

Chapter 2: Using Maps

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New Map Procedure

- Name the map
- Select options
 - Programming language
 - Terminal type
 - Map characteristics
- Enter literals
- Define fields
- Test map

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Redesign

- Same as new map procedure
- Select redesign option
- Copy/Move utilities are available
- Protected Redesign
 - Only changes that will not effect the application program are allowed.

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Other Map Options

- Display a map
- Display fields
- Build page
- Submit
- List maps

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Select a Map

- Select maps from main menu.
- Select maps from maps menu.
- Select design from map. options.
- The select a map is displayed. Enter mapset and map name.
- Mapset and map name are a maximum of 7 characters.
- F2 will list the existing mapsets and maps.

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Map Definition Options

- After a mapset and maps name is specified, the Map Definition Options screen is displayed.
- It includes:
 - Field prefix
 - Start field character
 - Change field character

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Map Design

- After the map definition options screen is displayed an almost blank screen is display. This screen allows the programmer to draw the map.
- To remove the displayed instructions, enter a EOF.

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Enter a Literal

- Use the arrow keys to position the literal
- Do not enter a literal in row 1, column 1. Only an attribute byte is permitted in that position.
- Type Literal

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Function Keys

F1: Help

F2: Dup Line

F3: Skip Field

F4: Options

F5: Hold

F6: Check

F7: Del Line

F8: Undo

F9: Add Line

F10: Action(Copy/Move)

Map Fields

- To mark a I/O field, start it with the Change Field Character (+ by default).
- For each field starting with a +, a COBOL Field Definition screen would appear.
- In the top section, the current field is highlighted with a ?

Map Fields

- The COBOL field name is the symbolic name in the map. Note: It can take a full COBOL name.
- You must specify the Field Size.
- All the other parameters can be specified.
- After all the field have been completed, a test map is displayed.

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Test Map

- Protected fields are identified with asterisks, a V at every 5th character and a number at every 10th character.
- Sample data can be entered.
- After hitting enter, the data is displayed as it would appear to the user.
- If the map is OK, press Enter and the map is saved.

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Test Map

- If the map needs to be corrected, press F4.
- This would bring you back to the Test Map display.
- The fields will be preceded with the Start Field Character(@).

Correct a Literal

- Use the *arrow* key to move the cursor to the field.
- Change the field.
- Press Enter

Correct a Field

- Press ***Tab*** to move to the field to be corrected.
- Enter a Change Field Character(+) for all fields that you want to change.
- Press Enter
- After redefining fields, press Enter.

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Creating Fields Arrays

- Fields arrays are side-by-side fields.
- In the Field Definition display, specify the following:
 - Fields Occurs: number of fields
 - Type: F for Field Array

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Creating Column Arrays

- Fields arrays are down the map.
- In the Field Definition display, specify the following:
 - Fields Occurs: number of fields
 - Type: C for Column Array

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Displaying a Map

- Enter the Main Menu and select Maps, Display a Map.
- Enter a mapset and map name.
- This option displays a map as it appears to your application.
- If input rules have been specified, BMS/GT will verify the entered data.

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Displaying Fields

- Enter the Main Menu and select Maps, Display Fields.
- Enter a Mapset and Map name.
- You will see all the fields and their associated attributes.
- This is a read only screen. Attributes cannot be changed on this screen.

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Page Build

- This combines several maps into a single map.
- The following must be specified for each map:
 - Start Row
 - Start Column
 - Map Type
 - Justification

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Page Build

- Enter the Main Menu and select Maps, Page Build.
- Enter a Mapsets and members.
- An asterisk in a mapset would accept all maps in a mapset.
- Pressing Enter would allow the map to be reviewed.

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Submit a Map

- Enter the Main Menu and select Maps, Submit.
- Enter a Mapset name.
- F2 would display all mapsets in the library.
- Member name is usually left blank.
- The job batch submissions screen permits you to enter BMS/GT and JCL parameters.
- The JCL member must coincide with the names created by your system staff.

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List Maps

- Enter the Main Menu and select Maps, List.
- The Listing of Members screen will appear.
- The flags include:
 - C,A,P,R - COBOL, Assembler, PLI, or RPG
 - E - Extended Attributes
 - H,T - -Header/Trailer
 - F,L - First/Last
 - V - Validation Rules
- F2 toggles the information displayed.

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Input Rules

- Required fields
- Fill field with data
- Format dates and numeric fields
- Perform range checks and table lookups
- Display custom error messages

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Input Rule Editor

- The editor contains the following:

LC	Line Command(editing)
Cmd	BMS/GT Command
A Field	Usually a field name
Cond	Condition(> < <> <= >= =)
B Field	Constant or field name

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Input Rule Reserved Words

- Reserved Words
 - *AID Function Key Number
 - *DATE System Date mm/dd/yy
 - *ERROR Custom Error Message
 - *TRAN Transaction Code
- There are other reserved words.

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Input Rules

```
LET CUST-ID      EQ PREV-ID
REJ AGE          GT 100

IF      AGE      GT 100
LET    *ERROR   EQ 'INVALID AGE'
ENDIF
```

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EDIT Command

- This command can change or reject data entered by the user.
- The format is:
 - Cmd - EDIT
 - A Field - Map Field
 - B Field - Edit pattern or reserved word

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EDIT Pattern

- Use the following 3 characters
 - S - Signed Number
 - V - Implied Decimal
 - 9 - Digit
- S99999v99

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EDIT Reserved Words

- *MUSTENTER
- *MUSTFILL
- *DATE:format format uses D, M, Y, / or -

EDIT	AGE	*MUSTENTER
EDIT	BRTH-DATE	*D:MM/DD/YY
EDIT	SALARY	S9(5)V99

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REJ Command

- Uses a condition to reject a field entry.
- REJ ignore fields that do not contain data.
- To perform that check, use the EDIT command.

Cmd - REJ

A Field - Map field

Cond - <> <> <= >= =

B Field - Field, constant or reserved word

EDIT ID EQ *MUSTENTER

REJ ID GT 5000

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LET Command

- Sets a field to a value.
- This command is typically used in an IF command.
- Use the EDIT after the LET to check the contents of the new value in a field.

LET *ERROR EQ 'INVALID VALUE'

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CURS Command

- Move the cursor to beginning of a field and set the intensity to high.

```
IF      AGE      GT  100
CURS    AGE
LET     *ERROR  EQ  'INVALID AGE'
ENDIF
```

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ATTRIB Command

- Allows rule to change field attributes.
- This command does not have any effect unless an error is detected.
- The condition for Attrib is always EQ.
- The B Field has 3 positional parameters.

```
REJ     AGE      GT 100
ATTRIB  AGE      EQ A,B,U
```

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First Parameter

- A Unprotected, Normal
- I Unprotected, Bright
- (Unprotected, Dark
- J Unprotected Numeric, Normal
- R Unprotected Numeric, Bright
-) Unprotected Numeric, Dark

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Second Parameter

- B Blue
- G Green
- N Neutral
- P Pink
- R Red
- T Turquoise
- Y Yellow

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Third Parameter

B Blinking
R Reverse Video
U Underline

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IF, ELSE, ENDIF Command

- Provides conditional logic.
- For every IF, an ENDIF is required.
- Nested IFs are permitted (max: 31 levels)

```
IF      TRAN-CODE   EQ  'A'  
REJ    AMT          GT  500  
ELSE  
REJ    AMT          GT  1000  
ENDIF
```

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STRIP Command

- Removes trailing characters.

```
STRIP AGE EQ ''
```

Identify Maps with Rules

- Use BMS/GT Transaction Monitor.
- The monitor indicates the specific map in your program that has input rules.
- After you add an entry to the Transaction Monitor, you must reload the monitor.
- You must also replace your program name in the PCT with GTBTHLP.

Transaction Monitor

- Enter the Main Menu and select System, Transaction Monitor.
- Select Edit Monitor
- The Monitor Name is probably MONITOR.

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Edit Transaction Monitor

- Move to a Line Command area.
- Use the I (insert) line command.
- Enter the trans code to be monitored.
- Enter *VAL undet FKey to validate data.
- The File contains the library prefix(GT by default).
- Press F3. You will be prompted to load the monitor table.

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Tables

- Entries can be character, numeric, alphanumeric or hex.
- An entry must be less than 200 bytes.
- Tables are used for lookups and to get information on a code.
- Tables can be one or two dimensional.

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Tables

- First argument is the key.
- Second argument is the object.
- One dimensional table
- Create a table with all valid input
- Code an input rule to search the table

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Two Dimensional Table

- Returns a value based on a key.
- Creates a table with the key and associated value.
- Write a rule to match the key and display the associated value.

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Designing a Table

- Select A Table
- Define data types and lengths
- Enter entries with the Table Editor

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Select a Table

- Select Table Options
- Select Select A Table
- Enter table name
- F2 will list the tables in the BMS/GT Library

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Defining Data Types

- Argument Type
 - A, C, H, N
- Argument Length
- Object Type (Required for one or two dimensional tables)
- Object Length

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Table Editor

- Used to enter data into the tables.
- You can enter in any order. The system will automatically search the table.
- Enter argument, press tab and enter object.
- F3 saves and exits.
- The Transaction Monitor is required for table processing.

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Submitting a Table

- This catalogs a table in the CICS system library.
- The table is a load module.
- From the Main Menu
 - Select Maps, Tables and Submit
- Enter the table name.
- The Job Batch Submission screen will appear.

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