To: MTB Distribution
From: Art Beattie
Date: 1979 March 4
Subject: New MRDS display tool

Introduction

As data models grow in size and complexity, it becomes increasingly more difficult to visualize the relations and the attributes in each relation. Increased data model size also results in a maintenance problem for users who reference data bases using structures within their PL1 programs. These structures must constantly be updated to represent the current configuration of the data models.

Proposed Solution

Two new commands, create_mrds_dm include (cmdmi) and create_mrds_dm_table (cmdmt), are described in detail in the attached MPM documentation.

The create_mrds_dm include command will generate an include file which can be used in a PL1 program to extract or modify information in a data base.

The create_mrds_dm_table command will generate a table displaying the relations as a row of boxes. Each box names an attribute in the relation, giving its PL/I data type with flags indicating if it is a key and/or index attribute in the relation.

Miscellaneous

These commands currently work only on a data model, not a data sub-model. The interfaces to data sub-models will change in the next release. As soon as these interfaces are ready, data sub-models can be included in these tools.
create_mrds_dm_include

Name: create_mrds_dm_include, cmdmi

This command is a MRDS data base display tool which creates an include segment suitable for use in accessing the data base from PL/I programs.

Usage

create_mrds_dm_include path {-control_args}

where:

1. path
   is the pathname of the data base. The user must have "retrieve" access to some relation of the data base. The pathname must be the first argument.

2. control_args
   can be chosen from the following:

   -order rel name1 rel name2 ... rel namei
   specifies that the structures generated for the relations whose names follow this argument are to be placed first in the output segment in the order of their names on the command line. The structures for relations not named in the ordered list are placed at the end of the output segment in the order in which their names are defined in the data model. The names following the -order control argument are separated by spaces.

   -page_length N, -pl N
   specifies the number of lines allowed between new page characters in the output segment. The value N must be in the range of 30 to 127. The default page length is 59 lines.

Notes

The output is written to a segment whose name is constructed as follows:

<entryname of data base>.incl.pl1
If the segment doesn't exist, it is created.

The output segment begins with a title block which displays: the name of the output segment, the current date and time of command execution, the name of the command and its version number, the absolute pathname of the database, the date and time of its creation, the version of the database, and the process group ID of the database author.

At the bottom of the output segment, a pl1 comment line is created containing the name of the output segment and padded with "*" characters to a total line length of 100 characters.
This command is a display tool which creates a pictorial representation of a MRDS data model. Each box names an attribute in the relation, giving its PL/I data type with flags indicating if it is a key and/or index attribute in the relation.

**Usage**

```
create_mrds_dm_table path {-control_args}
```

*where:*

1. `path` is the pathname of the data model of the data base. The user must have "retrieve" access to some relation in the data base. The pathname must be the first argument.

2. `control_args` can be chosen from the following:

   - `brief, -bf` suppresses the PL/I data type information normally displayed below the attribute name inside each box.
   - `line_length N, -1l N` specifies the maximum line length (in characters) available for the display of boxes across the page. The value N must be in the range of 64 to 136. The default line length is 136.
   - `order rel_name1 rel_name2 ... rel_namei` specifies that the displays generated for the relations whose names follow this argument are to be placed first in the output segment in the order of their names on the command line. The displays for relations not named in the ordered list are placed at the end of the output segment in the order in which their names are defined in the data model. The names following the `order` control argument are separated by spaces.
   - `page_length N, -pl N` specifies the number of lines allowed between new page characters in the output segment. The value N must be in the range of 30 to 127. The default page length is 59 lines.
Notes

The output is written to a segment whose name is constructed as follows:

<entryname of data base>.table

If the segment doesn't exist, it is created.

The output segment begins with a title block which displays: the name of the output segment, the current date and time of command execution, the name of the command and its version number, the absolute pathname of the data base, the date and time of its creation, the version of the data base, and the process group ID of the data base author.

The output continues with a legend which describes the format of a display box. The legend appears to the right or below the title block, depending upon the -line_length control argument and the width of the title block.

The display of a relation begins with its relation name, right-justified in a field long enough to contain the longest relation name in the data base. The name is followed by a row of connected boxes which describe each attribute in the relation. Box width is determined by the attribute name length and length of the attribute's PL/I data type (unless the -brief control argument is used). The display may span several rows in the output segment if the relation name field and attribute boxes are longer than the available line length. If a display which spans several rows will not fit on the current output page, then the entire display is placed on a new page.
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<tr>
<th><strong>LEGEND:</strong></th>
<th><strong>LEGEND:</strong></th>
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</thead>
<tbody>
<tr>
<td>+ = Key Attribute</td>
<td>+ = Index Attribute</td>
</tr>
</tbody>
</table>

### BEGIN tr_log table
- **created**: 07/07/79 2703,5 mst Wed
- **by**: create_mrrs_dm_table (1.2)
- **relation**
  - **Attribute**
  - **Data Type**

### Data Entry Dumps
- **tr_log**
  - **created**: 07/07/79 2703,5 mst Tue
  - **version**: 7
  - **by**: Alvarado, E. Maint. A.

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<th>topic</th>
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<td><strong>fixed bin</strong></td>
<td><strong>char(??)</strong></td>
<td><strong>char(??)</strong></td>
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<td><strong>char(???) var</strong></td>
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<td><strong>char(???) var</strong></td>
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| | dp_mail | dp_desc | dp_head | date_updated | date_checked | no_tr_answered | no_tr_info_added |
| | **char(??)** | **char(??)** | **char(??)** | **char(???) var** | **char(???) var** | **char(???) var** | **char(???) var** |

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COMMAND LINE: cmdmt tr_log -11 75

* ******************************************************
* BEGIN tr_log.table
* created: 03/09/79 2334.3 mst Fri
* by: create_mrd_s_dm_table (1.2)
* Data model >udd>sm>TR>tr_log
* created: 01/02/79 0941.6 mst Tue
* version: 3
* by: Alvarado.SysMaint.a
*
* ****************************************************** */

LEGEND:

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* = Key Attribute
I = Index Attribute

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<td>var</td>
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<td>char(35)</td>
<td>fixed_bin</td>
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</tbody>
</table>

| no_tr_info_added |
| fixed_bin |

```
BEGIN tr_log.incl\0
* created: 07/07/70 2211.0 mst Wed
* by: create_mreds_dm_include (1,2)
*
* Data model >addr=TR<tr_log
* created: 07/02/70 0641.6 mst Tue
* version: 1
* by: Alvaro.SysMain.
*
**

dcl 1 affected aligned;
  2 no character (.9) unaligned,
  2 affected_no real fixed binary (17,0) aligned
  /\ Key */
  2 area character (32) unaligned,
  /\ Key */
  2 toric character (17) unaligned:
  /\ Index */


dcl 1 bypass aligned,
  2 no character (9) unaligned,
  2 date character (35) unaligned,
  2 text character (60) varying aligned:
  /\ Key */


dcl 1 cause aligned,
  2 no character (9) unaligned,
  2 date character (35) unaligned,
  2 text character (60) varying aligned:
  /\ Key */


dcl 1 comment aligned,
  2 no character (9) unaligned,
  2 com_no real fixed binary (17,0) aligned,
  2 date character (35) unaligned,
  2 text character (60) varying aligned:
  /\ Key */


dcl 1 dev aligned,
  2 pers character (22) unaligned,
  2 proj character (9) unaligned,
  2 ar character (32) unaligned,
  2 name character (47) varying aligned,
  2 phone character (17) varying aligned:
  /\ Key, Index */
  2 address character (100) varying aligned,
  2 group character (16) unaligned,
  2 editor character (17) varying aligned,
  2 all new character (3) unaligned,
  2 dn_mail character (6) unaligned,
  2 dn_dest character (24) unaligned,
  2 dn_head character (44) unaligned,
  2 date_updated character (35) unaligned,
  2 date_checked character (35) unaligned,
  2 no_tr_answered real fixed binary (17,0) aligned,
  2 no_tr_info_added real fixed binary (17,0) aligned:
  /\ Index */


dcl 1 fix aligned,
  2 no character (9) unaligned,
  2 date character (35) unaligned,
  2 text character (60) varying aligned:
  /\ Key */

**
dcl 1 group aligned,
  2 group_character (14) unaligned,
  2 leader_character (??) unaligned,
  2 at_character (??) unaligned,
  2 unit_character (16) unaligned,
  2 date_updated_character (??) unaligned;

dcl 1 related aligned,
  2 no_character (R) unaligned;
  2 rel_no_real_fixed_binary (17,0) aligned,
  2 related_to_character (16) unaligned;

dcl 1 report aligned,
  2 no_character (R) unaligned,
  2 type_character (16) unaligned,
  2 mr_found_character (9) unaligned,
  2 mr_first_character (9) unaligned,
  2 mr_fix_character (9) unaligned,
  2 system_rep_character (22) unaligned,
  2 site_character (17) unaligned,
  2 pers_character (22) unaligned,
  2 proj_character (9) unaligned,
  2 summary_character (754) varying aligned,
  2 symptom_character (9400) varying aligned,
  2 urgency_character (16) varying aligned,
  2 holder_character (12) unaligned,
  2 status_character (16) unaligned,
  2 date_entered_character (16) unaligned,
  2 date_mod_character (17) unaligned,
  2 affected_no_real_fixed_binary (17,0) aligned,
  2 rel_no_real_fixed_binary (17,0) aligned,
  2 proj_no_real_fixed_binary (17,0) aligned,
  2 test_oth_no_real_fixed_binary (17,0) aligned,
  2 com_no_real_fixed_binary (17,0) aligned,
  2 fields hit (5) unaligned;

dcl 1 report_priv aligned,
  2 no_character (R) unaligned,
  2 hold_pers_character (??) unaligned,
  2 hold_proj_character (??) unaligned,
  2 rel_mr_fix_character (9) unaligned,
  2 priority_character (4) unaligned,
  2 date_task_list_mod_character (35) unaligned;

dcl 1 responsible aligned,
  2 area_character (??) unaligned,
  2 topic_character (??) unaligned,
  2 pers_character (??) unaligned,
  2 at_character (??) unaligned,
  2 interest_character (??) unaligned,
  2 date_updated_character (??) unaligned;

dcl 1 site aligned,
  2 site_character (32) unaligned,
  2 release_character (8) unaligned,
  2 primary_system_rep_character (22) unaligned,
  2 date_updated_character (??) unaligned,
  2 date_checked_character (??) unaligned;
1 support aligned,
2 no character (P) unaligned,
3 materials character (100) varying aligned;
*/ Key */
dcl 1 system aligned,
1 area character (T) unaligned,
2 topic character (T) unaligned,
3 group character (16) unaligned,
4 date_updated character (35) unaligned;
*/ Key */
*/ Index */
dcl 1 system_rep aligned,
1 pers character (27) unaligned,
2 proj character (16) unaligned,
3 at character (32) unaligned,
4 site character (79) unaligned,
5 name character (47) varying aligned,
6 phone character (32) varying aligned,
7 address character (100) varying aligned,
8 editor character (72) varying aligned,
9 all_new character (7) unaligned,
10 do_mail character (6) unaligned,
11 do_test character (24) unaligned,
12 dp-head character (64) unaligned,
13 date_updated character (35) unaligned,
14 data checking character (16) unaligned,
15 no_tr Entered real fixed binary (17,0) aligned,
16 no_tr info added real fixed binary (17,0) aligned;
*/ Key */
*/ Index */
dcl 1 test_case aligned,
1 no character () unaligned,
2 error character (4000) varying aligned;
*/ Key */
dcl 1 test_case aligned,
1 no character () unaligned,
2 error character (4000) varying aligned;
*/ Key */
dcl 1 test_case aligned,
1 no case character () unaligned,
2 test_oath_no real fixed binary (17,0) aligned,
3 test_oath character (168) varying aligned;
*/ Key */
dcl 1 tran aligned,
1 no character () unaligned,
2 tran_no real fixed binary (17,0) aligned,
3 date Entered character (55) unaligned,
4 date_handled character (55) unaligned,
5 action character (16) unaligned,
6 pers character (72) unaligned,
7 proj character (6) unaligned,
8 text character (4800) varying aligned,
9 emergency character (16) varying aligned,
10 status character (16) unaligned,
11 holder character (12) unaligned;
*/ Key */
dcl 1 tran_nri aligned,
1 no character () unaligned,
2 tran_no real fixed binary (17,0) aligned,
3 hold_pers character (22) unaligned,
4 hold_proj character (6) unaligned,
5 real_mr fix character (8) unaligned,
6 priority character (4) unaligned,
7 data_task_list_mod character (35) unaligned;
*/ Key */
dcl 1 unit aligned,
  2 unit character (16) unaligned; /* Key */
  2 manager character (22) unaligned,
  2 at character (32) unaligned,
  2 date_updated character (35) unaligned;

dcl 1 user aligned,
  2 pert character (22) unaligned; /* Key */
  2 npoi character (9) unaligned; /* Index */
  2 at character (32) unaligned,
  2 name character (40) varying aligned,
  2 phone character (37) varying aligned,
  2 address character (100) varying aligned,
  2 editor character (77) varying aligned,
  2 all_new character (33) unaligned,
  2 np mail character (6) unaligned,
  2 np dest character (74) unaligned,
  2 np head character (64) unaligned,
  2 date updated character (35) unaligned,
  2 date checked character (35) unaligned,
  2 no_tr_entered real fixed binary (17,0) aligned,
  2 no_tr_info_added real fixed binary (17,0) aligned;

/* END of tr_log.incl.pl */
fix aligned,
2 no character (8) unaligned,
2 date character (32) unaligned,
2 text character (6400) varying aligned;

cause aligned,
2 no character (8) unaligned,
2 date character (32) unaligned,
2 text character (6400) varying aligned;

user aligned,
2 no character (8) unaligned,
2 printer character (64) unaligned,
2 at character (32) unaligned,
2 name character (64) varying aligned,
2 phone character (32) varying aligned,
2 address character (100) varying aligned,
2 editor character (32) varying aligned,
2 all_new character (8) unaligned,
2 nn_mail character (64) unaligned,
2 nn_dest character (24) unaligned,
2 nn_head character (46) unaligned,
2 date_updated character (32) unaligned,
2 date_checked character (24) unaligned,
2 nn_tr Entered real fixed binary (17,0) aligned,
2 nn_tr_info_added real fixed binary (17,0) aligned;

test case aligned,
2 no character (8) unaligned,
2 printer character (6400) varying aligned;

affected aligned,
2 no character (8) unaligned,
2 affected_on real fixed binary (17,0) aligned,
2 area character (32) unaligned,
2 topic character (32) unaligned;

bypass aligned,
2 no character (8) unaligned,
2 date character (32) unaligned,
2 text character (6400) varying aligned;
dcl 1 comment aligned, /* Key */
  2 no character (0) unaligned,
  3 con_no real fixed binary (17,0) aligned, /* Key */
  4 date character (15) unaligned,
  5 text character (4AND) varying aligned;

dcl 1 dev aligned, /* Key */
  2 pers character (?) unaligned,
  3 orm character (5) unaligned,
  4 at character (32) unaligned, /* Key, Index */
  5 name character (67) varying aligned,
  6 phone character (13) varying aligned,
  7 address character (100) varying aligned, /* Index */
  8 group character (1A) unaligned,
  9 editor character (27) varying aligned,
 10 all_new character (72) unaligned,
 11 dn_mail character (6) unaligned,
 12 dn_fore character (7F) unaligned,
 13 dn_head character (66) unaligned,
 14 date_updated character (1E) unaligned,
 15 date_checked character (25) unaligned,
 16 no_tr_answered real fixed binary (17,0) aligned,
 17 no_tr_info_added real fixed binary (17,0) aligned;

dcl 1 group aligned, /* Key */
  2 group character (1A) unaligned,
  2 leader character (22) unaligned,
  2 at character (32) unaligned,
  2 unit character (1E) unaligned,
  2 date_updated character (15) unaligned;

dcl 1 related aligned, /* Key */
  2 no character (P) unaligned,
  3 rel_no real fixed binary (17,0) aligned, /* Key */
  4 related_to character (1A) unaligned; /* Index */
• report Messagingaligned
  • no character (8) unaligned
  • type character (16) unaligned
  • rect_defn character (9) unaligned
  • rect_first character (8) unaligned
  • rect_fix character (9) unaligned
  • site_redef character (22) unaligned
  • site_character (12) unaligned
  • users character (22) unaligned
  • summary_character (32) varying aligned
  • system_character (64) varying aligned
  • urgency_character (16) varying aligned
  • holder_character (17) unaligned
  • status_character (16) unaligned
  • date_entered_character (15) unaligned
  • date_mod_character (15) unaligned
  • affected_no_real_fixed_binary (17,0) aligned
  • rel_no_real_fixed_binary (17,0) aligned
  • tran_no_real_fixed_binary (17,0) aligned
  • test_name_no_real_fixed_binary (17,0) aligned
  • control_no_real_fixed_binary (17,0) aligned
  • fields hit (1%) unaligned

• report_messagingaligned
  • no character (8) unaligned
  • hold_pers_character (22) unaligned
  • hold_non_character (9) unaligned
  • real_not_fix_character (9) unaligned
  • priority_character (4) unaligned
  • date_task_list_end_character (15) unaligned

• responsible aligned
  • area_character (12) unaligned
  • topic_character (22) unaligned
  • users_character (22) unaligned
  • at_character (12) unaligned
  • interest_character (12) unaligned
  • date_updated_character (15) unaligned

• site aligned
  • site_character (12) unaligned
  • release_character (8) unaligned
  • primary_system_ren_character (22) unaligned
  • date_updated_character (15) unaligned
  • date_checked_character (15) unaligned

• support aligned
  • no character (8) unaligned
  • materials_character (30) varying aligned

• system aligned
  • area_character (32) unaligned
  • topic_character (32) unaligned
  • group_character (14) unaligned
  • date_updated_character (35) unaligned
decl 1 system_ren aligned.
  ? pers character (27) unaligned;
  ? renj character (8) unaligned;
  ? at character (22) unaligned;
  ? site character (27) unaligned;
  ? name character (64) varying aligned;
  ? phone character (27) varying aligned;
  ? address character (100) varying aligned;
  ? editor character (12) varying aligned;
  ? all_new character (2) unaligned;
  ? in_mail character (6) unaligned;
  ? in_test character (24) unaligned;
  ? np_head character (64) unaligned;
  ? date_updated character (15) unaligned;
  ? date_checked character (15) unaligned;
  ? tr_all Entered real fixed binary (17,0) aligned;
  ? tr_info_added real fixed binary (17,0) aligned;

decl 1 test_ path aligned.
  ? no character (8) unaligned;
  ? test_path real fixed binary (17,0) aligned;
  ? test_character (168) varying aligned;

decl 1 tran aligned.
  ? no character (8) unaligned;
  ? tran real fixed binary (17,0) aligned;
  ? date_entered character (15) unaligned;
  ? date_handed character (15) unaligned;
  ? action character (16) unaligned;
  ? pers character (72) unaligned;
  ? pro character (9) unaligned;
  ? text character (4800) varying aligned;
  ? urgency character (14) varying aligned;
  ? status character (16) unaligned;
  ? holder character (12) unaligned;

decl 1 tran_priv aligned.
  ? no character (8) unaligned;
  ? tran real fixed binary (17,0) aligned;
  ? hold_pers character (22) unaligned;
  ? hold_pro character (8) unaligned;
  ? real_mr_fix character (8) unaligned;
  ? priority character (4) unaligned;
  ? date_task_list_mod character (35) unaligned;

decl 1 unit aligned.
  ? unit character (16) unaligned;
  ? manager character (22) unaligned;
  ? at character (22) unaligned;
  ? date_updated character (15) unaligned;

/* END of tr_char.incl.pl */