



This is the tutorial for the IMS™ feature of IBM's File Manager for z/OS®, one of the IBM zSeries® problem determination tools.

- **Creating templates**
 - About templates and views
 - Create or update a template

- **Browse or edit an IMS database with a template**
 - Starting the editor
 - The display formats and zoom
 - Display different segment types
 - Find, change, scope, and locate data
 - Insert, repeat, repeat all, and delete segments
 - Print from the editor
 - End, quit, save, undo and cancel



This is part three of the section that describes how to browse or edit a database using a template. It starts where part two left off. In this part, you will see how to print from the editor, and how to exit from an edit session.

The DPRINT command



```
Process  Options  Help
-----  -
FM/IMS                               Edit : IMS Database USRSCN
Command === dprint 10;pb
          CHKRID FM000004 Autosave ON SHOW SUP ON Scope DB Format TABL
          SEGA-ACCOUNT-NUMBER SEGA-CUSTOMER-PHONE-NB SEGA-CUSTOMER-N
Cmd Level Segment #2 #3 #4 +
          AN 1:10 AN 11:10 AN 21:30
          <-----> <-----> <-----1----->
1  CUSTADDR 3333333333 7233439938 JOAN SMITH
2  TOTUSE   Key=200303
3  PRMUSE   Key=20030301
3  OFFUSE   Key=20030301
4  OFFDTL   Key=00:00:00
4  OFFDTL   Key=18:32:05
2  BALDUE   Key=200303
3  BALHIST  Key=200302
3  BALHIST  Key=200303
1  CUSTADDR 4444444444 61234
2  TOTUSE   Key=
2  TOTUSE   Key=200303
3  PRMUSE   Key=20030301
F1=Help F2=Format F3=Exit F4=CRetrieve F5=RFind F6=RC F7=Up F7=Up F8=Down F9=Swap F10=Left F11=Right F12=Ca
```

Print ten segments starting at the current segment. Then browse the print data set.

Hint: Print options must be set correctly.

Enter

Before you can print from the editor, your print settings must be set up correctly, so that your print destination is an output data set. If you are not sure how to check or update your settings, review the section on your File Manager option settings.

In this example, a database has been opened in the editor. Notice that the display is set to TABL format. The command: DPRINT 10 is entered. The DPRINT command prints segments to your print destination, which you should have set up as a file. The command DPRINT 10 will print 10 segments, starting at the current segment.

The command PB is also entered. PB is "print browse", and it will browse the output print file. Enter is pressed.

Contents of print data set – result of DPRINT command



The report is in the same format (table, single, etc.) as the previous display

```

Process  Options  Help
-----
Print Browse          DNET845.FMN.LIST          Top of 82
Command ==>>>          Record AT TOP  Col 2          Scroll PAGE
                               Format CHAR
-----10-----2-----3-----4-----5-----6-----7-----8
**** Top of data ****
IBM File Manager for z/OS IMS Component
SEGA-ACCOUNT-NUMBER SEGA-CUSTOMER-PHONE-NB SEGA-CUSTOMER-NAME SEGA-C
AN 1:10             AN 11:10             AN 21:30             AN 51:
<----->          <----->          <-----1-----2-----> <-----
Segment Name: CUSTADDR Level: 1 Desc:
Concat Key: 3333333333
Record:
3333333333          7233439938          JOAN SMITH          666 MA
-----
USAGE-YEAR  USAGE-MONTH  ACCOUNT-INV-SEQ  ACCOUNT-TOTAL-USAGE  CURRENT-PERIOD-AMT-DU
AN 1:4      AN 5:2          AN 7:1          PD 8:6             PD 14:
<-->       <>             -             <-----1-->       <-----1
Segment Name: TOTUSE Level: 2 Desc:
Concat Key: 3333333333200303
Record:
F1=Help  F2=Split  F3=Exit  F4=Print  F5=RFind  F6=Purge  F7=U
F8=Down  F9=Swap   F10=Left F11=Right F12=Cancel

```



The print data set is displayed, showing the result of the DPRINT command. Notice that the output is in TABL format, and that happened because the editor was in TABL format when the DPRINT command was entered.

Also notice that the F4 key is set to PRINT. If you press F4, the contents of the print data set will be copied to SYSOUT, and from there you can route it to an actual printer.

F3 is pressed to return.

Switch to single format



```
Process  Options  Help
-----  -
FM/IMS                                     Edit : IMS Database USRSCN
Command ==>                               Scroll CSR
CHKPID FM000001 Autosave ON SHOW SUP ON Scope DB Format TABL
SEGA-ACCOUNT-NUMBER SEGA-CUSTOMER-PHONE-NB SEGA-CUSTOMER-N
Cmd Level Segment #2 #3 #4 +
AN 1:10 AN 11:10 AN 21:30
<-----> <-----> <-----1----->
fs_ 1 CUSTADDR 333333333 7233439938 JOAN SMITH
  2 TOTUSE Key=200303
  3 PRMUSE Key=20030301
  3 OFFUSE Key=20030301
  4 OFFDTL Key=00:00:00
  4 OFFDTL Key=18:32:05
  2 BALDUE Key=200303
  3 BALHIST Key=200302
  3 BALHIST Key=200303
  1 CUSTADDR 444444444 6123439966 BOB JONES
  2 TOTUSE Key=
  2 TOTUSE Key=200303
  3 PRMUSE Key=20030301
F1=Help F2=Format F3=Exit F4=CRetriev F5=RFind F6=RC F7=Up F7=Up
F7=Up F8=Down F9=Swap F10=Left F11=Right F12=Ca Enter
```

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The editor is displayed again. The display will be switched to SNGL format by typing an FS line command next to a segment. Enter.

DPRINT command issued from single format



The screenshot shows the IBM File Manager for z/OS IMS Edit screen. At the top, the title is "DPRINT command issued from single format". The main window displays the following information:

- Process: FM/IMS
- Options: Options Help
- Edit: IMS Database USRSCN
- Command: `dprint 10;pb` (circled in red)
- Scroll: CSR
- Format: SNGL (circled in blue)
- CHKID: FM000001
- Autosave: ON
- SHOW SUP: ON
- Scope: DB
- Level: 1
- Segment: CUSTADDR
- Concatenated key value: 3333333333
- Top Line is 1 of 4
- Current 01: SEGA-CUSTOMER-ACCOUNT
- Field Data
- SEGA-ACCOUNT-NUMBER K 3333333333
- SEGA-CUSTOMER-PHONE-NB 7233439938
- SEGA-CUSTOMER-NAME JOAN SMITH
- SEGA-CUSTOMER-ADDRESS 666 MAIN ST. ZT
- *** End of record ***

A callout box points to the command and says: "Print ten segments starting at the current segment. Then browse the print data set."

At the bottom, there are function key definitions: F1=Help, F2=Format, F3=Exit, F4=CRetrieve, F5=RFind, F6=RC, F7=Up, F8=Down, F9=Swap, F10=Previous, F11=Next, F12=Ca. A yellow "Enter" button is also present.

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Now the display is in SNGL format. Another DPRINT 10 command is entered, and a PB command is entered to display the print data set.

Contents of print data set – result of DPRINT command



```
Process  Options  Help
Print Browse          DNET845.FMN.LIST          Top of 143
Command ==>          Record AT          Scroll PAGE
-----10-----2-----3-----4-----
**** Top of data ****
IBM File Manager for z/OS IMS Component
Segment Name: CUSTADDR Level: 1 Desc:
Concat Key: 3333333333
Record:

Field                Data
-----
SEGA-ACCOUNT-NUMBER   K 3333333333
SEGA-CUSTOMER-PHONE-NB 7233439938
SEGA-CUSTOMER-NAME     JOAN SMITH
SEGA-CUSTOMER-ADDRESS  666 MAIN ST. ZTOWN, MA 333456

Segment Name: TOTUSE Level: 2 Desc:
Concat Key: 333333333200303
Record:
F1=Help  F2=Split  F3=Exit  F4=Print  F5=RFind  F6=Purge  F7=U
F8=Down  F9=Swap   F10=Left F11=Right F12=Cancel
```

The report is in the same format (table, single, etc) as the edit or browse display

F3

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Now the output is in SNGL format, since that was how the display was set in the editor when the DPRINT command was entered. F3 is entered to return.

The DPRINT command



- The DPRINT command prints from edit or browse
- Examples:
 - DPRINT
 - Print the current segment
 - DPRINT 20
 - Print ten segments, starting from the current segment
 - DPRINT ALL
 - Print all selected segments, starting from the beginning of the database
- Only selected segments (segments that are displayed in edit or browse) are printed
- The report will have the current display format:
 - Table, Single, Character, Hex, or Lhex

You can use a DPRINT command to print from the editor or browser. By default, DPRINT prints the current segment. DPRINT 20, for example, prints 20 segments beginning with the current segment. DPRINT ALL prints all segments, but if you have selection criteria or a SCOPE set, only the selected and in-scope segments are printed. The report will be in the same format as the current display format.

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Next, you will see how to exit from an edit session. If you have made changes to data, you may be able to choose to either save or cancel the changes.

Saving changes to data



```
Process  Options  Help
-----
FM/IMS          Edit : Database Positioning  Chkpt FM000001 taken
Command ==>          Scroll CSR

Subsystem IMSB Database USRSCN Key sequence Format TABL
View      Temporary
Cmd  SXE Level Segment Description
---  ---  ---  ---  ---
---  X   1   CUSTADDR
---  X   2   TOTUSE
---  X   3   PRMUSE
---  X   3   OFFUSE
---  X   4   OFFDTL
---  X   2   BALDUE
---  X   3   BALHIST
**** End of data ****

F1=Help      F2=Split    F3=Exit     F4=CRetriev F5=Key >=  F7=Backward
F8=Forward   F9=Swap     F10=Actions F12=Cancel
```

In IMS, database updates are committed when a checkpoint is taken, as indicated above

Checkpoint frequency is determined by editor options

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When you edit an IMS database, your changes are committed when a checkpoint is taken. There are File Manager IMS options that control how frequently the editor takes checkpoints. When you exit normally from the editor, changes are saved automatically and a checkpoint is taken, as shown by a checkpoint message.

Edit commands to control checkpoints



- Checkpoint frequencies are updated in the edit options
 - A checkpoint setting of **1** with **Autosave On** minimizes IMS locks. Since the update occurs immediately, the **Undo** and **Cancel** commands will have no updates to process.

- **Exit** or **F3** from the positioning panel
 - A checkpoint is taken automatically

- **Save** from the editor will take an immediate checkpoint
 - Edit session remains active

In your options settings, you can set the checkpoint frequency. In this option, you specify a number. As you are editing the data base, when the number of changes you have made reaches this number, a checkpoint will be taken automatically, but only if the AUTOSAVE ON setting is on. If you want to minimize data base locks, have a checkpoint frequency of one and turn autosave on.

When you exit, or press F3 from the editor, a checkpoint is taken automatically. The SAVE command will also take an immediate checkpoint.

Rolling back changes



- Roll back changes to the last checkpoint with:
 - Undo from the editor or positioning panel
 - Cancel from the positioning panel
 - In BMP mode
 - Or in DLI mode and:
 - Using an IMS log
 - Specified dynamic back out
 - If using a static PSB it must have an IO PCB

If you want to roll back changes, use either the UNDO or CANCEL command to back out changes to the most recent checkpoint. However, be very aware that undo and cancel will only roll back changes that occurred after the last checkpoint.

Autosave On



```
Process  Options  Help
-----  -
FM/IMS                               Edit : IMS Database USRSCN
Command ==> |
              CHKPID FM000001 Autosave ON  SHOW SUP ON  Scope DB  Format TABL
              SEGA-ACCOUNT-NUMBER SEGA-CUSTOMER-PHONE-NB SEGA-CUSTOMER-N
Cmd Level Segment #2 #3 #4 +
              AN 1:10 AN 11:10 AN 21:30
              <---+----> <---+----> <---+---->
              **** Top of window ****
1  CUSTADDR 0003874923 3230005504 BILL BUFFALO JR
2  TOTUSE Key=200303
3  PRMUSE Key=20030301
3  PRMUSE Key=20030302
3  PRMUSE Key=20030303
3
3
3
3
3
3
3
3
3
3
F1=Help
F7=Up
```

The Autosave setting is displayed in the editor

With **Autosave On**, a checkpoint is taken when the number of updates specified in the edit options has exceeded the Checkpoint Frequency.

With **Autosave Off**, exit the editor or use the **Save** command to take a checkpoint.

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With the Autosave On setting, a checkpoint is taken when the number of updates you have made reaches your checkpoint frequency setting. If Autosave is set to Off, you must exit the editor or use a Save command to take a checkpoint.

Change the autosave setting



Command ==> **autosave off** Enter

```
FM/IMS Edit : IMS Database USRSCN
Command ==>
CHKPID FM000001 Autosave OFF SHOW SUP OFF Scope DB Format TABL
SEGA-ACCOUNT NUMBER SEGA-CUSTOMER-PHONE-NB SEGA-CUSTOMER-N
Cmd Level Segment #2 #3 #4 +
AN 1:10 AN 11:10 AN 21:30
<---+---> <---+---> <---+---1--->
**** Top of window ****
1 CUSTADDR 0003874923 3273325564 BILL BUFFALO JR
2 TOTUSE Key=200303
3 PRMUSE 29 segments
3 OFFUSE Key=20030301
4 OFFDTL 3 segments
3 OFFUSE Key=20030302
4 OFFDTL 1 segment
3 OFFUSE Key=20030303
4 OFFDTL 2 segments
3 OFFUSE Key=20030304
4 OFFDTL 2 segments
3 OFFUSE Key=20030305

F1=Help F2=Format F3=Exit F4=CRetrieve F5=RFind F6=RChange
F7=Up F8=Down F9=Swap F10=Left F11=Right F12=Cancel
```

Autosave setting can be modified with the Autosave On/Off command, or on the edit options panel, shown on the next slide

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If needed, you can change the Autosave setting during an edit session with an Autosave On or Autosave Off command.

Navigate to options, then subsystem settings **IBM**

```

Command ==> 4
Command ==> 6
FM/IMS                               Subsystem Settings Menu
Command ==>
DLI mode settings
1 Parameters Parameters passed to the IMS region controller
2 Data sets 1 DFSVSAMP, RESLIB and IM
3 Data sets 2 RECON and ACBLIB data s
4 Options Autosave, checkpoint fr
BMP mode settings
5 Parameters Parameters passed to the IMS region controller
6 Options Autosave, checkpoint frequencies and PROCOPTs
DLI and BMP mode settings
7 Data sets 1 PSB and DBD data set names
8 Data sets 2 Template data set names
IMS Subsystem Name IMSB
F1=Help F2=Split F3=Exit F4=CRetriev F7=Backward F8=Fo
F9=Swap F10=Actions F12=Cancel

```

Select option 4 for DLI Mode, or option 6 for BMP Mode

Enter

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These settings can be updated in the DLI mode and BMP mode options settings. From the settings panels, select subsystem settings. From the subsystem settings menu, select options for either DLI or BMP mode.

Mode setting panel is the same for DLI and BMP



```
Process  Options  Help
-----
FM/IMS                                     DLI Mode Options
Command ===>

Subsystem IMSB

Options:
Enter "/" to select option
 / Autosave

Checkpoint Frequencies:
Edit . . . . . 1
Change All/Repeat All 100
Load . . . . . 100
Batch Edit . . . . . 100

PSB Processing Options:
Browse      Extract      Print      Batch Browse
 1  1. G    1  1. G    1  1. G    1  1. G
 2. GO    2. GO    2. GO    2. GO

F1=Help    F2=Split    F3=Exit    F4=CRetriev  F7=Backward  F8=Forward
F9=Swap    F10=Actions F12=Cancel
```

Autosave On will issue a save after updates. It can be used to minimize locking IMS segments. Recommended for IMS production environments.

Use **Autosave On** and a checkpoint frequency of one to minimize locking in production IMS environments.

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This example shows the DLI mode options. Autosave is on (it is selected with a slash), and the edit checkpoint frequency is one. For high-use production environments, consider turning on autosave with a checkpoint frequency of one. Although this disables the ability to roll back updates, it prevents update locks from being held during your edit session.

That is the end of this section, using browse or edit with a template.

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