starting at this offset).

| Field Name | Type/Length |
|------------|-------------|
| RECORD | (A253) |

Spool record to be searched (see also the POSITION field).

| Field Name | Type/Length |
|-----------------|-------------|
| RECORD - LENGTH | (N5) |

Length of entire spool record (not the segment length).

| Field Name | Type/Length |
|-----------------|-------------|
| RECORD - NUMBER | (N7) |

Relative record number from start of dataset.

| Field Name | Type/Length |
|------------|-------------|
| SCAN | (A3) |

If you specify YES, the first record which meets the selection criteria and all subsequent records are returned.

| Field Name | Type/Length |
|------------------|-------------|
| SCAN-COLUMN-FROM | (N3) |

Specifies the column number where the scan is to start. Default is column 1.



Note: Only relevant if SCAN-TYPE=A.

| Field Name | Type/Length |
|----------------|-------------|
| SCAN-COLUMN-TO | (N3) |

Specifies the column number where the scan is to end. Default is the end of the record. Only relevant if SCAN-TYPE=A.

| Field Name | Type/Length |
|-------------|-------------|
| SCAN-LENGTH | (N3) |

Specifies how much of the string in the RECORD field is to be scanned. Only relevant if SCAN-TYPE=A.

| Field Name | Type/Length |
|------------|-------------|
| SCAN-LIMIT | (N7) |

Maximum number of records to be scanned before a record is found that matches the search criteria. If this limit is reached and no matching record is found, ERROR-CODE 533 with the appropriate text is returned.

| Field Name | Type/Length |
|------------|-------------|
| SCAN-TYPE | (A1) |

Specify A for an absolute search. Note that wildcard symbols (* and _) are then treated as normal characters.

| Field Name | Type/Length |
|----------------|-------------|
| SEGMENT-LENGTH | (N3) |

Length of segment of spool record. If this field is not specified or zero, only the first segment will be returned, even if the spool record is longer than the RECORD area.

| Field Name | Type/Length |
|----------------|-------------|
| SEGMENT-NUMBER | (N3) |

Segment number of spool record to be retrieved, if the output is segmented.

Segment number within record.

| Field Name | Type/Length |
|------------|-------------|
| TIME-LIMIT | (N5) |

Specifies the maximum number of seconds that a record can be scanned. If this limit is exceeded and no match is found, ERROR-CODE 537 is returned.

| Field Name | Type/Length |
|------------|-------------|
| TYPE | (A2) |

Spool dataset type. Possible values:

| | |
|----|--|
| AL | Read all SM/SO files as one file. |
| CC | Summary of job steps and completion codes. |
| JL | Input JCL. |
| SI | SYSIN data. |
| SM | System messages. |
| SO | SYSOUT data. |

Default Order of Data Returned

Records are returned in order from the start of the SYSOUT data set.

37

READ-UNIX-FILE

- Fields 226
- Relevant Error Codes 226
- Field Descriptions 226

| | |
|------------------|---|
| File | 96 |
| Statement | FIND |
| Task | This view makes it possible to read data from files in the z/OS UNIX file system. |

Fields

| Dictionary Field Name | F/L | Mu | DE | Remarks |
|-----------------------|------|----|----|-----------------------------|
| NODE | N5.0 | | D | D Node ID (DBID). |
| ERROR-CODE | N3.0 | | | |
| ERROR-TEXT | A58 | | | |
| NODE-NAME | A16 | | D | LPAR where node is running. |
| SYSTEM-MESSAGE-CODE | A10 | | | |
| PATH | A128 | | D | Fully qualified path name. |
| RECORD | A253 | | D | Record of the file. |
| RECORD-LENGTH | N3.0 | | D | Required. |

Relevant Error Codes

| Code | Text |
|------|-------------------------------------|
| 530 | Access denied by Security Facility. |
| 553 | I/O error on directory. |
| 568 | File not found- |
| 993 | Cannot open file. |
| 899 | I/O error on file. |

Field Descriptions

| Field Name | Type/Length |
|------------|-------------|
| NODE | (N5.0) |

D Node ID (DBID).

| Field Name | Type/Length |
|------------|-------------|
| ERROR-CODE | (N3.0) |

Message code.

| Field Name | Type/Length |
|------------|-------------|
| ERROR-TEXT | (A58) |

Text describing error.

| Field Name | Type/Length |
|------------|-------------|
| NODE-NAME | (A16) |

LPAR where node is running.

| Field Name | Type/Length |
|---------------------|-------------|
| SYSTEM-MESSAGE-CODE | (A10) |

Code of system message.

| Field Name | Type/Length |
|------------|-------------|
| PATH | (A128) |

Path of file to be read.

| Field Name | Type/Length |
|------------|-------------|
| RECORD | (A253) |

Record to be read.

| Field Name | Type/Length |
|---------------|-------------|
| RECORD-LENGTH | (N3.0) |

Length of record. Required.

38

RECEIVE-EMAIL

- Fields 230
- Relevant Error Codes 231
- Field Descriptions 231



Note: This view and its associated functionality will be deprecated with the next release, as it does not comply with modern security standards such as OAuth 2.0 and Application-Layer Transport Security (AT-TLS).

| | |
|------------------|--|
| File | 70 |
| Statement | FIND |
| Task | This view provides the support for receiving e-mails using IMAP protocol |

Fields

| Dictionary Field Name | F/L | Mu | DE | Remarks |
|-----------------------|-------|----|----|--|
| DATE | A64 | | D | Date and Time a mail was transmitted to the sender's mail server. |
| FUNCTION | A8 | | D | Function to be performed. |
| LIST-NUM-MAILS | N3.0 | | D | Number of mails to be processed by one call of the LIST function. Also defined as startup parameter. |
| LIST-NUM-MAILS-START | N6.0 | | D | Sequence number the LIST function starts on its second or n th call. |
| MAIL-SEQUENCE-NUMBER | N6.0 | | | Internal number; can change after call. |
| MAILSERVER-RESPONSE | A128 | | | Response of mail server in case an error had occurred. |
| MESSAGE-ID | A128 | | D | Internal identifier. |
| NUMBER-MAILS | N5.0 | | | Number of mails in inbox. |
| NUMBER-NEW-MAILS | N5.0 | | | Number of unread mails in inbox. |
| PASSWORD | A64 | | D | Password of caller. |
| RECIPIENTS | A250 | | D | List of recipients. |
| RECORD | A253 | | D | Mail body. |
| SENDER-MAIL | A64 | | D | E-Mail address of sender. |
| SENDER-NAME | A64 | | D | Name of sender. |
| STATUS | A4 | | D | NEW for unread mails, SEEN for mails already read. |
| SUBJECT | A128 | | D | Subject of e-mail. |
| TRACE | A4 | | D | YES/NO. If set to YES, the contents of the mail is traced. |
| UID | N12.0 | | D | Unique identifier. Key to read or delete a mail. |
| USERID | A64 | | D | User ID of caller or e-mail address. |

Relevant Error Codes

| Code | Text |
|------|--------------------------------|
| 600 | unknown function |
| 927 | init error |
| 928 | LOGON error |
| 929 | no connection with remote host |
| 930 | LIST-NUM-MAILS greater max |
| 931 | error with command |
| 932 | record length invalid |
| 933 | UID missing |
| 934 | Mail not found |

Field Descriptions

| Field Name | Type/Length |
|------------|-------------|
| DATE | (A64) |

Time and date at which an e-mail was sent. The format of this field depends on the data of mail sender.

| Field Name | Type/Length |
|------------|-------------|
| FUNCTION | (A8) |

Function to be performed. Possible options:

| Option | Explanation |
|--------|--|
| DELETE | Delete a mail. See example. |
| LIST | Display directory data of mails such as STATUS, SENDER-MAIL, SENDER-NAME, SUBJECT, RECIPIENTS, MESSAGE-ID, UID or DATE. See example. |
| READ | Read a mail. See example. |
| STATUS | Request total number of mails (NUMBER-MAILS) and/or number of new mails (NUMBER-NEW-MAILS). See example. |

| Field Name | Type/Length |
|----------------|-------------|
| LIST-NUM-MAILS | (N3.0) |

Number of mails displayed by function LIST. This field is also defined as startup parameter which defaults to 20. The maximum to be specified is controlled by startup parameter LIST-NUM-MAILS-MAX. The default is 100. The maximum is 999.

| Field Name | Type/Length |
|----------------------|-------------|
| LIST-NUM-MAILS-START | (N6.0) |

This field is used for function LIST to control the position from which to read in mails, by default the position of the latest mail. Note that mails are ordered according to the date they have been received.

| Field Name | Type/Length |
|----------------------|-------------|
| MAIL-SEQUENCE-NUMBER | (N6.0) |

Number indicating the current position of the mail in the mailbox. If a mail is deleted or a new mail arrives the MAIL-SEQUENCE-NUMBERS are recomputed.

| Field Name | Type/Length |
|------------|-------------|
| MESSAGE-ID | (A128) |

A unique world-wide reference for e-mails. However, a MESSAGE-ID cannot be used to read or delete a mail. Use UID instead.

| Field Name | Type/Length |
|---------------------|-------------|
| MAILSERVER-RESPONSE | (A128) |

The message of the mail server if an error has occurred.

| Field Name | Type/Length |
|--------------|-------------|
| NUMBER-MAILS | (N5.0) |

Number of mails contained in the mailbox

| Field Name | Type/Length |
|------------------|-------------|
| NUMBER-NEW-MAILS | (N5.0) |

Number of mails that have not been read yet that is those with attribute `NEW`.

| Field Name | Type/Length |
|------------|-------------|
| PASSWORD | (A64) |

Password for the e-mail account, handed over in the Natural program.

| Field Name | Type/Length |
|------------|-------------|
| RECIPIENTS | (A250) |

The list of recipients of a mail. This can be one recipient indicated by a name and an email address, multiple recipients or a mailing list. Note that the list can only contain 250 characters and that the list is truncated if this limit is exceeded. This field is optional.

| Field Name | Type/Length |
|------------|-------------|
| RECORD | (A253) |

Lines of text contained in the body of a mail. We recommend to use plain text / 7-bit ASCII because there is only a basic ASCII-EBCDIC conversion and no character encoding recognition to recognize for example UTF-8. An HTML mail will be displayed without formatting that is with HTML codes.

| Field Name | Type/Length |
|-------------|-------------|
| SENDER-MAIL | (A64) |

The e-mail address of the sender of a mail. This field is optional.

| Field Name | Type/Length |
|-------------|-------------|
| SENDER-Name | (A64) |

The name of the sender of a mail. This field is optional.

| Field Name | Type/Length |
|------------|-------------|
| STATUS | (A4) |

Specifies either `NEW` for a mail that is new or `SEEN` for a mail that has already been read. This field is optional.

| Field Name | Type/Length |
|------------|-------------|
| SUBJECT | (A128) |

Specifies the subject of the mail. This field is optional.

| Field Name | Type/Length |
|------------|-------------|
| TRACE | (A4) |

If our support

If set to YES, a trace also includes net data from a mail. If set NO (default) or if left blank, tracing includes technical data.

| Field Name | Type/Length |
|------------|-------------|
| UID | (N12.0) |

Specifies the unique identifier of a mail. A UID is displayed using the LIST function. A UID is needed to uniquely identify a mail so it can be read or deleted. The MAIL-SEQUENCE-NUMBER cannot be used for this.

| Field Name | Type/Length |
|------------|-------------|
| USERID | (A64) |

User ID for the e-mail account, handed over in the Natural program.

Examples

See *Receiving Emails in Entire System Server at Work - Examples*

Supplementary Information about RECEIVE-EMAIL

■ Relevant Startup Parameters

See description of IMAP-HOST , IMAP-PORT , LIST-NUM-MAILS and LIST-NUM-MAILS-MAX in *Startup Parameters*.

■ Configuring AT-TLS

See *Configuring AT-TLS to Build a Secure Connection* in *z/OS Considerations*.

39 RESOURCE-CONTROL

| | |
|------------------------------|-----|
| ▪ Fields | 236 |
| ▪ Relevant Error Codes | 236 |
| ▪ Field Descriptions | 237 |

| | |
|------------------|--|
| File | 32 |
| Statement | PROCESS |
| Task | This view can be used to synchronize access to resources. An application can lock and unlock resources, thus allowing synchronization of access by other applications that use the same technique. |

Fields

| Dictionary Field Name | F/L | Mu | DE | Remarks |
|-----------------------|------|----|----|----------|
| ERROR-CODE | N3 | | | |
| ERROR-TEXT | A58 | | | |
| NODE | N5 | | D | |
| NODE-NAME | A16 | | D | |
| FUNCTION | A8 | | D | Required |
| SCOPE | A8 | | D | |
| QNAME | A8 | | D | |
| RNAME | A250 | | D | |
| CONTROL | A1 | | D | |
| RNAME-LENGTH | N3 | | D | |
| TCB-ADDRESS | B4 | | | |
| ASID | N4 | | | |
| JOB-NAME | A8 | | | |
| STATUS | A4 | | | |
| RESERVE-UNIT | A3 | | D | |

Relevant Error Codes

| Code | Text |
|------|-------------------------------|
| 600 | Unknown operation |
| 610 | QNAME missing |
| 611 | QNAME cannot start with SYS |
| 612 | RNAME missing |
| 613 | RNAME length missing |
| 614 | Resource is in use |
| 615 | Resource held by another task |

| Code | Text |
|------|-------------------------|
| 616 | Error in GQSCAN routine |

Field Descriptions

| Field Name | Type/Length |
|------------|-------------|
| ASID | (N4) |

The address space ID that enqueued.

| Field Name | Type/Length |
|------------|-------------|
| CONTROL | (A1) |

Type of control. Possible values:

| Value | Explanation |
|-------|-----------------------------|
| E | Default. Exclusive control. |
| S | Shared control. |

| Field Name | Type/Length |
|------------|-------------|
| FUNCTION | (A8) |

Possible values:

| Value | Explanation |
|----------|--|
| DEQ | Release resource. |
| ENQ-TEST | Test whether resource is available. |
| ENQ-USE | If resource is available, get control of it. Any resources held by a user or application are released at logoff. |
| LIST | List all ENQs |

| Field Name | Type/Length |
|------------|-------------|
| JOB-NAME | (A8) |

The job that enqueued.

| Field Name | Type/Length |
|------------|-------------|
| QNAME | (A8) |

The major name of the resource. This name may not begin with *SYS*. See example below.

| Field Name | Type/Length |
|--------------|-------------|
| RESERVE-UNIT | (A3) |

The UCB address of the RESERVE.

| Field Name | Type/Length |
|------------|-------------|
| RNAME | (A250) |

The minor name of the resource. See example below.

| Field Name | Type/Length |
|--------------|-------------|
| RNAME-LENGTH | (N3) |

Length of the minor name of the resource (1 - 250).

| Field Name | Type/Length |
|------------|-------------|
| SCOPE | (A8) |

Possible values:

| Value | Explanation |
|---------|------------------|
| RESERVE | |
| RESPEND | Reserve pending. |
| STEP | |
| SYSTEM | |
| SYSTEMS | |

| Field Name | Type/Length |
|------------|-------------|
| STATUS | (A4) |

Possible values:

| Value | Explanation |
|-------|-----------------------|
| OWNS | Owner of resource. |
| WAIT | Waiting for resource. |

| Field Name | Type/Length |
|-------------|-------------|
| TCB-ADDRESS | (B4) |

The TCB address of the task that enqueued.

Example:

The following Natural program displays the minor names of the resources with major name SPFEDIT enqueued for job XCOM148.

```

FIND    RESOURCE-CONTROL WITH FUNCTION = 'LIST'
AND QNAME = 'SPFEDIT'
AND RNAME = '*'
WHERE JOB-NAME = 'XCOM148'
DISPLAY RNAME (AL=79)
END

```

Example output from the above program:

```

                                RNAME
-----
SYSM.PROCLIB          LC370LR
USAKXH.SOURCE         DLODTXGL
WKK.SYSF.SOURCE      ASMJ3
BROKER.IV100.SAGNA.JCL  $README
BF.COMN.C.SOURCE     WRTR
BF.COMN.C.SOURCE     CCLA
USARMK.SAGNA.SOURCE  COPYPDS

```


40 SEND-EMAIL

| | |
|------------------------------|-----|
| ▪ Fields | 242 |
| ▪ Relevant Error Codes | 243 |
| ▪ Field Descriptions | 243 |

| | |
|------------------|--|
| File | 212 |
| Statement | PROCESS |
| Task | This view provides the support for sending electronic mails. |

Fields

| Dictionary Field Name | F/L | Mu | DE | Remarks |
|-----------------------|------|-----|----|--|
| ATTACHMENT-SUFFIX | A4 | | | |
| ERROR-CODE | N3 | | | |
| ERROR-TEXT | A58 | | | |
| NODE | N5 | | D | |
| NODE-NAME | A16 | | D | |
| SYSTEM-CODE | B2 | | | |
| SYSTEM-MESSAGE-CODE | A10 | | | |
| FUNCTION | A8 | | D | |
| SUBJECT | A253 | | D | |
| RECORD | A253 | | D | |
| RECIPIENT | A128 | M20 | D | |
| CC-RECIPIENT | A128 | M20 | D | |
| BCC-RECIPIENT | A128 | M20 | D | |
| IGNORE-RCPT-REJECT | A3 | | D | |
| FROM-NAME | A128 | | D | |
| REPLY-TO | A128 | | D | |
| HOST-CODE-PAGE | A8 | | D | |
| DSNAME | A54 | | D | |
| PASSWORD | A8 | | D | |
| EXTENDED-TEXT | A250 | M60 | | |
| IDENTIFIER | A8 | | D | Required for nested SEND-EMAIL requests. |
| VOLSER | A6 | | D | Only if dataset is not cataloged. |
| MEMBER | A10 | | D | |

Relevant Error Codes

| Code | Text |
|------|-------------------------------------|
| 530 | Access denied by Security Facility. |
| 675 | HOST-CODE-PAGE not supported |
| 699 | Not enough main storage available. |
| 809 | Subsystem not active. |
| 895 | <i>RECIPIENT</i> must be specified. |
| 895 | <i>SUBJECT</i> must be specified. |
| 897 | Mailer response: :1:. |

Field Descriptions

| Field Name | Type/Length |
|-------------------|-------------|
| ATTACHMENT-SUFFIX | (A4) |

The field has a maximum length of 4 characters, so for example if the user sets ATTACHMENT-SUFFIX := 'html' or ATTACHMENT-SUFFIX := 'txt', .html resp. .txt will be appended to the attachment name, making it a valid file extension for e.g. Windows. Also, whole web pages, stored in a DS/Member, can be sent with ATTACHMENT-SUFFIX := 'html' for easier access in a web browser directly from the mail client.

| Field Name | Type/Length |
|---------------|-------------|
| BCC-RECIPIENT | (A128) M20 |

| Field Name | Type/Length |
|---------------|-------------|
| BCC-RECIPIENT | (A128) M20 |

Array of max. 20 recipients receiving a “blind carbon copy” of this mail.

If blank, no “blind carbon copy” will be sent. This field is optional.

| Field Name | Type/Length |
|--------------|-------------|
| CC-RECIPIENT | (A128) M20 |

Array of max. 20 recipients receiving a “carbon copy” of this mail.

If blank, no “carbon copy” will be sent. This field is optional.

| Field Name | Type/Length |
|------------|-------------|
| DSNAME | (A54) |

Fully qualified data set name that is attached to this mail as a text file.

| Field Name | Type/Length |
|---------------|-------------|
| EXTENDED-TEXT | (A250) M60 |

Array of max. 60 SMTP reply codes and texts from mail server in case of rejected [CC-/BCC-]RECIPIENTS.

| Field Name | Type/Length |
|----------------|-------------|
| HOST-CODE-PAGE | (A8) |

This field identifies the host code page of all SEND-EMAIL input fields provided by the user.

If this startup parameter is not specified, Entire System Server uses the internal default U.S. English Code Page (code page number 037/1).

| Field Name | Type/Length |
|------------|-------------|
| FUNCTION | (A8) |

Function to be performed. Possible options:

| Option | Explanation |
|--------------|--|
| <i>blank</i> | Default. Write a mail record. |
| CLOSE | All mail records have been written. Specify this function for the last SEND-EMAIL request. |

| Field Name | Type/Length |
|------------|-------------|
| FROM-NAME | (A128) |

`last_name` and `first_name` as additional sender information. Field must not contain any quotation marks. The required quotation marks in the mail header will be added automatically.

| Field Name | Type/Length |
|------------|-------------|
| IDENTIFIER | (A8) |

Required for nested SEND-EMAIL requests. All requests for the same mail must have the same identifier.

| Field Name | Type/Length |
|--------------------|-------------|
| IGNORE-RCPT-REJECT | (A3) |

Possible values:

| Option | Explanation |
|--------|---|
| YES | The e-mail is sent even if a specified RECIPIENT is rejected by the SMTP server. |
| NO | The e-mail is not sent if a specified RECIPIENT is rejected by the SMTP server (default). |

| Field Name | Type/Length |
|------------|-------------|
| PASSWORD | (A8) |

Password for protected dataset.

| Field Name | Type/Length |
|------------|-------------|
| RECIPIENT | (A128) M20 |

Array of max. 20 recipients receiving this mail.

At least one recipient is required for the first SEND-EMAIL request to send this mail.

| Field Name | Type/Length |
|------------|-------------|
| RECORD | (A253) |

Mail record to be written as line in the message body.



Note: If the first RECORD starts with the string "<html" or "<!DOCTYPE HTML", the e-mail is sent with an indication that it contains text in HTML format, otherwise it will be sent as plain text.

| Field Name | Type/Length |
|------------|-------------|
| REPLY-TO | (A128) |

The specified mail address is sent to all mail recipients to provide a specify reply address. This field is optional. If omitted, user ID and host name are taken to compose the reply address.

| Field Name | Type/Length |
|------------|-------------|
| SUBJECT | (A253) |

Specifies the subject of the mail.

Field is required for the first SEND-EMAIL request.

| Field Name | Type/Length |
|------------|-------------|
| VOLSER | (A6) |

Volume serial number .

| Field Name | Type/Length |
|------------|-------------|
| MEMBER | (A10) |

If dataset is a PDS, member name to be attached to this mail.

Example

The following example illustrates the usage of the SEND-EMAIL view. The PROCESS statement is encapsulated in subroutine SUB-SEND-EMAIL.

```
DEFINE DATA LOCAL
1 SEND-EMAIL VIEW OF SEND-EMAIL
  2 ERROR-CODE
  2 ERROR-TEXT
  2 NODE
  2 NODE-NAME
  2 SYSTEM-CODE
  2 SYSTEM-MESSAGE-CODE
  2 FUNCTION
  2 SUBJECT
  2 RECORD
  2 RECIPIENT (1:20)
  2 CC-RECIPIENT (1:20)
  2 IDENTIFIER
1 #FUNCTION (A008) INIT <" ">
1 #SUBJECT (A128) INIT <"Test mail">
1 #RECORD (A080)
1 REDEFINE #RECORD
```

```

2 #RECORD1      (A040)
2 #RECORD2      (A040)
1 #RECIPIENT    (A128) INIT <"email_address"> <-- change this
1 #NODE         (N005) INIT <node>           <-- change this
END-DEFINE
*
ASSIGN #RECORD1 = "Dear User,"
ASSIGN #RECORD2 = " "
PERFORM SUB-SEND-EMAIL
*
ASSIGN #RECORD1 = "this is a mail sent by a Natural test pr"
ASSIGN #RECORD2 = "ogram."
PERFORM SUB-SEND-EMAIL
*
ASSIGN #RECORD1 = " "
ASSIGN #RECORD2 = " "
PERFORM SUB-SEND-EMAIL
*
ASSIGN #RECORD1 = "Best Regards,"
ASSIGN #RECORD2 = " "
PERFORM SUB-SEND-EMAIL
*
ASSIGN #RECORD1 = "NPR Development"
ASSIGN #RECORD2 = " "
PERFORM SUB-SEND-EMAIL
*
ASSIGN #FUNCTION = 'CLOSE'
ASSIGN #RECORD1 = " "
ASSIGN #RECORD2 = " "
PERFORM SUB-SEND-EMAIL
*
DEFINE SUBROUTINE SUB-SEND-EMAIL
  PROCESS SEND-EMAIL USING NODE      = #NODE
                                ,    FUNCTION = #FUNCTION
                                ,    SUBJECT  = #SUBJECT
                                ,    RECORD  = #RECORD
                                ,    RECIPIENT = #RECIPIENT
*
  IF ERROR-CODE NE 0
    WRITE  9X  '=' ERROR-CODE
          /  9X  '=' ERROR-TEXT
          /  8X  '=' SYSTEM-CODE
          /  '=' SYSTEM-MESSAGE-CODE

    NEWPAGE
    STOP
  END-IF
END-SUBROUTINE
END ↵

```

Supplementary Information about SEND-EMAIL

The SEND-EMAIL view implements a text-based mail client. The message body is created based on text lines specified in field RECORD. To support a varying number of text lines, SEND-EMAIL was designed as an update view. The mail message body is closed by specifying FUNCTION='CLOSE'.

RECORD is defined as a 253-byte character field. The data specified in the RECORD field will be terminated by carriage return and line feed in the message body.

A zero ERROR-CODE is returned from SEND-EMAIL if the e-mail has been accepted by the SMTP server. This does not necessarily mean that the e-mail could be delivered to the specified RECIPIENT(s) and CC-RECIPIENT(s).

A character set translation is needed before sending all mail data to the configured SMTP target host. Therefore, the input EBCDIC data will be converted to ASCII code page ISO 8859-1. No special characters are supported as RECORD data.

Currently, the SEND-EMAIL view does not support data encryption.

If startup parameter and user field HOST-CODE-PAGE are omitted, the SEND-EMAIL view uses the U.S. English Code Page (code page number 037/1) as character set for input data. The at-sign @ as part of various mail addresses can be supplied as (a) (left bracket, lower case a, right bracket) to simplify the input procedure. If you encounter problems with the @ character, use (a) instead. Error ESY5879 Mailer response: Send RCPT TO failed with RC 550 indicates problems with the RECIPIENT field.

For more information about e-mail administration, see the subsection *Run E-Mail Client* in *Common Entire System Server Features* in the Entire System Server Administration documentation. See the subsection *E-Mail Client Requirements* in the section *Installation for z/OS (Step 15)* in the Entire System Server *Installation and Customization* documentation for additional information about e-mail installation requirements.

41 SEND-MESSAGE

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SEND-MESSAGE

| | |
|------------------|---|
| File | 19 |
| Statement | PROCESS |
| Task | Allows you or the application to send messages to a TP monitor user (Com-plete, TSO, TIAM) and/or the system console. |
| Note | When sending messages to Com-plete users, return code 0 means only that the message has been forwarded to Com-plete. Possible error messages are written to the console by COMBTCH. |

Fields

| Dictionary Field Name | F/L | Mu | DE | Remarks |
|-----------------------|-----|----|----|---|
| ERROR-CODE | N3 | | | |
| ERROR-TEXT | A58 | | | |
| NODE | N5 | | D | |
| NODE-NAME | A16 | | D | |
| SYSTEM-MESSAGE-CODE | A10 | | | |
| MESSAGE | A79 | | D | Required |
| DESTINATION | A8 | | D | Required |
| PREFIX | A3 | | D | |
| DESTINATION-TYPE | A8 | | D | |
| STATUS | A8 | | D | |
| NOLOG | A8 | | D | |
| URGENT | A3 | | D | Only relevant if your site runs Net-Pass. |

Relevant Error Codes

For TSO and TIAM: if the message could not be sent because the target user is not logged on, ERROR-CODE is 0 and the STATUS contains NOLOG.

| Code | Text |
|------|------------------------------------|
| 630 | Console not defined or not active. |

Field Descriptions

| Field Name | Type/Length |
|-------------|-------------|
| DESTINATION | (A8) |

Destination, depending on DESTINATION-TYPE.

For type Complete, TSO and TIAM, the message is sent to the user ID.

For type APPL, the message is sent to the application name.

Specify *CONSOLE here to send the message to the console only.

| Field Name | Type/Length |
|------------------|-------------|
| DESTINATION-TYPE | (A8) |

Type of destination to which the message is to be sent:

| Destination | Explanation |
|-------------|--|
| APPL | To the application specified in the field DESTINATION. |
| COMPLETE | To Complete user only. |
| TSO | To TSO user only. |

Default is TSO and Complete user (if the user is not logged on to Complete, the message is sent to TSO).

| Field Name | Type/Length |
|------------|-------------|
| MESSAGE | (A79) |

Message text to be sent. This text will be prefixed by: Message from *userid* (see the PREFIX field).

| Field Name | Type/Length |
|------------|-------------|
| NOLOG | (A8) |

Specify CONSOLE in this field to send the message to the console if the TSO or TIAM user is not logged on.

SEND-MESSAGE

| Field Name | Type/Length |
|------------|-------------|
| PREFIX | (A3) |

Message prefix indicator. Possible values:

| Value | Explanation |
|-------|---|
| NO | Messages have no prefix. |
| YES | Messages will be prefixed by the string <code>Message from userid.</code> |

| Field Name | Type/Length |
|------------|-------------|
| STATUS | (A8) |

Possible values returned to this field:

| Value | Explanation |
|-------|---|
| LOG | The TSO or TIAM user is logged on and has received the message. |
| NOLOG | The TSO or TIAM user is not logged on. |

| Field Name | Type/Length |
|------------|-------------|
| URGENT | (A3) |

Urgent message indicator. Only relevant if your site runs Software AG's VTAM session manager Net-Pass or a similar VTAM session manager. Possible values:

| Value | Explanation |
|-------|---|
| NO | Default. Message class is not urgent. The message is displayed on the receiver's terminal the next time he presses Enter or any PF/PA key. |
| YES | Message class is changed to urgent. It is displayed on the receiver's terminal immediately. Any data the receiver has typed in since he last pressed Enter may be lost. |

42 SPOOL-FILES

| | |
|------------------------------|-----|
| ▪ Fields | 254 |
| ▪ Relevant Error Codes | 255 |
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| | |
|------------------|---|
| File | 36 |
| Statement | FIND / PROCESS |
| Task | Returns a list of all spool files relating to a specific job. We also recommend to use this view to determine which fields exist for a job before using the READ-SPOOL view. |

Fields

| Dictionary Field Name | F/L | Mu | DE | Remarks |
|-----------------------|-----|----|----|--|
| ERROR-CODE | N3 | | | |
| ERROR-TEXT | A58 | | | |
| NODE | N5 | | D | |
| NODE-NAME | A16 | | D | |
| JOB-NAME | A8 | | D | Required. |
| JOB-NUMBER | N7 | | D | |
| COPIES | N3 | | D | |
| FORM | A8 | | D | |
| CHARS | A16 | | D | |
| DSNAME | A54 | | D | |
| CLASS | A4 | | D | |
| TYPE | A2 | | D | |
| DESTINATION-NODE | N5 | | D | |
| DESTINATION-REMOTE | N5 | | D | |
| RECORD-COUNT | N7 | | D | |
| FCB | A4 | | D | |
| WRITER | A8 | | D | |
| FLASH | A4 | | D | |
| PROCNAME | A8 | | D | |
| STEPNAME | A8 | | D | |
| DDNAME | A8 | | D | |
| DATA-SET | N5 | | D | |
| HOLD | A3 | | D | |
| ACTION | A20 | | D | |
| NEW-CLASS | A1 | | D | Relevant with FUNCTION=CHANGE , RELEASE. |
| GROUP-ID | A20 | | D | Valid for JES2 only. |
| FUNCTION | A8 | | D | |

| Dictionary Field Name | F/L | Mu | DE | Remarks |
|-----------------------|-----|----|----|--------------------------------|
| RECFM | A3 | | D | |
| LRECL | N3 | | D | |
| TRC | A3 | | D | |
| DATA-SET-KEY | N11 | | D | |
| NEW-DESTINATION | A8 | | D | Relevant with FUNCTION=CHANGE. |
| NEW-FORM | A8 | | D | Relevant with FUNCTION=CHANGE. |
| NEW-WRITER | A8 | | D | Relevant with FUNCTION=CHANGE. |
| OUTDISP | A6 | | D | Valid for JES2 only. |
| IDENTIFIER | A44 | | D | |
| NEW-USERID | A8 | | D | Relevant with FUNCTION=CHANGE. |
| BURST | A3 | | D | |
| COMPACT | A8 | | D | |
| LINECT | N3 | | D | |
| UCS | A4 | | D | |
| PRINT-MODE | A4 | | D | |
| PAGEDEF | A6 | | D | |
| FORMDEF | A6 | | D | |

Relevant Error Codes

| Code | Text |
|------|---|
| 670 | Error in subsystem request |
| 671 | Invalid NEW-CLASS |
| 711 | Logical Error occurred in Common JES Interface. |
| 712 | Request to Common JES Interface failed. |
| 713 | Jobname and Job ID missing. One of them required. |
| 715 | Duplicate jobnames found. Please specify Job ID. |
| 719 | Unable to :1: SYSOUT dataset. |
| 720 | Invalid TYPE. |
| 722 | Dataset not found |
| 724 | Requested job not found |
| 728 | You are not allowed to see this job |
| 778 | Not APF authorized |
| 781 | Unable to obtain storage for work area extension. |
| 820 | Unknown command |

| Code | Text |
|------|---------------------------------------|
| 830 | JES interface not active |
| 833 | You are not allowed to alter this job |
| 876 | No NEW-field for CHANGE request. |

Field Descriptions

| Field Name | Type/Length |
|------------|-------------|
| ACTION | (A20) |

If the FUNCTION field value was DELETE, CHANGE or RELEASE, the result of the command is returned in this field. If only one dataset is processed, the result is also returned in the field ERROR-TEXT.

| Field Name | Type/Length |
|------------|-------------|
| BURST | A3 |

Possible values:

- YES: Printed output is to be burst into separate sheets.
- NO: Printed output is to be in a continuous fanfold.

| Field Name | Type/Length |
|------------|-------------|
| COMPACT | A8 |

The symbolic name of a compaction table.

| Field Name | Type/Length |
|------------|-------------|
| CHARS | (A16) |

Four groups of four bytes each taken from JCL: (CHARS=AAAA,BBBB,CCCC,DDDD).

| Field Name | Type/Length |
|------------|-------------|
| CLASS | (A4) |

Output class. For valid classes, ask your system programmer.

| Field Name | Type/Length |
|------------|-------------|
| COPIES | (N3) |

Number of copies.

| Field Name | Type/Length |
|------------|-------------|
| DATA-SET | (N5) |

Dataset number.

| Field Name | Type/Length |
|--------------|-------------|
| DATA-SET-KEY | (N11) |

Dataset key.

| Field Name | Type/Length |
|------------|-------------|
| DDNAME | (A8) |

DDname of this dataset given in the JCL.

| Field Name | Type/Length |
|------------------|-------------|
| DESTINATION-NODE | (N5) |

Node number of the destination JES system.

| Field Name | Type/Length |
|--------------------|-------------|
| DESTINATION-REMOTE | (N5) |

Destination ID on the destination node.

Name of spool output dataset.

| Field Name | Type/Length |
|------------|-------------|
| FCB | (A4) |

Forms control buffer.

| Field Name | Type/Length |
|------------|-------------|
| FLASH | (A4) |

Flash for 3800.

| Field Name | Type/Length |
|------------|-------------|
| FORM | (A8 |

Form of the dataset to be printed.

| Field Name | Type/Length |
|------------|-------------|
| FORMDEF | A6 |

Name of library member containing statements to specify forms properties for Print Services Facility (PSF).

| Field Name | Type/Length |
|------------|-------------|
| FUNCTION | (A8) |

Function to be performed on the spool file(s). Only JES SYSOUT data sets (TYPE SM or S0) can be deleted, changed or released. Spool data sets of TYPE JL or SI are not SYSOUT data sets and can only be displayed.

Possible options:

| Option | Explanation |
|--------------|---|
| <i>blank</i> | Display information. |
| DELETE | Delete file(s). |
| CHANGE | Change output class. |
| RELEASE | Release from HOLD and, if NEW-CLASS is specified, also change output class (only possible for files in HOLD). |

| Field Name | Type/Length |
|------------|-------------|
| GROUP-ID | (A20) |

Output group id for SYSOUT data set (returned for JES2 only).

| Field Name | Type/Length |
|------------|-------------|
| HOLD | (A3) |

Possible values:

| Value | Explanation |
|-------|----------------------|
| NO | Dataset is not held. |
| YES | Dataset is held. |

| Field Name | Type/Length |
|------------|-------------|
| IDENTIFIER | (A44) |

Unique identifier for the specified dataset.

| Field Name | Type/Length |
|------------|-------------|
| JOB - NAME | (A8) |

Name of job from job card.

| Field Name | Type/Length |
|--------------|-------------|
| JOB - NUMBER | (N7) |

Job number assigned by the spooling system.

| Field Name | Type/Length |
|------------|-------------|
| LINECT | N3 |

The maximum number of lines JES2 is to print on each page.

| Field Name | Type/Length |
|------------|-------------|
| LRECL | (N3) |

Record length of the spool file.

| Field Name | Type/Length |
|------------|-------------|
| NEW-CLASS | (A1) |

New class specified with the CHANGE or RELEASE function.

| Field Name | Type/Length |
|-----------------|-------------|
| NEW-DESTINATION | (A8) |

New destination for a SYSOUT dataset. Relevant with FUNCTION=CHANGE.

| Field Name | Type/Length |
|------------|-------------|
| NEW-FORM | (A8) |

New form for SYSOUT dataset. Relevant with FUNCTION=CHANGE.

| Field Name | Type/Length |
|------------|-------------|
| NEW-USERID | A8 |

New user ID for SYSOUT dataset. Relevant with FUNCTION=CHANGE.

| Field Name | Type/Length |
|------------|-------------|
| NEW-WRITER | (A8) |

New writer program name for SYSOUT dataset. Relevant with FUNCTION=CHANGE.

| Field Name | Type/Length |
|------------|-------------|
| OUTDISP | (A8) |

Output disposition for SYSOUT data set (returned for JES2 only). Possible values are WRITE, HOLD, KEEP, LEAVE and PURGE.

| Field Name | Type/Length |
|------------|-------------|
| PAGEDEF | A6 |

Name of library member containing statements to specify page properties for Print Services Facility (PSF).

| Field Name | Type/Length |
|------------|-------------|
| PRINT-MODE | A4 |

Possible values:

- LINE
- PAGE

:

:

| Field Name | Type/Length |
|------------|-------------|
| PROCNAME | (A8) |

Name of procedure invoked.

| Field Name | Type/Length |
|------------|-------------|
| RECFM | (A3) |

The record format of the spool file.

| Field Name | Type/Length |
|--------------|-------------|
| RECORD-COUNT | (N7) |

Number of records in this dataset.

| Field Name | Type/Length |
|------------|-------------|
| STEPNAME | (A8) |

Name of step invoked.

| Field Name | Type/Length |
|------------|-------------|
| TRC | (A3) |

YES means byte 2 in record is used for CHARS (3800). (DCB=OPTCD=J is specified).

SPOOL-FILES

| Field Name | Type/Length |
|------------|-------------|
| TYPE | (A2) |

Spool file type. Possible options:

| Option | Explanation |
|--------|--|
| CC | Summary of job steps and completion codes. |
| JL | Input JCL. |
| SI | SYSIN data. |
| SM | System messages. |
| SO | SYSOUT data. |

| Field Name | Type/Length |
|------------|-------------|
| UCS | A4 |

The universal character set (UCS) image JES is to use in printing the sysout dataset.

| Field Name | Type/Length |
|------------|-------------|
| WRITER | (A8) |

External writer program which gets control if the dataset is printed.

Example 1:

This little program displays a list of spool files for the job WKKC:

```
FIND SPOOL-FILES WITH JOB-NAME = 'WKKC'  
DISPLAY TYPE DATA-SET-KEY DDNAME STEPNAME WRITER FCB RECFM LRECL TRC  
END
```

Output from the above program:

| TYPE | DATA-SET-KEY | DDNAME | STEPNAME | WRITER | FCB | RECFM | LRECL | TRC |
|------|--------------|-----------|----------|--------|------|-------|-------|-----|
| ---- | ----- | ----- | ----- | ----- | --- | ----- | ----- | --- |
| JL | 1 | \$JCL | | | **** | F | 80 | NO |
| SM | 2 | \$JES2LOG | JES2 | | **** | UA | 133 | NO |
| SM | 3 | \$JCLIMG | JES2 | | **** | F | 132 | NO |
| SM | 4 | \$SYSMSG | JES2 | | **** | VA | 133 | NO |
| SI | 101 | SYSIN | COPY | | **** | F | 80 | NO |
| SO | 102 | SYSPRINT | COPY | | **** | FBA | 121 | NO |

Example 2:

The following program deletes from HOLD class system message file number 1 (dataset key 2), and displays the message returned.

```
PROCESS SPOOL-FILES USING JOB-NAME      = 'WKKASM'  
                        ' DATA-SET-KEY = 2  
                        ' FUNCTION      = 'DELETE'  
  
DISPLAY ACTION  
END
```

Output from the above program:

```
          Action  
-----  
DELETE   OK
```


43 SPOOL-QUEUE

| | |
|------------------------------|-----|
| ▪ Fields | 266 |
| ▪ Relevant Error Codes | 267 |
| ▪ Field Descriptions | 267 |

SPOOL-QUEUE

| | |
|------------------|--|
| File | 11 |
| Statement | FIND |
| Task | Read spool queue. This view retrieves spool queue information such as jobname, job number, class, queue, number of spool records, etc. |

Fields

| Dictionary Field Name | F/L | Mu | DE | Remarks |
|-----------------------|-----|----|----|---------|
| ERROR-CODE | N3 | | | |
| ERROR-TEXT | A58 | | | |
| NODE | N5 | | D | |
| NODE-NAME | A16 | | D | |
| SYSTEM-MESSAGE-CODE | A10 | | | |
| HOLD | A3 | | D | |
| JOB-NAME | A8 | | D | |
| JOB-NUMBER | N7 | | D | |
| JOB-ID | A8 | | D | |
| STATUS | A9 | | D | |
| PRIORITY | N3 | | D | |
| USER | A8 | | D | |
| DATE-XEQ-START | A8 | | D | |
| DATX-XEQ-START | D | | D | |
| TIME-XEQ-START | N6 | | D | |
| TIMX-XEQ-START | T | | D | |
| DATE-XEQ-STOP | A8 | | D | |
| DATX-XEQ-STOP | D | | D | |
| TIME-XEQ-STOP | N6 | | D | |
| TIMX-XEQ-STOP | T | | D | |
| RECORD-COUNT | N9 | | D | |
| CLASS | A8 | | D | |
| QUEUE | A3 | | D | |
| DESTINATION | A8 | | D | |
| ORIGIN | A8 | | D | |
| SYSTEM-ID | A4 | | D | |
| TYPE | A3 | | D | |
| SPOOL-UTILIZATION | B1 | | D | |

| Dictionary Field Name | F/L | Mu | DE | Remarks |
|-----------------------|-----|----|----|-----------|
| GROUP - ID | A20 | | D | |
| ROOM | A4 | | D | |
| PROGRAMMER - NAME | A20 | | D | |
| MESSAGE - CLASS | A1 | | D | |
| JOB-CLASS | A1 | | D | |
| TIME - ON - READER | N6 | | D | |
| DATE - ON - READER | A8 | | D | |
| CARD - COUNT | N7 | | D | |
| OUTDISP | A6 | | D | |
| MAX - RETURN - CODE | A10 | | D | |
| SUBMITTER | A8 | | D | JES3 only |
| WLM-QUEUE-POSITION | N7 | | D | |
| WLM-SERVICE-CLASS | A8 | | D | |

Relevant Error Codes

| Code | Text |
|------|---|
| 711 | Logical Error occurred in Common JES Interface. |
| 712 | Request to Common JES Interface failed. |
| 713 | Jobname and Job ID missing. One of them required. |
| 724 | Requested job not found. |
| 729 | Invalid job TYPE, specify JOB, STC or TSU. |
| 830 | JES interface is not active. |

Field Descriptions

| Field Name | Type/Length |
|--------------|-------------|
| CARD - COUNT | (N7) |

Number of cards submitted to internal reader.

SPOOL-QUEUE

| Field Name | Type/Length |
|------------|-------------|
| CLASS | (A8) |

Job class. For valid classes, ask your system programmer.

| Field Name | Type/Length |
|----------------|-------------|
| DATE-ON-READER | (A8) |

Date when job was submitted to the internal reader.

| Field Name | Type/Length |
|----------------|-------------|
| DATE-XEQ-START | (A8) |

Date when job or queue entry started executing.

| Field Name | Type/Length |
|---------------|-------------|
| DATE-XEQ-STOP | (A8) |

Date when job or queue entry finished executing.

| Field Name | Type/Length |
|----------------|-------------|
| DATX-XEQ-START | (A8) |

Date when job or queue entry started executing - in internal format.

| Field Name | Type/Length |
|---------------|-------------|
| DATX-XEQ-STOP | (A8) |

Date when job or queue entry finished executing - in internal format.

| Field Name | Type/Length |
|-------------|-------------|
| DESTINATION | (A8) |

JES destination of job.

| Field Name | Type/Length |
|------------|-------------|
| GROUP-ID | (A20) |

Unique identifier defined by JES.

| Field Name | Type/Length |
|------------|-------------|
| HOLD | (A3) |

YES indicates job is in hold.

DUP indicates a temporary hold because of a duplicate job in the system.

| Field Name | Type/Length |
|------------|-------------|
| JOB-CLASS | (A1) |

JES job class where the job is to be executed.

| Field Name | Type/Length |
|------------|-------------|
| JOB-ID | (A8) |

Job number or TSN of job in alphanumeric format.

| Field Name | Type/Length |
|------------|-------------|
| JOB-NAME | (A8) |

Name of the job.

| Field Name | Type/Length |
|------------|-------------|
| JOB-NUMBER | (N7) |

Job number assigned by JES.

| Field Name | Type/Length |
|-----------------|-------------|
| MAX-RETURN-CODE | (A10) |

Return code information for the job. The information is returned in one of the following formats:

| | |
|--------------------|---|
| CC <i>nnnn</i> | Job ended normally or by CC <i>nnnn</i> . |
| ABEND <i>Sxxx</i> | Job abended with system abend code <i>xxx</i> . |
| ABEND <i>Unnnn</i> | Job abended with user abend code <i>nnnn</i> . |
| CANCELED | Job was canceled. |
| CONV ABEND | Converter abended. |
| JCL ERROR | Job failed due to JCL error. |
| SEC ERROR | Job failed due to security error. |

SPOOL-QUEUE

| Field Name | Type/Length |
|---------------|-------------|
| MESSAGE-CLASS | (A1) |

Output message class.

| Field Name | Type/Length |
|------------|-------------|
| ORIGIN | (A8) |

JES3 job origin.

| Field Name | Type/Length |
|------------|-------------|
| OUTDISP | (A6) |

Output disposition. Possible values are WRITE, HOLD, KEEP or LEAVE.

| Field Name | Type/Length |
|-----------------|-------------|
| PROGRAMMER-NAME | (A20) |

Name of the user who submitted the job to identify the person or group responsible. This value is inherited from the job card.

| Field Name | Type/Length |
|------------|-------------|
| PRIORITY | (N3) |

Priority of job.

| Field Name | Type/Length |
|------------|-------------|
| QUEUE | (A3) |

Queue in which the job resides. Possible values:

| | |
|-----|-----------------------------|
| IN | Input queue. |
| NJE | NJE receive/transmit queue. |
| OUT | Output queue. |
| XEQ | Job is executing. |

| Field Name | Type/Length |
|--------------|-------------|
| RECORD-COUNT | (N9) |

Number of records in spool.

| Field Name | Type/Length |
|------------|-------------|
| ROOM | (A4) |

Room number of user who submitted the job.

| Field Name | Type/Length |
|-------------------|-------------|
| SPOOL-UTILIZATION | (B1) |

Percentage of spool used.

| Field Name | Type/Length |
|------------|-------------|
| STATUS | (A9) |

Status of job.

Possible values:

| | |
|-----------|-----------------------------|
| ACTIVE | Job has been selected. |
| AVAILABLE | Job is available. |
| WAITING | Job is waiting (JES3 only). |

| Field Name | Type/Length |
|------------|-------------|
| SUBMITTER | (A8) |

The submitting user ID of the job.

| Field Name | Type/Length |
|------------|-------------|
| SYSTEM-ID | (A4) |

ID of the system on which the job is/was processed.

SPOOL-QUEUE

| Field Name | Type/Length |
|----------------|-------------|
| TIME-ON-READER | (N6) |

Time of day when job was submitted to the internal reader.

| Field Name | Type/Length |
|----------------|-------------|
| TIME-XEQ-START | (N6) |

Time of day when job or queue entry started executing.

| Field Name | Type/Length |
|---------------|-------------|
| TIME-XEQ-STOP | (N6) |

Time of day when job or queue entry finished executing.

| Field Name | Type/Length |
|----------------|-------------|
| TIMX-XEQ-START | (N6) |

Time of day when job or queue entry started executing - in internal format.

| Field Name | Type/Length |
|---------------|-------------|
| TIMX-XEQ-STOP | (N6) |

Time of day when job or queue entry finished executing - in internal format.

| Field Name | Type/Length |
|------------|-------------|
| TYPE | (A3) |

Type of job. Possible values:

| Value | Explanation |
|-------|---------------|
| JOB | Batch job. |
| STC | Started task. |
| TSU | TSO user. |

| Field Name | Type/Length |
|------------|-------------|
| USER | (A8) |

Owner of the job.

| Field Name | Type/Length |
|--------------------|-------------|
| WLM-QUEUE-POSITION | (N7) |

Position on the WLM queue for the job.

| Field Name | Type/Length |
|-------------------|-------------|
| WLM-SERVICE-CLASS | (A8) |

WLM service class name.

Note

For z/OS JES2 or JES3, the following fields are only obtained from the spool queue if JOB-NAME or JOB-NUMBER have also been specified with the FIND request:

```

PROGRAMMER-NAME
ROOM
MESSAGE-CLASS
CARD-COUNT
RECORD-COUNT
TIME-ON-READER,  TIMX-ON-READER
DATE-ON-READER,  DATX-ON-READER
TIME-XEQ-START,  TIMX-XEQ-START
DATE-XEQ-START,  DATX-XEQ-START
TIME-XEQ-STOP,   TIMX-XEQ-STOP
DATE-XEQ-STOP,   DATX-XEQ-STOP

```

Consequently, these fields can only be used as search criteria in combination with JOB-NAME or JOB-NUMBER.

44 SPOOL-UPDATE

- Fields 276
- Relevant Error Codes 276
- Field Descriptions 277

SPOOL-UPDATE

| | |
|------------------|---|
| File | 13 |
| Statement | FIND, PROCESS |
| Task | Alter the status of a specified spool job, for example, change job class, change destination, delete spool job entry. |

Fields

| Dictionary Field Name | F/L | Mu | DE | Remarks |
|-----------------------|-----|----|----|---|
| ERROR-CODE | N3 | | | |
| ERROR-TEXT | A58 | | | |
| NODE | N5 | | D | |
| NODE-NAME | A16 | | D | |
| JOB-NUMBER | N5 | | D | Required if no JOB-NAME or JOB-ID is specified. |
| JOB-ID | A8 | | D | Required if no JOB-NAME or JOB-NUMBER is specified. |
| FUNCTION | A8 | | D | Required |
| JOB-NAME | A8 | | D | Required if no JOB-NUMBER or JOB-ID is specified. |
| GROUP-ID | A20 | | D | |
| CLASS | A8 | | D | |
| JES3-CLASS | A1 | | | Valid for JES3 only. |
| JES3-QUEUE | A4 | | | Valid for JES3 only. |
| NEW-DESTINATION | A8 | | D | Valid only if FUNCTION=CHANGE. |

Relevant Error Codes

| Code | Text |
|------|---|
| 671 | Class missing or invalid. |
| 711 | Logical Error occurred in Common JES Interface. |
| 712 | Request to Common JES Interface failed. |
| 714 | Jobname and Job ID missing. One of them required. |
| 715 | Duplicate jobnames found. Please specify Job ID. |
| 723 | Job not in output service. |
| 724 | Requested job not found. |
| 730 | Unknown error during alter. |
| 778 | Not APF authorized. |
| 820 | Unknown command. |

| Code | Text |
|------|--|
| 821 | Job no longer active. |
| 830 | JES interface not active. |
| 830 | POWER interface not active. |
| 833 | You are not allowed to alter this job. |
| 834 | Command failed, MGCRE RC =:1:. |

Field Descriptions

| Field Name | Type/Length |
|------------|-------------|
| CLASS | (A1) |

New job class or output class to be assigned when FUNCTION=CHANGE or RELEASE.

| Field Name | Type/Length |
|------------|-------------|
| FUNCTION | (A8) |

Command to be executed. Possible options:

| Option | Explanation |
|---------|---|
| CANCEL | Cancel job. |
| CHANGE | Change one or more spool-queue attributes. CLASS, NEW-DESTINATION. |
| HOLD | Set job in HOLD status. |
| RELEASE | Release job. |

| Field Name | Type/Length |
|------------|-------------|
| GROUP-ID | (A20) |

Identification of JES SYSOUT group.

| Field Name | Type/Length |
|------------|-------------|
| JES3-CLASS | (A1) |

Valid for JES3 only. Specifies the output class of the SYSOUT data sets that should be modified.

| Field Name | Type/Length |
|------------|-------------|
| JES3-QUEUE | (A4) |

Valid for JES3 only. Specifies the output queue of the SYSOUT data sets that should be modified. Possible values are HOLD and WTR.

| Field Name | Type/Length |
|------------|-------------|
| JOB-ID | (A8) |

Job number in alphanumeric format.

| Field Name | Type/Length |
|------------|-------------|
| JOB-NAME | (A8) |

Name of job.

| Field Name | Type/Length |
|------------|-------------|
| JOB-NUMBER | (N7) |

Job number assigned by JES.

| Field Name | Type/Length |
|-----------------|-------------|
| NEW-DESTINATION | (A8) |

New destination for a given GROUP-ID. This GROUP-ID may be read using the view SPOOL-QUEUE. Valid only if FUNCTION=CHANGE.

45 SUBMIT

| | |
|----------------------------------|-----|
| ▪ Fields | 280 |
| ▪ Relevant Error Codes | 281 |
| ▪ Field Descriptions | 281 |
| ▪ SUBMIT Programming Notes | 284 |

SUBMIT

| | |
|------------------|--|
| File | 200 |
| Statement | PROCESS |
| Task | This view allows you or a program to submit a job to the operating system. The job to be submitted can reside on disk or in storage. See also SUBMIT Programming Notes at the bottom of this view description. |

Fields

| Dictionary Field Name | F/L | Mu | DE | Remarks |
|-----------------------|-----|----|----|---|
| ERROR-CODE | N3 | | | |
| ERROR-TEXT | A58 | | | |
| NODE | N5 | | D | |
| NODE-NAME | A16 | | D | |
| SYSTEM-MESSAGE-CODE | A10 | | | |
| CARD | A80 | | D | Required if no DSNAME / MEMBER is given. |
| JOB-NUMBER | N7 | | D | |
| JOB-ID | A8 | | D | |
| DSNAME | A54 | | D | Required if no CARD is given. |
| PASSWORD | A8 | | D | |
| FUNCTION | A8 | | D | Required for the last submit request. |
| IDENTIFIER | A8 | | D | Required with multiple parallel submit calls. |
| JOB-NAME | A8 | | D | |
| FROM-NODE | N5 | | D | |
| FROM-USERID | A8 | | D | |
| FROM-USER-PASSWORD | A32 | | D | |
| MEMBER | A10 | | D | Required |
| GENERATION | N9 | | D | |
| VOLSER | A6 | | D | Required only if dataset is not cataloged. |
| PRODUCT | A1 | | D | |
| OPTIONS | A8 | | D | |

Relevant Error Codes

| Code | Text |
|------|-------------------------|
| 500 | VSAM error. |
| 699 | GETVIS failed. |
| 899 | I/O error during read. |
| 901 | Alloc of reader failed. |
| 902 | Dynamic alloc failed. |
| 993 | OPEN error. |

Field Descriptions

| Field Name | Type/Length |
|------------|-------------|
| CARD | (A80) |

JCL record to be sent from Natural to the internal reader.

| Field Name | Type/Length |
|------------|-------------|
| DSNAME | (A54) |

Fully qualified dataset or file name containing the JCL to be submitted. To perform the submit, a second SUBMIT request with FUNCTION=CLOSE is required.

| Field Name | Type/Length |
|------------|-------------|
| FROM-NODE | (N5) |

Entire System Server node on which the JCL for the job is to be read. Ignored if it matches the USING node or the node where the user is already logged in.

| Field Name | Type/Length |
|-------------|-------------|
| FROM-USERID | (A8) |

User ID in the FROM-NODE.

SUBMIT

| Field Name | Type/Length |
|--------------------|-------------|
| FROM-USER-PASSWORD | (A32) |

User password in the FROM-NODE.

| Field Name | Type/Length |
|------------|-------------|
| FUNCTION | (A8) |

Function to be performed. Possible options:

| Option | Explanation |
|--------------|--|
| <i>blank</i> | Default. Pass a JCL card or the name of the dataset or member/element to be submitted to the Entire System Server. |
| CLOSE | All cards have been processed - perform the submit. You must specify this function for the last SUBMIT request. |

| Field Name | Type/Length |
|------------|-------------|
| GENERATION | (N9) |

Generation number of member (only valid for PDSE version 2 with MAXGENS > 0).

| Field Name | Type/Length |
|------------|-------------|
| IDENTIFIER | (A8) |

Required if multiple submit calls are executing in parallel, as requests for the same job to be submitted must have the same identifier.

| Field Name | Type/Length |
|------------|-------------|
| JOB-ID | (A8) |

Same as JOB-NUMBER, only in alpha format.

| Field Name | Type/Length |
|------------|-------------|
| JOB-NAME | (A8) |

Name of job to be submitted.

| Field Name | Type/Length |
|------------|-------------|
| JOB-NUMBER | (N7) |

This field is returned after a call with FUNCTION=CLOSE.

Job number assigned by the JES . If JOB-NUMBER=0, no valid job card was sent.

| Field Name | Type/Length |
|------------|-------------|
| MEMBER | (A10) |

Name of member that contains the JCL to be submitted.

| Field Name | Type/Length |
|------------|-------------|
| OPTIONS | (A8) |

Specify X to expand all ++INCLUDE statements.

| Field Name | Type/Length |
|------------|-------------|
| PASSWORD | (A8) |

Password for protected dataset.

| Field Name | Type/Length |
|------------|-------------|
| PRODUCT | (A1) |

Access method for dataset containing the JCL. Possible options:

| Option | Explanation |
|--------|--------------|
| L | CA-Librarian |
| P | CA-Panvalet |

| Field Name | Type/Length |
|------------|-------------|
| VOLSER | (A6) |

Volume serial number. Required only if the dataset is not cataloged.

SUBMIT Programming Notes

SUBMIT is an UPDATE view, i.e., data is transmitted from the Natural program (client side) to ESY (server side).

The Entire System Server view SUBMIT returns codes and messages that describe whether the requested operation has been executed successfully or not, and the JOB-NUMBER of a submitted job.

Therefore, the DEFINE DATA section of the Natural program should only contain the fields shown in the following example:

```
1 SUBMIT VIEW OF SUBMIT
  2 ERROR-CODE
  2 ERROR-TEXT
  2 SYSTEM-MESSAGE-CODE

  2 SYSTEM-CODE
  2 JOB-NUMBER
```

These fields in DEFINE DATA are the fields returned from the SUBMIT view in Entire System Server to the calling Natural program.

Defining other fields in the DDM is not critical, but the access to these fields may lead to unpredictable results.

46 SYSTEM-COMMAND

- Fields 286
- Field Descriptions 286
- Examples 287
- Default Order of Data Returned 290

| | |
|------------------|--|
| File | 46 |
| Statement | FIND |
| Task | Execute TSO commands online or in batch. TSO commands can be issued in Natural environments from TP monitors other than TSO. Up to 50 commands and sub-commands are allowed. |

Fields

| Dictionary Field Name | F/L | Mu | DE | Remarks |
|-----------------------|------|-----|----|--|
| ERROR-CODE | N3 | | | |
| ERROR-TEXT | A58 | | | |
| SYSTEM-MESSAGE-CODE | A10 | | | |
| NODE | N5 | | D | |
| NODE-NAME | A16 | | D | |
| LINE | A132 | | | |
| COMMAND | A80 | M20 | D | |
| SUB-COMMAND | A80 | M50 | D | Command line for an FTP server. Up to 50 Sub-Commands are allowed. |

Field Descriptions

| Field Name | Type/Length |
|------------|-------------|
| LINE | (A132) |

Output line. If more than one output line is expected, a FIND loop is required to retrieve all of them.

| Field Name | Type/Length |
|------------|-------------|
| COMMAND | (A80) (M20) |

Commands to be executed by TSO.

| Field Name | Type/Length |
|-------------|-------------|
| SUB-COMMAND | (A80) (M50) |

For COMMAND FTP, commands specific to FTP are set up in field SUB-COMMAND. Up to 50 SUB-COMMANDS are allowed. SUB-COMMANDS are only allowed for ONE COMMAND in a FIND or PROCESS statement.

As an example see section [How to run an FTP from Mainframe Natural Using Entire System Server](#). Using the new sub-command key PASSWORD will prevent the password to appear unencrypted, e.g. in traces or outputs.

Examples

TSO Command LIST to Request a List of All Datasets

The following program issues the TSO command LIST and requests a list of all datasets that start with the string WKK:

| |
|---|
| <pre>FIND COMMAND WITH COMMAND = 'LISTC LVL ('WKK')' DISPLAY LINE (AL=79) END</pre> |
| <p>Output from the program:</p> <pre>IKJ56644I NO VALID TSO USERID, DEFAULT USER ATTRIBUTES USED READY PROFILE PEF(WKK) READY LISTC LVL ('WKK') NONVSAM ----- WKK.BROKER.API.C IN-CAT --- UCAT.COM811 NONVSAM ----- WKK.BROKER.API.LIST IN-CAT --- UCAT.COM811 NONVSAM ----- WKK.BROKER.API.LOAD IN-CAT --- UCAT.COM811 NONVSAM ----- WKK.BROKER.API.OBJ IN-CAT --- UCAT.COM811 NONVSAM ----- WKK.CLOG IN-CAT --- UCAT.COM811 NONVSAM ----- WKK.COMN.IV123.SYSTEM IN-CAT --- UCAT.COM811 NONVSAM ----- WKK.DUMP</pre> |

How to run an FTP from Mainframe Natural Using Entire System Server

Using the view SYSTEM-COMMAND, you may execute an FTP from Natural to anywhere, as shown in the example below. First, ask your TCP/IP administrator for the configuration information required by the TCP/IP client programs. This dataset/member is allocated dynamically with a special DDNAME SYSTCPD. The dataset/member name will of course be different at your installation.

Then, code the command FTP, and the subsequent FTP commands are coded here as SUB-COMMANDS.

In the following example, you logon as an anonymous user to the Software AG FTP server and read a list of directories or files available at this moment.

```

DEFINE DATA LOCAL
01 SYSTEM-COMMAND VIEW OF SYSTEM-COMMAND
  02 LINE
END-DEFINE
FIND SYSTEM-COMMAND WITH NODE = 148
  AND COMMAND = 'alloc f(syscpd) da(''sysm.daef.parmlib(tcpdata)'') shr'
  AND COMMAND = 'FTP'
  AND SUB-COMMAND = 'ftp.softwareag.com'
  AND SUB-COMMAND = 'anonymous'
  AND SUB-COMMAND = 'PASSWORD=abc@softwareag.de'
  AND SUB-COMMAND = 'dir'
  AND SUB-COMMAND = 'help'
  AND SUB-COMMAND = 'quit'
  PRINT LINE(AL=132)
END-FIND
END ↵

```

The output looks like this:

```

PROFILE PREF(WKK )

READY
ALLOC F(SYSTCPD) DA('SYSM.DAEF.PARMLIB(TCPDATA)') SHR
READY
FTP
>EZA1736I FTP
>EZY2640I Using /etc/ftp.data for local site configuration parameters.
>EZA1450I IBM FTP CS V1R8
>EZA1456I Connect to ?
>EZA1736I ftp.softwareag.com
>EZA1554I Connecting to: server21.softwareag.com 193.26.193.60 port: 21.
>220 Software AG FTP Server ready
>EZA1459I NAME (ftp.softwareag.com:WKK):
>EZA1701I >>> USER anonymous
>331 Anonymous login ok, send your complete email address as your password.
>EZA1789I PASSWORD:
>EZA1701I >>> PASS
>230-

```


Default Order of Data Returned

Each line of the output listing is presented in order.

47 SYSTEM-INFO

- Fields 292
- Field Descriptions 293

| | |
|------------------|---|
| File | 26 |
| Statement | FIND |
| Task | Retrieve information from the operating system on which this Entire System Server is running. In an Entire Net-Work environment, this view can be used to determine which operating systems are to be supported. |

Fields

| Dictionary Field Name | F/L | Mu | DE | Remarks |
|-----------------------|-----|----|----|---------|
| ERROR-CODE | N3 | | | |
| ERROR-TEXT | A58 | | | |
| NODE | N5 | | D | |
| NODE-NAME | A16 | | D | |
| NODE-NAME-LIST | A16 | | | |
| SYSTEM-MESSAGE-CODE | A10 | | | |
| SYSTEM-TYPE | A8 | | | |
| SYSTEM-RELEASE | A8 | | | |
| SECURITY | A4 | | | |
| AUTO-LOGON | A3 | | | |
| ESY-VERSION | A8 | | | |
| NODE-ID | A50 | | | |
| JOBNAME | A8 | | | |
| STARTUP-PARM | A80 | | D | |
| LOCAL-DATX | D | | | |
| LOCAL-TIMX | T | | | |
| CPU-ID | A12 | | D | |
| CPU-UTILIZATION | N3 | | | |
| GMT-DIFFERENCE | N3 | | D | |
| LAST-IPL-DATX | D | | D | |
| LAST-IPL-TIMX | T | | D | |
| PRODUCT-NAME | A16 | | | |
| PRODUCT-VERSION | A8 | | | |
| SPOOL-RELEASE | A8 | | D | |
| SPOOL-TYPE | A8 | | D | |
| SYSTEM-NAME | A8 | | D | |
| SMF-RECORD | N3 | | D | |

| Dictionary Field Name | F/L | Mu | DE | Remarks |
|-----------------------|-----|----|----|---------|
| APF | N3 | | D | |

Field Descriptions

| Field Name | Type/Length |
|------------|-------------|
| APF | (A3) |

Possible values:

| Value | Explanation |
|-------|---|
| NO | Entire System Server is not running APF-authorized. |
| YES | Entire System Server is running APF-authorized. |

| Field Name | Type/Length |
|------------|-------------|
| AUTO-LOGON | (A3) |

Automatic logon option for the Entire System Server. If YES is specified in the corresponding startup parameter, the Entire System Server will perform an automatic logon to the active security system using *INIT-USER as user ID.

| Field Name | Type/Length |
|------------|-------------|
| CPU-ID | (A12) |

Bytes 1-8 contain the CPU identification number, bytes 9-12 the machine-type number of the CPU. Both provide a unique CPU identification that can be used in associating results with an individual machine.

| Field Name | Type/Length |
|-----------------|-------------|
| CPU-UTILIZATION | (N3) |

Percentage of time the CPU is busy.

SYSTEM-INFO

| Field Name | Type/Length |
|-------------|-------------|
| ESY-VERSION | (A8) |

The version number of this Entire System Server, for example, 3.3.1.

| Field Name | Type/Length |
|----------------|-------------|
| GMT-DIFFERENCE | (N3) |

Time difference in hours between local time and GMT.

| Field Name | Type/Length |
|------------|-------------|
| JOBNAME | (A8) |

Job name of the Entire System Server node.

| Field Name | Type/Length |
|---------------|-------------|
| LAST-IPL-DATX | (D) |

Date in Natural format of last system IPL.

| Field Name | Type/Length |
|---------------|-------------|
| LAST-IPL-TIMX | (T) |

Time in Natural format of last system IPL.

| Field Name | Type/Length |
|------------|-------------|
| LOCAL-DATX | (D) |

Current date in Natural format.

| Field Name | Type/Length |
|------------|-------------|
| LOCAL-TIMX | (T) |

Current time of day in Natural format.

| Field Name | Type/Length |
|------------|-------------|
| NODE-ID | (A50) |

Logical identifier of the node. This value is defined for the node using the startup parameter IDENTIFIER.

| Field Name | Type/Length |
|----------------|-------------|
| NODE-NAME-LIST | (A16) |

Lists entries of Entire System Server Nodes.

| Field Name | Type/Length |
|--------------|-------------|
| PRODUCT-NAME | (A16) |

The name of the product as defined in the operating system. Possible value: z/OS.

| Field Name | Type/Length |
|-----------------|-------------|
| PRODUCT-VERSION | (A8) |

The version of the product as defined in the operating system. This will be in the format vv.rr.mm.

| Field Name | Type/Length |
|------------|-------------|
| SECURITY | (A4) |

Security system defined in Entire System Server startup parameters.

| Field Name | Type/Length |
|------------|-------------|
| SMF-RECORD | (N3) |

SMF record number written by the Entire System Server.

| Field Name | Type/Length |
|---------------|-------------|
| SPOOL-RELEASE | (A8) |

Spooling system release number.

| Field Name | Type/Length |
|------------|-------------|
| SPOOL-TYPE | (A8) |

Spooling system type.

| Field Name | Type/Length |
|--------------|-------------|
| STARTUP-PARM | (A80) |

Entire System Server startup parameters. To obtain all startup parameters, use a processing loop in Natural.

SYSTEM-INFO

| Field Name | Type/Length |
|-------------|-------------|
| SYSTEM-NAME | (A8) |

SMF system name.

| Field Name | Type/Length |
|----------------|-------------|
| SYSTEM-RELEASE | (A8) |

Operating system release number.

| Field Name | Type/Length |
|-------------|-------------|
| SYSTEM-TYPE | (A8) |

Operating system type. For compatibility reasons, MVS/ESA is returned. Use the field `PRODUCT-NAME` to determine the name of the product as defined in the operating system. Possible options:

| Option | Explanation |
|---------|-----------------------|
| MVS/ESA | Old notation for z/OS |

Example 1:

The following example displays system information on the Entire System Server with Node Number 148:

| | | | | |
|--|----------------|--------------|-----------------|------------|
| PROCESS SYSTEM-INFO WITH NODE = 148 DISPLAY SYSTEM-TYPE SYSTEM-RELEASE PRODUCT-NAME (EM=X(8)) PRODUCT-VERSION SPOOL-TYPE | | | | |
| Sample output from above program: | | | | |
| SYSTEM-TYPE | SYSTEM-RELEASE | PRODUCT-NAME | PRODUCT-VERSION | SPOOL-TYPE |
| ----- | | | | |
| MVS/ESA | SP7.0.2 | z/OS | 01.02.00 | JES2 |

Example 2:

The following example displays spool information and the startup parameter with the keyword `SPOOL` of the Entire System Server with Node Number 85:

```
PROCESS SYSTEM-INFO WITH NODE = 85
      AND STARTUP-PARM = '*SPOOL=*'
      DISPLAY SPOOL-TYPE SPOOL-RELEASE STARTUP-PARM (EM=X(18))
```

Sample output from above program:

```
SPOOL-TYPE SPOOL-RELEASE STARTUP-PARM
-----
JES3      OS2.10.0      SPOOL=JES3
```


48 TCB

| | |
|------------------------------|-----|
| ▪ Fields | 300 |
| ▪ Relevant Error Codes | 300 |
| ▪ Field Descriptions | 301 |

| | |
|------------------|---|
| File | 24 |
| Statement | FIND |
| Task | Retrieve Task Control Block for a given job and interpret its contents. |

Fields

| Dictionary Field Name | F/L | Mu | DE | Remarks |
|-----------------------|-----|----|----|-----------|
| ERROR-CODE | N3 | | | |
| ERROR-TEXT | A58 | | | |
| NODE | N5 | | D | |
| NODE-NAME | A16 | | D | |
| JOB-NAME | A8 | | D | Required. |
| TCB-ADDRESS | B4 | | D | |
| RB-CHAIN | B4 | | D | |
| DEB-CHAIN | B4 | | D | |
| LLS-CHAIN | B4 | | D | |
| COMPLETION-CODE | B4 | | D | |
| MOTHER-TCB | B4 | | D | |
| SISTER-TCB | B4 | | D | |
| DAUGHTER-TCB | B4 | | D | |

Relevant Error Codes

| Code | Text |
|------|---------------------|
| 801 | Job not found |
| 805 | Invalid TCB address |

Field Descriptions

| Field Name | Type/Length |
|-----------------|-------------|
| COMPLETION-CODE | (B4) |

Completion code for the task.

| Field Name | Type/Length |
|--------------|-------------|
| DAUGHTER-TCB | (B4) |

TCB address of task last attached by this task.

| Field Name | Type/Length |
|------------|-------------|
| DEB-CHAIN | (B4) |

Address of DEB chain (open datasets).

| Field Name | Type/Length |
|------------|-------------|
| JOB-NAME | (A8) |

Name of job to be scanned.

| Field Name | Type/Length |
|------------|-------------|
| LLS-CHAIN | (B4) |

Address of LLS chain (loaded programs).

| Field Name | Type/Length |
|------------|-------------|
| MOTHER-TCB | (B4) |

TCB address of task which attached this task.

| Field Name | Type/Length |
|------------|-------------|
| RB-CHAIN | (B4) |

Address of request block chain (active programs).

| Field Name | Type/Length |
|------------|-------------|
| SISTER-TCB | (B4) |

TCB address of task previously attached by the task which attached this task.

| Field Name | Type/Length |
|-------------|-------------|
| TCB-ADDRESS | (B4) |

TCB address.

Example 1:

This example program displays the TCB for job NPRWKK:

```
FIND TCB with JOB-name = 'NPRWKK' and NODE = 29
  DISPLAY TCB-ADDRESS RB-CHAIN DEB-CHAIN MOTHER-TCB SISTER-TCB
END ←
```

Example output from above program:

```
TCB-ADDRESS RB-CHAIN DEB-CHAIN MOTHER-TCB SISTER-TCB
-----
008DDD40      008DB428 00000000 008D5A68 008DD6B8
008DD6B8      008DB940 00000000 008D5A68 008D5508
008D5468      008FBE18 008DFE94 008FE1F8 00000000
008FE1F8      008FBF87 008E96C4 008FF338 008FE4A8
008D57B8      008DB170 00000000 008D5A68 008DD160
....
```

Example 2:

This example program displays the users of TCB addresses for job NPRWKK:

```
FIND TCB WITH JOB-NAME = 'NPRWKK' AND NODE = 29
  FIND NATPROC-USERS WITH TCB-ADDRESS = TCB.TCB-ADDRESS
                        AND NODE = 29
  DISPLAY TCB-ADDRESS USER-ID
END
```

Example output from above program:

| TCB-ADDRESS | USER-ID |
|-------------|---------|
| 008DDD40 | WKK |
| 008DD6B8 | DL |
| 008D5A68 | ***MAIN |
| 008D5508 | |
| 008FE1F8 | |
| 008D57B8 | |
| 008FE4A8 | |
| 008FF338 | |
| 008DD160 | |
| 008DD2F8 | |

49 UNIT-ATTRIBUTES

| | |
|----------------------------|-----|
| ▪ Fields | 306 |
| ▪ Field Descriptions | 307 |

UNIT-ATTRIBUTES

| | |
|------------------|--|
| File | 6 |
| Statement | FIND |
| Task | Retrieve information relating to devices, for example, unit address, device, device type, online/offline status, free cylinders. |

Fields

| Dictionary Field Name | F/L | Mu | DE | Remarks |
|--------------------------------|-----|----|----|---------|
| ERROR-CODE | N3 | | | |
| ERROR-TEXT | A58 | | | |
| NODE | N5 | | D | |
| NODE-NAME | A16 | | D | |
| UNIT-HEX | B2 | | D | |
| UNIT | A4 | | D | |
| VOLSER | A6 | | D | |
| CLASS | A4 | | D | |
| DEVICE-STATUS | A7 | | D | |
| SERIES | A6 | | D | |
| VOLUME-STATUS | A8 | | D | |
| DCB-COUNT | N3 | | D | |
| ACTIVITY | A9 | | D | |
| DEVICE-TYPE | B4 | | D | |
| DENSITY | A9 | | D | |
| UCB-ADDRESS | B4 | | D | |
| CONTIG-CYLINDERS | N7 | | D | |
| CONTIG-CYLINDERS-TRACK-MANAGED | N7 | | D | |
| CONTIG-TRACKS | N4 | | D | |
| EAV | A3 | | D | |
| FREE-CYLINDERS | N7 | | D | |
| FREE-CYLINDERS-TRACK-MANAGED | N7 | | D | |
| FREE-EXTENTS | N4 | | D | |
| FREE-EXTENTS-TRACK-MANAGED | N4 | | D | |
| FREE-TRACKS | N4 | | D | |
| MOUNT-STATUS | A10 | | D | |
| SMS | A3 | | D | |
| TOTAL-CYLINDERS | N7 | | D | |

| Dictionary Field Name | F/L | Mu | DE | Remarks |
|-------------------------------|-----|----|----|---------|
| TOTAL-CYLINDERS-TRACK-MANAGED | N7 | | D | |
| TRACKS-PER-CYLINDER | N3 | | D | |
| VTOC-TYPE | A1 | | D | |

Field Descriptions

| Field Name | Type/Length |
|------------|-------------|
| ACTIVITY | (A9) |

Activity of device. Possible values:

| Value | Explanation |
|-----------|-------------------|
| ALLOCATED | Device allocated. |
| BUSY | Device busy. |

| Field Name | Type/Length |
|------------|-------------|
| CLASS | (A4) |

The device class. Possible values:

| Value | Explanation |
|-------|-----------------------------|
| COMM | Communications. |
| CTCA | Channel-to-channel adapter. |
| DASD | Direct access. |
| DISP | Display station. |
| TAPE | Tape. |
| UREC | Unit record. |

| Field Name | Type/Length |
|------------------|-------------|
| CONTIG-CYLINDERS | (N7) |

Number of cylinders in largest free extent.

| Field Name | Type/Length |
|--------------------------------|-------------|
| CONTIG-CYLINDERS-TRACK-MANAGED | (N7) |

Number of cylinders in largest free extent in track managed space on volume.

| Field Name | Type/Length |
|---------------|-------------|
| CONTIG-TRACKS | (N4) |

Number of tracks in largest free extent (in addition to CONTIG-CYLINDERS).

| Field Name | Type/Length |
|------------|-------------|
| EAV | (A3) |

Specifies whether a device is an Extended Address Volume. Possible values:

- NO
- YES

| Field Name | Type/Length |
|------------|-------------|
| DCB-COUNT | (N3) |

Number of DCBs currently open on the unit.

| Field Name | Type/Length |
|------------|-------------|
| DENSITY | (A9) |

Tape density. Possible values:

| Value | Explanation |
|-----------|---------------------|
| 800 | Bits per inch (bpi) |
| 800/1600 | |
| 1600 | |
| 1600/6250 | |
| 6250 | |

| Field Name | Type/Length |
|---------------|-------------|
| DEVICE-STATUS | (A7) |

Possible values:

| Value | Explanation |
|---------|--------------------|
| CHANGE | Status changing. |
| OFFLINE | Device is offline. |
| ONLINE | Device is online. |

| Field Name | Type/Length |
|-------------|-------------|
| DEVICE-TYPE | (B4) |

UCBTYP device type internal code.

| Field Name | Type/Length |
|----------------|-------------|
| FREE-CYLINDERS | (N7) |

Number of free cylinders on disk pack.

| Field Name | Type/Length |
|------------------------------|-------------|
| FREE-CYLINDERS-TRACK-MANAGED | (N7) |

Number of free cylinders in track managed space on volume.

| Field Name | Type/Length |
|--------------|-------------|
| FREE-EXTENTS | (N4) |

Number of free extents on disk pack.

| Field Name | Type/Length |
|----------------------------|-------------|
| FREE-EXTENTS-TRACK-MANAGED | (N4) |

Number of free extents in track managed space on volume.

UNIT-ATTRIBUTES

| Field Name | Type/Length |
|-------------|-------------|
| FREE-TRACKS | (N4) |

Number of free tracks (in addition to FREE-CYLINDERS).

| Field Name | Type/Length |
|--------------|-------------|
| MOUNT-STATUS | (A10) |

Possible values:

- MOUNT PEND
- NOT READY
- REMOVABLE
- RESERVED
- RESIDENT

| Field Name | Type/Length |
|------------|-------------|
| SERIES | (A6) |

Device series, for example, 3330-1.

| Field Name | Type/Length |
|------------|-------------|
| SMS | (A3) |

Whether device is SMS-managed. Possible values:

- NO
- YES

| Field Name | Type/Length |
|-----------------|-------------|
| TOTAL-CYLINDERS | (N7) |

Total number of cylinders on disk pack.

| Field Name | Type/Length |
|-------------------------------|-------------|
| TOTAL-CYLINDERS-TRACK-MANAGED | (N7) |

Total number of cylinders in track managed space on volume.

| Field Name | Type/Length |
|---------------------|-------------|
| TRACKS-PER-CYLINDER | (N3) |

Number of tracks per cylinder.

| Field Name | Type/Length |
|-------------|-------------|
| UCB-ADDRESS | (B4) |

Memory address of unit control block for unit.

| Field Name | Type/Length |
|------------|-------------|
| UNIT | (A4) |

Unit address in EBCDIC.

| Field Name | Type/Length |
|------------|-------------|
| UNIT-HEX | (B2) |

Binary device number, used for comparisons (X'12A' > X'120', but '12A' < '120').

| Field Name | Type/Length |
|------------|-------------|
| VOLSER | (A6) |

Volume serial number currently mounted on the unit.

| Field Name | Type/Length |
|---------------|-------------|
| VOLUME-STATUS | (A8) |

Possible values:

| |
|------------------------|
| PRIVATE PUBLIC STORAGE |
|------------------------|

| Field Name | Type/Length |
|------------|-------------|
| VTOC-TYPE | (A1) |

Type of VTOC. Possible values:

| Value | Explanation |
|-------|-------------|
| I | Indexed. |
| N | Normal. |

50 UNIX-DIRECTORY

| | |
|------------------------------|-----|
| ▪ Fields | 314 |
| ▪ Relevant Error Codes | 314 |
| ▪ Field Descriptions | 315 |

| | |
|------------------|--|
| File | 97 |
| Statement | FIND |
| Task | This view makes it possible to display directory information related to a z/OS UNIX file system. |

Fields

| Dictionary Field Name | F/L | Mu | DE | Remarks |
|-----------------------|------|----|----|---|
| NODE | N5.0 | | D | D Node ID (DBID). |
| ERROR-CODE | N3.0 | | | |
| ERROR-TEXT | A58 | | | |
| NODE-NAME | A16 | | D | |
| SYSTEM-MESSAGE-CODE | A10 | | | |
| PATH | A54 | | D | Fully qualified path name. |
| FILE | A54 | | D | File name. |
| TYPE | A1 | | D | File type D = directory 3 standard file, see also below . |
| ACCESS-USER | A3 | | D | Access rights of the user. |
| ACCESS-GROUP | A3 | | D | Access rights of the group. |
| ACCESS-OTHER | A3 | | D | Access rights for someone neither being the user nor a member of the group. |
| OWNER | A8 | | D | File owner. |
| OWNER-GROUP | A8 | | D | Group of the file owner. |
| FILE-SIZE | N8.0 | | D | Size in bytes. |

Relevant Error Codes

| Code | Text |
|------|-------------------------------------|
| 530 | Access denied by Security Facility. |
| 568 | File not found. |
| 893 | Getmain failed. |
| 899 | I/O error on file. |
| 993 | Cannot open file. |

Field Descriptions

| Field Name | Type/Length |
|------------|-------------|
| NODE | (N5.0) |

D Node ID (DBID).

| Field Name | Type/Length |
|------------|-------------|
| ERROR-CODE | (N3.0) |

Message code.

| Field Name | Type/Length |
|------------|-------------|
| ERROR-TEXT | (A58) |

Text describing error.

| Field Name | Type/Length |
|------------|-------------|
| NODE-NAME | (A16) |

LPAR where node is running.

| Field Name | Type/Length |
|---------------------|-------------|
| SYSTEM-MESSAGE-CODE | (A10) |

Code of system message.

| Field Name | Type/Length |
|------------|-------------|
| PATH | (A54) |

Path of directory to be read.

| Field Name | Type/Length |
|------------|-------------|
| FILE | (A253) |

Name of file or directory.

| Field Name | Type/Length |
|------------|-------------|
| TYPE | (A1) |

Directory or file.

| Values | Explanation |
|--------|----------------|
| D | Directory. |
| 3 | Standard file. |

| Field Name | Type/Length |
|-------------|-------------|
| ACCESS-USER | (A3) |

Access rights of user.

| Values | Explanation |
|--------|-------------|
| R | Read |
| W | Write |
| X | Execute |

| Field Name | Type/Length |
|--------------|-------------|
| ACCESS-GROUP | (A3) |

Access rights of group.

| Values | Explanation |
|--------|-------------|
| R | Read |
| W | Write |
| X | Execute |

| Field Name | Type/Length |
|--------------|-------------|
| ACCESS-OTHER | (A3) |

Access rights of others.

| Values | Explanation |
|--------|-------------|
| R | Read |
| W | Write |
| X | Execute |

| Field Name | Type/Length |
|------------|-------------|
| OWNER | (N8) |

Owner of file/directory.

| Field Name | Type/Length |
|---------------|-------------|
| OWNER - GROUP | (N8) |

Group of owner.

| Field Name | Type/Length |
|-------------|-------------|
| FILE - SIZE | (N8.0) |

Size of file in bytes.

51 VTOC

| | |
|------------------------------|-----|
| ▪ Fields | 320 |
| ▪ Relevant Error Codes | 321 |
| ▪ Field Descriptions | 321 |

| | |
|------------------|--|
| File | 4 |
| Statement | FIND |
| Task | List the VTOC of a specified disk with related information such as volume serial number, dataset name, file size, etc. |

Fields

| Dictionary Field Name | F/L | Mu | DE | Remarks |
|-----------------------|------|------|----|-----------|
| ERROR-CODE | N3 | | | |
| ERROR-TEXT | A58 | | | |
| NODE | N5 | | D | |
| NODE-NAME | A16 | | D | |
| SYSTEM-MESSAGE-CODE | A10 | | | |
| VOLSER | A6 | | D | Required. |
| DSNAME | A54 | | D | |
| FILE-SIZE | N10 | | D | |
| DSORG | A4 | | D | |
| CREATION-DATE | A8 | | D | |
| EXPIRATION-DATE | A8 | | D | |
| LAST-TTR | B3 | | D | |
| LAST-TTTR | B4 | | D | |
| EXTENTS | A192 | | D | |
| NUMBER-OF-EXTENTS | N3 | | D | |
| CYLINDERS-ALLOCATED | N7 | | D | |
| UNIT | A4 | | D | |
| SERIES | A8 | | D | |
| CREATION-DATX | D | | D | |
| EXPIRATION-DATX | D | | D | |
| EXTENT-TYPE | A4 | | D | |
| EXTENTS-ARRAY | A192 | M/16 | D | |
| LRECL | N5 | | D | |
| BLKSIZE | N5 | | D | |
| RECFM | A5 | | D | |
| ALLOCATION-TYPE | A4 | | D | |
| PRIMARY-QTY | N10 | | D | |
| SECONDARY-QTY | N10 | | D | |

| Dictionary Field Name | F/L | Mu | DE | Remarks |
|-----------------------|-----|----|----|---------|
| PERCENT-USED | N3 | | D | |
| TRACKS-ALLOCATED | N3 | | D | |
| SECURITY | A5 | | | |
| LAST-REFERENCE | A8 | | D | |
| LAST-REFERENCE-DATX | D | | D | |
| UPDATED-SINCE-BACKUP | A3 | | D | |
| SMS | A3 | | D | |
| DSNTYPE | A8 | | D | |

Relevant Error Codes

| Code | Text |
|------|---|
| 500 | VSAM error. |
| 699 | Not enough main storage available. |
| 781 | Unable to obtain storage for work area extension. |
| 782 | Error from :1: for :2:, RC :3:, REASON :3: |
| 783 | Unable to allocate :1;, RC :2;, REASON :3: |
| 784 | Unable to open VTOC on :1;, RC :2: |
| 785 | CVAF:1: failed with RC :2: and CVSTAT :3: |
| 899 | I-O error during read. |
| 996 | Volume not online. |

Field Descriptions

| Field Name | Type/Length |
|-----------------|-------------|
| ALLOCATION-TYPE | (A4) |

Allocation type specified. Possible values:

| Value | Explanation |
|-------|-------------|
| ABS | Absolute |
| BLK | Block |
| CYL | Cylinder |
| TRK | Track |

| Field Name | Type/Length |
|------------|-------------|
| BLKSIZE | (N5) |

Block size.

| Field Name | Type/Length |
|---------------|-------------|
| CREATION-DATE | (A8) |

Dataset creation date in format *DD/MM/YY*. If no creation date is specified, the field is filled with asterisks ******.

| Field Name | Type/Length |
|---------------|-------------|
| CREATION-DATX | (D) |

Creation date of file in Natural format.

| Field Name | Type/Length |
|---------------------|-------------|
| CYLINDERS-ALLOCATED | (N7) |

Number of integral cylinders allocated.

| Field Name | Type/Length |
|------------|-------------|
| DSNAME | (A54) |

Fully qualified dataset name when returned as output field. When used as input fields, this field can be used to select further datasets and supports the asterisk notation (*) as wildcard selection.

| Field Name | Type/Length |
|------------|-------------|
| DSNTYPE | (A8) |

Data Set Type Specification.

| Field Name | Type/Length |
|------------|-------------|
| DSORG | (A4) |

Dataset organization, for example PS for sequential dataset, PO for partitioned dataset, POE for PDSE.

| Field Name | Type/Length |
|-----------------|-------------|
| EXPIRATION-DATE | (A8) |

Dataset expiration date in format *DD/MM/YY*. If no creation date is specified, the field is filled with asterisks ******.

| Field Name | Type/Length |
|-----------------|-------------|
| EXPIRATION-DATX | (D) |

Expiration date of file in Natural format.

| Field Name | Type/Length |
|------------|-------------|
| EXTENTS | (A192) |

Extent information. The field contains 16 entries, each 12 bytes long. Each entry contains the following:

- Low cylinder and head (track) address of extent (binary *CCHH*)
- High cylinder and head (track) address of extent (binary *CCHH*)
- Number of cylinders in extent
- Number of additional tracks in extent

| Field Name | Type/Length |
|---------------|-------------|
| EXTENTS-ARRAY | (A192) M16 |

Extent information array of 16 x 16 entries, each 12 bytes long. Each entry contains the following:

- Low cylinder and head (track) address of extent (binary *CCHH*)
- High cylinder and head (track) address of extent (binary *CCHH*)
- Number of cylinders in extent
- Number of additional tracks in extent

| Field Name | Type/Length |
|-------------|-------------|
| EXTENT-TYPE | (A4) |

Possible values:

| Value | Explanation |
|-------|--|
| FREE | This entry describes a free extent. |
| USED | This entry describes a regular data set (default value). |
| VTOC | Indicates the VTOC extent. |

| Field Name | Type/Length |
|------------|-------------|
| FILE-SIZE | (N10) |

Number of tracks currently allocated. (CYLINDERS-ALLOCATED in tracks + TRACKS-ALLOCATED).

| Field Name | Type/Length |
|----------------|-------------|
| LAST-REFERENCE | (A8) |

Last reference date in format *DD/MM/YY*. If the last reference date is null, this field is filled with asterisks ****.

| Field Name | Type/Length |
|---------------------|-------------|
| LAST-REFERENCE-DATX | (D) |

Last reference date in Natural format.

| Field Name | Type/Length |
|------------|-------------|
| LAST-TTR | (B3) |

Last track.

| Field Name | Type/Length |
|------------|-------------|
| LAST-TTTR | (B4) |

Last used track and block on track (TTTR).

| Field Name | Type/Length |
|------------|-------------|
| LRECL | (N5) |

Logical record length.

| Field Name | Type/Length |
|-------------------|-------------|
| NUMBER-OF-EXTENTS | (A192) |

Number of extents used. Valid values are 1 - 255.

| Field Name | Type/Length |
|--------------|-------------|
| PERCENT-USED | (N3) |

Amount of space used in the dataset as a percentage of total space.

| Field Name | Type/Length |
|-------------|-------------|
| PRIMARY-QTY | (N10) |

Primary allocation.

| Field Name | Type/Length |
|------------|-------------|
| RECFM | (A5) |

Record format, for example, FB.

| Field Name | Type/Length |
|---------------|-------------|
| SECONDARY-QTY | (N10) |

Secondary allocation.

| Field Name | Type/Length |
|------------|-------------|
| SECURITY | (A5) |

Security status. Possible values:

| Value | Explanation |
|-------|---|
| NONE | Not password-protected. |
| READ | Password-protected for read and write operations. |
| VSAM | VSAM file. |
| WRITE | Password-protected for write operations. |

| Field Name | Type/Length |
|------------|-------------|
| SERIES | (A8) |

Device series for the unit, for example, 3380.

| Field Name | Type/Length |
|------------|-------------|
| SMS | (A3) |

Specifies whether the file is on an SMS-managed unit or device, YES or NO.

| Field Name | Type/Length |
|------------------|-------------|
| TRACKS-ALLOCATED | (N3) |

Number of remaining tracks allocated in addition to CYLINDERS-ALLOCATED.

| Field Name | Type/Length |
|------------|-------------|
| UNIT | (A4) |

Device number of the unit on which the dataset resides.

| Field Name | Type/Length |
|----------------------|-------------|
| UPDATED-SINCE-BACKUP | (A3) |

Specifies whether the file has been updated since the last backup, YES or NO.

| Field Name | Type/Length |
|------------|-------------|
| VOLSER | (A6) |

Volume serial number.

52 VTOC-UPDATE

| | |
|------------------------------|-----|
| ▪ Fields | 328 |
| ▪ Relevant Error Codes | 328 |
| ▪ Field Descriptions | 329 |

| | |
|------------------|---|
| File | 7 |
| Statement | PROCESS |
| Task | Perform VTOC updates, for example, rename, scratch, purge datasets. |

Fields

| Dictionary Field Name | F/L | Mu | DE | Remarks |
|-----------------------|-----|----|----|--|
| ERROR-CODE | N3 | | | |
| ERROR-TEXT | A58 | | | |
| NODE | N5 | | D | |
| NODE-NAME | A16 | | D | |
| SYSTEM-MESSAGE-CODE | A10 | | | |
| DSNAME | A54 | | D | Required. |
| NEWNAME | A54 | | D | Relevant for FUNCTION=RENAME. |
| FUNCTION | A8 | | D | Required. |
| VOLSER | A6 | | D | Required. |
| LEAVE | N5 | | D | Relevant for FUNCTION=RELEASE.. |
| CATALOG-UPDATE | A3 | | D | Relevant for FUNCTION=RENAME or SCRATCH. |
| WAIT | A3 | | D | Relevant for VOLSER=MIGRAT. |

Relevant Error Codes

| Code | Text |
|------|---|
| 535 | File has invalid format. |
| 539 | DFHSMREQ failed with RC=... |
| 571 | DSNAME missing. |
| 600 | Unknown function. |
| 851 | File not on volume. |
| 852 | No password supplied / VSAM data space. |
| 853 | Retention cycle unexpired / NEWNAME exists. |

Field Descriptions

| Field Name | Type/Length |
|----------------|-------------|
| CATALOG-UPDATE | (A3) |

Update catalog after a file is scratched or renamed. Possible options:

| Option | Explanation |
|--------|-------------------------|
| NO | Catalog is not updated. |
| YES | Catalog is updated. |

| Field Name | Type/Length |
|------------|-------------|
| DSNAME | (A54) |

Fully qualified dataset name.

| Field Name | Type/Length |
|------------|-------------|
| FUNCTION | (A8) |

Possible functions are:

| Function | Explanation |
|----------|---|
| PURGE | Delete dataset or file regardless of expiration date. |
| RELEASE | Release unused space. |
| RENAME | Rename dataset or file. |
| SCRATCH | Delete dataset or file. |

| Field Name | Type/Length |
|------------|-------------|
| LEAVE | (N5) |

Number of free tracks after the unused tracks are freed with FUNCTION=RELEASE.

| Field Name | Type/Length |
|------------|-------------|
| NEWNAME | (N54) |

Relevant when FUNCTION=RENAME. New name to be assigned to the dataset or file.

| Field Name | Type/Length |
|------------|-------------|
| VOLSER | (A6) |

Volume serial number.

| Field Name | Type/Length |
|------------|-------------|
| WAIT | (A3) |

Relevant when VOLSER=MIGRAT. Possible values are:

| Value | Explanation |
|-------|---|
| YES | Wait for the dataset to be recalled from a migration volume before deleting it. |
| NO | Delete the migrated dataset without recalling (default). |

53

WRITE-FILE

| | |
|---|-----|
| ▪ Fields | 332 |
| ▪ Relevant Error Codes | 333 |
| ▪ Field Descriptions | 334 |
| ▪ WRITE-FILE Programming Notes | 339 |
| ▪ WRITE-FILE and RELEASE Unused Space | 339 |
| ▪ Write ISPF Statistics | 340 |

| | |
|------------------|--|
| File | 204 |
| Statement | PROCESS |
| Task | This view makes it possible to write data to an operating system file. Support of library systems such as CA-Panvalet, CA-Librarian, LMS is provided. See also WRITE-FILE Programming Notes at the bottom of this view description. |

Fields

| Dictionary Field Name | F/L | Mu | DE | Remarks |
|-----------------------|------|----|----|--|
| ERROR-CODE | N3 | | | |
| ERROR-TEXT | A58 | | | |
| NODE | N5 | | D | |
| NODE-NAME | A16 | | D | |
| SYSTEM-MESSAGE-CODE | A10 | | | |
| DISP | A3 | | D | |
| DSNAME | A54 | | D | Required. |
| FUNCTION | A8 | | D | |
| IDENTIFIER | A8 | | D | Required for multiple parallel WRITE-FILE calls. |
| RECORD | A253 | | D | |
| RECORD-LENGTH | N5 | | D | |
| SEGMENT-LENGTH | N3 | | D | |
| SEGMENT-NUMBER | N5 | | D | |
| UPDATE-INPLACE | A3 | | D | |
| BLKSIZE | B2 | | D | Required for tape datasets with no standard label. |
| BLOCK-TTR | B3 | | D | |
| BLOCK-TOKEN | B4 | | D | |
| GENERATION | N9 | | D | |
| KEY | A253 | | D | |
| LRECL | B2 | | D | Required for tape datasets with no standard label. |
| MEMBER | A10 | | D | |
| PRODUCT-OPTIONS | A80 | | D | When PRODUCT=L. |
| PASSWORD | A8 | | D | |
| PRODUCT | A1 | | D | |
| RECFM | A2 | | D | Required for tape datasets with no standard label. |
| REPLACE | A3 | | D | |
| STATS | A3 | | D | |

| Dictionary Field Name | F/L | Mu | DE | Remarks |
|-----------------------|------|----|----|--|
| TAPE - UNLOAD | A3 | | D | |
| USER - DATA | A120 | | D | When FUNCTION=CLOSE. |
| USER - DATA - HEX | B120 | | D | When FUNCTION=CLOSE |
| USER - DATA - LENGTH | N3 | | D | When FUNCTION=CLOSE. |
| VOLSER | A6 | | D | Required only if dataset is not cataloged. |

Relevant Error Codes

| Code | Text |
|------|--|
| 530 | Access denied by Security Facility. |
| 541 | Member generation not found in directory. |
| 542 | GENERATION not valid for this library. |
| 553 | I-O error in directory. |
| 556 | File is in use. |
| 557 | File held by linkage editor. |
| 558 | No space in directory. |
| 559 | Stow error. |
| 560 | Segment length greater than 253. |
| 590 | End-of-data reached during UPDATE - INPLACE. |
| 591 | Member not found for UPDATE - INPLACE. |
| 592 | Record length error for variable UPDATE - INPLACE. |
| 608 | ISITMGD failed with RC :1: and reason :2:. |
| 678 | Member already exists. |
| 870 | RECORD field not in search buffer. |
| 871 | MEMBER not specified. |
| 872 | Record format not supported. |
| 873 | Record length missing. |
| 874 | RECORD - LENGTH > LRECL. |
| 875 | Position of data field > RECORD - LENGTH. |
| 883 | Dataset is full. |
| 889 | Permanent I/O error while writing dataset. |
| 899 | Permanent I/O error while reading dataset. |
| 901 | Dynamic allocation failed. |
| 991 | Unknown product. |
| 993 | Open error. |

| Code | Text |
|------|--------------------------|
| 997 | File not PDS/Sequential. |
| 998 | Member not found. |

Field Descriptions

| Field Name | Type/Length |
|------------|-------------|
| BLKSIZE | (B2) |

Block size for dataset.

Required only for tape datasets that have no standard label.

| Field Name | Type/Length |
|------------|-------------|
| BLOCK-TTR | (B3) |

Track value at which to start writing.

| Field Name | Type/Length |
|-------------|-------------|
| BLOCK-TOKEN | (B4) |

Token value at which to start writing.

For a large format sequential data set, the token is in the format *TTTR* where *TTT* is the relative track address and *R* the number of the block on that track.

| Field Name | Type/Length |
|------------|-------------|
| DISP | (A3) |

Disposition of dataset or file. Possible values:

| Value | Explanation |
|-------|---|
| MOD | Add records to the end of the sequential dataset. |
| OLD | Overwrite existing dataset. |

| Field Name | Type/Length |
|------------|-------------|
| DSNAME | (A54) |

Fully qualified dataset name. Specify `&TEMP.name` here to select a temporary dataset as specified in the Entire System Server startup parameter module. These temporary datasets or files are freed when you log off.

| Field Name | Type/Length |
|------------|-------------|
| FUNCTION | (A8) |

Function to be performed. Possible options:

| Option | Explanation |
|--------------|---|
| <i>blank</i> | Default. Write a record. |
| CLOSE | All records have been written. Specify this function for the last WRITE-FILE request. |
| OPEN | Open a new file. This OPEN can be omitted for simple WRITE-FILE loops, but is recommended for complex, nested WRITE-FILE programs (for example, writing in parallel to several files). |

| Field Name | Type/Length |
|------------|-------------|
| GENERATION | (N9) |

Generation number of member (only valid for PDSE version 2 with MAXGENS > 0).

| Field Name | Type/Length |
|------------|-------------|
| IDENTIFIER | (A8) |

Required if multiple WRITE-FILE calls are executing in parallel. All requests for the same file must have the same identifier.

| Field Name | Type/Length |
|------------|-------------|
| KEY | (A253) |

ISAM/VSAM key.

| Field Name | Type/Length |
|------------|-------------|
| LRECL | (B2) |

Logical record length. Default length is 80.

Required only for tape datasets that have no standard label.

| Field Name | Type/Length |
|------------|-------------|
| MEMBER | (A10) |

Member name.

| Field Name | Type/Length |
|------------|-------------|
| PASSWORD | (A8) |

Password for protected dataset or file.

| Field Name | Type/Length |
|------------|-------------|
| PRODUCT | (A1) |

Access method used. Possible options:

| Option | Explanation |
|--------|--------------|
| L | CA-Librarian |
| P | CA-Panvalet |

| Field Name | Type/Length |
|-----------------|-------------|
| PRODUCT-OPTIONS | (A80) |

Options for CA-Librarian access method (when PRODUCT=L).

| Field Name | Type/Length |
|------------|-------------|
| RECFM | (A2) |

Record format of the dataset.

Required only for tape datasets that have no standard label.

| Field Name | Type/Length |
|------------|-------------|
| RECORD | (A253) |

Record to be written.

| Field Name | Type/Length |
|-----------------|-------------|
| RECORD - LENGTH | (N5) |

Length of record (used only if record format is variable).

| Field Name | Type/Length |
|------------|-------------|
| REPLACE | (A3) |

Possible options:

| Option | Explanation |
|--------|---|
| NO | Add module. If it already exists, issue error code. |
| REP | Replace module. If it does not already exist, issue error code. |
| YES | Default. Add module, replace module of the same name, if it exists. |

| Field Name | Type/Length |
|------------------|-------------|
| SEGMENT - LENGTH | (N3) |

Length of segment.

| Field Name | Type/Length |
|------------------|-------------|
| SEGMENT - NUMBER | (N5) |

Number of segment. If SEGMENT - NUMBER=1, a new logical record is started. If SEGMENT - NUMBER > 1, the segment is a continuation.

| Field Name | Type/Length |
|------------|-------------|
| STATS | (A3) |

Generate or update ISPF statistical data, see also [Write ISPF Statistics](#). If STATS=YES,

- ISPF statistical data is generated if
 - the member is new, that is WRITE-FILE is creating the member,
 - or
 - the member already existed, but no ISPF statistical data has yet been generated for example when the member was created by a previous version of WRITE-FILE.

- ISPF statistic data already generated for an old member is updated.

If `STATS=DEL`, ISPF statistical data of an existing PDS member is deleted. `STATS=DEL` is valid only for PDS members and these will be always be accessed as if `UPDATE-IN-PLACE` is set to `YES`.

The default is `STATS=NO`. In this case `WRITE-FILE` behaves like in a previous version where the function did not provide writing of ISPF statistics. No ISPF statistics is generated or updated.

| Field Name | Type/Length |
|-------------|-------------|
| TAPE-UNLOAD | (A3) |

Unload TAPE during CLOSE:

YES: Unload tape.

NO: Tape is rewound and positioned to beginning of tape (default).

| Field Name | Type/Length |
|----------------|-------------|
| UPDATE-INPLACE | (A3) |

Valid only for PDS members. It is ignored for PDSE members; these will be always be accessed as if `UPDATE-IN-PLACE` was set to `NO`. Possible options:

| Option | Explanation |
|--------|----------------------------------|
| YES | Perform UPDATE-INPLACE function. |

| Field Name | Type/Length |
|------------|-------------|
| USER-DATA | (A120) |

User data for PDS member, for example, save date, size. Relevant when `FUNCTION=CLOSE`.

| Field Name | Type/Length |
|---------------|-------------|
| USER-DATA-HEX | (B120) |

User data for the member in hexadecimal format.

| Field Name | Type/Length |
|------------------|-------------|
| USER-DATA-LENGTH | (N3) |

Length of data for PDS member. Relevant when `FUNCTION=CLOSE`.

| Field Name | Type/Length |
|------------|-------------|
| VOLSER | (A6) |

Volume serial number (required if dataset is not cataloged).

WRITE-FILE Programming Notes

WRITE-FILE is an UPDATE view, i.e., data is transmitted from the Natural program (client side) to ESY (server side).

The Entire System Server view WRITE-FILE returns codes and messages that describe whether the requested operation has been executed successfully or not. The DEFINE DATA section of the Natural program should only contain the fields shown below:

```
1 WRITE-FILE VIEW OF WRITE-FILE
2 ERROR-CODE
2 ERROR-TEXT
2 SYSTEM-MESSAGE-CODE
2 SYSTEM-CODE
```

These fields in DEFINE DATA are the fields returned from the WRITE-FILE view in Entire System Server to the calling Natural program. It is not necessary to define any other fields in the DDM; accessing any fields other than those above may lead to unpredictable results.

WRITE-FILE and RELEASE Unused Space

```
PROCESS FILE-ALLOCATE using DSNAME = xxx, RLSE=YES
...
PROCESS WRITE-FILE using DSNAME = xxx, record = yy
PROCESS WRITE-FILE using DSNMAE = xxx, function=close
```

After the last PROCESS statement, unused space will be released; only one FILE-ALLOCATION and WRITE-FILE relationship with RLSE is possible at any one time.

Write ISPF Statistics

Writing PDS members in TSO / ISPF or NSPF produces statistics entries. Most common is an order of entries on who edited the member at which time:

| MEMBER | VV.MM | CREATED | MODIFIED | TIME | SIZE | INIT | TID | ID |
|---------|-------|----------|----------|-------|------|------|-----|-------|
| AFP1 | 01.05 | 19950131 | 19970403 | 16:19 | 23 | 17 | | user1 |
| ASMAOPT | 01.10 | 20190613 | 20190613 | 13:15 | 1 | 1 | | user2 |

whereas the columns are explained as follows:

| | |
|----------|--|
| VV | main version |
| MM | subversion |
| CREATED | date of creation |
| MODIFIED | date of modification |
| TIME | time of modification |
| SIZE | current record count |
| INIT | initial record count, when member was created |
| ID | ID of the user responsible for the latest change |

These statistic entries can also be written using WRITE-FILE view outside NSPF or ISPF in an application.

ISPF statistics is described in [https://www.ibm.com/support/knowledgecenter/under_z/OS version/ISPFz/OS/ISPF Messages and Codes/ Diagnostic Tools and Information/ Diagnostic information](https://www.ibm.com/support/knowledgecenter/under_z/OS_version/ISPFz/OS/ISPF_Messages_and_Codes/Diagnostic_Tools_and_Information/Diagnostic_information), for example in https://www.ibm.com/support/knowledgecenter/SSLTBW_2.1.0/com.ibm.zos.v2r1.f54mc00/isp-mc28.htm.

54 WRITE-SPOOL

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| | |
|------------------|--|
| File | 203 |
| Statement | PROCESS |
| Task | This view makes it possible to write data directly to spool queues (JES). See also WRITE-SPOOL Programming Notes at the bottom of this view description. |

Fields

| Dictionary Field Name | F/L | Mu | DE | Remarks |
|-----------------------|------|----|----|--|
| ERROR-CODE | N3 | | | |
| ERROR-TEXT | A58 | | | |
| NODE | N5 | | D | |
| NODE-NAME | A16 | | D | |
| SYSTEM-MESSAGE-CODE | A10 | | | |
| CONTROL | A1 | | D | |
| COPIES | B1 | | D | |
| DESTINATION | A127 | | D | |
| FORM | A8 | | D | |
| FUNCTION | A8 | | D | Required on last request. |
| RECORD | A253 | | D | Required. |
| RECORD-LENGTH | N3 | | D | Required. |
| CHARS | A64 | | D | |
| CLASS | A1 | | D | |
| DATA-SET-ID | A54 | | | |
| DDNAME | A8 | | | |
| FCB | A4 | | D | |
| FLASH | A4 | | D | |
| FSSDATA | A127 | | D | |
| HOLD | A8 | | D | |
| IDENTIFIER | A8 | | D | Required if multiple update views are executing in parallel. |
| JOB-ID | A8 | | D | |
| JOB-NUMBER | N7 | | D | |
| PORTNO | N5 | | D | |
| PROGRAM | A8 | | D | |
| PRTOPTNS | A16 | | D | |
| PRTQUEUE | A127 | | D | |
| REMOTE-USERID | A8 | | D | |

| Dictionary Field Name | F/L | Mu | DE | Remarks |
|-----------------------|-----|----|----|---------|
| TRC | A3 | | D | |

Relevant Error Codes

| Code | Text |
|------|--|
| 556 | File is in use. |
| 699 | GETVIS failed. |
| 870 | RECORD field not in search buffer. |
| 872 | RECFM not supported. |
| 873 | Record length missing. |
| 874 | RECORD-LENGTH > LRECL. |
| 883 | Dataset is full. |
| 889 | Permanent I/O error while writing dataset. |
| 900 | Dynamic sysout allocation failed. |
| 901 | Dynamic internal read alloc failed. |
| 991 | Unknown product. |
| 993 | Open error. |
| 998 | Member not found. |

Field Descriptions

| Field Name | Type/Length |
|------------|-------------|
| CHARS | (A64) |

Four groups of four bytes each, taken from the JCL

```
'(CHARS=(AAAA,BBBB,CCCC,DDDD))'
```

Sixteen groups of four bytes can be specified for RSO printers (maximum 64 bytes).

| Field Name | Type/Length |
|------------|-------------|
| CLASS | (A1) |

SYSOUT class. If omitted, the default class of the Entire System Server node is used.

| Field Name | Type/Length |
|------------|-------------|
| CONTROL | (A1) |

Carriage control mode:

| Value | Explanation |
|-------|-----------------------------|
| A | Position 1 is ASA code. |
| I | SPACE=I |
| M | Position 1 is machine code. |

| Field Name | Type/Length |
|------------|-------------|
| COPIES | (B1) |

Number of SYSOUT copies.

| Field Name | Type/Length |
|-------------|-------------|
| DATA-SET-ID | (A54) |

Internal dataset name of the SYSOUT file (returned after the CLOSE function).

| Field Name | Type/Length |
|------------|-------------|
| DDNAME | (A8) |

The DDNAME of the spool file.

| Field Name | Type/Length |
|-------------|-------------|
| DESTINATION | (A127) |

- Remote destination of this dataset.

May also be specified in the form 'IP:ipaddr' which may be used by a functional subsystem that can perform Internet Protocol (IP) transmission (for example, IP PrintWay).

| Field Name | Type/Length |
|------------|-------------|
| FCB | (A4) |

FCB name.

| Field Name | Type/Length |
|------------|-------------|
| FLASH | (A4) |

Flash for 3800.

| Field Name | Type/Length |
|------------|-------------|
| FORM | (A8) |

SYSOUT form.

| Field Name | Type/Length |
|------------|-------------|
| FSSDATA | (A127) |

Specifies data to pass to a functional subsystem (FSS) that controls printing (for example, IP PrintWay). See the documentation for the particular subsystem for additional information.

| Field Name | Type/Length |
|------------|-------------|
| FUNCTION | (A8) |

Function to be performed. Possible options:

| Option | Explanation |
|--------------|--|
| <i>blank</i> | Write a record. |
| CLOSE | All records have been written. Specify this on the last request. |

| Field Name | Type/Length |
|------------|-------------|
| HOLD | (A8) |

Possible values:

| Value | Explanation |
|-------|---------------------------------------|
| NO | The SYSOUT dataset is not to be held. |
| YES | The SYSOUT dataset is to be held. |

| Field Name | Type/Length |
|------------|-------------|
| IDENTIFIER | (A8) |

Required if multiple update views are executing in parallel, all requests for the same process must have the same identifier.

| Field Name | Type/Length |
|------------|-------------|
| JOB-ID | (A8) |

Returned for FUNCTION=CLOSE.

Job number in alphanumeric format.

| Field Name | Type/Length |
|------------|-------------|
| JOB-NUMBER | (N7) |

Returned for FUNCTION=CLOSE.

Job number.

| Field Name | Type/Length |
|------------|-------------|
| PORTNO | (N5) |

Specifies the TCP/IP port number at which a functional subsystem (for example, IP Printway) connects to the printer. See the documentation for the particular subsystem for additional information.

| Field Name | Type/Length |
|------------|-------------|
| PROGRAM | (A8) |

Name of writer program to process this dataset.

| Field Name | Type/Length |
|------------|-------------|
| PRTOPTNS | (A16) |

Specifies additional print options a functional subsystem can use when printing a DEST='IP:ipaddr' routed dataset. See the documentation of the particular subsystem for additional information.

| Field Name | Type/Length |
|------------|-------------|
| PRTQUEUE | (A127) |

Specifies the name of the target print queue on a remote host system. The PRTQUEUE field applies only to datasets processed by a functional subsystem that can perform Internet Protocol (IP) transmission (for example, IP Printway). See the documentation of the particular subsystem for additional information.

| Field Name | Type/Length |
|------------|-------------|
| RECORD | (A253) |

Record to be written.

| Field Name | Type/Length |
|---------------|-------------|
| RECORD-LENGTH | (N3) |

Length of record.

| Field Name | Type/Length |
|---------------|-------------|
| REMOTE-USERID | (A8) |

User ID for printing at remote destinations.

| Field Name | Type/Length |
|------------|-------------|
| TRC | (A3) |

| Value | Explanation |
|-------|---|
| YES | Byte 2 in record used for CHARS (3800) (DCB=OPTCB=J specified). |

User information.

WRITE-SPOOL Programming Notes

WRITE-SPOOL is an UPDATE view, that is, data is transmitted from the Natural program (client side) to ESY (server side).

The Entire System Server view WRITE-SPOOL returns codes and messages that describe whether the requested operation has been executed successfully or not.

Therefore, the DEFINE DATA section of the Natural program should only contain the fields shown in this example:

```
1 WRITE-SPOOL VIEW OF WRITE-SPOOL
2 ERROR-CODE
2 ERROR-TEXT
2 SYSTEM-MESSAGE-CODE
2 SYSTEM-CODE
```

These fields in DEFINE DATA statement are the fields returned from the WRITE-SPOOL view in Entire System Server to the calling Natural program.

Defining other fields in DDM is not critical, but the access to these fields may lead to unpredictable results.

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WRITE-UNIX-FILE

| | |
|------------------------------|-----|
| ▪ Fields | 350 |
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| ▪ Field Descriptions | 351 |

| | |
|------------------|--|
| File | 215 |
| Statement | PROCESS |
| Task | This view makes it possible to write data to files in the z/OS UNIX file system. |

Fields

| Dictionary Field Name | F/L | Mu | DE | Remarks |
|-----------------------|------|----|----|---|
| NODE | N5.0 | | D | D Node ID (DBID). |
| ERROR-CODE | N3.0 | | | |
| ERROR-TEXT | A58 | | | |
| NODE-NAME | A16 | | D | |
| SYSTEM-MESSAGE-CODE | A10 | | | |
| FUNCTION | A8 | | D | Function to be performed. Can be left unspecified. See below for possible values. |
| PATH | A128 | | D | Fully qualified path name of file to be written. |
| RECORD | A253 | | D | Contents of record. |
| IDENTIFIER | A8 | | D | Required for multiple parallel WRITE-UNIX-FILE calls. |
| RECORD-LENGTH | N3.0 | | D | Length of record to be written. |

Relevant Error Codes

| Code | Text |
|------|-------------------------------------|
| 530 | Access denied by Security Facility. |
| 553 | I-O error in directory. |
| 568 | File or directory not found. |
| 899 | I/O ERROR DURING WRITE |

Field Descriptions

| Field Name | Type/Length |
|------------|-------------|
| NODE | (N5.0) |

D Node ID (DBID).

| Field Name | Type/Length |
|------------|-------------|
| ERROR-CODE | (N3.0) |

Message code.

| Field Name | Type/Length |
|------------|-------------|
| ERROR-TEXT | (A58) |

Text describing error.

| Field Name | Type/Length |
|------------|-------------|
| NODE-NAME | (A16) |

Name of Node.

| Field Name | Type/Length |
|---------------------|-------------|
| SYSTEM-MESSAGE-CODE | (A10) |

| Field Name | Type/Length |
|------------|-------------|
| FUNCTION | (A8) |

Function to be performed. If not left unspecified the following functions are available:

| Option | Explanation |
|--------|--|
| CLOSE | Closes all records that have been written. |

| Field Name | Type/Length |
|------------|-------------|
| PATH | (A128) |

Fully qualified path name of file to be written.

| Field Name | Type/Length |
|------------|-------------|
| RECORD | (A253) |

Contents of record.

| Field Name | Type/Length |
|------------|-------------|
| IDENTIFIER | (A8) |

Required if multiple WRITE-FILE calls are executing in parallel. All requests for the same file must have the same identifier.

| Field Name | Type/Length |
|---------------|-------------|
| RECORD-LENGTH | (N3.0) |

Length of record to be written. Default is 132.

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Related Literature

- **z/OS ISPF BookShelf**

See http://publibz.boulder.ibm.com/cgi-bin/bookmgr_OS390/Shelves/ISPZPM90

