z/OS® RACF® Update 2012

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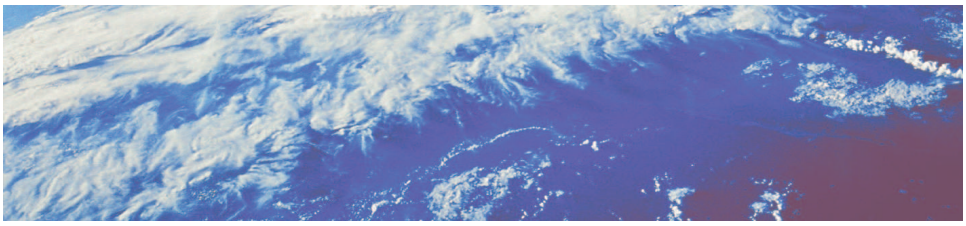

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Agenda

What's new with z/OS V1.12 RACF?

- Generic Profile Loading
- SAFTRACE filtering by user ID or general resource class
- "Ghost" Generics
- Caller's Address in RACXTRT work area
- Support for ICSF

What's new with z/OS V1.12 Digital Certificate Support?

- Support for elliptic curve cryptography (ECC)
- Longer RSA keys
- DSA key types
- Extended certificate validity
- Certificate Management protocol support
- Configurable maintenance window

Agenda ...

What's new with z/OS V1.13 RACF & PKI

- RACF Remote Sharing (RRSF) over TCP/IP
- Identity Propagation extensions
- RACF Support for Elliptic Curve Cryptography (ECC)
- Support of DB2 for PKI Services Databases
- Larger Certificate Revocation Lists (CRLs)
- Enhanced support for Web Browsers

- **z/OS V1.13 Statement of Direction (RACF)**

- Click to add an outline

z/OS V1.12

z/OS V1.12: Generic Profile Load Performance

- **RACF caches up to 4 sets of generic profile names per address space to speed up authorization checks for resources which are covered by generic profiles**.
  - Known as **GATE**s (**G**eneric **A**nchor **T**able **E**ntries).
  - One per data set HLQ or general resource class that is neither SETROPTS RACLISTed, RACLISTed using RACROUTE REQUEST=LIST,GLOBAL=YES, or SETROPTS GENLISTed.
- **If an address space uses more than 4 sets of profiles RACF discards the least recently used list of generic profiles.**
- **If a deleted HLQ or class is referenced, the list is built again, which can result in thrashing.**
- **Prior to V1.12 what could you do?**
  - Split the RACF database
  - Physically rename data sets to reduce the number of generic profiles under a single HLQ.
  - Doing an analysis of the existing generic profiles to try to reduce their numbers
  - Implementing a RACF Naming Convention Table

z/OS V1.12: Generic Profile Load Performance …

- **With V1.12, you can configure the number of sets of profiles!**
  - Specified using the RACF SET command
  - Can be set system wide or by job name
  - Minimum: 4; Maximum: 99
  - A new TRACE operand has been added to the SET command to capture data about the caching of generic profiles to assist IBM support in diagnosing problems.

- **RACF has reorganized the way that GATEs are processed:**
  - Now in 64-bit storage (instead of ELSQA)
  - No longer searched sequentially, but it a hybrid manner:
    - Binary and sequential

z/OS V1.12: Generic Profile Load Performance …

- **The SET Command:**

```
SET …
     [ GENERICANCHOR(
     {SYSTEM | JOBNAME(jobname ...) }
     {COUNT( number ) | RESET })
     ]
```

- **SYSTEM** increases the number of generic profile caches system wide, for all jobs which do not have an overriding value

- **JOBNAME** increases the number of generic profile caches for all jobs which match the value specified. “*” may be used as a “don’t care” character at the end

- Additional tracing can be activated using this SET command:

```
SET … [ TRACE ( …{ GENERICANCHOR...} )
```

z/OS V1.12: Generic Profile Load Performance …

- **The SET LIST Command shows the status:**

```
RACFR12 IRRH005I (@) RACF SUBSYSTEM INFORMATION:
 TRACE OPTIONS - IMAGE
 - NOAPPC
 - SYSTEMSSL
 - RACROUTE
   2 5 9
 - NOCALLABLE
 - NOPDCALLABLE
 - NODATABASE
 - GENERICANCHOR (or NOGENERICANCHOR)
 ...
 PASSWORD SYNCHRONIZATION IS *NOT* ALLOWED
 AUTOMATIC DIRECTION OF APPLICATION UPDATES IS *NOT* ALLOWED
 GENERICANCHOR:
    SYSTEM: COUNT(nn)
    JOBNAME: job1 COUNT(nn)
    job2* COUNT(nn)
```


z/OS V1.12: SAFTRACE Filtering

- **The SAFTRACE facility, allows an in-depth analysis of the calls made from resource managers to RACF**
  - Can trace at the RACROUTE, callable service, or ICHEINTY level
  - Cannot instruct SAFTRACE to only trace for a specific class or specific user ID
  - Trace records are written to GTF and formatted with IPCS
  - Intended for use under the direction of RACF's service team
  - SET Syntax:

```
SET TRACE( …
          ASID(asid ... |*) | NOASID | ALLASIDS
            JOBNAME(jobname ... |*) | NOJOBNAME | ALLJOBNAMES
            RACROUTE(ALL | NONE | TYPE(type ...)) | NORACROUTE
            …
          )
```

z/OS V1.12: SAFTRACE Filtering by Class

- **With V1.12, you can control SAFTRACE records for RACROUTE and database (ICHEINTY) access by class:**

```
SET TRACE(CLASS(class … |*)      |
          IFCLASS(class …|*)     |
          NEVERCLASS(class …|*)  |
          NOCLASS)
```

- **CLASS is an inclusive setting**
  - Trace records which match CLASS are recorded.
  - Trace records which do not match CLASS() *may* be recorded if they match another setting, like ASID or JOBNAME.
- **IFCLASS is an exclusive setting**
  - Trace records which do not match IFCLASS are always discarded, even if they match other trace setting, like ASID or JOBNAME.
- **NEVERCLASS** discards all trace records whose class names match, regardless of other settings

z/OS V1.12: SAFTRACE Filtering by User ID

- **With V1.12, you can also control SAFTRACE records created for RACROUTE traces by user ID:**

```
SET TRACE(USERID(userid ... |*) |
          IFUSERID(userid …|*) |
          NEVERUSERID(userid …|*) |
          NOUSERID)
```

- **USERID is an inclusive setting:**
  - Trace records which match the user id are recorded
  - Trace records which do not match USERID() *may* be recorded if they match another setting, like CLASS or JOBNAME
- **IFUSERID is an exclusive setting:**
  - Trace records which do not match IFUSERID are always discarded. even if they match other trace setting, like CLASS or JOBNAME
- **NEVERUSERID** discards all trace records whose user id names match, regardless of other settings

z/OS V1.12: “Ghost” Generics

- **RACF requires that SETROPTS GENERIC is in effect for a class before generic profiles are defined in the class**
  - If not, the profile is created as a discrete profile which contains generic characters, such as “*”, “&”, or “%”
  - Profiles such as these are:
    - Not involved in access control decisions
    - Probably not what you intended
    - Displayed by SEARCH, RLIST, and LISTDSD without the “(G)” after the name
    - Require that you turn generics and GENCMD off for the class, delete the profile, SETROPTS GENERIC the class (which also turns GENCMD on), and redefine the profile
    - Annoyances to security administrators, systems programmers, and auditors

z/OS V1.12: “Ghost” Generics …

- **With V1.12, RACF now issues a warning message when creating a profile which contains generic characters (*,% or &) in a non-generic class**

```
ICH10321I The profile name profile_name contains generic
characters, but generics are not enabled for class
class_name.  A discrete profile has been created.
```

- **The message is suppressed for profiles in the RACFVARS class, in which discrete profiles with generic characters are intentionally created**

z/OS V1.12: “Ghost” Generics …

- **The RLIST command does not show existing ghost generic profiles, unless '*' is specified for the profile name**
- **The SEARCH command does display ghost generic profiles**
- **Both commands will now label ghost generic profiles as '(UNUSABLE)' in their output**

```
RLIST FACILITY T*

  CLASS      NAME
  -----      ----
  FACILITY   T* (UNUSABLE)    <--- ghost generic indicator
  ...

 CLASS NAME
 ----- ----
 FACILITY T* (G)  <-- Standard generic indicator
 ...
```


z/OS V1.12: “Ghost” Generics …

- **NOGENERIC keyword added to the RDELETE command to facilitate the deletion of ghost generic**

```
RDELETE FACILITY T* NOGENERIC
```

- **Specifies that you want RACF to delete the discrete profile**
  - If a generic profile with the same name exists, it will be unaffected.
- **SAF callable service R_admin also updated such that the Delete function supports a GENERIC=N flag**
- **RACF panels also support NOGENERIC processing** ...

z/OS V1.12: Caller's Address in EXTRACT Area

- **Applications for which RACF gets storage on a RACROUTE REQUEST=EXTRACT are required to free this storage when the application is finished with the data**
- **Ill-behaved applications which don't free this area can cause an out-of-storage condition**
  - It's difficult to identify the offending application/request as there is no information which ties the application to the storage
- **With V1.12, the callers ASID and return address are placed in the returned work area to assist in identifying the application which created the REQUEST=EXTRACT work area**
- **Mapped in EXTWKEA in IRRPRXTW**

z/OS V1.12: RACF Enhancement for ICSF

- **New keyword on ICSF segment on CSFKEYS, GCSFKEYS, XCSFKEY, and GXCSFKEY profiles allows the specification of controls on high performance secure keys**
  - **SYMCPACFWRAP([YES|NO])** Can this High Performance Secure key be exported?
- This new keyword has been added on the ICSF operand for the commands:
  - **RALTER**
  - **RDEFINE**
  - **RLIST**

z/OS V1.12: Digital Certificate Enhancements

- **Support for elliptic curve cryptography (ECC) when creating certificates and processing certificates created using ECC**
  - Complete SHA2 support (SHA224, SHA256, SHA384, SHA512)
  - Support for RACDCERT BIND and IMPORT on ECC and DSA keys
  - Support for ECC certificates and ECC keys from RACF key rings and PKCS#11 tokens using the R_datalib callable service

- **Support for creating RSA keys up to 4096 bits**

z/OS V1.12: Digital Certificate Enhancements ...

- **Support for long issuer distinguished names**
  - 246 character limitation for the issuer's distinguished name
  - Now 1024 character DNs for RACDCERT ADD and GENCERT, R_datalib, InitACEE, and PKI Services
  - Rolled back to z/OS V1.10 and V1.11
    - RACF APAR: OA30560
    - PKI APAR: OA30952

- **Extend certificate validity date beyond its current limit**
  (PKI Services: 2038, RACF:2041)
  - Extended to 12/31/9997
  - Supported by RACDCERT ADD, IMPORT, GENCERT, REKEY, LIST, and CHECKCERT and PKI Services
  - Rolled back to V1.10 add V1.11
    - RACF APAR: OA30560 (except RACDCERT GENCERT and REKEY)
    - PKI APAR: OA30952 (requires LE PTF UK47654 (v1.10), UK47655 (v1.11))

z/OS V1.12: PKI Services Enhancements

- **Support for certificate management protocol (CMP)**
  - CMP is the protocol that is used to manage X.509 certificates within a PKI-infrastructure. The support of these CMP in accordance with RFC 4210/4211 allows greater interoperability of z/OS PKI Services:
    - Certificate Request Message, type 2 (cr)
    - Certificate Response Message, type 3 (cp)
    - PKCS10 Certificate Request Message, type 4 (p10cr)
    - Revocation Request Message, type 11 (rr)
    - Revocation Response Message, type 12 (rp)
    - Error Message, type 23 (error)
- **Support for custom X.509 certificate extensions**
- **Support for the posting of certificates and certificate revocation lists (CRLs) to LDAP at any time**
- **Configurable maintenance task execution time**

- Click to add an outline

z/OS V1.13 RACF

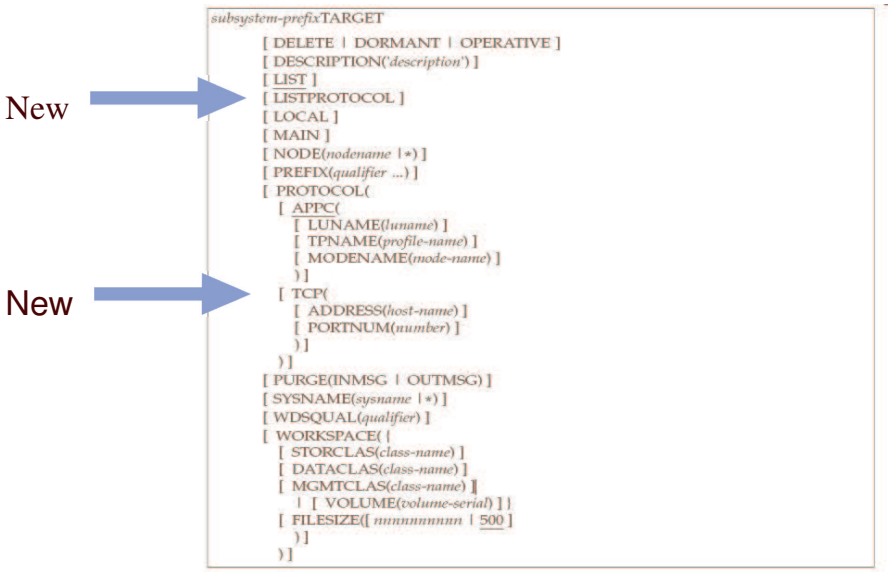
z/OS V1.13 RRSF over TCP/IP

- Problem:
  - Clients do not have the APPC and VTAM skills required to setup and maintain an RRSF network.
- Solution
  - RRSF will support TCP/IP (IPv4 only) as an alternate transport protocol.
- Benefit / Value
  - Clients already have the skills necessary to maintain a TCP/IP network.
    - Improve usability
    - Simplify network configuration
  - Stronger cipher algorithms are supported to protect the data while it crosses the network.

z/OS V1.13 RRSF...

- **RACF Remote Sharing Facility (RRSF)** over **TCP/IP …**
  - Now you can:
    - Manage your RRSF network using the same skills as the rest of your TCP/IP network.
    - Ensure that the same network security policy (IDS, IPS, etc.) is in place for your RRSF network as in place for the rest of your z/OS TCP/IP network.
    - Utilize the encryption and peer-node authentication of AT-TLS
    - Keep up with improvements in z/OS Communications Server Security.
    - Convert a node from using APPC to TCP/IP without stopping communication

z/OS V1.13 RRSF... Syntax of the TARGET command



TARGET command syntax: The LISTPROTOCOL and TCP keywords are new

z/OS V1.13 RRSF... Defining a TCP/IP node and activating it using TARGET (Simplified)

- The only difference from APPC is the PROTOCOL information:
  - Define the local node with a socket listener

```
TARGET NODE(LOCAL1) LOCAL PROTOCOL(TCP)
PREFIX(SYS1.RRSF) WORKSPACE(VOLUME(VOL001))OPERATIVE

IRRC054I (<) RACF REMOTE SHARING TCP LISTENER HAS BEEN SUCCESSFULLY
  ESTABLISHED.
```

  - Define the remote node and make it operative

```
TARGET NODE(REMOTE1) PROTOCOL(TCP(ADDRESS(remote.pok.ibm.com)))
PREFIX(SYS1.RRSF) WORKSPACE(VOLUME(VOL001)) OPERATIVE

IRRI027I (<) RACF COMMUNICATION WITH TCP NODE REMOTE1 HAS BEEN
  SUCCESSFULLY ESTABLISHED USING CIPHER ALGORITHM 35
  TLS_RSA_WITH_AES_256_CBC_SHA.
```

  - Harden your TARGET commands in the RACF parameter library

z/OS V1.13 RRSF...
TARGET LIST: summary version

- A new message line, prefixed with IRRM091I, indicates the status of each protocol listener defined to the local node.

```
- NODE1  <target list
- NODE1  IRRM009I (<) LOCAL RRSF NODE NODE1 IS IN THE OPERATIVE ACTIVE
-  STATE.
- IRRM091I (<)      - LOCAL NODE APPC LISTENER IS ACTIVE.
- IRRM091I (<)      - LOCAL NODE TCP LISTENER IS ACTIVE.
- IRRM009I (<) REMOTE RRSF NODE NODE2 IS IN THE OPERATIVE ACTIVE STATE.
```

- Status values are ACTIVE, INACTIVE, and INITIALIZING

z/OS V1.13 RRSF...
TARGET LISTPROTOCOL

- LISTPROTOCOL is a new keyword that displays the protocol in IRRM009I for remote nodes

```
- NODE1  <target listprotocol
- NODE1  IRRM009I (<) LOCAL RRSF NODE NODE1 IS IN THE OPERATIVE ACTIVE STATE.
- IRRM091I (<)      - LOCAL NODE APPC LISTENER IS ACTIVE.
- IRRM091I (<)      - LOCAL NODE TCP LISTENER IS ACTIVE.
- IRRM009I (<) REMOTE RRSF NODE NODE2 PROTOCOL TCP IS IN THE OPERATIVE ACTIVE STATE
- IRRM009I (<) REMOTE RRSF NODE NODE3 PROTOCOL TCP IS IN THE OPERATIVE ACTIVE STATE
- IRRM009I (<) REMOTE RRSF NODE NODE4 PROTOCOL APPC IS IN THE OPERATIVE ACTIVE STATE
- IRRM009I (<) REMOTE RRSF NODE NODE5 PROTOCOL TCP IS IN THE OPERATIVE ACTIVE STATE
- IRRM009I (<) REMOTE RRSF NODE NODE6 PROTOCOL APPC IS IN THE OPERATIVE ACTIVE STATE
```

- Comes in handy when displaying a mixed-protocol network

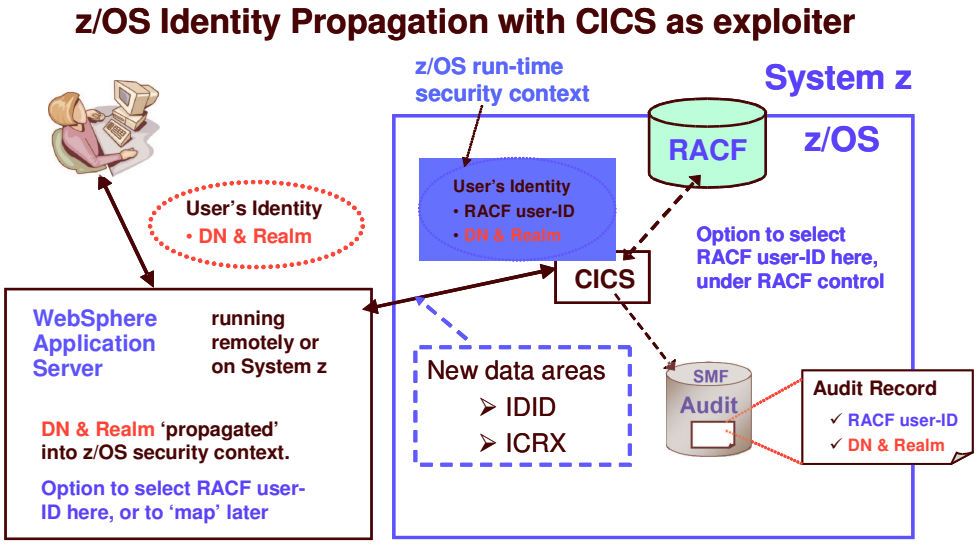
z/OS V1.13: Identity Propagation Overview

- z/OS Identity Propagation, introduced with z/OS V1R11, is extended by implementing enhancements that are required by exploiters of this function.

- With this support you can achieve end-to-end security identity consistency and auditing for key system environments such as:
  - **CICS**
  - **DB2**
  - **WAS**
  - **DataPower**

- This provides **consistent end-to-end auditing** of z/OS transactions that originate from the Internet by maintaining the user's distributed identity information, without impacting the performance characteristics of transaction providers.

z/OS V1.13: Identity Propagation... Usage & Invocation



z/OS V1.13: Identity Propagation... Overview

- The enhancements to z/OS Identity Propagation function introduced in z/OS V1R11 are the following:
  - **R_usermap callable service provides a query service**
    - Will take a Distinguished Name (DN) and a Registry/Realm Name and return the matching RACF user ID.
  - **RACMAP command provides a query function**
    - Use the UserDIDfilter Name and Registry Name to return the matching RACF user ID.
  - RACLIST function, for the IDIDMAP class, enhanced to reduce I/O when the same User's Distinguished Name is defined for more than one registry
  - **R_cacheserv callable service** updated
    - **Provides a service to validate an ICRX containing an IDID with section 1 completed.**
    - **Allows reusable ICRX objects.**
  - **Normalizes the Distributed Identity Filter Name if it is in X.500 format.**

z/OS V1.13: Identity Propagation …

- **Identity Propagation Extensions**
  - The RACMAP command now provides a query function which uses the UserDIDfilter Name and Registry Name and returns the matching RACF user ID.

Syntax:

```
RACMAP  [ID(mapped-to-userID)]
        MAP
            USERDIDFILTER(NAME('distributed-identity-username-filter'))
            REGISTRY(NAME('distributed-identity-registryname'))
            [WITHLABEL('label-name')]
        | DELMAP[(LABEL('label-name'))]
        | LISTMAP[(LABEL('label-name'))]
        | QUERY
            USERDIDFILTER(NAME('distributed-identity-username-filter'))
            REGISTRY(NAME('distributed-identity-registryname'))
```

z/OS V1.13: Identity Propagation... Usage & Invocation

- Enhancements to the following existing interfaces:
  - **R_usermap** has been enhanced with
    - A new **Function Code** (**8**) and
    - Two new parameters:
      - **Distinguished_Name**
      - **Registry Name**

```
CALL IRRSIM00 (Work_area,
               ALET, SAF_return_code,
               ALET, RACF_return_code,
               ALET, RACF_reason_code,
               ALET, Function_code,
               Option_word,
               RACF_userid,
               Certificate,
               Application_userid,
               Distinguished_Name,
               Registry_Name
              )
```


z/OS V1.13: Identity Propagation...

- Distinguished Name matching updated
  - Removes leading/trailing nulls (in addition to blanks) from the Distinguished Name (DN) and Registry Name.
  - Normalizes the Distinguished Name, if it is in X.500 format, prior to
    - Storing the filter name in the RACF DB.
    - Matching the Distinguished Name to the extracted filter name.
  - Normalization inspired by RFC 4514 (which supersedes 2253), but not fully implemented
    - Differs from rules in the field, so a utility is provided in SAMPLIB to see if you have affected filters.
  - Rules of normalization documented under the RACMAP command in the Command Language Reference

z/OS V1.13: Identity Propagation …

- Rolled back to R11 via:
  - SAF APAR **OA34259** (PTF's **UA59871** for R12 and **UA59870** for R11)
  - RACF APAR **OA34258** (PTF's **UA59873** for R12 and **UA59872** for R11)
- Available now, based on RACF function in z/OS V1.11
  - **CICS Transaction Server 4.1**
  - **DataPower 3.8.0**
  - **DB2 V10**
  - **WAS V7 via fixpack**
  - **WAS for z/OS Optimized Local Adapters (WOLA) V8**

z/OS V1.13: RACDCERT

- **RACF support for hardware-generated Elliptic Curve Cryptography (ECC) secure keys**,
  - Provides the ability to issue and use certificates with hardware-protected ECC keys**.**
  - Exploits Crypto Express 3 Cryptographic Coprocessor (CEX3C)
  - New keywords on the RACDCERT command to allow users to specify that an ECC key be stored in the ICSF PKA key data set (PKDS).
  - Corresponding hardware ECC key support for PKI Services
- **Dependencies**
  - ICSF web deliverable #10
  - Crypto Express3 Coprocessor (CEX3C) card on IBM zEnterprise server.

z/OS V1.13: RACDCERT ...

- RACDCERT command and panels
  - New sub keyword PKDS is added to indicate the key is a hardware key. For examples:
    - Generate a certificate with NIST ECC key stored in PKDS with system generated key label
      - RACDCERT GENCERT SUB(CN('Company A')) WITHLABEL('New NISTECC cert') **NISTECC(PKDS)**
    - Generate a certificate with Brainpool ECC key stored in PKDS with key label BPECCFORA
      - RACDCERT GENCERT SUB(CN('Company A')) WITHLABEL('New BPECC cert') **BPECC(PKDS(BPECCFORA))**
  - Panels and corresponding help panels for GENCERT and REKEY will be updated to handle the new types.

- R_datalib callable service
  - New private key types X'00000009' (ECC key token), will be handled by functions DataGetFirst and DataGetNext

- PKI Services IKYSETUP (A REXX script to set up authorization for PKI)
  - Update the key_type value to 6 for hardware NISTECC, 7 for hardware BPECC

z/OS V1.13: RACDCERT ...

- Naming of key types has been restructured
  - For example, key types Non-ICSF, ICSF, PCICC are all RSA keys
  - Adding more key types worsens the situation
  - There are 4 public/private key types supported in RACF
    - RSA, DSA, NIST ECC, Brainpool ECC
    - Except for DSA, you can choose to generate/store the key in ICSF PKDS protected by the Master Key (hardware-protected)
  - Both key type and the place where it is stored is used to name the key
    - For example
      - NISTECC means key is stored in software
      - NISTECC(PKDS) means key is stored in hardware
- Advantage: Key types are more intuitive and more consistent for input and output

z/OS V1.13: RACDCERT ...

INPUT KEY TYPE IN RACDCERT GENCERT	KEY TYPE DISPLAYED IN RACDCERT LIST
NISTECC	Key Type: NISTECC (no PKDS label entry)
NISTECC(PKDS)	Key Type: NISTECC PKDS Label: <system generated label>
NISTECC(PKDS(<specified label>))	Key Type: NISTECC PKDS Label: <specified label>
BPECC	Key Type: BPECC (no PKDS label entry)
BPECC(PKDS)	Key Type: BPECC PKDS Label: <system generated label>
BPECC(PKDS(<specified label>))	Key Type: BPECC PKDS Label: <specified label>
RSA = no key type specified	Key Type: RSA (no PKDS label entry)
RSA(PKDS) = PCICC	Key Type: RSA PKDS Label: <system generated label>
RSA(PKDS(<specified label>))	Key Type: RSA PKDS Label: <specified label>

- Click to add an outline

z/OS V1.13 PKI Services

z/OS V1.13 PKI Services

- Support of DB2 for PKI Services Databases
  - Both PKI Services databases can be stored in DB2
    - Object store – holds records to track active certificate requests and posting objects for certificates and CRLs
    - Issued Certificate List – permanent record for each certificate issued
  - Enables enterprise-class scale and resilient certificate management
    - Issued certificate list (ICL) can contain millions of certificates
  - Utilities provided to migrate existing PKI data from VSAM to DB2
  - DB2 9 for z/OS or later is required

z/OS V1.13 PKI Services...

- Larger Certificate Revocation Lists (CRLs)
  - When LDAP posting is enabled, 32K limit is removed by storing the CRLs in the HFS or zFS instead of in VSAM
- Enhanced support for Web Browsers
  - Previously, PKI Services only supported IE to use a smart card for the Windows Logon certificate generation
  - Now Mozilla-based browsers on both the Windows and Linux platforms can use a smart card to generate certificates

- Click to add an outline

z/OS V1.13 Statement of Direction (RACF)

z/OS V1.13 Statement of Direction (RACF) …

- **Background: Assigning UID and GIDs**
  - **RACF 2.1 (1994):** Introduced OMVS segments for USERs and GROUPs.
    - Users with an OMVS segment could now use “Open MVS” (now z/OS UNIX System Services)
  - **OS/390 R2.4 (1997**): Introduced BPX.DEFAULT.USER FACILITY class profile
    - Allows assigning UIDs and GIDs to users and groups who do not have OMVS segments;

      One UID and one GID shared by all default users

z/OS V1.13 Statement of Direction (RACF) …

- **Background: Assigning UID and GIDs…**
  - **z/OS V1.4 (2002):** Introduced AUTOUID/AUTOGID keyword on ADDUSER, ALTUSER, ADDGROUP, ALTGROUP
    - RACF could now find the next available UID or GID using the BPX.NEXT.USER profile in the FACILITY class
    - Required enabling RACF Alternate Index Mapping ("AIM") to stage 2
      - Limitation of 129 eight-character users sharing one UID
      - Required running migration utility ("IRRIRA00")
  - **z/OS V1.11 (2009):** Automatic generation of OMVS segment for USERs and groups
    - Built upon AUTOUID/AUTOGID
    - Requires AIM stage 3
    - Uses the BPX.UNIQUE.PROFILE in the FACILITY class

Statement of Direction

- From *Preview: z/OS Version 1 Release 13 and z/OS Management Facility Version 1 Release 13 are planned to offer new availability, batch programming, and usability functions*
  - IBM United States Software Announcement 211-007
  - February 15, 2011
  - z/OS V1.13 is planned to be the last release to support BPX.DEFAULT.USER. IBM recommends that you either use the BPX.UNIQUE.USER support that was introduced in z/OS V1.11, or assign unique UIDs to users who need them and assign GIDs for their groups.

Publications

- *z/OS Security Server RACF Security Administrator's Guide*
  - Section "*Automatically assigning unique IDs through UNIX services*"

z/OS V1.13 Statement of Direction (RACF) …

- **What this means to you:**

1. If you are using BPX.UNIQUE.USER then:
   - You are not using BPX.DEFAULT.USER (even if it is defined)
   - This SoD has no impact to you.

1. If you are already assigning UIDs and GIDs to all users using z/OS UNIX System Services by assigning OMVS segments to all necessary users and groups, then:
   - You must continue to assign all new users and groups OMVS segments

1. If you are already assigning UIDs and GIDS to all users using z/OS UNIX System Services by defining OMVS segments using AUTOUID/AUTOGID (which uses BPX.NEXT.USER) then:
   - You are already using AIM at a minimum of stage 2
   - You must continue to assign all new users and groups OMVS segments

1. If you are using only BPX.DEFAULT.USER
   - You must either move to the automatic generation of OMVS user and group segments or assign OMVS user and group segments to all necessary users and groups

Helpful Product Publications

- **SA22-7691 - z/OS Security Server RACF Callable Services**
- **SA22-7687 - z/OS Security Server RACF Command Language Reference**
- **GA22-7680 - z/OS Security Server RACF Data Areas**
- **SA22-7682 - z/OS Security Server RACF Macros and Interfaces**
- **SA22-7686 - z/OS Security Server RACF Messages and Codes**
- **SA22-7683 - z/OS Security Server RACF Security Administrator's Guide**
- **SA22-7681 - z/OS Security Server RACF System Programmer's Guide**
- **SA22-7692 - z/OS Security Server RACROUTE Macro Reference**
- **GA22-7689 - z/OS Security Server RACF Diagnosis Guide**
- **SA22-7693 - z/OS Cryptographic Services PKI Services Guide and Reference**
- **SC24-5901 - z/OS Cryptographic Services System Secure Sockets Layer Programming**
- **SA23-2231 - z/OS ICSF Writing PKCS #11 Applications**
- **SA22-7807 - z/OS UNIX System Services: Messages and Codes**
- **SA22-7803 - z/OS UNIX System Services Programming: Assembler Callable Services Reference**
- **SC31-8775 - z/OS Communication Server: IP Configuration Guide**
- **GC31-8782 - z/OS Communication Server: IP Diagnosis Guide**
- **SC31-8781 - z/OS Communication Server: IP System Administrator's Commands**

Helpful References

- **IBM Redbooks**
  - **z/OS V1 R8 RACF Implementation (SG24-7248)**
- **RFCs**
  - **RFC2459 - Internet X.509 Public Key Infrastructure Certificate and CRL Profile**
  - **RFC5280 - Internet X.509 Public Key Infrastructure Certificate and Certificate Revocation List (CRL) Profile**
  - **RFC4210 - Internet X.509 Public Key Infrastructure Certificate Management Protocol (CMP)**
  - **RFC4211 - Internet X.509 Public Key Infrastructure Certificate Request Message Format (CRMF)**

Questions, comments ?

- Backup Slides

RACF Access Control Module for DB2 for z/OS Version 10

DB2 V10: New DB2 System Authorities

- **DB2 for z/OS Version 10 introduces new system authorities that allow for a finer granularity of control:**
  - **SECADM:** Manage all of the security-related objects in DB2 and control access to all DB2 resources in native DB2 security
  - **System DBADM:** Manage most objects in a DB2 subsystem, without having the ability to access data or control access to data
  - **DATAACCESS:** Access data in all user tables, materialized query tables, and views and execute plans, packages functions and procedures in a DB2 subsystem.
  - **ACCESSCTRL:** Grant all authorities and privileges except, DBADM, DATAACCESS, ACCESSCTRL and privileges on security-related objects.
  - **SQLADM:** Monitor and tune DB2 without have any other privilege

DB2 V10: New DB2 System Authorities …

- **If you are using the RACF Access Control Module for DB2 (DSNXRXAC) you can grant these authorities by giving a user READ authority to these resource names in the indicated class:**

DB2 Authority	RACF General Resource Class	Resource Name
ACCESSCTRL	DSNADM	*db2-subsystem*.ACCESSCTRL
DATAACCESS	DSNADM	*db2-subsystem*.DATAACCESS
EXPLAIN	DSNADM	*db2-subsystem*.EXPLAIN
SECADM	DSNADM	*db2-subsystem*.SECADM
SQLADM	MDSNSM	*db2-subsystem*.SQLADM
System DBADM	DSNADM	*db2-subsystem*.SYSDBADM

DB2 V10: Other New Security Functions

- **Separation of Duties**
  - You can configure DB2 to prevent users with SYSADM authority from altering authorizations, thus restricting security-related work to SECADM users.
  - This is done by setting the “SEPARATE SECURITY” ZPARM to ‘YES’
  - When SEPARATE_SECURITY is set to ‘YES’, then the SYSADM and SYSCTRL authorities cannot be used to affect the security characteristics of the system. Specifically:
    - The SYSADM authority does not allow the management of security objects, such as roles and trusted contexts.
    - The SYSCTRL authority does not allow the management of roles.
    - The SYSADM and SYSCTRL authorities cannot perform grants and cannot revoke privileges granted by others.
- **Row and Column Access**
  - DB2 allows you to restrict access to the contents of a table by row by and column
- **Significant logging enhancements**