IBM

**Improve Diagnostic Capability**

**Element/Component:  RTD**

# Agenda

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- Session Objectives
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- Interactions & Dependencies
- Migration & Coexistence Considerations
- Installation
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# Trademarks

- See url http://www.ibm.com/legal/copytrade.shtml for a list of trademarks.

- Additional Trademarks:

    - None

# Session Objectives

- Discuss three enhancements to Runtime Diagnostics

    - Starts at IPL by default

    - TCB recovery loop detection

    - Critical LOGGER component messages found by Runtime Diagnostics

# Overview

- Problem Statement / Need Addressed

  - The Runtime Diagnostics address space is not active on many systems and is needed by internal processing and to be there when you need it.

  - TCB recovery loops are not detected by the TCB loop analysis in Runtime Diagnostics

  - Critical LOGGER component messages are not detected by Runtime Diagnostic's message analysis

- Solution

  - Start the Runtime Diagnostics address space on IPL by default

  - Add TCB recovery loop processing to the loop analysis

  - Add critical LOGGER component messages to the list of messages found.

- Benefit / Value

  - Improve Runtime Diagnostic's capabilities

# Usage & Invocation

- **The Runtime Diagnostics address space is now started at IPL by default**

  - PFA "too low" processing in metrics requires it.

  - Rrequired to be running on systems in the sysplex for which Runtime Diagnostics invokes itself.

  - Customers are more likely to use it if it's already running.

- COMM='START HZR,SUB=MSTR' has been added to IEACMD00.

- See migration action on future slide.

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# Usage & Invocation

- **Detect TCB Recovery Loops**

  - Included when Runtime Diagnostics is invoked via command:  f hzr,analyze

  - Included when Runtime Diagnostics is invoked by PFA for determining if a metric is too low.

  - Included when Runtime Diagnostics invokes itself on another system in the sysplex when following blockers.

  - Is part of the existing LOOP event:
    - DEBUG(LOOP) and DEBUG(NOLOOP) on command apply to recovery loops
    - Event type is LOOP for both TCB-enabled and TCB Recovery loops.
    - ERROR: line indicates which type of loop is occurring.

TCB-Enabled Loop:

```
EVENT 1: HIGH:LOOP              SYSTEM: SY1      2015/06/02 08:23:07
  ASID: 0029  JOBNAME: RTDLP      TCB: 008FE990
  STEPNAME: STEP1    PROCSTEP:          JOBID: JOB00041
  USERID: WELLIE0   JOBSTART: 2015/06/02 08:17:50
 ERROR : ADDRESS SPACE MIGHT BE IN A TCB-ENABLED LOOP.
 ACTION: USE YOUR SOFTWARE MONITORS TO INVESTIGATE THE ASID.
```

TCB Recovery Loop:

```
EVENT 1: HIGH:LOOP              SYSTEM: SY1      2015/06/02 08:23:07
  ASID: 0029  JOBNAME: RTDLP      TCB: 008FE990
  STEPNAME: STEP1    PROCSTEP:          JOBID: JOB00041
  USERID: WELLIE0   JOBSTART: 2015/06/02 08:17:50
 ERROR : ADDRESS SPACE MIGHT BE IN A TCB RECOVERY LOOP.
 ACTION: USE YOUR SOFTWARE MONITORS TO INVESTIGATE THE ASID.
```

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# Usage & Invocation

- **Critical LOGGER component messages detected by Runtime Diagnostics**

  - IXG051I, IXG055I, IXG056I, IXG057I, IXG058E, IXG114A, IXG121I

  - Event type for these messages is LOGGER.

```
EVENT 6: HIGH:LOGGER                SYSTEM: SY1       2016/11/17 12:36:57
IXG051I THE SYSTEM LOGGER ADDRESS SPACE CREATE (ASCRE) FAILED.
ERROR : SYSTEM LOGGER ADDRESS SPACE (IXGLOGR) DID NOT START.
ACTION: SEARCH THE PROBELM REPORTING DATABASES FOR A FIX. IF NO FIX,
ACTION: CONTACT IBM SUPPORT.
```

# Interactions & Dependencies

- None

# Migration & Coexistence Considerations

- IBM recommends that you allow the HZR address space to be classified into the SYSSTC service class, or into an importance 1 single period service class with a high velocity goal.

- For Runtime Diagnostics (HZR) starting on IPL by default

  - Any installation that has COM='S HZR,SUB=MSTR' in the COMMNDxx parmlib member or any system automation installation used to start and restart Runtime Diagnostics should perform following action:

    - Remove commands or logic to start and restart Runtime Diagnostics from automation or COMMNDxx.

  - Any installation that uses a renamed HZR procedure which resides in SYS1.PROCLIB to start Runtime Diagnostics must do the following:

    - Update the command 'START HZR,SUB=MSTR' in IEACMD00 with 'START HZRrenamedProc,sub=mstr,jobname=hzr'

  - There are steps in *z/OS Problem Management* that specify how to create a security policy for RTD. If your installation already has the security policy established, no action is necessary. If your installation does not have the security established, HZR will start, but you will receive the following message:

```
IRR813I NO PROFILE WAS FOUND IN THE STARTED CLASS FOR HZR WITH
JOBNAME HZR. RACF WILL USE ICHRIN03.
```

# Installation

- None

# Session Summary

- Runtime Diagnostics has improved its diagnostic capability by adding the following enhancements:

    - The Runtime Diagnostics address space starts at IPL by default.

    - TCB recovery loops are detected.

    - Critical LOGGER component messages are detected.

# Appendix

- *z/OS V2R3 Problem Management (G325-2564)*