

CA MIM™ Resource Sharing

Best Practices Guide
Release 12.0



Second Edition

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CA Technologies Product References

This document references the following CA Technologies products:

- CA MIA Tape Sharing (CA MIA)
- CA MIC Message Sharing (CA MIC)
- CA MII Data Sharing (CA MII)
- CA MIM™ Resource Sharing (CA MIM)
- CA OPS/MVS® Event Management and Automation (CA OPS/MVS)

Contact CA Technologies

Contact CA Support

For your convenience, CA Technologies provides one site where you can access the information that you need for your Home Office, Small Business, and Enterprise CA Technologies products. At <http://ca.com/support>, you can access the following resources:

- Online and telephone contact information for technical assistance and customer services
- Information about user communities and forums
- Product and documentation downloads
- CA Support policies and guidelines
- Other helpful resources appropriate for your product

Providing Feedback About Product Documentation

If you have comments or questions about CA Technologies product documentation, you can send a message to techpubs@ca.com.

To provide feedback about CA Technologies product documentation, complete our short customer survey which is available on the CA Support website at <http://ca.com/docs>.

Best Practices Guide Process

These best practices are based on customer experience reported through interviews with development, technical support, and technical services. Therefore, many of these best practices are a collaborative effort stemming from customer feedback.

To continue to build on this process, we encourage you to share common themes of product use that might benefit other users. Please [consider sharing](#) your best practices with us.

To share your best *practices*, contact us at techpubs@ca.com and preface your email subject line with "Best Practices for product name" so that we can easily identify and categorize them.

Documentation Changes

The following documentation updates have been made since the last release of this documentation:

For Release 12.0 second edition

- Added the FEATURE=HYPERSTAR

For Release 12.0

- Updated COMPATLEVEL best practice.

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Chapter 1: Introduction

The guide introduces the CA Technologies mainframe management strategy and features, and describes the best practices for installing and configuring your product.

The intended audience of this guide is systems programmers and administrators who install, maintain, deploy, and configure your product.

Chapter 2: Your Product Installation and Configuration Best Practices

This section contains the following topics:

[Implement a Proactive Preventive Maintenance Strategy](#) (see page 11)

Implement a Proactive Preventive Maintenance Strategy

CA Technologies formerly delivered product maintenance using Service Packs. We have replaced this model with [CA Recommended Service \(CA RS\) for z/OS](#), which provides more flexibility and granular application intervals. CA RS is patterned after the IBM preventive maintenance model, Recommended Service Upgrade (RSU). With CA RS, you can install preventive maintenance for most CA Technologies z/OS-based products in a consistent way on a schedule that you select (for example, monthly, quarterly, annually).

We recommend that you develop and implement a proactive preventive maintenance strategy whereby you regularly apply maintenance. You could follow the same schedule that you use to apply IBM maintenance, or you could implement a schedule for CA Technologies products only.

Business Value:

Keeping your products current with maintenance helps your team remain productive and minimize errors while safely protecting your systems. If you do not install preventive maintenance regularly, you risk encountering known problems for which we have published and tested fixes.

Our mainframe maintenance philosophy is predicated upon granting you the flexibility to maintain your sites and systems consistent with industry best practices and site-specific requirements. Our philosophy focuses on two maintenance types. Understanding each type can help you maintain your systems in the most efficient manner.

Note: This philosophy applies to the [CA Data Center Management stack products](#). For legacy products, contact CA Support for maintenance details.

Corrective Maintenance

Helps you address a specific and immediate issue. This type of maintenance is necessary after you encounter a problem. We may provide a test APAR when a new problem is uncovered, or a confirmed PTF when the problem has been resolved. Your primary goal is to return your system to the same functional state that it was before you experienced the issue. This type of maintenance is applied on an as-needed basis.

Preventive Maintenance

Lets you apply PTFs that we have created and made public. You may have experienced the issues that each PTF addresses. CA RS provides a way to identify all published maintenance that has been successfully integration-tested. This maintenance has been tested with other CA Technologies products, current z/OS releases, and IBM subsystems, such as CICS and DB2. Major CA RS service levels are published quarterly, with updates for HIPER and PE-resolving PTFs that are published monthly. After you test the CA RS level, we recommend that you accept that level before you apply a new CA RS level.

You can initiate a maintenance installation activity at any time. You can then install the current CA RS level of maintenance (recommended) or an earlier level. Additionally, you can install maintenance to support a new hardware device, software upgrade, or function using our [FIXCAT](#) method.

For all maintenance, *before* you initiate any maintenance action, obtain the current SMP/E HOLDDATA.

Important! [CA Chorus™ Software Manager \(CA CSM\)](#) - formerly known as CA Mainframe Software Manager™ (CA MSM) - is an intuitive web-based tool that can automate and simplify many CA Technologies product installation and maintenance activities. We strongly recommend that you use CA CSM to maintain your CA Technologies z/OS-based products.

More Information:

To apply preventive maintenance using CA CSM or from CA Support Online on <http://ca.com/support>, see the *Installation Guide* for your product and the CA CSM online help.

Chapter 3: Best Practices for Installation

This section contains the following topics:

[Install Using CA CSM](#) (see page 13)

[Keep Current on CA Common Services](#) (see page 14)

[Install on Test System First](#) (see page 14)

[Apply Current IBM APARS](#) (see page 14)

[Check Parmlib Syntax](#) (see page 15)

Install Using CA CSM

Use the CA Chorus Software Manager (CA CSM) to acquire, install, and maintain your product.

Business Value:

CA CSM provides a web interface, which works with ESD and standardized installation, to provide a common way to manage CA mainframe products. You can use it to download and install CA MIM.

CA CSM lets you download product and maintenance releases over the Internet directly to your system from the CA Support website. After you use CA CSM to download your product or maintenance, you use the same interface to install the downloaded software packages using SMP/E.

Additional Considerations:

After you install the product, follow the appropriate steps in the *CA MIM Installation Guide* to set it up. CA CSM can continue to help you maintain CA MIM.

More Information:

For more information about CA CSM, see the *CA Chorus Software Manager Guide*. For more information about product setup, see the *CA MIM Installation Guide*.

Keep Current on CA Common Services

Make sure you have installed the most current release of CA Common Services.

Business Value:

The latest release of CA Common Services contains the most current infrastructure updates allowing you to use newer features of CA MIM, including licensing changes, service desk integration, and product health checks. Staying on the current release and maintenance of CA Common Services helps you avoid problems encountered by others, getting you up to speed sooner and without as many problems.

More Information:

For more information on CA Common Services, see the *CA MIM Installation Guide*.

Install on Test System First

Perform your installation and initial evaluations of the product and its components on a test system. New releases of CA MIM are always compatible with previous releases, letting you run a new release on a test system while still running the older version on a production system.

Business Value:

Evaluating CA MIM in a test environment helps you detect any possible problems before you roll out the product to a production system.

Apply Current IBM APARS

Review our current list of IBM APARs that could affect CA MIM and install them as appropriate for your environment.

Business Value:

Having current IBM APARS installed can help you avoid potential problems that may affect the operation or performance of CA MIM due to changes in the z/OS operating system.

More Information:

For a list of IBM APARs that affect CA MIM, see the *Release Notes*. You can also find the most current list of IBM APARs on the CA MIM page of CA Support Online.

Check Parmlib Syntax

Before starting CA MIM components, check for parmliib statement syntax errors using the CA MIM SyntaxSCAN Utility.

Business Value:

Syntax errors in parmliib statements can cause problems at run time. The CA MIM SyntaxSCAN Utility checks CA MIM parmliib statements and commands for such errors so you can correct them before starting CA MIM.

Additional Considerations:

The CA MIM SyntaxSCAN Utility runs as a started task and interrogates various CA MIM parmliib members.

When started, the utility simulates CA MIM address space activation. Statements and commands found in the CA MIM parmliib members are parsed and checked for errors, all errors are noted, and the utility ends.

More Information:

For more information about using this utility, see the section Parmliib SyntaxSCAN Utility in the *CA MIM Programming Guide*.

Chapter 4: Best Practices for General CA MIM Configuration

This chapter describes general best practices to configure CA MIM for optimal performance.

This section contains the following topics:

[Current Release](#) (see page 17)

[COMPATLEVEL](#) (see page 18)

[FEATURE=HYPERSTAR](#) (see page 19)

[Multiple Address Spaces](#) (see page 20)

[Separate Address Spaces](#) (see page 21)

[Tuning](#) (see page 22)

[Backup Control Files](#) (see page 22)

[Control File Placement](#) (see page 23)

[DASD Unit Channel Paths](#) (see page 23)

[Communication Modes](#) (see page 24)

[Channel Paths for CTC Devices](#) (see page 25)

[Backup CTC](#) (see page 26)

[Tracing](#) (see page 26)

[MIMMSGs Members](#) (see page 27)

Current Release

Make sure that you are running a currently supported version of CA MIM.

Business Value:

To obtain full support from CA Support, you must be running a supported version of the product.

Additional Considerations:

You can determine which release you are running by issuing the following command:

```
DISPLAY FACILITIES
```

This command displays information about CA MIM facilities that are active on the local system and what maintenance level you are running on each facility. This information is displayed in message MIM0090I.

More Information:

For a list of supported releases and end-of-service dates, see the *Release Notes*.

COMPATLEVEL

Verify that CA MIM is running at the current COMPATLEVEL.

Business Value:

Running at the current COMPATLEVEL allows *CA MIM* to take advantage of the certain features in each release.

Additional Considerations:

You determine the current COMPATLEVEL value by entering the following command:

```
DISPLAY INIT
```

To dynamically change this value without scheduling a global shutdown, enter the following command:

```
ACTIVATE COMPATLEVEL=(level, [FORCE])
```

COMPATLEVEL

Indicates the format of the CA MIM control file and the associated functionality that is to be activated.

level

Specifies the COMPATLEVEL based on the product release. Acceptable values for this operand are 11.81, 11.9, and 12.0.

FORCE

(Optional) Tells <CA MIM to ignore the lack of responses from any inactive or non-existent systems when processing a compatibility level activation request.

More Information:

For more information, see the section How You Activate Features of New Releases Dynamically in the *CA MIM Programming Guide* and the discussion of the ACTIVATE COMPATLEVEL command in the *CA MIM Statement and Command Reference Guide*.

FEATURE=HYPERSTAR

Verify that CA MIM is using FEATURE=HYPERSTAR.

Business Value:

If CA MIM is using a VCF communication method (CTC's or XCF), MIM's performance may be improved by activating this feature.

Additional Considerations:

You determine which features are active by entering the following command:

```
DISPLAY FEATURE
```

To dynamically activate Hyperstar without restarting CA MIM, enter the following command:

```
ACTIVATE FEATURE=(HYPERSTAR, [FORCE])  
FORCE
```

(Optional) Tells <CA MIM to ignore the lack of responses from any inactive or non-existent systems when processing a compatibility level activation request.

More Information:

For more information, see the section How You Activate Features of New Releases Dynamically in the *CA MIM Programming Guide* and the discussion of the ACTIVATE FEATURE command in the *CA MIM Statement and Command Reference Guide*.

Multiple Address Spaces

When running CA MIM components in multiple address spaces, set the MSGPREFIX value to one of the following:

CMDPREFIX

Specifies that the command prefix string as specified by the MIMINIT CMDPREFIX statement or the SETOPTION MIM CMDPREFIX command is prefixed to all messages issued by CA MIM.

ppp

Replaces the characters 'MIM' in messages issued by CA MIM. These three characters correspond to the CA MIM address space generating the message. For example, MIM0067I becomes MIA0067I, when issued from an address space running the CA MIA Tape Sharing component.

Note: The default value of MSGPREFIX is NONE.

Business Value:

This parameter lets each CA MIM address space uniquely identify its own CA MIM messages. Changing the format of the CA MIM messages helps system operators and programmers easily identify the CA MIM address space from which a particular message originated.

More Information:

For more information about the MIMINIT MSGPREFIX statement, see the *CA MIM Statement and Command Reference Guide*.

Separate Address Spaces

Run CA MII Data Sharing in a separate address space from CA MIA Tape Sharing or CA MIC Message Sharing, especially if you are running CA MIM for z/OS with CA MIM for z/VM.

Business Value:

- When you run CA MIM components in separate address spaces, problems affecting one CA MIM address space do not affect the other CA MIM address spaces running on the same system.
- You can stop each address space individually without affecting the other components.
- By running CA MII in its own address space, you can ensure that CA MIA and CA MIC have the system resources to run most efficiently.

Additional Considerations:

You operate each address space individually using the assigned command prefix character. To set the command prefix character for an address space, place the following statement in the MIMCMDS member:

```
SETOPTION MIM CMDPREFIX
```

More Information:

For more information about running multiple CA MIM started tasks, see the section *How You Run Components in Separate Address Spaces* in the *CA MIM Programming Guide*.

Tuning

Ensure that CA MIM is performing as optimally as possible by tuning your control files and making sure performance-related parameters are set correctly.

Business Value:

CA MIM provides resource serialization services among multiple z/OS operating systems. CA MII lets sites share DASD resources, CA MIA lets sites share tape devices, and CA MIC allows console data (messages and commands) to be routed across systems. A number of factors, both internal and external to the CA MIM address space, can cause CA MIM to provide less than optimal service times. External factors such as CA MIM address space dispatching priority have a direct impact on the ability of the CA MIM address space to provide adequate service times to its service requestors.

There are also a number of CA MIM internal parameters that can affect the performance of a given CA MIM address space. The type of cross-system communication method selected, the CA MIM features activated, and the type and volume of managed workload are a few of the internal factors that govern the performance of a CA MIM address space. Making sure these internal parameters are set correctly for your site can help ensure optimal product performance.

More Information:

For information about tuning CA MIM, see the section Performance Considerations in the *CA MIM Programming Guide*. This section can help you determine if any control file tuning is necessary, and if so, how to adjust CA MIM to improve performance.

Backup Control Files

Make sure alternate or backup DASD control files or XES list structures are available to CA MIM.

Business Value:

CA MIM uses backup or *alternate* control files if the current control file becomes unusable. If an error is encountered on the primary control files and no backup control file exists, CA MIM terminates on all systems. Employing this best practice helps prevent product system outages and potential data integrity exposures.

More Information:

For detailed information about alternate or backup control files, see the section Allocate DASD Control Files in the *CA MIM Programming Guide*.

Control File Placement

Verify that the CA MIM DASD control files are located on a relatively isolated volume with no other RESERVE activity.

Business Value:

Optimal CA MIM DASD control file placement is important to provide optimal ENQ throughput.

More Information:

For more information, see the section DASD Control File Placement in the *CA MIM Programming Guide*.

DASD Unit Channel Paths

Make sure that the DASD unit is connected using channel paths that are not being overutilized.

To determine how channel paths are being used, consult the IBM RMF channel utilization reports and check with your DASD administrator.

Business Value:

Optimal use of channel paths can prevent DASD I/O delays that can cause global ENQ delays throughout the entire MIMplex.

More Information:

For more information, see the section DASD Control File Placement in the *CA MIM Programming Guide*.

Communication Modes

When you have systems in a MIMplex that are also all within the same sysplex, specify `MIMINIT COMMUNICATION=XCF` or `DASDONLY` with coupling facility list structures.

To check your current communication method, issue the following command:

```
DISPLAY MIM IO
```

This command displays message MIM0039I, which contains information on the I/O activity for CA MIM control files, including the communication method.

Business Value:

The XCF and DASDONLY communication methods provide the highest level of performance without the need to code multiple CTCPATH statements. These communication methods also allow for greater flexibility in a disaster recovery scenario when LPARs are restarted on different physical CPUs.

More Information:

For more information about implementing various communication methods, see the *CA MIM Programming Guide*.

Channel Paths for CTC Devices

Make sure that the channel paths associated with the CA MIM CTC devices are not over-utilized or experiencing high channel path busy rates.

To display information about CTCPATH statements, issue the following command:

```
DISPLAY PATH
```

This command displays message MIM0176, which contains details about cross-system communications paths for virtual control file processing. By default, CA MIM displays information it gathered since the last time you started CA MIM. To reset the counters, issue the following command:

```
DISPLAY PATH=RESET
```

The next DISPLAY PATH command you issue displays statistics that have accumulated since you last reset the counters, as well as the counts since initialization.

Business Value:

High-performing channel paths can help prevent unnecessary CTC I/O delays, allowing global ENQs to be processed much faster.

More Information:

For more information, see the section How You Define the CTC Devices to be Used in Your VCF Environment in the *CA MIM Programming Guide* and the description of the DISPLAY PATH command in the *Statement and Command Reference Guide*.

Backup CTC

Virtual control file architecture uses CTC devices to pass transaction data between z/OS and z/VM. If you are using the CTCONLY communication method, make sure that you define at least two backup or alternate CTC addresses for each system in your MIMplex.

Business Value:

Configuring alternate CTC addresses for CA MIM allows CA MIM to recover if the primary CTC address has an error, helping guarantee uninterrupted communication between systems.

Additional Considerations:

You can define up to 15 alternate CTC paths between any two systems.

More Information:

For more information, see the section How You Define the CTC Devices to be Used in Your VCF Environment in the *CA MIM Programming Guide*.

Tracing

Make sure CA MIM tracing is turned off. To turn tracing off, issue the following command:

```
SET TRACE=OFF
```

Note: OFF is the default value for the TRACE parameter.

Business Value:

Having tracing turned on all the time can cause unnecessary overhead. Tracing should be activated only when you are diagnosing a specific problem.

More Information:

For more information, see the section How You Activate Tracing in the *CA MIM Programming Guide*, or the discussion of the TRACE parameter in the *CA MIM Statement and Command Reference Guide*.

MIMMSGSGS Members

Make sure that CA MIM is using the latest MIMMSGSGS members.

Business Value:

MIMMSGSGS members contain the attributes of various CA MIM messages and are customizable. Sometimes, message attributes change as product maintenance is published, and it is important to refresh the various members when you install a new product release or service pack.

More Information:

For more information, see the section MIMMSGSGS Message Table in the *CA MIM Programming Guide*.

Chapter 5: Best Practices for CA MIA Configuration

This section discusses best practices that apply to CA MIA configuration.

This section contains the following topics:

[Device Group Search Order](#) (see page 29)

[Limit VARY Commands](#) (see page 30)

[VARY Command Placement](#) (see page 30)

[VARY OFFLINE](#) (see page 31)

[VARY REQUEUE NOTIFICATION](#) (see page 32)

[VARY DEDUPLICATION](#) (see page 33)

[DIAGNOSE ALL](#) (see page 34)

[Automate DIAGNOSE ALL](#) (see page 35)

[Limit SHUTDOWN FREE](#) (see page 35)

[SYSDUMP Command](#) (see page 36)

[Restarting CA MIA in an Active MIAPlex](#) (see page 37)

Device Group Search Order

Use identical ordering for z/OS generic device group searches on all systems in the CA MIA complex.

Business Value:

Mismatched search orders for generic device groups containing CA MIA-managed devices can cause cross-system deadlocks to occur on device group locks. Specifying an identical search order prevents this type of deadlock.

More Information:

For more information, see the section Specify Same z/OS Preference Order of Generic Device Groups on EDL in the *CA MIA Programming Guide*.

Limit VARY Commands

Avoid issuing repetitive VARY commands to problem devices that do not appear to be responding.

Business Value:

CA MIA preserves the order in which commands are entered. If a VARY ONLINE command is hung in IEEVARYD due to hardware problems, subsequent VARY commands queue in CA MIA, waiting to execute.

When the current active command completes, the next queued VARY is processed. In a hardware problem scenario, VARY commands cannot complete or fail until the MIH value for the device expires. With distributed MIH values of 45 minutes or more, a sequence of four VARY commands can take three hours or more to fail at MIH expiration.

CA MIA can optionally discard duplicate VARY commands that do not result in a state change for the target device. For more information about CA MIA discarding duplicate VARY commands, see the VARY DEDUPLICATION.

For additional information, see the Overview of Managed Device VARY Processing in the *CA MIA Programming Guide* and the SETOPTION GTAF/TPCF VARYDEDUP commands in the *CA MIM Statement and Commands Reference Guide*.

VARY Command Placement

Place VARY commands in the MIMSYNCH member.

You use VARY commands to alter the online/offline status of a tape device. You can also use VARY commands to assign a special CA MIA status to a device to influence device selection.

Business Value:

Commands in the MIMSYNCH member execute *after* MIMINIT statements and MIMCMNDS commands have executed, and only after all CA MIM address spaces in the complex have synchronized. Placing VARY commands in the MIMSYNCH member ensures that the commands are executed after synchronization is complete and that tape devices are brought online only after the product initializes and is fully functional. This practice avoids integrity exposures when devices are online to more than one system and CA MIA is not running.

More Information:

For more information, see the section Configure Tape Devices Offline until CA MIA Synchronization in the *CA MIA Programming Guide*.

VARY OFFLINE

Issue the VARY OFFLINE command for managed tape devices that have a device status of OVERGENNED.

Business Value:

Tape devices in an OFFLINE state can lead to unnecessary delays in tape device allocation throughput. VARYing OFFLINE devices OVERGENNED can eliminate these delays.

The CA MIA device status of OVERGENNED was originally designed for tape device addresses that were GENNED for future capacity expansion but that do not physically exist at the present time. CA MIA *always* eliminates devices in an OVERGENNED state from the OFFLINE Device List in Recovery Allocation. This function eliminates the Device Name option from the IEF238D Recovery Allocation WTOR, to which an operator would have to respond manually.

CA MIA can also eliminate devices in an OVERGENNED status during Allocation rather than during Recovery Allocation, saving CPU cycles that are spent evaluating devices that you probably do not want to use anyway. Specifying SETOPTION TPCF OVGINELIG=YES causes CA MIA to eliminate OVERGENNED devices during Allocation rather than during Recovery Allocation.

More Information:

For more information, see the section How You Change the Status of Managed Devices (VARY) in the *CA MIA Programming Guide* and the discussion of the VARY command in the *CA MIM Statement and Command Reference Guide*.

VARY REQUEUE NOTIFICATION

Enable VARY REQUEUE Notification to identify if SYSIEFSD ENQ Contention is adversely impacting VARY command completion.

Business Value:

z/OS acquires SYSIEFSD ENQs to serialize VARY processing with allocation. VARY commands can be requeued for later processing if SYSIEFSD ENQ resources are not available to VARY processing within 5 seconds. While VARY commands WAIT for the ENQ, other tasks can be delayed in the allocation process for both DASD and TAPE resources.

Enabling VARY Requeue Notification by setting the GTAF/TPCF VARYRQNTFY parameter to a value in the VARYRQNTFY parameter range of 1 to 5, will cause MIA to generate a MIM2225W diagnostic message when the number of times that a VARY command has been requeued is equal to the current VARYRQNTFY threshold value.

For example, setting VARYRQNTFY=3 will cause a MIM2225W to be generated after a VARY command has been requeued 3 times. This will result in a MIM2225W notification, minimally, once every 15 seconds.

To disable MIM2225W notification, reset the VARYRQNTFY parameter to NONE.

More Information:

For more information, see the section *How You Change the Status of Managed Devices (VARY)* in the *CA MIA Programming Guide* and the discussion of the VARY command in the *CA MIM Statement and Command Reference Guide*.

VARY DEDUPLICATION

Enable VARY Duplicate discarding to eliminate serialization of redundant VARY requests that do not change the state of the target device.

Business Value:

CA MIA serializes VARY ONLINE processing with z/OS allocation processes on all active systems in the MIAplex. z/OS acquires SYSIEFSD ENQs to serialize VARY processing with allocation on the local system. Redundant VARY commands that do not change the state of the target device CA MIA and z/OS serialize.

CA MIA deletion or discarding of duplicate VARY commands eliminates the processing overhead that incurred for CA MIA and z/OS serialization of redundant VARY commands.

Enabling VARY DEDUPLICATION, by setting the GTAF/TPCF VARYDEDUP parameter to YES causes CA MIA to discard duplicate VARY commands as they are processed.

To disable VARY DEDUPLICATION, reset the VARYDEDUP parameter to NO.

More Information:

For more information, see *How You Change the Status of Managed Devices (VARY)* in the *CA MIA Programming Guide*. Also see, the discussion of the SETOPTION GTAF/TPCF VARYDEDUP commands in the *CA MIM Statement and Command Reference Guide*.

DIAGNOSE ALL

When using the DIAGNOSE command to troubleshoot allocation delays, always use the DIAGNOSE ALL version of the command.

Business Value:

Collecting too much information is usually far less of a problem than not collecting enough information.

The DIAGNOSE ALL command displays the following:

- The SYSTEMS portion of the display, which identifies the systems in the MIAplex where tape device group locks are held
- The JOBSTATUS portion of the display, which identifies local jobs in various stages of tape device group lock acquisition
- The VARY portion of the display, which identifies ACTIVE and queued VARY commands for managed devices.

Using the DIAGNOSE ALL command provides a complete picture. If tasks in the JOBSTATUS portion of the display are being DELAYED for LOCKS, the SYSTEMS portion of the display above it identifies which locks are in use and where. The DIAGNOSE ALL command is a great real-time tool for analyzing allocation delays.

More Information:

For more information, see the section How You Obtain Information for Diagnosing Problems in the *CA MIA Programming Guide*.

Automate DIAGNOSE ALL

Automate the CA MIM DIAGNOSE ALL command.

Business Value:

Periodically reviewing the displays resulting from an automated DIAGNOSE ALL command can help you identify problems for which no error messages are produced. While viewing problem windows, you have automatic access to an audit trail of Allocation throughput so you do not have to manually issue a DIAGNOSE ALL command

Additional Considerations:

CA MIM and CA OPS/MVS product teams have collaborated to produce automation rules that interrogate the DIAGNOSE command for any jobs appearing in the GIVEN clause of the display. If a subsequent DIAGNOSE command shows that the same job still appears as having been GIVEN tape device group locks by z/OS, the automation takes an SVCDUMP of the offending task, and any additional address spaces identified on the SYSDUMP command that the automation issues.

Even if you do not have CA OPS/MVS EMA installed, you could code similar standalone automation.

More Information:

For more information, see the appendix "Integration with CA OPS/MVS EMA" in the *CA MIA Programming Guide*.

Limit SHUTDOWN FREE

Use the FREE option of the CA MIM SHUTDOWN command only when tape device allocation has been quiesced.

Business Value:

The FREE option of the SHUTDOWN command makes any resources in use on the FREED system available to other tasks running on the other active systems in the MIAplex. If you issue the SHUTDOWN FREE command when tape device allocation is not quiesced, multiple tape devices can be allocated, resulting in tape label overwrites, block count errors, and rewind/unloads.

More Information:

For more information, see the *CA MIA Programming Guide* and the *CA MIM Statement and Command Reference Guide*.

SYSDUMP Command

When taking SVCDUMPs of tasks potentially involved in tape allocation hangs, use the CA MIM SYSDUMP command and include the ALLOCAS, IOASAS, and GRS address spaces, plus the suspected hung job name (*jjjjjjj*). Use the following syntax:

```
SYSDUMP JOBNAME=(jjjjjjj,ALLOCAS,IOSAS,GRS)
```

Business Value:

CA MIA serializes access to z/OS Tape Device Allocation. If a problem occurs in the z/OS process, the only outwardly identifiable manifestation of the problem may be a delay in the process, and may appear to be caused by CA MIA.

Including the ALLOCAS, IOASAS, and GRS address spaces on the SYSDUMP command (CA MIM is included by default) gives vendor technical support (CA and IBM) the best chance of identifying the root cause of an allocation delay or VARY hang.

More Information:

For more information about the SYSDUMP command, see the *CA MIM Statement and Command Reference Guide*.

Restarting CA MIA in an Active MIAPlex

Understanding the effect that Recovery Allocation can have on system functions related to Tape Device Allocation within an MIAPlex identifies the importance of monitoring and addressing Recovery Allocation issues at all times.

Business Value:

Eliminating Recovery Allocation is especially important during MIA startup, when Recovery Allocation related contention can delay or prevent the completion of VARY commands submitted by MIA during synchronization.

Additional Information:

The following recommendations will prevent Recovery Allocation resource contention from delaying the availability of ONLINE Tape Devices during MIA startup:

- Prior to STARTING or RESTARTING CA MIA on a system, respond to ALL Recovery Allocation WTORS on ALL systems in the MIAPlex.
- PURGE INITIATORS to prevent new Tape work from starting while Tape Devices are in an OFFLINE state prior to MIA startup.
- Order the sequence of VARY commands issued during MIA synchronization so that VARY ONLINE commands are issued BEFORE VARY OFFLINE commands.
- Restart INITIATORS as soon as VARY ONLINE processing has completed.

Taking these actions will expedite resumption of SERIALIZED Global Tape Device Allocation by reducing or eliminating resource contention that delays the completion of VARY processing within an MIAPlex.

More Information:

For more information and detail examples see "How to Restart CA MIA in an ACTIVE MIAPlex" in the *CA MIA Programmer Guide*.

Chapter 6: Best Practices for CA MII Configuration

This section discusses best practices that apply to CA MII Data Sharing configuration.

This section contains the following topics:

[PROCESS=ALLSYSTEMS](#) (see page 39)

[PAGEFIX=COND](#) (see page 40)

[SETOPTION GDIF COUNT=SYSTEMS](#) (see page 40)

[SETOPTION GDIF EXEMPTRESERVES=YES](#) (see page 41)

[Exempt Statements in GDIF Exempt List](#) (see page 41)

[Start with the Early Start Mechanism](#) (see page 42)

[VCF MASTER](#) (see page 42)

[Control Files and ENQ Workload](#) (see page 43)

PROCESS=ALLSYSTEMS

If you will be running the Global Data Integrity Facility (GDIF), set PROCESS=ALLSYSTEMS.

Note: CA MIM has a health check that checks to see if you are running GDIF and checks the current value of the PROCESS keyword.

Business Value:

If you run GDIF with PROCESS=SELECT, you risk potential data integrity exposures.

Customers install products that use ENQs/RESERVEs for data integrity. In SELECT mode, each QNAME must be added manually. In ALLSYSTEMS mode, GDIF automatically manages the SCOPE=SYSTEMS ENQ/RESERVEs, eliminating product problems caused by corrupted data sets.

More Information:

Contact CA Support for an evaluation and help converting to ALLSYSTEMS mode.

PAGEFIX=COND

If you will be running the Global Data Integrity Facility (GDIF), set PAGEFIX=COND in the MIMINIT statement.

To determine the current value of PAGEFIX, issue the following command:

```
DISPLAY INIT
```

This command displays message MIM0037I.

Business Value:

PAGEFIX=COND specifies that cell-pooled control blocks should be page-fixed as long as the system is not expecting a real page storage condition. Typically, the CA MIM working set size remains fixed in real storage, you do not need to page-fix its cell-pool resident control blocks. However, in times of critical pageable storage shortages, frames can be stolen from the working set pages. If a system is configured so that it is real-storage constrained, setting PAGEFIX=COND can help improve the ability of CA MIM to provide a consistent level of service, even during times of storage shortage.

More Information:

For more information, see the *CA MIM Programming Guide*.

SETOPTION GDIF COUNT=SYSTEMS

Set SETOPTION GDIF COUNT=SYSTEMS.

Business Value:

This setting tells the Global Data Integrity Facility (GDIF) to collect information about ENQ requests that have a scope of SYSTEMS, *including* RESERVE requests. Setting COUNT to LOCAL or RESERVES limits the scope of information collected; setting COUNT to ALL collects too much information.

Setting COUNT=SYSTEMS allows CA MII to accumulate statistics on RESERVES and SCOPE=SYSTEMS ENQs. Once this has been completed, the CA MII DISPLAY COUNT command is more valuable to technicians when assessing which QNAMEs to manage or exempt from CA MII processing.

More Information:

For more information, see the discussion of the GDIF COUNT statement in the *CA MIM Statement and Command Reference Guide*.

SETOPTION GDIF EXEMPTRESERVES=YES

Set SETOPTION GDIF EXEMPTRESERVES=YES.

Business Value:

SETOPTION GDIF EXEMPTRESERVES=YES specifies that LOCAL statements in the exempt list do apply to RESERVE requests. If you specify NO, then LOCAL statements do not apply to RESERVE requests. The default is NO.

At some point, you may need to exempt certain RESERVE requests from CA MII processing in the GDIEXMPT parmlib member. Although you may not have an immediate need to make such exemptions, setting this parameter prepares CA MII to accept any future LOCAL exemptions for RESERVE requests.

Additional Considerations:

It is safest to change this setting with a GLOBAL shutdown, because integrity exposures can occur if this option is inconsistent on different systems.

More Information:

For more information, see the *CA MII Programming Guide* and the *CA MIM Statement and Command Reference Guide*.

Exempt Statements in GDIF Exempt List

Exempt statements should specify a qname for every rname.

Business Value:

You can use the GDIEXMPT member if you need to make certain resources exempt from GDIF global ENQ processing. The GDIEXMPT member is used for all qnames that have GDIF=YES and EXEMPT=YES coded on the QNAME statement. To ensure that only the intended resources are exempted from global processing, you should be as specific as possible with the rname that you specify, and you should always specify a qname.

If you do not specify a qname for an exempt statement, then the exempt statement will be applied to every qname that has GDIF=YES and EXEMPT=YES coded on the QNAME statement.

Additional Information:

The sample GDIEXMPT member includes examples on specifying a qname with each rname that is being exempted.

More Information:

For more information, see the *CA MII Programming Guide* and the *CA MIM Statement and Command Reference Guide*.

Start with the Early Start Mechanism

Start CA MII with the Early Start Mechanism.

Business Value:

If CA MII is not synchronized early enough, it is possible that some hardware reserves are not converted. Late synchronization can lead to integrity exposures and deadly embraces.

More Information:

This information is detailed in the *CA MIM Installation Guide*.

VCF MASTER

Make sure that the preferred VCF MASTER system is the system with the highest ENQ volume.

Business Value:

Because the master system reads the virtual control file (VCF) directly from its own storage, it incurs no device I/O overhead.

Additional Considerations:

You can change the value of the VCF MASTER at any time while the product is running by issuing the following command:

```
GLOBALVALUE VCFMASTER=sysid
```

sysid

Specifies the name of the master system in virtual control file environments.

More Information:

For more information, see the discussion of master systems in the *CA MIM Programming Guide*.

Control Files and ENQ Workload

Make sure your CA MIM control files are large enough to handle the active ENQ workload.

Business Value:

Control files that are undersized can cause product or system outages and potential data integrity exposures.

Additional Considerations:

To determine the current maximum size requirement, issue the following command:

```
DISPLAY GDIF CFSIZE
```

This command displays message MIM1154I.

Note: If MIMINIT COMMUNICATION=CTONLY and XCF, CA MIM automatically resizes the control files.

More Information:

For more information about the DISPLAY GDIF CFSIZE command, see the *CA MIM Statement and Command Reference Guide*.

For more information about control file size, see the section Control File Size Considerations in the *CA MIM Programming Guide*.

Chapter 7: Best Practices for CA MIC Configuration

This section discusses best practices that apply to CA MIC configuration.

This section contains the following topics:

[Use COLLECT SYSID=EXTERNAL](#) (see page 45)

[Collect Command and Nonexistent Consoles](#) (see page 46)

Use COLLECT SYSID=EXTERNAL

To prevent CA MIC from collecting LOCAL messages, use the following command instead:

```
COLLECT SYSID=EXTERNAL
```

Avoid setting SYSID=ALL on the CA MIC COLLECT command.

Business Value:

Because z/OS already routes messages to local consoles, you can avoid the unnecessary overhead of having CA MIC also route local messages to a local console.

More Information:

For more information, see the section Cross-system Message Routing in the *CA MIC Programming Guide*.

For more information about the COLLECT command, see the *CA MIM for z/OS Statement and Command Reference Guide*.

Collect Command and Nonexistent Consoles

Avoid using the COLLECT command for consoles that no longer exist on your system.

Business Value

You can avoid unnecessary overhead by removing any COLLECT command for a console that no longer exists. This prevents CA MIC from routing unnecessary messages through the control file.

Additional Considerations

To determine which consoles are allocated, issue the following MVS command:

```
DISPLAY CONSOLES,LONGFORM
```

More Information

For more information about the COLLECT command, see the *CA MIC Programming Guide* and the *CA MIM Statement and Command Reference Guide*.

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