

# Custom Fields ... Forever

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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

## 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') )
-
```

## 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
```

## 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=*"
```

## 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!