



# ACR/Summary<sup>®</sup> and ACR/Detail<sup>®</sup>

## User Program Guide | Release 4.5



Home Office

1240 East Diehl Road, Suite 400

Naperville, IL 60563

Tel: + 1.630.505.1800

[www.infogix.com](http://www.infogix.com)



Infogix, the Infogix checkmark logo, Infogix Assure, Infogix Insight, ACR, ACR/Detail, ACR/Summary, ACR/Workbench, ACR/Connector, ACR/Instream, ACR/File, Infogix ER, Infogix DTM, Infogix Perceive, Infogix Nexix, Information Integrity, and Information With Confidence are registered trademarks of Infogix, Inc.

Infogix Controls and The Information Integrity Experts are trademarks of Infogix, Inc.

Any other trademarks or registered trademarks are the property of their respective owners.

Copyright 2007– 2013 Infogix, Inc. All rights reserved.

Confidential—Limited distribution to authorized persons only, pursuant to the terms of Infogix, Inc. (FKA Unitech Systems, Inc.) license agreement. This document is protected as an unpublished work and constitutes a trade secret of Infogix, Inc.

This document and the information contained herein are the property of Infogix, Inc. Reproduction or use in whole or in part of this document and the information contained herein by anyone without prior written consent of Infogix, Inc. is prohibited.

Publication Number 2153

Publication Date 6/1/13

---

# Contents

<b>Chapter 1</b>	<b>Introduction</b>	
	Sample Source Code .....	5
	Requirements for User Programs for File Extraction .....	8
<b>Chapter 2</b>	<b>Delimited Field Access Program (UUPDLIM)</b>	
	Instructions .....	9
	UUPDLIM Examples .....	10
<b>Chapter 3</b>	<b>XML File Access Program (UUPXML)</b>	
	About UUPXML .....	13
	Instructions .....	14
	"Records" Passed Using /S Parameter Alone .....	14
	"Records" Passed Using Both /S and /X Parameters .....	15
<b>Chapter 4</b>	<b>EDI User Program (UUPEDIF)</b>	
	Instructions .....	17
	Examples .....	18
<b>Chapter 5</b>	<b>Variable Length Record User Program (UUPVREC)</b>	
	Instructions .....	26
	Record Layout for User Program Data .....	27
	Troubleshooting .....	29
<b>Chapter 6</b>	<b>EBCDIC Fixed Block Input Source Reader Program (UUPFBIO)</b>	
	Instructions .....	31

<b>Chapter 7</b>	<b>EBCDIC Variable Block Input Source Reader Program (UUPVBIO)</b>	
	Downloading the File .....	33
	Specifying the Program in the Graphical Interface .....	33
<b>Chapter 8</b>	<b>PDF Extraction Program (UUPPDF)</b>	
	About UUPPDF .....	35
	Instructions .....	36
	"Records" Passed Using /X Parameter .....	36
	UUPPDF Samples .....	37

---

## Introduction

ACR/Summary and ACR/Detail can directly access the following types of files: physical sequential, direct spool, VSAM KSDS, and DB2 tables. To enable extraction and reconciliation of data from other file organization types, you can use a user-written file extraction program to perform I/O at the product's request.

The remaining chapters in this manual describe the user programs that Infogix provides for file extraction. You can also create your own user programs based on the information provided in this chapter.

This chapter contains the following sections:

- "Sample Source Code" below
- "Requirements for User Programs for File Extraction" on page 8

## Sample Source Code

Source code for a sample user program for file extraction is shown beginning on the following page. This sample program is called UDSUPRG, but any valid program name can be used.

After the sample code, the requirements for such programs are provided.

# 1 ■ Introduction

## Sample Source Code

### User Program File Extraction Exit Page 1 of 2

```
IDENTIFICATION DIVISION.
PROGRAM-ID.  UDSUPRG.
*****
*
* THIS IS A SAMPLE PROGRAM FOR IMPLEMENTING USER PROGRAM I/O.  *
*
*****
ENVIRONMENT DIVISION.
CONFIGURATION SECTION.
INPUT-OUTPUT SECTION.
FILE-CONTROL.
    SELECT SAMPLE-FILE
        FILE STATUS IS WS-FILE-STATUS
        ASSIGN TO UT-S-SAMPLE.
DATA DIVISION.
FILE SECTION.
FD  SAMPLE-FILE
    BLOCK CONTAINS 0 RECORDS
    DATA RECORD IS SAMPLE-RECORD.
01  SAMPLE-RECORD          PIC X(80).
WORKING-STORAGE SECTION.
01  FILLER.
    05  FILLER              PIC X(040)
        VALUE  'WORKING-STORAGE FOR UDSUPRG STARTS HERE.'.
    05  WS-FILE-STATUS      PIC 9(002).
    05  FILLER REDEFINES WS-FILE-STATUS PIC X(002).
        88  WS-FILE-STATUS-OK          VALUE '00'.
        88  WS-FILE-STATUS-EOF        VALUE '10'.
LINKAGE SECTION.
COPY UPRGLUNI.

*** A MAXIMUM OF 32767 BYTES MAY BE RETURNED TO ACR/ACRDETAIL ***
01  UPRG-RECORD-AREA.
    05  FILLER              PIC X(32767).

EJECT
PROCEDURE DIVISION  USING UPRG-USING UPRG-RECORD-AREA.
    MOVE ZERO TO UPRG-RC.
    IF UPRG-REQ-GETNEXT
        PERFORM 2000-GETNEXT
    ELSE IF UPRG-REQ-OPEN
        PERFORM 1000-OPEN
    ELSE IF UPRG-REQ-CLOSE
        PERFORM 3000-CLOSE.

    GOBACK.

1000-OPEN.
    OPEN INPUT SAMPLE-FILE.

**** ANY STATUS OTHER THAN 00 RESULTS IN ERROR 1000 BEING
**** RETURNED TO ACR/UDSAIL.

    IF WS-FILE-STATUS-OK
        NEXT SENTENCE
    ELSE
        MOVE +1000 TO UPRG-RC.
```

*User Program File Extraction Exit Page 2 of 2*

```

2000-GETNEXT.
    READ SAMPLE-FILE.

**** ANY STATUS OTHER THAN 00 (OK) OR 10 (EOF) RESULTS IN
**** ERROR 2000 BEING RETURNED TO ACR/UDSAIL.

    IF WS-FILE-STATUS-OK
        MOVE SAMPLE-RECORD TO UPRG-RECORD-AREA
    ELSE IF WS-FILE-STATUS-EOF
        MOVE +1 TO UPRG-RC
    ELSE
        MOVE +2000 TO UPRG-RC.

3000-CLOSE.
    CLOSE SAMPLE-FILE.

```

```

*****
* USER PROGRAM FILE EXTRACTION LINKAGE AREA *
*****
*
01 UPRG-USING.
05 UPRG-MODULE          PIC X(008).
05 UPRG-RLSE           PIC X(004).
   88 UPRG-RLSE-OK     VALUE '0400'.
05 UPRG-REQ            PIC S9(04) COMP.
   88 UPRG-REQ-OPEN   VALUE +0001.
   88 UPRG-REQ-GETNEXT VALUE +0002.
   88 UPRG-REQ-CLOSE  VALUE +0003.
05 UPRG-RC             PIC S9(04) COMP.
   88 UPRG-RC-OK     VALUE +0000.
   88 UPRG-RC-EOF   VALUE +0001.
   88 UPRG-RC-ERR   VALUES +0002 THRU +9999.
05 UPRG-FILE-ID.
   10 UPRG-FILE-DDNAME PIC X(008).
   10 UPRG-FILE-QUAL  PIC X(002).
05 UPRG-DATA          PIC X(018).
05 FILLER             PIC X(160).
05 UPRG-END           PIC X(008).

```

## Requirements for User Programs for File Extraction

User programs for file extraction provide file or database I/O for ACR/Summary and ACR/Detail to use in processing file definitions. The products treat these programs like a sequential file. The user program for a particular set of file definitions will be called as follows:

1. A single “open file” call (UPRG - REQ = +1). ACR/Summary or ACR/Detail passes the file definition's file ID (UPRG- FILE-ID) and any user program data specified on the basic file information record for that file ID. The product expects the user program to set the user program return code, indicating success or failure (UPRG - RC = 0 means success; any other value means failure). If the user program indicates failure, no further calls will be made for that File ID.
2. Repetitive “get next record” calls (UPRG - REQ = +2). ACR/Summary or ACR/Detail will continue to make these calls as long as the user program returns a successful user program return code (UPRG - RC = +0). For each successful call, the product expects the user program to set UPRG-RECORD-AREA to the data it should use for extraction. When the user program has no more records to return, it should set the user program return code to “end-of-file” (UPRG - RC = +1). If the user program encounters an error for which ACR/Summary or ACR/Detail should abort processing for the file ID, it can set the user program return code to any value greater than +1 (UPRG - RC = +2 through +9999).
3. A single “close file” call (UPRG - REQ = +3). ACR/Summary or ACR/Detail ignores the user program return code from this call. The user program is expected to close the file and/or perform the appropriate termination processing.

---

**Note:** The close call will be made even if the last “get next record” returned an error condition. In other words, if the user program indicated success for the “open file” call, it will get a “close file” call.

---



---

# Delimited Field Access Program (UUPDLIM)

The Delimited Field Access User Program (UUPDLIM) can be used with ACR/Summary and ACR/Detail to extract data from files containing records of variable length fields that are separated by one or more delimiters. The program formats the data so that it can be read by the product's extraction functionality. A common example of this type of file is a Comma Separated Value (CSV) file popular on the PC.

---

**Note:** (Delimited data can also be extracted directly without a user program. See "Extracting Directly from a Delimited Data File" in the ACR/Summary and ACR/Detail User Guides.

---

UUPDLIM can read files of up to 32,767 bytes.

This chapter consists of the following sections:

- "Instructions" on page 9
- "UUPDLIM Examples" on page 10

## Instructions

To use UUPDLIM, you need to do the following:

1. Define a file ID for the variable length record file just as you would for any other ACR/Summary or ACR/Detail input file. This file ID will be the DDname you will specify in the execution JCL.
2. Define the following parameter for Basic File Information:  
File Organization: UP
3. Identify the following user program name for User Program Information:  
User Program Name: UUPDLIM
4. (Required) Specify an output parameter for the User Program Information.  
User Program Data: /S /D<delimiter info> /E  
/S—Sequence ID. An optional flag that prefixes the output record with a sequence ID consisting of an 8-digit physical record number plus the 8-digit field number.

## 2 ■ Delimited Field Access Program (UUPDLIM)

---

### *UUPDLIM Examples*

**/D**—Delimiter. A required parameter that indicates the delimiter(s) separating fields in the records. The <delimiter info> has the following structure:

```
[enclosing character][delimiter character(s)][enclosing character]
```

The enclosing character can be any character, excluding blank and delimiter characters.

For a file with fields separated by an equal sign (=) or a comma (,), the <delimiter info> could be specified as either of the following:

```
/D'=','
```

```
/D$=,$
```

For a file with fields separated by a blank or a single quote, the <delimiter info> could be specified as follows:

```
/D- '-
```

**/E**—Enclosure character. An optional parameter indicating that values between 2 of these characters are all one field and embedded delimiters should be ignored.

If you do not specify any delimiter information, UUPDLIM will return the entire physical record, as it would if File Organization of PS had been specified.

## UUPDLIM Examples

### Sample File

The following example shows the record layout for a sample file.

```
          1          2          3          4
1234567890123456789012345678901234567890
TYPE=HEADER,1,02,HELLO,03
TYPE=DETAIL,1,2,33,4,55,6
TYPE=DETAIL,123,456,789,012,345,678
```

### Example of Output Using /D"=,"

The following example shows what would be returned to ACR/Summary or ACR/Detail if the sample file shown above were used and the output parameter in UUPDLIM was set as follows:

#### Parameter Setting

```
USER PROGRAM: UUPDLIM  DATA: /D"=,"
```

**Output**

```

1234567890123456789012345678901234567890
TYPE
HEADER
1
02
HELLO
03
TYPE
DETAIL
1
2
33
4
55
6
TYPE
DETAIL
123
456
789
012
345
678
    
```

**Output using /S /D"=,"**

The following example shows what would be returned if the sample file was used with the following output parameter setting:

**Parameter Setting**

USER PROGRAM: UUPDLIM DATA: /S /D"=,"

**Output**

```

1234567890123456789012345678901234567890
0000000100000001TYPE
0000000100000002HEADER
00000001000000031
000000010000000402
0000000100000005HELLO
000000010000000603
0000000200000001TYPE
0000000200000002DETAIL
00000002000000031
00000002000000042
000000020000000533
00000002000000064
000000020000000755
00000002000000086
0000000300000001TYPE
0000000300000002DETAIL
0000000300000003123
0000000300000004456
0000000300000005789
    
```

## 2 ■ Delimited Field Access Program (UUPDLIM)

---

### *UUPDLIM Examples*

```
0000000300000006012  
0000000300000007345  
0000000300000008678
```

---

## XML File Access Program (UUPXML)

The XML File Access User Program (UUPXML) can be used with ACR/Summary and ACR/Detail to extract data from XML files. The program formats the XML so that it can be read by the ACR/Summary or ACR/Detail extraction functionality, similar to how UUPDLIM processes delimited files.

This chapter consists of the following sections:

- “About UUPXML” on page 13
- “Instructions” on page 14
- ““Records” Passed Using /S Parameter Alone” on page 14
- ““Records” Passed Using Both /S and /X Parameters” on page 15

### About UUPXML

UUPXML can read files of up to 32,767 bytes.

For each record (line) in the XML file that is parsed, individual "records" will be passed to the ACR/Summary or ACR/Detail extraction process. Each "record" will be a tag name, attribute name, attribute value, tag value, or comment and each is passed on a separate line.

End tags and the initial "?XML version" tag will be not be passed to ACR/Summary or ACR/Detail.

For example, suppose your XML line looks like this:

```
<myTag myAttr="myAValue">myRealValue</myTag>
```

(For now, we will assume that no parameters have been specified. The /S and /X parameters will be explained below.)

The "records" for this sample line would be passed to ACR/Summary or ACR/Detail in the same sequence as they appear in the input line, as follows:

TNmyTag	(tag name)
ANmyAttr	(attribute name)
AVmyAValue	(attribute value)
TVmyRealValue	(tag value)

### 3 ■ XML File Access Program (UUPXML)

---

#### *Instructions*

## Instructions

To use UUPXML, do the following:

1. Define a file ID for the XML file just as you would for any other ACR/Summary or ACR/Detail input file. This file ID will be the DDname you will specify in the execution JCL.
2. Define the following parameter for Basic File Information:  
File Organization: **UP**
3. Identify the following user program name in the user program information:  
User Program Name: **UUPXML**
4. Optionally specify the /S parameter, the /X parameter, or both in the program data parameter field in the user program information. The following entries are valid:
  - Program Data Parameter: **/S**
  - Program Data Parameter: **/X**
  - Program Data Parameter: **/S /X**

## "Records" Passed Using /S Parameter Alone

If you use the /S parameter alone, three sequence numbers will be passed to the file, as follows:

- Columns 1-8 will show the number of root tags in the file, which is also the number of XML documents found. If the file contains only one XML document, this number will be 00000001. If the file contains multiple XML documents or if XML files are concatenated, this number will be 00000001 for the first document, 00000002 for the second, and so on.
- Columns 9-16 will show a count of the indents you would see if the file were viewed in a browser. This is the depth of the tag. Each tag name will increment this number. Each end tag will decrement this number.
- Columns 17-24 will show a record sequence. This number will be incremented for each item processed at this tag depth.

## Sample "Records" Using /S Parameter Alone

If your XML line is the same as in the previous example:

```
<myTag myAttr="myAValue">myRealValue</myTag>
```

...the 4 records would look like this:

000000010000000100000001TNmyTag	(tag name record)
000000010000000100000002ANmyAttr	(attribute name record)
000000010000000100000003AVmyAValue	(attribute value record)
000000010000000100000004TVmyRealValue	(tag value record)

## "Records" Passed Using Both /S and /X Parameters

If you use both the /S and /X parameters, in addition to being passed to ACR/Summary or ACR/Detail extraction, each parsed item is displayed in the product sysout as a "record." The record will include sequence numbers, the type of data, and the data itself.

If you use both parameters, it will be easier to write the rules because you can refer to the display or to a printout of the display.

---

**Note:** For the IBM i, the parsed item is included in the job log, which is created as a spool file in an OUTQ and can be printed at the end of the job.

---

## Sample "Records" Using both /S and /X parameters

Suppose your XML file looks like this:

```
<?xml version="1.0" encoding="UTF-8" ?>
- <infogixdata>
- <rpt type="FREEFORM" version="4.0"
- <ji>
  <prod>ACRD</prod>
  <job>BASIC</job>
  <step>JOB</step>
  <qual > </qual>
  <pid />
  <sdte>20071113</sdte>
  <sdme>114822</sdme>
  <cyc>00000008</cyc>
  <run />
  <tz />
  <fmt22>N</fmt22>
  </ji>
  <record>this is the whole report, just a test</record>
- </rpt>
</infogixdata>
```

### 3 ■ XML File Access Program (UUPXML)

---

#### *"Records" Passed Using Both /S and /X Parameters*

The displayed "records" will look like this:

```
0000000100000000100000001TNinfogixdata
0000000100000000200000001TNrpt
0000000100000000200000002ANtype
0000000100000000200000003AVFREEFORM
0000000100000000200000004ANversion
0000000100000000200000005AV4.0
0000000100000000200000006TV
0000000100000000300000001TNji
0000000100000000400000001TNprod
0000000100000000400000002TVACRD
0000000100000000400000003TNjob
0000000100000000400000004TVBASIC
0000000100000000400000005TNstep
0000000100000000400000006TVJOB
0000000100000000400000007TNqual
0000000100000000400000008TV
0000000100000000400000009TNpid
0000000100000000400000010TNsdte
0000000100000000400000011TV20071113
0000000100000000400000012TNsdme
0000000100000000400000013TV114822
0000000100000000400000014TNcyc
0000000100000000400000015TV00000008
0000000100000000400000016TNrun
0000000100000000400000017TNtz
0000000100000000400000018TNfmt22
0000000100000000400000019TVN
0000000100000000300000001TNrecord
0000000100000000300000002TVThis is the whole report, just a test
```



---

## EDI User Program (UUPEDIF)

The EDI User Program (UUPEDIF) can be used with ACR/Summary and ACR/Detail to extract data from electronic data interchange (EDI) files in (X12 format).

This chapter consists of the following sections:

- “Instructions” on page 17
- “Examples” on page 18

### Instructions

To use UUPEDIF, you need to do the following:

1. Define a file ID for the variable length record file just as you would for any other ACR/Summary or ACR/Detail input file. This file ID will be the DDname you will specify in the execution JCL.
2. Define the following parameter for Basic File Information:  
File Organization: UP
3. Identify the user program name for User Program Information:  
User Program Name: UUPEDIF
4. (Optional) Specify an output parameter for the User Program Information:  
User Program Data: /B /G or /S  
/B—Places the state of the current batch in column 1 of the output record. Additional characters in the record are moved one character to the right.  
A batch is a sequence of data beginning with an ISA group and ending with an IEA group. A batch can have the following states:
  - B**—At the beginning of a batch
  - I**—In a batch
  - E**—At the end of a batch/G—Places the state of the current EDI group in front of the output record.

## 4 ■ EDI User Program (UUPEDIF)

---

### Examples

A group is the sequence of fields beginning with a 3-character identifier, and ending with the end-of-group delimiter. The state will be shown in column 1 if /G is used without /B. The state will be shown in column 2 if used with /B, regardless of the order in which the parameters are specified. A group can have the following states:

**B**—At the beginning of a group

**I**—In a group

**E**—At the end of a group

/N—Processes an EDI file where a new group starts on a new line.

/S—Places a group sequence ID at the beginning of each output record, but after any “state” flags. The group sequence ID is 8 characters long, consisting of the 3-character group ID and the 5-digit sequence number of the delimited field within that sequence ID.

UUPEDIF can identify ISA segment records that are irregular in either of the following ways:

- They do not begin on card column 1.
- They are not preceded by an end of segment delimiter (ESD).

## Examples

### Sample File

UUPEDIF returns a separate "record" for each delimited field in the EDI file. The following example shows an abbreviated, native EDI file.

```
ISA*00*                *00*                *01*INFOGIX                *01*INFOGIX
*930922*195
0*U*00200*000000091*0*T*>|GS*IN*INFOGIX                *INFOGIX
*930922*1950*91*X*003010|S
T*810*2085|IEA*1*000000091|
```

### Example of Results with No Output Parameters Set

The following example shows what would be returned to ACR/Summary or ACR/Detail by the sample input file if UUPEDIF were run with no output parameters set:

```

          1         2         3         4
1234567890123456789012345678901234567890
-----
ISA
00

00

01
INFOGIX
01
INFOGIXT
930922
1950
U
00200
000000091
0
T
>
GS
IN
INFOGIX
INFOGIX
930922
1950
91
X
003010
ST
810
2085
IEA
1
000000091

```

---

**Note:** An element that has no data, but is contained within delimiters, will be shown as blank, but will be accounted for.

---

## 4 ■ EDI User Program (UUPEDIF)

---

### Examples

#### Example of Results with the /S Output Parameter

The following example shows what would be returned to ACR/Summary or ACR/Detail by the sample input file if UUPEDIF were run with the /S output parameter:

```

           1           2           3           4
1234567890123456789012345678901234567890
-----
ISA00000ISA
ISA0000100
ISA00002
ISA0000300
ISA00004
ISA0000501
ISA00006INFOGIX
ISA0000701
ISA00008INFOGIXT
ISA00009930922
ISA000101950
ISA00011U
ISA0001200200
ISA00013000000091
ISA000140
ISA00015T
ISA00016>
GS 00000GS
GS 00001IN
GS 00002INFOGIX
GS 0000INFOGIX
GS 00004930922
GS 000051950
GS 0000691
GS 00007X
GS 00008003010
ST 00000ST
ST 00001810
ST 000022085
IEA00000IEA
IEA000011
IEA00002000000091
```

### Example of Results with the /B Output Parameter

The following example shows what would be returned to ACR/Summary or ACR/Detail by the sample input file if UUPEDIF were run with the /B output parameter:

```

          1           2           3           4
1234567890123456789012345678901234567890
-----
BISA
I00
I
I00
I
I01
IINFOGIX
I01
IINFOGIXT
I930922
I1950
IU
I00200
I000000091
I0
IT
I>
IGS
IIN
IINFOGIX
IINFOGIX
I930922
I1950
I91
IX
I003010
IST
I810
I2085
IEEA
I1
E000000091

```

## 4 ■ EDI User Program (UUPEDIF)

---

### Examples

#### Example of Results with the /G Output Parameter

The following example shows what would be returned to ACR/Summary or ACR/Detail by the sample input file if UUPEDIF were run with the /G output parameter:

```

          1          2          3          4
1234567890123456789012345678901234567890
-----
BISA
I00
I
I00
I
I01
IINFOGIX
I01
IINFOGIXT
I930922
I1950
IU
I00200
I000000091
I0
IT
E>
BGS
IIN
IINFOGIX
IINFOGIX
I930922
I1950
I91
IX
E003010
BST
I810
E2085
BIEA
I1
E000000091
```

### Example of Results with the /B, /G, and /S Output Parameters

The following example shows what would be returned to ACR/Summary or ACR/Detail by the sample input file if UUPEDIF were run with the /B, /G, and /S output parameters:

```

          1          2          3          4
1234567890123456789012345678901234567890
-----
BBISA00000ISA
IIISA0000100
IIISA00002
IIISA0000300
IIISA00004
IIISA0000501
IIISA00006INFOGIX
IIISA0000701
IIISA00008INFOGIXT
IIISA00009930922
IIISA000101950
IIISA00011U
IIISA0001200200
IIISA00013000000091
IIISA000140
IIISA00015T
IEISA00016>
IBGS 00000GS
IIGS 00001IN
IIGS 00002INFOGIX
IIGS 00003INFOGIX
IIGS 00004930922
IIGS 000051950
IIGS 0000691
IIGS 00007X
IEGS 00008003010
IBST 00000ST
IIST 00001810
IEST 000022085
IBIEA00000IEA
IIIEA000011
EEIEA00002000000091

```

## 4 ■ EDI User Program (UUPEDIF)

---

### *Examples*



---

## Variable Length Record User Program (UUPVREC)

The Variable Length Record User Program (UUPVREC) can be used with ACR/Summary and ACR/Detail to extract data from variable length records consisting of a fixed “header” area and a variable number of “line” areas.

For example, a health insurance claim form consists of header information, such as names and addresses, and multiple occurrences of services performed.

For each occurrence of line data in the physical record, UUPVREC returns to ACR/Summary or ACR/Detail a record consisting of the header portion of the record plus a single occurrence of the line data.

The advantages of this program include the following:

- UUPVREC allows ACR/Summary or ACR/Detail to read each occurrence of "line" information as a separate logical record, making it much easier to apply controls.
- Variable length records that exceed the 10,000 character maximum that ACR/Summary or ACR/Detail extraction can directly access become accessible.

This chapter consists of the following sections:

- “Instructions” on page 26
- “Record Layout for User Program Data” on page 27
- “Troubleshooting” on page 29

## 5 ■ Variable Length Record User Program (UUPVREC)

---

### *Instructions*

## Instructions

To use UUPVREC with ACR/Summary or ACR/Detail, you need to do the following:

1. Determine the characteristics of the input file.  
The following information is necessary for using UUPVREC:
  - Starting position of the first occurrence of the variable line area.
  - Length of each occurrence of the variable line area.
  - The position, length, and field format of the field within the fixed header that indicates how many occurrences of variable data there are for a given record. All positions and lengths should be based on the record layout without consideration for the Record Descriptor Word (length) data.  
For example, if positions 1-4 are length information, 5-104 are the header information, and 105-xxxx are the variable lines, then you would indicate to UUPVREC that the variable lines start in position 101.
2. Define a File ID for the variable length record file just as you would for any other ACR/Summary or ACR/Detail input file. This File ID will be the DDname you will specify in the execution JCL.
3. Define the following parameter for Basic File Information:  
File Organization: UP
4. Identify the following user program name for User Program Information:  
User Program Name: UUPVREC
5. Specify User Program Data for the User Program Information. See “Record Layout for User Program Data” on page 27
6. If you receive #UDX033E: USER PROGRAM OPEN ERROR, see “Troubleshooting” on page 29.

## Record Layout for User Program Data

### Record Layout Table

The layout for the user program data is as follows:

Pos	Length	Format	Description	Values
1-4	4	Numeric	Starting position of first variable occurrence	
5-8	4	Numeric	Length of one variable occurrence	
9-12	4	Numeric	Starting position of Number of Occurrences field	
13-14	2	Numeric	Length of Number of Occurrences field	
15	1	Numeric	Format of Number of Occurrences field	1,3,4, or 5 <sup>1</sup>
16	1	Character	Place physical record number in front of data <sup>2</sup>	Y or blank
17	1	Character	Place varying occurrence number in front of record data <sup>2</sup>	Y or blank
The footnote is explained in the following section.				

## 5 ■ Variable Length Record User Program (UUPVREC)

### Record Layout for User Program Data

---

#### Notes to the Record Layout

<sup>1</sup>Values for Format Number of Occurrences (position 15) are as follows:

1	Display Numeric	(PIC9(nn))
3	Packed	(PIC S9(nn) COMP-3)
4	Signed Numeric	(PIC S9(nn))
5	Binary	(PIC S9(nn) COMP)

<sup>2</sup>Values for the Place Physical Record Number in Front of Data field (position 16) and Place Varying Occurrence Number in Front of Record Date (Position 17) are as follows:

If both the Physical Record Number and Occurrence Number output options are blank, the records are returned with the header area beginning in position 1, followed immediately by the varying occurrence area.

If only the Physical Record Number option is Y, the physical record number is output in the first eight positions (Display Numeric) of the record area, followed immediately by the actual record information (starting in position 9).

If only the Number of Occurrences option is Y, the occurrence number is output in the first eight positions (Display Numeric) of the record area, followed immediately by the actual record information (starting in position 9).

If both the Physical Record Number and the Occurrence Number options are Y, the physical record number is placed in the first eight positions of the record area; the occurrence number is placed in positions 9-16; the actual record information follows immediately, beginning in position 17.

## Troubleshooting

When UUPVREC processes the open request from ACR/Summary or ACR/Detail, it applies edits again the user program data. If errors are detected, a return code value is set to notify ACR/Summary or ACR/Detail. ACR/Summary or ACR/Detail reports the return code via the following message:

```
#UDXo33E: USER PROGRAM OPEN ERROR (RC=nnnn)
(PROGRAM=UUPVREC)
```

where *nnnn* is one of the following:

Return Code	Reason
1001	The starting position of the first variable occurrence was not numeric (positions 1-4).
1002	The length of one variable occurrence was not numeric (positions 5-8).
1003	The position of the Number of Occurrences field was not numeric (positions 9-12).
1004	The length of the Number of Occurrences field was not numeric (positions 13-14).
1005	The format of the Number of Occurrences field was not numeric (position 15).
1010	The starting position of the first variable occurrence was zero.
1011	The length of one variable occurrence was zero.
1012	The position of the Number of Occurrences field was zero.
1013	The length of the Number of Occurrences field was zero.
1014	The format of the Number of Occurrences field contained an invalid value (only 1, 3, 4, and 5 are valid).
1015	The length of an output "record" from UUPVREC would exceed the maximum of 10,000 supported by ACR/Summary or ACR/Detail. The results of the following formula cannot exceed 10,000: the starting position of the first variable occurrence + the length of a variable occurrence -1 (+8 if the option of returning physical record number is set) (+8 if the option of returning varying occurrence number is set).

## 5 ■ Variable Length Record User Program (UUPVREC)

---

### *Troubleshooting*

---

## EBCDIC Fixed Block Input Source Reader Program (UUPFBIO)

This program can be used with ACR/Summary and ACR/Detail to make mainframe EBCDIC fixed block input files accessible to ACR/Summary and ACR/Detail on UNIX, Linux, and Windows.

### Instructions

To use the program, specify the following information in the graphical interface for ACR/Summary or ACR/Detail:

1. From Input Source View, select File Description to open the File Description dialog box.
2. Enter @EBC in the first 4 characters of the **File Description** field.
3. Select File Organization to open the File Organization dialog box and complete the fields as follows:

**File Organization/Type:** User Program Accessed File.

**Program Data:** The record length in 5-digit format.

**Program Name:** UUPFBIO.

## 6 ■ EBCDIC Fixed Block Input Source Reader Program (UUPFBIO)

---

### *Instructions*



---

## EBCDIC Variable Block Input Source Reader Program (UUPVBIO)

This program can be used with ACR/Summary and ACR/Detail to make mainframe EBCDIC variable block input files accessible to ACR/Summary and ACR/Detail on Windows, UNIX, and Linux.

This chapter consists of the following sections:

- "Downloading the File" below
- "Specifying the Program in the Graphical Interface" below

### Downloading the File

Download the file in binary format, but select CR/LE to retain the end of line markers.

For example, if you use RUMBA for your mainframe emulator, use the following download settings:

1. On the Copy From PC to Host dialog, for **Data Type**, select No translation.
2. Select CR/LE to retain the carriage returns. (Do not select To ASCII).

### Specifying the Program in the Graphical Interface

To use the downloaded program, specify the following information in ACR/Summary or ACR/Detail Client or ACR/Workbench:

1. From Input Source View, select File Description to open the File Description dialog box.
2. Enter @EBC in the first 4 characters of the **File Description** field.
3. Select File Organization to open the File Organization dialog box and complete the fields as follows:
  - File Organization/Type:** User Program Accessed File.
  - Program Name:** UUPVBIO.

## 7 ■ EBCDIC Variable Block Input Source Reader Program (UUPVBIO)

---

*Specifying the Program in the Graphical Interface*

---

## PDF Extraction Program (UUPPDF)

The PDF Extraction User Program (UUPPDF) can be used with ACR/Summary and ACR/Detail to extract data from PDF files. The program formats the PDF so that it can be read by ACR/Summary or ACR/Detail on Windows.

This chapter consists of the following sections:

- “About UUPPDF” on page 35
- “Instructions” on page 36
- ““Records” Passed Using /X Parameter” on page 36
- “UUPPDF Samples” on page 37

### About UUPPDF

The content in a PDF file is usually compressed and the file cannot be saved as a text file. This user program enables a user to extract text from the file and to use this text for further processing.

UUPPDF processes the stream objects in a PDF file. Contents and components outside of the stream objects are not processed.

The process captures and writes literal characters to a PDF work file that can be read by ACR/Summary or ACR/Detail. You can specify an optional parameter to display the extracted text in the SYSOUT file, which you can then use to write the extraction rules.

This user program can read files of up to 32,767 bytes per line.

Within the same job, a PDF file can be used as an input source to the job, or as an input source to an external translation table associated with the job, but not both.

## Instructions

To use the UUPPDF program, specify the following information in the graphical interface for ACR/Summary or ACR/Detail:

1. From Input Source View, select Name to open the Name dialog box.
  - a. Specify an ID in the **File ID** field.
  - b. Browse to the PDF file.
2. Optionally, select File Description to open the File Description dialog box and specify a description in the **File Description** field.
3. Select File Organization to open the File Organization dialog box and complete the fields as follows:
  - File Organization/Type:** Select User Program Accessed File.
  - Program Name:** Specify UUPPDF.
  - Program Data:** Optionally, specify the /X parameter to send the extracted data to the SYSOUT file.

## "Records" Passed Using /X Parameter

If you use the /X parameter, the system displays each extracted PDF text line in the SYSOUT report. You can then use the mark-and-capture method to define the information to extract.

When you process the PDF file as an input source, the system will extract the information that you specified with the mark-and-capture method.

If you use the /X parameter, it will be easier to write the rules because you can specify the exact information to extract.

## UUPPDF Samples

The following samples show the compressed contents of a PDF file, the contents after decompression, and the output after processing.

### Input Stream Object

The sample below represents the contents of the PDF file as a compressed input stream object.

```

stream
xœ XÜn+7†}7ãl ãfH 3æ »E+@-dUmd ö:H ôÁ (Rl@R*©úy C{¶}G#Q ã@-3$Í93*~*•zšêl1žO~ýz Oæé*9>:»0ÊhQ5l -
†#úî{†uòI5 ,Ái:©»l '°f» }†~Ñð#-
G†šãêl~*šÍ•gzB* <i6Ju{ (šøú6;ds±d3>*yws#x° *Y^ÁcÁ-u"-z†ítò<h+G¶'š-#~ÁcE-¿6eP| 5Coižøøú !!šXxhš0nø†j~;>š2 (
!..."šHÉøáøšø4TóÁXø'!m|L|Èø$ z,NGÜi3á1úG!†Èæ ö Ö~*ámIù"Í >Q {žÝ,{Ü"ç5ú,È'ái|'øšyžiiçcVèh6}{
<møE* pNu-€Yud}<_f~çÜibf-
ÄGè-†_îpðÜ||äµ,,~¶!!*•;ôçóRl[ '3ý¶|H¶LÖim$!!*60é :¿†îñái||z*¶†Pòò² lN-Gfyú'†ioQØ,†'i v2á'FE|p-ÄÈwøni*4òd*ß-ÝÄÈ
æ'ô-k-šú¶?Á'É1 u'áú yEÈ· ùsNžol-`py`ó+=žO*ášúfð#*kèèÜ'vaè·c+èšüT; è,<† ýúU«mXáøš<-D†| Šcž'Àòø =;i'kC.G-
¶?G»K4†;-/oŮ%2yø(ôáu*¶Èi†|ç5||l Ŧ;A;hU*†... )P"6j1ç'G;2ÉP+¶PÉyfl††ó 2žó1N!!*?J†EaònúYÄ
!GEHÁÍŠ[VÉTŮQžøç#ž]ž& Bè( oç ŮGÜ/<ò/HÁcŮ"=oŮá*¶]áékp°
]`→'L^IocAW†|ŮóšjÓYÁB*çø†|zN'Xž*De1`pø)`š HACwo";ø*¶¶,†È-LW×ešŮ`0èÁšóLf;°t÷i|Ů6á ÈÜáz^¶òöG'ÁèO[¶]š*...`š-
x{šia·Tšu5ŮE`ÑB' [ž•3Ůšj Qaášó šèÁ'U*š-C@*«W'áó ;¶šófŮ,zŮfg'ÁÁf=šÈŮ"ç¶Áy5jOø(€»µ-
lšj oµ|`N °@†XQ(!!°°††)-!†, Á{JeL¶á,p-øÈNnBÁ-EK@}tv¶|Ů6èšG)š (ò×@4, H_|²Eš²,$)rXŮŮ"¶šó\šÈNŮVø÷5...2.†Mz-
(•!)hòòúç*CRð=7gè'¶,šš6...œ IWkòÈ\8A".Udš ,p, &]GdÈ"¶štÁ"/bóštPR(bóštNS,áBð=3†¶2.†M: ©*CRð=-}i' A"¶r×ç,š, &m2
dš,š, &m`É†qá|MZÝÈ'qá|MZ|È|!é|MZè(-!)hò-C@IA"† áe0¶'4|,Ů{†A'†že;e/HŮD_,†,šM° -à|Gèç#1UMA°*¶-
ýÁ< áóEKššYáBúñBš
L*šÈÍJn×†ÈçÁšéj·È|>h~°ò=fš*úš_→: ,8vq†òE- €*?èç.ý#Dp;š
endstream

```

## 8 ■ PDF Extraction Program (UUPPDF)

### UUPPDF Samples

## Output Stream Object

The sample below represents a portion of the output stream object, inflated for processing with UUPPDF.

```
/P <</MCID 0>> BDC BT
/F1 10.56 Tf
1 0 0 1 36 747 Tm
/GS7 gs
0 g
0 G
[(1A)-4(C)9(R/ )7(S )7(R4)7(OV)7(5M)7(00)7( )7( )7( )-4( )9( )7( )7(IN)7(FO)7(GI)7(X, )7(
I)7(NC)7(OR)-4(P)9(OR)7(AT)7(ED)7( )7( )7( )7(CO)7(PY)7(RI)-4(G)9(HT)7( I)7(NF)7(OG)7(IX)7(,
)7(IN)7(C.)7( 2)-4(0)9(13)] TJ
ET
BT
1 0 0 1 546.72 747 Tm
[( )] TJ
ET
EMC /P <</MCID 1>> BDC BT
1 0 0 1 36 735.12 Tm
[(0D)-4(A)9(TE)7(: )7(12)7(/0)7(9/ )7(11)7( )7( )7( )-4( )9( )7( )7( )7(
)7(BA)7(LA)7(NC)7(IN)7(G )-4(U)9(SE)7(R )7(RE)7(PO)7(RT)7( )7( )7( )7( )-4( )9( )7( )7( )7( )7(
)7( )7(PA)7(GE)7( )-4(0)9(01)] TJ
ET
BT
1 0 0 1 546.72 735.12 Tm
[( )] TJ
ET
EMC
...
/P <</MCID 50>> BDC BT
1 0 0 1 36 152.18 Tm
[( )-4( )9( )7( )7( )7( )7( )7( )7( )7( )7( )] TJ
ET
BT
1 0 0 1 162.14 152.18 Tm
[(** )7(OU)7(T )7(OF)7( B)7(AL)7(AN)7(CE)7(**)7( )-4( )9( \()7(RE)7(TU)7(RN)7( C)7(OD)7(E )7(= )7(03)-
4(3)9(3\)] TJ
ET
BT
1 0 0 1 426.94 152.18 Tm
[( )] TJ
ET
EMC
```

## Output Text

The sample below represents the output text extracted from the stream object after processing with UUPPDF.

1ACR/S R40V5M00	INFOGIX, INCORPORATED	COPYRIGHT INFOGIX, INC. 2013		
ODATE: 12/09/11	BALANCING USER REPORT	PAGE 001		
OTIME: 14.18.32	DODD-FRANK DATA BASE VERSION: 0000022/0000026			
0	5% CDO Total Retention Report			
0	ASSET TYPE	SECURITY AMOUNT	RETENTION AMOUNT	PERCENTAGE
	Auto	\$219,791.60	\$1,426.00	.65
	Commercial Paper	\$765,287.00	\$48,255.00	6.31
	SP Mortgage	\$799,300.00	\$44,000.00	5.50
	Total	\$1,784,378.60	\$93,681.00	5.25
...	**OUT OF BALANCE** (RETURN CODE = 0333)			