

CA Mainframe Connector for Linux on System z

Best Practices Guide

Version 1.0



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Chapter 1: Introduction

This section contains the following topics:

[Purpose of this Guide](#) (see page 7)

[Audience](#) (see page 7)

[Mainframe 2.0 Overview](#) (see page 7)

[Mainframe 2.0 Features](#) (see page 8)

Purpose of this Guide

The guide provides a brief introduction to CA's Mainframe 2.0 strategy and features, and describes the best practices for installing and configuring CA Mainframe Connector for Linux on System z.

Audience

The intended audience of this guide is systems programmers and administrators who install, configure, deploy, and maintain CA Mainframe Connector for Linux on System z.

Mainframe 2.0 Overview

Mainframe 2.0 is our strategy for providing leadership in the mainframe operating environment. We intend to lead the mainframe marketplace for customer experience, Out-Tasking solutions, and solution innovation. After listening to customer needs and requirements to keep the mainframe operating environment viable and cost-effective, we are providing new tools to simplify usage and to energize this operating environment for years to come.

CA Mainframe Software Manager™ (CA MSM) is an important step in realizing the Mainframe 2.0 strategy. CA MSM simplifies and standardizes the delivery, installation, and maintenance of mainframe products on z/OS systems. CA MSM has a browser-based user interface (UI) with a modern look and feel for managing those solutions. As products adopt Mainframe 2.0 features and CA MSM services, you can acquire, install, and manage your software in a common way.

CA MSM provides software acquisition and installation that make it easier for you to obtain and install CA mainframe products, and apply the recommended maintenance. The services within CA MSM enable you to manage your software easily based on industry accepted best practices. The common browser-based UI makes the look and feel of the environment friendly and familiar.

We follow the IBM z/OS packaging standards using SMP/E, with some additional CA qualities of service added, to make installation simple and consistent. Additionally, through the synchronization of product releases and the use of common test environments, we will declare a yearly mainframe software stack that includes many new releases with enhanced functionality. This stack is certified for interoperability across the CA mainframe product portfolio and the base IBM z/OS product stack.

Mainframe 2.0 Features

Mainframe 2.0 has the following main features:

CA Mainframe Software Manager (CA MSM)

Delivers simplified acquisition, installation, and deployment capabilities using a common z/OS-based web application delivered through a browser-based UI. CA MSM includes the following services:

Product Acquisition Service (PAS)

Facilitates the acquisition of our mainframe products and services, including product base installation packages and program temporary fixes (PTFs). This service integrates the inventory of products available on your system with CA Support, providing a seamless environment for managing and downloading software and fixes onto your system.

Software Installation Service (SIS)

Facilitates the installation and maintenance of our mainframe products in the software inventory of the driving system. This service enables you to browse and manage the software inventory using a web interface, and automates tasks for products that use SMP/E to manage installation. You can browse downloaded software packages, and browse and manage one or more consolidated software inventories (CSIs) on the driving system.

Software Deployment Service (SDS)

Facilitates the deployment of CA Technologies mainframe products from the software inventory of the driving system. This service enables you to deploy installed products that are policy driven with a set of appropriate transport mechanisms across a known topology. The enterprise system topology can include shared DASD environments, networked environments, and z/OS systems. Policies represent a combination of metadata input that identifies the component parts of a product and user-supplied input that identifies the deployment criteria, such as where it will go and what it will be called.

Software Configuration Service (SCS)

Facilitates the configuration of mainframe products from the software inventory of the driving system to the targeted z/OS mainframe operating system. The SCS guides you through the configuration creation process, and through the manual steps to implement the configuration. In addition, the SCS includes an address space communications service running on each targeted z/OS system.

Electronic Software Delivery (ESD)

Enables you to get our products from an FTP server. We have improved this process so that you no longer need to build a tape to install the product.

Best Practices Management

Integrates with IBM Health Checker for z/OS to verify that deployed software follows our best practices. The health checks continually monitor the system and software to provide feedback on whether the software continues to be configured optimally.

Best Practices Guide

Provides best practices for product installation and configuration.

Active and Heartbeat Event Management through CA OPS/MVS EMA

CA Mainframe products can automatically communicate both active status events and heartbeat events to CA OPS/MVS in a consistent manner. The enabling technology for this feature is through a generic event API call that CA OPS/MVS provides to the other CA mainframe products so that they can communicate events to CA OPS/MVS.

Two versions of this API call are provided to support this initiative:

- An active status event API call that allows other products to generate events for the CA OPS/MVS EMA System State Manager (SSM) component when they are starting, up, stopping, or down.
- A heartbeat API call that allows other CA products to communicate a normal, warning, or problem overall health status and reasoning to CA OPS/MVS EMA on a regular interval.

After a CA product begins generating heart beat events for CA OPS/MVS, CA OPS/MVS can also react to the lack of a heart beat event from another CA product's address space, treating this as an indication that there is either a potential problem with the CA product's address space, or there is a larger system-level problem.

SSM is a built-in feature of CA OPS/MVS that uses an internal relational data framework to proactively monitor and manage started tasks, online applications, subsystems, JES initiators, and other z/OS resources including your CA mainframe products. SSM compares the current state of online systems, hardware devices, and the other resources with their desired state, and then automatically makes the necessary corrections when a resource is not in its desired state. This provides proactive and reactive state management of critical resources. As previously noted, SSM is particularly interested in receiving active status events consistently from all CA products when they are starting, up, stopping, or down. Without these consistent type of events, SSM must maintain separate rules in CA OPS/MVS for each product's unique messages associated with starting and stopping.

Note: For additional information about the CA Mainframe 2.0 initiative, see <http://ca.com//mainframe2>.

Chapter 2: Installation and Configuration Best Practices

This section contains the following topics:

[Installation](#) (see page 11)

[Deployment](#) (see page 12)

[Linux Agent Security](#) (see page 13)

[z/VM Agent Security](#) (see page 14)

[Linux Agent Home Directory](#) (see page 14)

[Execution of Linux Applications That Do Not Write to Syslog](#) (see page 15)

Installation

Use CA MSM to acquire, install, and maintain your product.

Business Value:

CA MSM 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 Mainframe Connector for Linux on System z.

CA MSM lets you download product and maintenance releases over the Internet directly to your system from the CA Support website. After you use CA MSM 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, use the product's Install Utility to set it up. CA MSM can continue to help you maintain your product.

Note: If there is maintenance for VSAM data sets, you must use the Install Utility to update those data sets for each region you have set up.

More Information:

For more information about CA MSM, see the *CA Mainframe Software Manager Product Guide*. For more information about product setup, see the *Installation Guide*.

Deployment

Use CA MSM to deploy your product.

Business Value:

CA MSM provides a web interface to provide a common way to manage CA mainframe products. After you use it to download and install CA Mainframe Connector for Linux on System z, it helps you deploy the product using the same interface.

More Information:

For more information about CA MSM, see the *CA Mainframe Software Manager Product Guide*. For more information about product setup, see the *Installation Guide*.

How You Deploy the Product

After you install the product, you deploy the z/OS regions to the target systems. The process includes the following stages:

1. Configure your regions using the Install Utility. The following command starts the utility:

```
EXEC 'dsnpref.LX10.CC2DJCL(INSTALL)'
```

During this stage, the utility generates a series of jobs in the *dsnpref.LX10.CNTL* data set, including the following jobs that help with deployment: *Si90DUMP* and *Si91REST*.

i

Is an ID that differentiates the regions you configure.

2. For each region you configure, submit the *Si90DUMP* job. The job creates the following backup data set that includes the configuration files for the region: *dsnpref.DFDSS.SHARED* (containing files that multiple regions can share).
3. Deploy each region to the target system using CA MSM. Include the data set created in Step 2 and the *dsnpref.LX10.CNTL* data set as custom data sets.
4. For each region you deploy, submit the *Si91REST* job on the target system. The job restores the region files in the backup data sets.

How You Deploy Product Maintenance

After you install product maintenance, you deploy updated software to the z/OS regions on the target systems. The process includes the following stages:

1. (Optional) If maintenance exists for VSAM data sets (as indicated by HOLDDATA), apply the maintenance using the Install Utility. Select Option 5, V.

Note: If no VSAM maintenance exists, Option V is not selectable.

2. (Optional) If maintenance exists for VSAM data sets, submit the Mz90DUMP job.

z

Is a character that is used to identify the members generated from a fixed data set that contains maintenance for VSAM data sets.

3. Shut down the regions you want to maintain.
4. Deploy product maintenance to each target system using CA MSM. If there is VSAM maintenance, include the *dsnpref.DFDSS.SHAREDz* and *dsnpref.LX10.CNTL* data sets as custom data sets.

Note: We recommend that you back up the existing SHAREDz data set on a target system before you perform the deployment.

5. (Optional) If maintenance exists for VSAM data sets, review the Mz91REST job on a target system and customize as required. Submit the job to restore the files in the *dsnpref.DFDSS.SHAREDz* data set only.
6. Restart the regions.

Linux Agent Security

Specify a SOLVE service user with privileges appropriate for the commands issued through the Linux agent.

Business Value:

Ensuring that the user under which the agent runs does not have higher privileges than needed helps to preserve the integrity of the Linux system.

Additional Considerations:

By default, the SOLVE service user is root, but you can specify a user of lower privileges if you find them appropriate for the commands (for example, *ps -a* and *uname -a*). After the agent is active for a period, review the commands issued through the agent to determine the appropriate privileges. Update the xinetd SOLVE service to specify a user with those privileges.

z/VM Agent Security

Specify privilege classes C and G for the z/VM agent.

Business Value:

Ensuring that the privilege classes for the agent are not higher than needed helps to preserve the integrity of the z/VM system.

Additional Considerations:

When configuring the user directory for the z/VM agent, specify privilege classes that are appropriate. Class G permits the agent to issue general user commands; class C permits the agent to issue commands on behalf of other users and the SIGNAL command to shut down Linux guests. Client products can also require certain privilege classes. After the agent is active for a period, review the commands issued through the agent to verify that the specified privilege classes are appropriate.

Linux Agent Home Directory

Set up a home directory for the Linux agent (for example, /home/calxagt).

Business Value:

A home directory keeps files created by the site for the Linux agent away from other files on the system, facilitating maintenance.

Additional Considerations:

You can add a profile file, .calxprf, for the Linux agent in the home directory. The profile can specify shell startup options for the agent.

To run the agent from the home directory, add the following server argument to the SOLVE service:

```
-d home_directory_path
```

Execution of Linux Applications That Do Not Write to Syslog

For a Linux application that does not write to syslog, run the application from a shell script that includes message logging.

Business Value:

With message logging, your automation product can capture the logged messages and take appropriate actions. Being able to see what your applications are doing helps ensure the availability of your business processes.

Additional Considerations:

To see the startup and termination of the application, include the following commands in the shell script:

```
logger application_name starting  
application_name  
logger application_name terminated
```

The following messages are available to your automation product:

```
LXLOG001I linux_system vm_host_node application_name starting  
LXLOG001I linux_system vm_host_node application_name terminated
```


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