

Custom Fields ... Forever

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RACF Users Groups – Fall 2010

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- Always test new profiles on a non-production system.
 - Only you can prevent IPLs.

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Opening Credits

- This presentation is brought to you by
 - The letters R, A, C, & F, and the numbers 1 & 10.
- Honorable mentions to
 - Laurie Ward, IBM
 - RACF: z/OS V1R10 Functions, RACF Custom Fields
 - John Cottrel, IBM
 - Assistance with LDAP & Custom Fields
 - Mark Nelson, IBM
 - All around good guy, purveyor of fine chocolates

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Wither Custom Data of yore?

- Ye Olde Places – useable in RACF commands

| Field | Group | User | DATASET | General Resource | Comment |
|-------------------|-------|------|---------|------------------|----------|
| Installation Data | Yes | Yes | Yes | Yes | |
| Application Data | | | | Yes | Bad Idea |
| WORKATTR fields | | Yes | | | |
| OVM fields | | Yes | | | Bad Idea |

1. Only OVM has mixed-case fields
2. No custom formatting or content checking

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Why use them?

- Move custom data into matching fields
- Coordination
 - Link RACF UserIDs to HR or other systems
- Information
 - Keep notes or history or ... on groups & users
- Compliance
 - Add descriptions for recertification
 - Automate RACF "DNA checks" for group vs. user

Custom Field Pro's & Con's

PROS

- Format & content control
- Supported by/for/...
 - RACF Commands
 - FIELD level access
 - DATABASE Unload
 - R_admin
 - LDAP
 - ICHEINTY & RACXTRT

CONS

- Only Groups & Users
 - <sigh> No resources </sigh>
- Up-to-date vendor tools
 - Check with your vendors
- "Change" vs. legacy
 - Resistance is common
- Additional DB space
 - Min 256 bytes – ain't free
- Unload "bloat"
 - 1 record per field per profile

Custom Field "Trilogy"

1. CFIELD class & CFDEF segment
 - Define the fields & properties – *not RACLISTed*
2. IRRDPI00 UPDATE – make it take effect
 - Once per LPAR, not "plexed", not RRSFABLE
3. FIELD class
 - Required for use by non System-Special users
4. LDAP schema
 - Required for use with LDAP

Custom Field Planning

- Field name
 - Unique to user or group
 - CFIELD GROUP.CSDATA.*field*
 - CFIELD USER.CSDATA.*field*
 - 1 to 8 characters
 - Upper case, A-Z, @#\$, 0-9
 - Avoid "NO" as prefix.
 - MYFIELD(value) sets value, NOMYFIELD deletes field
 - Make it meaningful to your installation

Custom Field Planning

- Formats
 - CHAR, NUM, FLAG, HEX
 - Cannot change after creation
 - Must delete and redefine field to change
 - Does not affect existing data – data can be “orphaned”
 - “Orphaned” field data
 - Deleted via NOCSDATA (kill all CSDATA)
 - Deleted via redefine field + CSDATA(*NOwhatever*)
 - Format type is part of stored CSDATA

How to ... numeric field

- Define numeric Employee ID field


```
RDEF CFIELD USER.CSDATA.EMPID UACC(NONE) OWNER...
CFDEF(TYPE(NUM) MAXLENGTH(7) MINVALUE(1000000)
MAXVALUE(9999999)
HELP('7 DIGIT EMPLOYEE ID')
LISTHEAD('EMPID - EMPLOYEE ID'))
```
- Use it later on...


```
ADDUSER JENNY NAME('JENNY JENNY') DFLTGRP(...
CSDATA( EMPID(8675309) )
LISTUSER JENNY NORACF CSDATA
```

How to ... character field

- Define character name field


```
RDEF CFIELD USER.CSDATA.LONGNAME UACC(N) OWNER...
CFDEF(TYPE(CHAR) MAXLENGTH(900) MIXED(YES)
FIRST(ALPHA) OTHER(ANY)
HELP('A REALLY LONG NAME')
LISTHEAD('LONGNAME - HAVE AT IT'))
```
- Use it later on...


```
ADDUSER LYACHT NAME('LUXURY YACHT') DFLTGRP(...
CSDATA( LONGNAME('Mr. Throat warbler Mangrove'))
```

How to ... flag field

- Define character name field


```
RDEF CFIELD GROUP.CSDATA.XAUTODEL UACC(N) OWNER...
CFDEF(TYPE(FLAG)
HELP('EXEMPT FROM AUTO DELETE')
LISTHEAD('XAUTODEL - AUTODELETE EXEMPT'))
```
- Use it later on...


```
ALTGROUP NODELETE CSDATA(XAUTODEL(YES))
```

Tools & Tweaks in CFDEF setup

- HELP
 - Provides help text for TSO command prompting
- LISTHEAD
 - Controls how the field is displayed
 - No LISTHEAD – *fieldname=value*
 - LISTHEAD – *listhead_content value*
 - Best: use LISTHEAD, same length, start with field name, end in "="

LIST Result – with LISTHEAD

```
listuser hayim noracf csdata
USER=HAYIM

CSDATA INFORMATION
-----
EMPID (EMPLOYEE ID) = 0000065251
NAME1ST (FIRST NAME - MIXED CASE) = Hayim
NAMELAST (LAST NAME - MIXED CASE) = Sokolsky
RACFGURU (USER THINKS THEY ARE COOL) = YES
```

LIST Result without LISTHEAD

```
listuser hayim noracf csdata
USER=HAYIM

CSDATA INFORMATION
-----
EMPID = 0000065251
NAME1ST = Hayim
NAMELAST = Sokolsky
RACFGURU = YES
```

LIST Result - dumb LISTHEAD

```
listuser hayim noracf csdata
USER=HAYIM

CSDATA INFORMATION
-----
THIS 0000065251
WHO Hayim
THE FAMILY THING IS: Sokolsky
LIKE TOTALLY KEWL YES
```

And in the unload ...

- Group CSDATA uses 0151, User uses 02G1
- Contains
 - Format – when last updated
 - Field name
 - Content
 - CHAR is left justified
 - NUM is right justified, 10 digit, zero padded
 - FLAG is YES or NO
 - HEX is left justified, enclosed in <>

Unload Sample

- As unloaded:

```

-----+-----1-----+-----2-----+-----3-----+-----4-----+-----5-----+-----6-----
02G1 HAYIM    NUM  EMPID                                0000065251
02G1 HAYIM    CHAR NAME1ST                             Hayim
02G1 HAYIM    CHAR NAMELAST                            Sokolsky
02G1 HAYIM    FLAG RACFGURU                             YES
    
```

Unload into DB2...

```

SELECT CAST( APPID.GPCSD_VALUE AS CHAR(3) ) AS APPLID,
       CAST( UTYPE.GPCSD_VALUE AS CHAR(1) ) AS USERTYPE,
       APPID.GPCSD_NAME AS GROUP
FROM IRR.GROUP_CSDATA_CUST AS APPID
INNER JOIN IRR.GROUP_CSDATA_CUST AS UTYPE
ON APPID.GPCSD_NAME = UTYPE.GPCSD_NAME
AND APPID.GPCSD_TYPE = 'CHAR'
AND APPID.GPCSD_KEY = 'APPLID'
AND UTYPE.GPCSD_TYPE = 'CHAR'
AND UTYPE.GPCSD_KEY = 'UTYPE'
AND UTYPE.GPCSD_VALUE = 'H'
INNER JOIN IRR.GROUP_CSDATA_CUST AS USAGE
ON APPID.GPCSD_NAME = USAGE.GPCSD_NAME
AND USAGE.GPCSD_TYPE = 'CHAR'
AND USAGE.GPCSD_KEY = 'GRPUSE'
AND USAGE.GPCSD_VALUE = 'A'
ORDER BY APPLID, GROUP
;
    
```

LDAP for Heavyweights

- LDAP (Tivoli Directory Server for z/OS...)
 - Provides a "schema" for getting RACF stuff
 - Groups, users, general resources
 - Only IBM provided stuff
 - If you want to use Custom Fields via LDAP
 - You have to add to the schema (not fun)
 - Why would you want it?
 - LDAP users – vendor products, home grown Java stuff

LDAP updating parts

- Idif file – contains update script
 - Best copied from someone else's example (hint)
 - "Idif" is just the format description
- sh file – shell script
 - Connect to LDAP via LDAP
 - Contains UserID & <gasp> Password </gasp>
 - Uses ldapmodify command

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LDAP Idif file sample

```
dn: cn=schema
changetype: modify
add: attributetypes
attributetypes: (
  uEMPIDoid NAME 'racf_csd_EMPID'
  DESC 'RACF user EMPID'
  EQUALITY caseIgnoreMatch
  SYNTAX 1.3.6.1.4.1.1466.115.121.1.26
  SINGLE-VALUE USAGE userApplications )
attributetypes: (
  uNAME1SToid NAME 'racf_csd_NAME1ST'
  DESC 'RACF user NAME1ST'
  EQUALITY caseIgnoreMatch
  SYNTAX 1.3.6.1.4.1.1466.115.121.1.26
  SINGLE-VALUE USAGE userApplications )
-
add: ibmattributetypes
ibmattributetypes: ( uEMPIDoid ACCESS-CLASS sensitive
  RACFFIELD ('USER-CSDATA-EMPID' 'num') )
ibmattributetypes: ( uNAME1SToid ACCESS-CLASS sensitive
  RACFFIELD ('USER-CSDATA-NAME1ST' 'qchar') )
-
```

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LDAP sh file sample

- Run this file as a command to update LDAP

```
ldapmodify -h 127.0.0.1 -p 389 -D \
  racfid="LDAPADM,profiletype=user,sysplex=local" \
  -w password \
  -f /u/hayim/ldap/my.add.schema.ldif
```

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LDAP list a user

- Shell script to list a user

```
ldapsearch -h 127.0.0.1 -p 389 \
  -D racfid="HAYIM,profiletype=user,sysplex=local" \
  -w password \
  -b racfid="HAYIM,profiletype=user,sysplex=local" \
  "objectclass=*"
```

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LDAP list result

- Fields list as you've described them...

```
racfid=HAYIM,profiletype=USER,sysplex=LOCAL  
racfid=HAYIM  
... lines skipped ...  
racf_csd_empid=65251  
racf_csd_name1st=Hayim
```

Questions?

- Thanks for coming!