



# INCONTROL for z/OS 9.0.00 Installation Guide: Upgrading



July 2015



## Restricted rights legend

U.S. Government Restricted Rights to Computer Software. UNPUBLISHED -- RIGHTS RESERVED UNDER THE COPYRIGHT LAWS OF THE UNITED STATES. Use, duplication, or disclosure of any data and computer software by the U.S. Government is subject to restrictions, as applicable, set forth in FAR Section 52.227-14, DFARS 252.227-7013, DFARS 252.227-7014, DFARS 252.227-7015, and DFARS 252.227-7025, as amended from time to time. Contractor/Manufacturer is BMC SOFTWARE INC, 2101 CITYWEST BLVD, HOUSTON TX 77042-2827, USA. Any contract notices should be sent to this address.

## Customer support

You can obtain technical support by using the BMC Software Customer Support website or by contacting Customer Support by telephone or e-mail. To expedite your inquiry, see "Before contacting BMC."

## Support website

You can obtain technical support from BMC 24 hours a day, 7 days a week at <http://www.bmc.com/support>. From this website, you can:

- Read overviews about support services and programs that BMC offers
- Find the most current information about BMC products
- Search a database for issues similar to yours and possible solutions
- Order or download product documentation
- Download products and maintenance
- Report an issue or ask a question
- Subscribe to receive proactive e-mail alerts when new product notices are released
- Find worldwide BMC support center locations and contact information, including e-mail addresses, fax numbers, and telephone numbers

## Support by telephone or e-mail

In the United States and Canada, if you need technical support and do not have access to the web, call 800 537 1813 or send an e-mail message to [customer\\_support@bmc.com](mailto:customer_support@bmc.com). (In the subject line, enter **SupID:<yourSupportContractID>**, such as SupID:12345). Outside the United States and Canada, contact your local support center for assistance.

## Before contacting BMC

Have the following information available so that Customer Support can begin working on your issue immediately:

- Product information
  - Product name
  - Product version (release number)
  - License number and password (trial or permanent)
- Operating system and environment information
  - Machine type
  - Operating system type, version, and service pack or other maintenance level such as PUT or PTF

- System hardware configuration
- Serial numbers
- Related software (database, application, and communication) including type, version, and service pack or maintenance level
- Sequence of events leading to the issue
- Commands and options that you used
- Messages received (and the time and date that you received them)
  - Product error messages
  - Messages from the operating system, such as `file system full`
  - Messages from related software

### **License key and password information**

If you have questions about your license key or password, contact BMC as follows:

- (USA or Canada) Contact the Order Services Password Team at 800 841 2031, or send an e-mail message to [ContractsPasswordAdministration@bmc.com](mailto:ContractsPasswordAdministration@bmc.com).
- (Europe, the Middle East, and Africa) Fax your questions to EMEA Contracts Administration at +31 20 354 8702, or send an e-mail message to [password@bmc.com](mailto:password@bmc.com).
- (Asia-Pacific) Contact your BMC sales representative or your local BMC office.

### **Third party Software**

For the provisions described in the BMC License Agreement and Order related to third party products or technologies included in the BMC Product, see <https://docs.bmc.com/docs/display/workloadautomation/Control-M+Workload+Automation+Documentation> and click **Third-party software (TPS)**.



# Contents

About this guide.....	6
Conventions used in this guide.....	6
Part 1 Upgrade procedures.....	8
Overview .....	9
Express Upgrade .....	12
Full Upgrade .....	28
Part 2 Appendixes .....	77
A Technical considerations .....	78
B Falling back from a full upgrade .....	94
C Running two Control-M/Tapes in parallel.....	104
D Load modules supplied for third-party conversions .....	108

## About this guide

This guide contains instructions for upgrading to the current release from previous INCONTROL versions. The Express Upgrade is the recommended approach for upgrading INCONTROL products to the most recent major version.

## Conventions used in this guide

Notational conventions that may be used in this guide are explained below.

### Standard Keyboard Keys

Keys that appear on the standard keyboard are identified in boldface, for example, **Enter**, **Shift**, **Ctrl+S** (a key combination), or **Ctrl S** (a key sequence).

The commands, instructions, procedures, and syntax illustrated in this guide presume that the keyboards at your site are mapped in accordance with the EBCDIC character set. Certain special characters are referred to in this documentation, and you must ensure that your keyboard enables you to generate accurate EBCDIC hex codes. This is particularly true on keyboards that have been adapted to show local or national symbols. You should verify that

\$ is mapped to x'5B'  
# is mapped to x'7B'  
@ is mapped to x'7C'

If you have any questions about whether your keyboard is properly mapped, contact your system administrator.

### Preconfigured PFKeys

Many commands are preconfigured to specific keys or key combinations. This is particularly true with regard to numbered PF keys, or pairs of numbered PFKeys. For example, the END command is preconfigured to, and indicated as, PF03/PF15. To execute the END command, press either the **PF03** key or the **PF15** key.

Instructions to enter commands may include

- only the name of the command, such as, enter the END command
- only the PF keys, such as, press PF03/PF15
- or both, such as, press PF03/PF15, or enter the END command

## Command lines and option fields

Most screens contain a command line, which is primarily used to identify a single field where commands, or options, or both, are to be entered. These fields are usually designated **COMMAND**, but they are occasionally identified as **COMMAND/OPT** or **COMMAND/OPTION**.

Option field headings appear in many screens. These headings sometimes appear in the screen examples as **OPTION**, or **OPT**, or **O**.

## Names of Commands, Fields, Files, Functions, Jobs, Libraries, Members, Missions, Options, Parameters, Reports, Subparameters, and Users

The names of commands, fields, functions, jobs, libraries, members, missions, options, parameters, reports, subparameters, users, and most files, are shown in standard **UPPERCASE** font.

### User Entries

In situations where you are instructed to enter characters using the keyboard, the specific characters to be entered are shown in this **UPPERCASE BOLD** text, for example, type **EXITNAME**.

## User entries

In situations where you are instructed to enter characters using the keyboard, the specific characters to be entered are shown in this **UPPERCASE BOLD** text, for example, type **EXITNAME**.

## Syntax statements

In syntax, the following additional conventions apply:

- A vertical bar ( | ) separating items indicates that you must choose one item. In the following example, you would choose *a*, *b*, or *c*:  
  
a | b | c
- An ellipsis ( . . . ) indicates that you can repeat the preceding item or items as many times as necessary.
- Square brackets ( [ ] ) around an item indicate that the item is optional. If square brackets ( [ ] ) are around a group of items, this indicates that the item is optional, and you may choose to implement any single item in the group. Square brackets can open ( [ ) and close ( ] ) on the same line of text, or may begin on one line of text and end, with the choices being stacked, one or more lines later.
- Braces ( { } ) around a group of items indicates that the item is mandatory, and you must choose to implement a single item in the group. Braces can open ( { ) and close ( } ) on the same line of text, or may begin on one line of text and end, with the choices being stacked, one or more lines later.

## Screen characters

All syntax, operating system terms, and literal examples are presented in this typeface. This includes JCL calls, code examples, control statements, and system messages. Examples of this are:

- calls, such as  
`CALL 'CBLTDLI'`
- code examples, such as  
`FOR TABLE owner.name USE option, . . . ;`
- control statements, such as  
`//PRDSYSIN DD * USERLOAD PRD(2) PRINT`
- system messages, both stand-alone, such as You are not logged on to database `database_name`, and those embedded in text, such as the message You are not logged on to database `database_name`, are displayed on the screen.

## Variables

Variables are identified with *italic* text. Examples of this are:

- In syntax or message text, such as  
Specify database *database\_name*
- In regular text, such as  
replace database *database\_name1* with database *database\_name2* for the current session
- In a version number, such as  
EXTENDED BUFFER MANAGER for IMS 4.1.*xx*

## Special elements

This guide includes special elements called *notes* and *warnings*:

Notes provide additional information about the current subject.

Warnings alert you to situations that can cause problems, such as loss of data, if you do not follow instructions carefully.

# Part 1 Upgrade procedures

## Overview

This guide contains instructions for upgrading to the current release from any of the following INCONTROL versions:

- 6.3.xx
- 7.0.xx
- 8.0.xx

The Express Upgrade is the recommended approach for upgrading INCONTROL products to the most recent major version. This process does NOT require copying all the database and operations libraries during upgrade process downtime. It reduces downtime to seconds.

The Full Upgrade approach was the original approach for upgrading INCONTROL products. The Express Upgrade approach was introduced with the INCONTROL version 8.0.00.

Before proceeding, review [A Technical considerations](#) (on page 78) and the What's New section of the INCONTROL for z/OS Release Notes to determine if upgrading is appropriate for your site.

Throughout the entire upgrade process, as long as the INCONTROL for z/OS products are running in compatibility mode for previous versions (see [Basic concepts](#) (on page 11)), the configuration of the Control-M/Enterprise Manager must be kept at the same version as it was before the upgrade process was started.

After the transition period is completed, and the user has decided to change the compatibility mode to the new upgrade level, the user is required to configure Control-M/Enterprise Manager for managing the Control-M at the newly upgraded level.

To configure Control-M/Enterprise Manager for the upgraded Control-M for z/OS

1. Shut down the IOAGATE.
2. From the Control-M Configuration Manager, shut down the Gateway for this Control-M.
3. Set the CMODE to the new upgrade level in the MODEASM parameter.

NOTE: In the Express Upgrade, Step 3 is automatically performed during the "Complete the upgrade" step and after its successful completion, NO CHANGE is needed.

4. Promote Control-M Server to the new upgrade level using the Tools->Promote Control-M option.
5. Restart the IOAGATE.
6. From the Control-M Configuration Manager, restart the Gateway for this Control-M.

### WARNING

When the system is running with all capabilities at the new upgrade level, there is no simple, efficient way to fallback to any of the previous versions.

Note that the following product names and codes are used throughout this guide:

Former Product Name	Current Product Name	Product Code
Control-B	Control-M/Analyzer	CTB
Control-R	Control-M/Restart	CTR
Control-T	Control-M/Tape	CTT

## Express Upgrade

The Express Upgrade is aimed at simplifying the upgrade procedure, providing the advantages of the Full Upgrade with more flexibility.

The Express Upgrade allows you to prepare the new production environment with the new release, while the old production environment is still running, and then perform a fast and easy switch to the new release. In addition, this option allows an immediate fallback to the old production environment, in case it is required.

The Express Upgrade approach is described in [Express Upgrade](#) (on page 12).

## Full Upgrade

During the time you are performing a Full Upgrade, because the IOA core and the INCONTROL products are upgraded as an integrated procedure, none of the individual Control-x products are available for day-to-day operations.

The Full Upgrade process can be performed when upgrading from version 6.1.xx or later.

The Full Upgrade approach is described in [Full Upgrade](#) (on page 28).

## Terms used in this guide

- The terms CR and the current release are used interchangeably. These terms are intended to mean the version number shown on the front cover of this guide.
- The term Control-x is used as a generic identifier for any one or more INCONTROL products.

## Basic concepts

Each of the INCONTROL products, and the common IOA infrastructure as well, has a compatibility mode set to them in the IOAPARM member of the IOA PARM library.

These modes are also managed from ICE, through the Customization panels.

The names of these compatibility mode parameters are in the form `MODE $nnn$` , where

$nnn$  denotes the product line (CTM, CTD, IOA, and so on), and the values of these modes correspond to feature sets that were introduced in different versions of the products:

- `MODE $nnn$ =630` refers to the basic feature set available for version 6.3. $xx$
- `MODE $nnn$ =700` refers to the basic feature set available for version 7.0. $xx$
- `MODE $nnn$ =800` refers to the basic feature set available for version 8.0. $xx$
- `MODE $nnn$ =900` refers to the basic feature set available for version 9.0. $xx$

In general, products of a given version can work in their native full feature mode (the mode corresponding to that version according to the list above), but also in a mode that is a version lower than the native mode. This ability to work in a mode lower than the native mode is also called C-1 compatibility.

## Express Upgrade

This chapter explains the Express Upgrade process, which is an alternative to the Full process, described in [Full Upgrade](#) (on page 28). The Express Upgrade provides an upgrade process with very short downtime. The main idea behind the Express Upgrade is using the original database data sets and operational libraries of the old IOA environment instead of the long and complicated process of copying data from the old environment to the new one (cloned environments are also supported).

### Overview

The Express Upgrade supports an upgrade to the new IOA version with a minimum of resources required for checking the readiness of the new IOA environment. An automatic process scans both the old and the new IOA environments, providing a detailed report of the differences between the two environments. This process ensures that the new IOA is identical to the old one.

Since the Express Upgrade process does NOT require copying all the database and operations libraries during the upgrade process downtime, it reduces the downtime to seconds.

#### **WARNING:**

Since the New Environment will be connected to the repository data sets and the operational libraries of the Old Production environment during the Express Upgrade process, it is strongly recommended that you back up the Production Environment data sets and the Site Libraries before starting the upgrade process.

The Express Upgrade process is recommended when you want to complete an upgrade in the quickest and simplest manner. The Express Upgrade is performed through ICE. For detailed information about ICE, see Part 1, "Installation and Customization Engine (ICE)" in *INCONTROL for z/OS Installation Guide: Installing*.

When working in compatibility mode (see [Basic concepts](#) (on page 11)), if MODEnn=800, the Control-M Server must be defined as version 800; if MODEnn=700, Control-M Server must be defined as version 700. When switching from MODEnn=800 or from MODEnn=730 to MODEnn=900, you must migrate the Control-M/Server definitions in the Control-M/Enterprise Manager database from the earlier version to the current release by running the migrate\_dc utility in the Control-M/Enterprise Manager environment. For more information about the migrate\_dc utility, see the *Control-M Migration Guide*. See also [Step 55. Final adjustments](#) (on page 76).

➤ **To invoke the Express Upgrade facility, select the Express Upgrade option on the ICE Main screen.**

The IOA Express Upgrade panel is displayed, enabling you to select the following steps:

- [Step 1 - Compare two environments](#) (on page 18)
- [Step 2 - Adapt new environment](#) (on page 20)
- [Step 3 - Switch to new environment](#) (on page 23)
- [Step 4 - Complete the upgrade](#) (on page 23)
- [Optional Step - FALLBACK](#) (on page 23)

### Compare two environments

This step compares the original ("old") IOA environment, which is being upgraded, with the new IOA environment and creates a report that indicates the differences between these two environments. These differences result from customizations performed on these environments. Analyze this report to ensure that all the customizations implemented in the original environment are also implemented in the New Environment, before you confirm it and continue to the next upgrade step.

### Adapt new environment

You must deactivate all address spaces from the new IOA environment before performing this step.

This step adapts the new IOA environment by

- updating relevant settings in the new IOA environment according to the settings in the original IOA environment (includes QNAME and SSNAME)
- connecting the new IOA environment to the operation and data base files of the original production environment
- switching the new IOA environment to Compatibility Mode

### Switch to new environment

In this step all new IOA environment procedures become ready for processing. You must deactivate all address spaces from the original IOA environment and activate all address spaces from the new IOA environment upon a successful termination of this step. All INCONTROL products in the new IOA environment then work in Compatibility Mode.

### Complete the upgrade

In this step all products in the new IOA environment are automatically switched to Incompatibility Mode. After completion of this step, the fallback to the original IOA environment is no longer possible, and all Express Upgrade steps, including the FALLBACK step are locked.

#### FALLBACK

This optional step recovers all procedures from the original IOA environment. Address spaces from the original IOA environment can again be activated after this step is completed.

## Limitations

The Express Upgrade process to version 9.0.xx can be performed only when upgrading from versions 7.0.xx and 8.x.xx.

All INCONTROL products that are installed in the old version production environment must also be installed in the new version environment. The opposite is not required; the new version environment can contain products that are not installed in the old version production environment.

Note:

Control-M/JCL Verify cannot be upgraded from version 8.0.03 or higher to version 9.0.00.

## Terminology

The following key terms are used to describe the Express Upgrade process:

- Old Environment - This is the old version IOA environment that serves the production systems.
- New Environment - This is an environment that will become the new version IOA production environment upon a successful completion of the upgrade process.
- Compatibility Mode - In this mode, the newly installed new version environment uses the repository data sets and operation libraries from the original production environment. This is possible because it does not use new features that are not compatible with the older version production environment. Fallback is only possible in this mode.
- Adaptation - The process during which the repository data sets and operation libraries that were installed together with the New Environment are disconnected from the New Environment, and the repository data sets and operational libraries of the Old Production Environment are connected to the New Environment. From this point, the merger of the newer version runtime environment with the existing production repository data sets is called the Adapted Environment.
- Adapted Environment - When the New Environment and older version production environment are configured to share the same production data sets and operation libraries, the New Environment is also called the Adapted Environment.
- Incompatibility Mode - In this mode the newly installed environment uses new features that are not compatible with the older version. Once the products are switched from Compatibility Mode to Incompatibility Mode, and activated, then switching them back to the Compatibility Mode using the FALLBACK process is no longer possible.
- Site Libraries - This term refers to two libraries outside of the IOA environment, which are pointed to by the SITEPROC and PROCLIB ICE parameters. The libraries contain, respectively, the Procedures and Started Tasks (STC JCLs) of the INCONTROL products, which are copied to the libraries during the Installation and Upgrade processes.
- First Three Characters - This term refers to first three characters of Procedures and Started Tasks names which the user defines during the Installation and Adaptation processes.

## Use Cases

### Case 1

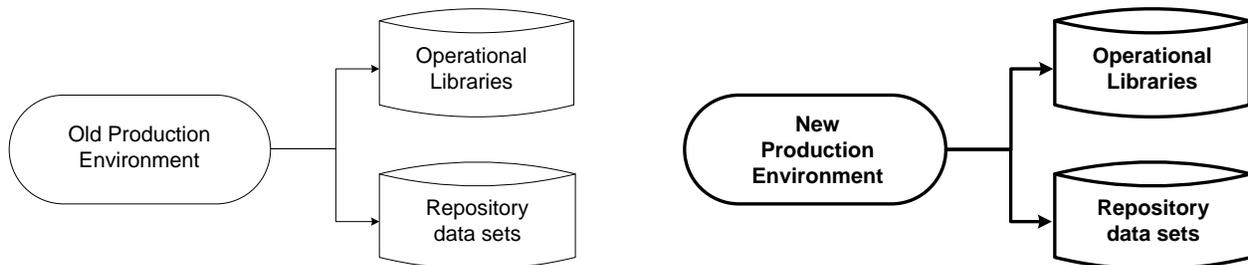
The original installation consists of a production environment.

When installing the New Environment, the LPAR-wide installation parameters, such as the QNAMEs, SSNAMEs, port numbers, prefixes and first three characters of started tasks and procedures names of the New Environment must be different from those of the old one.

The Express Upgrade procedure consists of the following two phases:

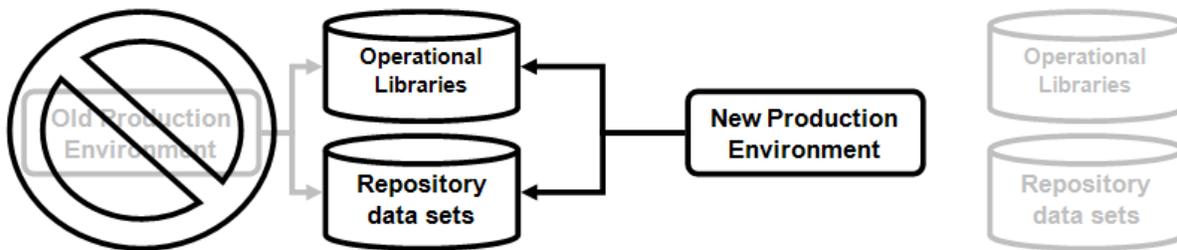
1. Install and test the new production environment.

**Figure 1 Phase 1: Install and test the New Production Environment**



2. Upgrade from the old to the new production environment using the Express Upgrade facility.

**Figure 2 Phase 2: Upgrade from Old to New Production Environment using the Express Upgrade facility**



## Case 2 - ("Best Practice")

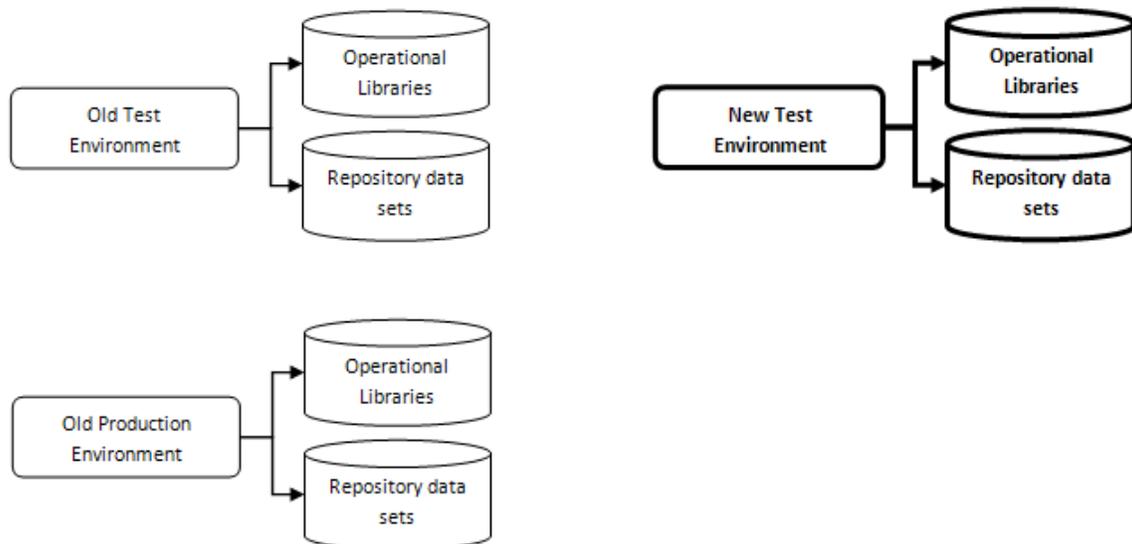
The original installation consists of both a test environment and a production environment.

When installing the New Environment, the LPAR-wide installation parameters, such as the QNAMEs, SSNAMEs, port numbers, prefixes and first three characters of started tasks and procedures names of the New Environments must be different from those of the old environments.

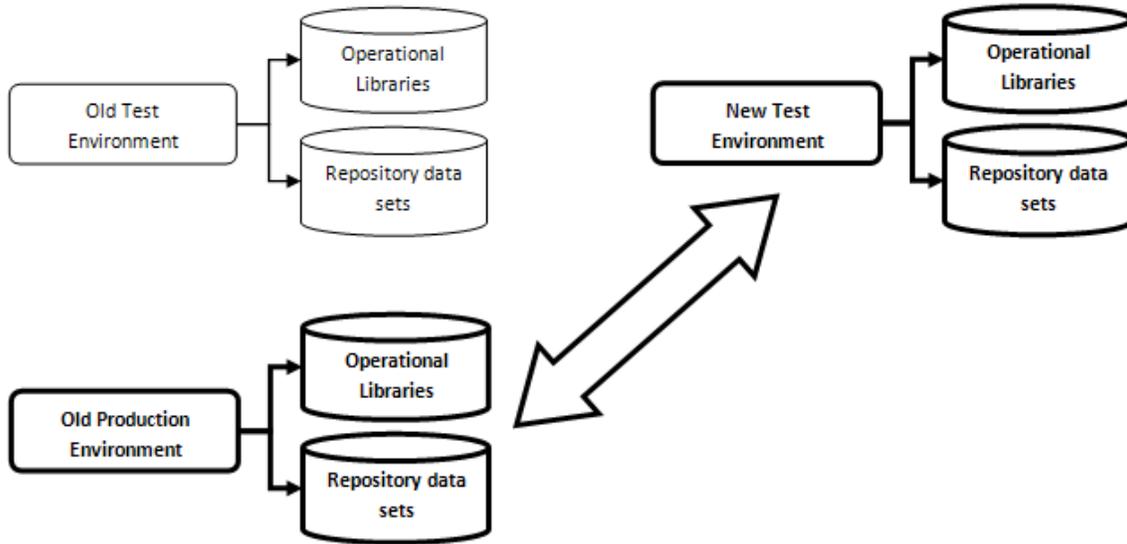
The Express Upgrade procedure consists of the following five main phases:

1. Install and test the new test environment.
2. Compare settings of the existing production environment against the new test environment.
3. Create a new production environment (by cloning from the new test environment). This environment will be a primary production environment after the upgrade process will be completed.
4. Upgrade from the old to the new test environment using the Express Upgrade facility.
5. Upgrade from the old to the new production environment using the Express Upgrade facility.

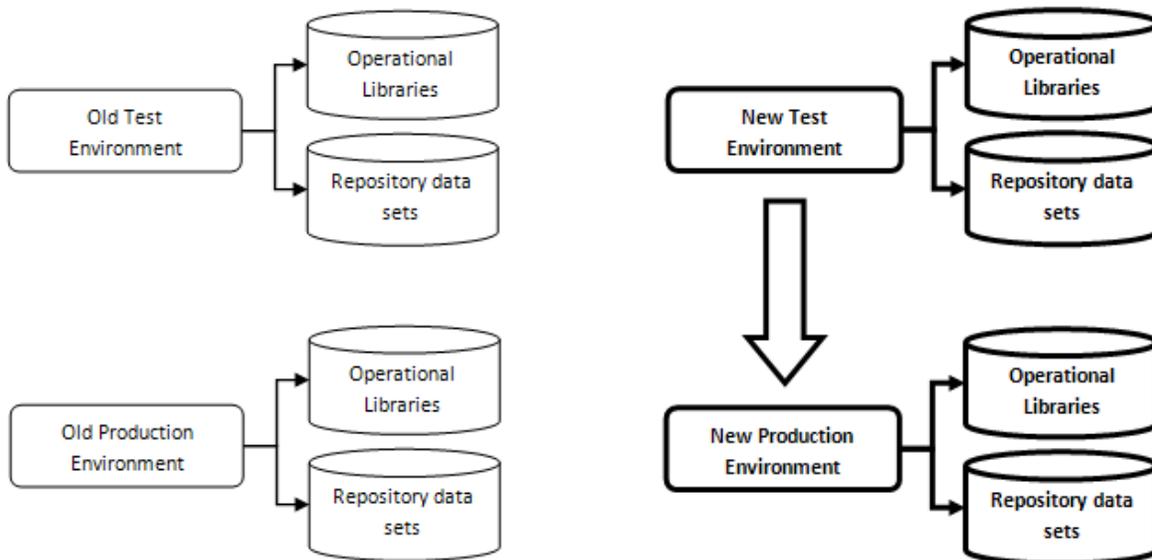
**Figure 3 Phase 1: Install and test the New Test Environment**



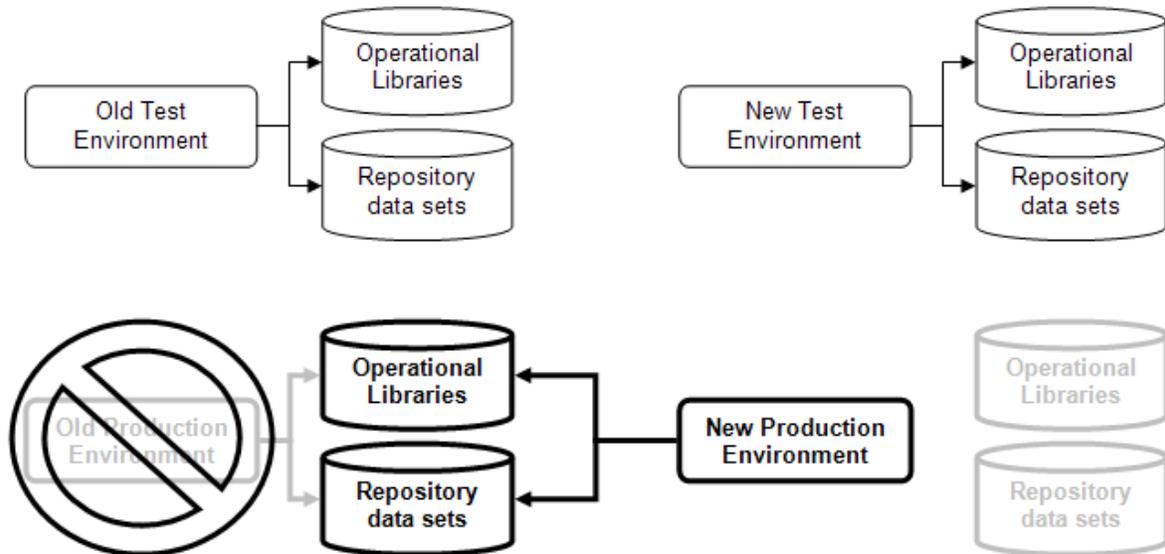
**Figure 4 Phase 2: Compare Old and New Environments**



**Figure 5 Phase 3: Create New Production Environment**



**Figure 6 Phases 4 and 5: Upgrade from Old to New Production and Test Environments using the Express Upgrade facility**



## Detailed description of the Express Upgrade process

The Express Upgrade enables upgrading the IOA environment using the original data base data sets and operational libraries of the old environment (cloned environments are also supported). It reduces the upgrade downtime to seconds and makes the upgrade process much more stable.

### Note:

Since the New Environment will be connected to the repository data sets and operational libraries of the old production environment during the Express Upgrade process, it is strongly recommended to back up the production environment data sets and site libraries before starting the upgrade process.

## Step 1 - Compare two environments

This step compares the original IOA environment that is being upgraded with the new IOA environment and creates a report that indicates the differences between these environments. These differences result from customizations performed on these environments. Analyze this report to ensure that all customizations performed in the original environment are implemented in the new environment, before you continue to the next step.

The step can be invoked as many times as required as long as the second step ("Adapt new environment") has not been invoked yet. If the "two environments" step is invoked more than one time, you are asked whether you want to rerun the step or to continue with the results of the previous step invocation. If you choose to rerun the step or the step is invoked for the first time, you are asked to provide the Installation Libraries prefix of the old version production environment, which are pointed to by the ILPREFA ICE parameter. The prefix value must be the same as the IOA PARM data set name of the old environment with the low level qualifier PARM omitted. For example, if the name is IOA.PROD.PARM, you have to specify IOA.PROD. Once the prefix is provided, the reference values are retrieved from the old production to the new environment and the comparison process starts.

The step consists of the following sub-steps:

- Compare installed environments
- Compare user exits
- Compare optional wishes
- Compare IOADSN\* members
- Check modified members of OLD Environment
- Compare parameters of two environments
- Compare ALC\* members in IOA PARM libraries
- Compare IOA Profile Variables
- Compare Control-D skeletons
- Check CTO rules of OLD Environment
- Application Servers considerations
- Check Mail Destination Table (only for version 6.3.xx)
- Review Control-M JCL library
- Check definitions of Control-M scheduled libraries
- Check security interface
- Compare NLS definitions
- Compare samples from operation libraries

Each sub-step performs a specific comparison or analysis operation. The list of the sub-steps varies according to the products installed.

To complete the "Compare two environments" step each sub-step must be completed (the status of each sub-step must be set to COMPLETE). The sub-steps achieve the COMPLETE status when the comparison between old and new environments or an analysis operation satisfies the Express Upgrade process requirements. Otherwise, a sub-step status is set to '\*'. Sub-steps having the '\*' status must be reviewed by selecting them.

There are two options to change a sub-step status from '\*' to COMPLETE:

- Implement the relevant customizations in the new environment to align them with the old version production environment customizations, and then rerun the "Compare two environments" step. If the customizations are identical to those of the old version production environment, then the sub-step status will be automatically changed to COMPLETE.
- Complete a sub-step by typing the word "CONFIRM" when exiting from a sub-step review screen. In this case you confirm that you understand the meaning of the differences and that the differences are irrelevant or non-critical for your environment.

The REP command can be used to review the entire report produced by all sub-steps of the "Compare two environments" step. The name of the member containing the report is UPGREP1. The member is located in the IOA INSTWORK library.

After the comparison step is completed, the OLD and NEW environments must remain "frozen" - do not make any modifications to either of the environments until after the successful completion of the "Complete the upgrade" step.

## Step 2 - Adapt new environment

This step performs the following:

- Locks the first step from being invoked by a user.
- Checks that all components of the new environment are down. If some address spaces of the new environment are active a dialog panel with corresponding information will be displayed. To continue the Adaptation step all active address spaces of the new environment must be stopped. Otherwise it will be impossible to continue the Adaptation step.
- Retrieves parameters from the old environment.
- Switches the new environment to Compatibility Mode according to the version of the old environment.
- Copies the following parameter members (if they exist) from the IOA PARM library of the old version production environment to the new environment:
  - CMMPLEX
  - CTMPLEX
  - IOAPLEX
  - ECAPARMx
  - ECAMAPx
  - ECAIPLx
  - IOACPRM
  - IOAKPRM
  - IOASPRM
  - IOAXPRM
  - REMCONF
  - REMTMPLx
  - SECPARM

- \$PROFMOD
- AUDTPARM
- MAILDEST (only for version 7.0.00 and above)
- IOACMEML
- TIMEZONE
- Copies members from the IOA PROF library of the old environment to the IOA PROF library of the new environment.
- Adds new members from the Operational Libraries of the New Environment to the Operational Libraries of the old one.
- Checks and corrects IOAGATE Parameters to make sure that the monitor names in the IOA Online Monitor parameter member ilprefa.PARM(IOAXPRM) are the correct names for the New Environment.
- Displays two screens to enable the user to change the following parameters:

**Table 1 INCONTROL parameters**

Component	Parameter	Description
IOA		
	PROCLIB	MVS started tasks library
	SITEPROC	Site's procedure library
	SYSPROCA	SYSPROC site library
	PROCPRFA	First 3 characters of IOA JCL procedures
Control-M/Analyzer		
	PROCPRFB	First 3 characters of Control-M/Analyzer JCL procedures
Control-D		
	PROCPRFD	First 3 characters of Control-D JCL procedures
Control-M/JCL Verify		
	PROCPRFJ	First 3 characters of Control-M/JCL Verify JCL procedures
	CLISTNMJ	New CTJXVER CLIST name
Control-M		
	PROCPRFM	First 3 characters of Control-M JCL procedures

Component	Parameter	Description
Control-O		
	PROCPRFO	First 3 characters of Control-O JCL procedures
Control-M/Restart		
	PROCPRFR	First 3 characters of Control-M/Restart JCL procedures
Control-M/Tape		
	PROCPRFT	First 3 characters of Control-M/Tape JCL procedures
Control-V		
	PROCPRFV	First 3 characters of Control-V JCL procedures

Upon the step termination, the new environment is disconnected from its repository data sets and operation libraries. Instead, the new environment will be connected to the repository data sets and operation libraries of the old version production environment. The new environment cannot be activated until the "Switch to new environment" step is completed.

Take the following considerations into account when defining the values of the parameters in the "Adapt the environment" step:

- If the corresponding values of the Three Letter Prefixes and the Site Libraries names are the same for the old and new environments, it is not possible to simultaneously activate the address spaces for the INCONTROL products from both the new and old environments.
- If the corresponding values of the Three Letter Prefixes are the same for the old and new environments, but the Site Libraries names are different, the order of the Site Libraries names, defined by the PROCLIBs JES2 initialization statements, determines which address spaces of which environment is activated upon request.

The "Adapt the environment" step can be invoked in the following cases:

- After a successful completion of the "Compare two environments" step.
- After a successful completion of the "FALLBACK" step.
- After a failure of the "Adapt the environment" step.

## Step 3 - Switch to new environment

The step backs up the procedures and STC jobs of the old version production environment and places the new environment procedures and STC jobs into the Site Libraries defined at the "Adapt new environment" step. The procedures and STC jobs of the old environment are replaced by those of the new one when it is required. Upon completion of this step the summary containing the values of prefixes and backup locations are displayed, and all new IOA environment procedures and STC jobs become ready for processing. You must deactivate all address spaces from the original IOA environment and activate all address spaces from the new IOA environment (including CDAM and Control-M/Tape). All products in the new IOA environment will work in Compatibility Mode. The step can be invoked after the "Adapt new environment" step only.

## Step 4 - Complete the upgrade

### **WARNING:**

After IOA is set to the current release mode, changing the value of the compatibility variables back to 630/700 (C-1 compatible) might cause unpredictable results.

In this step all products in the new IOA environment are automatically switched to Incompatibility Mode (see [Terminology](#) (on page 14)). After completion of this step the fallback to the old version production environment will no longer be possible, and all the Express Upgrade steps will be locked. To prevent the activation of the OLD address spaces by mistake, the OLD environment will be locked by renaming the IOAPARM and DEFARM members in the OLD IOA.PARM library to IOAPARM@ and DEFARM@ respectively. This step can be performed after you are confident that the new environment is working as expected.

## Optional Step - FALLBACK

The step allows performing a quick fallback to the old version production environment, as long as the "Complete the upgrade" step has not been completed. The "FALLBACK" step recovers all procedures and STC jobs of the old version production environment from the backup prepared in the "Switch to new environment" step. Address spaces from the original IOA environment can be activated after the "FALLBACK" step is completed. The "Adapt new environment" and the "Switch to new environment" steps will be unlocked and their status will be reset to allow an additional attempt to perform the steps.

Before performing the "FALLBACK" step, do the following:

- check that all components of the new environment are down
- perform a full backup of all the Control-M files, including the journal file

When falling back to version 6.3.xx, the following message is issued by the 6.3.xx monitor:

```
*CTML11W AJF/CONDITION JOURNALING DISABLED
```

```
*xx CTML12W REPLY 'C' CONTINUE WITHOUT JOURNALING, 'I' INITIALIZE, OR 'E' END
```

Reply with "I" to this question.

## Express Upgrade planning sheet

IOA

<p>PROCLIB MVS started tasks library</p> <p>_____ Use the supplied library directly</p> <p>_____ Copy procedures to site library</p> <p>PROCLIB DSNAME: _____</p>	<p>The library contains all the started tasks. All the members in this library are jobs. Therefore, DDNAME IEFJOBS, which is in the MSTJCLxx member of SYS1.PARMLIB, must point to the library in which these members reside. You can define the library in your system as a started task library, or copy started tasks from the IOA library into an existing started tasks library. To specify the DSNAME of an existing started tasks library, use the PROCLIB installation parameter. Started tasks are customized during the installation process for each environment.</p>
<p>SITEPROC Site's procedure library</p> <p>_____ Use the supplied library directly</p> <p>_____ Copy procedures to site library</p> <p>SITEPROC DSNAME: _____</p>	<p>The library contains all the procedures to be used in jobs. Each job supplied already contains a JCLLIB statement to enable the job to use this library. You can also copy a small number of selected procedures into an existing procedure library. The SITEPROC installation parameter specifies the DSNAME of an existing procedure library. If you do this, make sure that the names of new JCL procedures are different from existing ones.</p>
<p>SYSPROCA site's CLIST library</p> <p>_____ Use the supplied library directly</p> <p>_____ Copy CLIST to site library</p> <p>SYSPROCA DSNAME: _____</p>	<p>The library contains REXX "CTJXVER" from the IOA CLIST library. You have to allocate the SYSPROC library to the TSO users. The SITEPROC installation parameter specifies the DSNAME of an existing SYSPROC library.</p>
<p>PROCPRFA First 3 characters of IOA JCL procedures</p> <p>First 3 characters of IOA JCL procedures _____</p>	<p>First three characters of the IOA JCL started tasks and procedures, after they are copied to the MVS procedure library. The value specified for this parameter must not be the same as that specified for the PROCPRFx parameter in other INCONTROL products.</p>

Control-M/Analyzer

PROCPRFB First 3 characters of Control-M/Analyzer JCL procedures  
 First 3 characters of Control-M/Analyzer JCL procedures\_\_\_\_\_

First three characters of the Control-M/Analyzer JCL started tasks and procedures, after they are copied to the MVS procedure library. The value specified for this parameter must not be the same as that specified for the PROCPRFx parameter in other INCONTROL products.

Control-D

PROCPRFD First 3 characters of Control-D JCL procedures  
 First 3 characters of Control-D JCL procedures\_\_\_\_\_

First three characters of the Control-D JCL started tasks and procedures, after they are copied to the MVS procedure library. The value specified for this parameter must not be the same as that specified for the PROCPRFx parameter in other INCONTROL products.

Control-M/JCL Verify

PROCPRFM First 3 characters of Control-M/JCL Verify JCL procedures  
 First 3 characters of Control-M/JCL Verify JCL procedures\_\_\_\_\_

First three characters of the Control-M/JCL Verify JCL started tasks and procedures, after they are copied to the MVS procedure library. The value specified for this parameter must not be the same as that specified for the PROCPRFx parameter in other INCONTROL products.

Control-M

<p>PROCPRFM First 3 characters of Control-M JCL procedures First 3 characters of Control-M JCL procedures_____</p>	<p>First three characters of the Control-M JCL started tasks and procedures, after they are copied to the MVS procedure library. The value specified for this parameter must not be the same as that specified for the PROCPRFX parameter in other INCONTROL products.</p>
--	--

Control-O

<p>PROCPRFO First 3 characters of Control-O JCL procedures First 3 characters of Control-O JCL procedures_____</p>	<p>First three characters of the Control-O JCL started tasks and procedures, after they are copied to the MVS procedure library. The value specified for this parameter must not be the same as that specified for the PROCPRFX parameter in other INCONTROL products.</p>
--	--

Control-M/Restart

<p>PROCPRFR First 3 characters of Control-M/Restart JCL procedures First 3 characters of Control-M/Restart JCL procedures_____</p>	<p>First three characters of the Control-M/Restart JCL started tasks and procedures, after they are copied to the MVS procedure library. The value specified for this parameter must not be the same as that specified for the PROCPRFX parameter in other INCONTROL products.</p>
--	--

Control-M/Tape

<p>PROCPRFT First 3 characters of Control-M/Tape JCL procedures First 3 characters of Control-M/Tape JCL procedures_____</p>	<p>First three characters of the Control-M/Tape JCL started tasks and procedures, after they are copied to the MVS procedure library. The value specified for this parameter must not be the same as that specified for the PROCPRFX parameter in other INCONTROL products.</p>
--	---

Control-V

<p>PROCPRFV First 3 characters of Control-V JCL procedures First 3 characters of Control-V JCL procedures_____</p>	<p>First three characters of the Control-V JCL started tasks and procedures, after they are copied to the MVS procedure library. The value specified for this parameter must not be the same as that specified for the PROCPRFx parameter in other INCONTROL products.</p>
--	--

## Full Upgrade

This chapter explains how to perform a full upgrade to the current release.

This chapter assumes that you are upgrading from version 6.3.xx to the current release, and the discussions, examples and exhibits herein reflect this assumption.

This chapter assumes that you are installing INCONTROL products according to the customized installation option. If you are using the Express installation option, modify the instructions in the current chapter accordingly.

This process requires a full system shutdown in order to implement, and concludes with your entire system reaching the functionality of the current release as a single entity.

### Overview

All INCONTROL products must be at the same version number in order to use the full upgrade process. Otherwise, the INCONTROL products will not be able to work together, interact, and share resources.

The following changes have been made in the IOA structure to simplify installation and upgrading:

- All jobs and working members are now in the INSTWORK library. The INSTCTx libraries are now base libraries.
- All PARM members are in the IOA.PARM library.
- The DEFARM member is in the IOA.PARM library.
- IOASPARM is now IOASPRM.
- IOAXPARM is now IOAXPRM.

### Full upgrade steps

The full upgrade process involves the following steps:

1. Follow the instructions in the *INCONTROL for z/OS Installation Guide: Installing* to install the current release to use as a test system.
2. Create a second, separate CR system exactly like the first, to use as a production system.
3. Apply the customizations from your previous version to the current release system.
4. Prepare to migrate production from your previous version to the current release system.
5. Migrate production to the current release system.

When you complete the upgrade, you will have three systems:

- the old version
- the current release test version
- the current release new production version

## Installing the current release as a test system

The following table describes the steps you must follow in order to begin the installation of the full upgrade to the current release as a test system. Mark the Check column of the following table as you complete each step. You may exclude those steps that are optional or not applicable to your site. All steps must be completed in sequence.

**Table 2**                      **Installation checklist**

Check	Step and Description
	<a href="#">Step 1. Prepare a plan</a> (on page 29)
	<a href="#">Step 2. Install the current release as a test system</a> (on page 30)
	<a href="#">Step 3. Install the IOA component</a> (on page 30)
	<a href="#">Step 4. Install Control-M</a> (on page 31)
	<a href="#">Step 5. Install Control-M/Restart</a> (on page 33)
	<a href="#">Step 6. Install Control-D</a> (on page 33)
	<a href="#">Step 7. Install Control-V</a> (on page 35)
	<a href="#">Step 8. Install Control-O</a> (on page 36)
	<a href="#">Step 9. Install Control-M/Analyzer</a> (on page 37)
	<a href="#">Step 10. Install Control-M/Tape</a> (on page 38)
	<a href="#">Step 11. Install IOAGATE</a> (on page 39)
	<a href="#">Step 12. Install Control-M Application Server (CTMAS)</a> (on page 39)
	<a href="#">Step 13. Install Control-M/JCL Verify</a> (on page 39)

### Step 1. Prepare a plan

#### 1. Prepare batch jobs and CLISTS

Prepare batch jobs and CLISTS to automate as much of the upgrade as possible. Edit, copy, and delete files manually only when you have no choice. This enables you to review and test your jobs and CLISTS before the upgrade, and run them automatically during the upgrade.

Place your batch jobs and CLISTS in a dedicated library.

Examples:

For [Step 21. Adjust Control-M/Tape](#) (on page 45):

Instead of copying files manually, prepare a CLIST that copies definitions from your previous version to the current release Control-M/Tape PARM library.

For [Step 38. Copy definition libraries](#) (on page 56):

Instead of copying libraries manually, make a batch job that copies libraries from your previous version to the current release.

**2. Plan and schedule the migration**

Build your plan around the batch jobs, CLISTs, and site-specific parameter members that make up the bulk of the work.

Keep a record of the customizations that you have made, both during the upgrade and after you have migrated production to the current release.

## Step 2. Install the current release as a test system

1. Review [A Technical considerations](#) (on page 78) and the What's New section of the INCONTROL for z/OS Release Notes
2. Follow the instructions in the *INCONTROL for z/OS Installation Guide: Installing* to install the current release.
3. Clone the installation and create a test system. The IOA and Control-x product repositories should be created to be at least the size of the current production repositories. If not, migration of the data from the old repositories to the new repositories will fail.

When you finish the upgrade, the clone becomes your production system, and the test system is then available for testing maintenance fixes.

## Step 3. Install the IOA component

Install the IOA component, following the instructions in the IOA installation chapter of the *INCONTROL for z/OS Installation Guide: Installing*. Observe the following rules:

**1. Assign parameter values**

Use the INCONTROL Installation and Customization Engine (ICE) to assign values to the current release parameters in the following table that are different than the values of the corresponding parameters in the system you are now using. For details, see the DEFARM member in the IOA.PARM library.

**Table 3 IOA parameters**

Parameter	Description
%ILPREFA%	Prefix of the Environment INSTALL library and IOA Installation libraries
%OLPREFA%	Prefix of the IOA Operations libraries
%STEPLIB%	IOA LOAD library
%DBPREFA%	Prefix of the IOA Core

2. While you are testing the current release, the names of IOA started tasks such as IOAOMON1 and IOAVMON must differ from the names of the same started tasks in the earlier version.

3. Assign a value to the PROCPRFA parameter

Assign a value to be used as the prefix of IOA procedure names. Then adjust the JCL of your production jobs accordingly:

- If you assign a value different than the value in the version you are upgrading from, you must modify the JCL of the production jobs that invoke IOA JCL procedures during the migration.
- If you assign the same value as in the version you are upgrading from, you must have a separate PROCLIB for the testing period, and you must include a JCLLIB statement or /\*JOBPARM statement in all the jobs.

If you assign the same value to the PROCPRFA parameter as in your previous version installation, ensure that all IOA started tasks that were specified in the SYS1.PARMLIB (COMMNDxx) will continue to be invoked from the correct procedure library.

4. Assign parameter values in the IOAPARM member

For the QNAME and SSNAME parameters, assign values that are different than the values in your earlier version system. To find the values in the system you are now using, see the IOAPARM member in the IOA.PARM library.

Using an earlier version production IOA QNAME during testing can damage production files.

5. Assign parameter values in the IOAXPRM member

If you are installing the IOA Online monitor, assign values to the SUBSYSTEM and VTAM APPLICATION parameters. The values that you assign must be different than the values in your current production system.

6. IOA security interface

If the IOA Security interface was installed in the version you are now using, install the new IOA Security interface.

If you are using the IOA Online monitor, grant the IOAOMON user permission to access all data sets used by online users.

7. Install maintenance

Install any maintenance that you applied to the test system that you created in substep 2 in [Step 2. Install the current release as a test system](#) (on page 30).

## Step 4. Install Control-M

If you do not intend to run Control-M at your site, skip this step.

Install Control-M following the instructions in the Control-M installation chapter of the *INCONTROL for z/OS Installation Guide: Installing*. Observe the following rules:

1. Assign parameter values

Use ICE to assign values to the current release parameters in the following table that are different than the values of the corresponding parameters in the system you are now using. For details, see the DEFPARM member in the IOA.PARM library.

**Table 4 Control-M parameters**

Parameter	Description
%ILPREFM%	Prefix of the Control-M Installation library
%OLPREFM%	Prefix of the Control-M Operations libraries
%DBPREFM%	Prefix of the Control-M Repository
%STATFILE%	DSName of the Control-M Statistics file

2. While you are testing the current release, the names of Control-M started tasks such as CONTROLM must differ from the names of the same started tasks in the version you are now using.

3. Assign a value to the PROCPRFM parameter.

Assign a value to be used as the prefix of Control-M procedure names. Then adjust the JCL of your production jobs accordingly. For details, see the explanation of PROCPRFA in substep 3 of [Step 3. Install the IOA component](#) (on page 30).

4. Assign values in the CTMPARM member

The mapping of certain parameters in Control-M versions earlier than 6.0.00 has been changed to Control-M version CR parameters, as shown in the following table. For the PROCNAMM parameter, assign a value that is different than the value in the version you are now using. To find the value in the version you are now using, see the CTMPARM member in the IOA.PARM library.

**Table 5 CTMPARM parameters**

Earlier version parameters	Equivalent current release parameters
INTERVL	INTERVLM
NONSWAP	NONSWAPM
PROCNAM	PROCNAMM
DAYTIME	DAYTIMEM
CKPSIZE	AJFSIZE

## Step 5. Install Control-M/Restart

If you do not intend to run Control-M/Restart at your site, skip this step.

Install Control-M/Restart following the instructions in the Control-M/Restart installation chapter of the *INCONTROL for z/OS Installation Guide: Installing*. Observe the following rules:

### 1. Assign parameter values

Use ICE to assign values to the current release parameters in the following table that are different than the values of the corresponding parameters in the version you are now using. For details, see the DEF Parm member in the IOA.PARM library.

**Table 6 Control-M/Restart parameters**

Parameter	Description
%ILPREFR%	Prefix of the Control-M/Restart Installation library
%OLPREFR%	Prefix of the Control-M/Restart Operations libraries

### 2. Assign values in the CTRPARM member

For the following parameters, assign values that are different than the values in the version you are now using. To find the values in your current system, see the CTRPARM member in the IOA.PARM library.

- CTRPROC
- AMPREFR

The mapping of certain parameters in Control-M/Restart versions earlier than 6.0.00 has been changed to Control-M/Restart version CR parameters, as shown in the following table.

**Table 7 CTRPARM parameters**

Earlier version parameters	Equivalent current release parameters
AMBLK#	AMBLK#R
AMBLKSZ	AMBLKSZR
AMUNIT	AMUNITR
AMVOL	AMVOLR

## Step 6. Install Control-D

If you do not intend to run Control-D at your site, skip this step.

Install Control-D following the instructions in the Control-D installation chapter of the *INCONTROL for z/OS Installation Guide: Installing*. Observe the following rules:

### 1. Assign parameter values

Use ICE to assign values to the current release parameters in the following table that are different than the values of the corresponding parameters in the version you are now using. For details, see the DEFPARM member in the IOA.PARM library.

**Table 8 Control-D parameters**

Parameter	Description
%ILPREFD%	Prefix of the Control-D Installation library
%OLPREFD%	Prefix of the Control-D Operations libraries
%DBPREFD%	Prefix of the Control-D Repository

### 2. While you are testing the current release, the names of Control-D started tasks, such as CONTROLD, must differ from the names of the same started tasks in the version you are now using.

### 3. Assign a value to the PROCPRFD parameter.

Assign a value to be used as the prefix of Control-D procedure names. Then adjust the JCL of your production jobs accordingly. For details, see the explanation of PROCPRFA in substep 3 of [Step 2. Install the current release as a test system](#) (on page 30)

### 4. Assign values in the CTDPARM member

For the following parameters, assign values that are different than the values in the system you are upgrading from. To find the values you are now using, see the CTDPARM member in the IOA.PARM library .

- PROCNAMD
- PRTSTC
- AMNAME (You should leave this parameter blank, so that it defaults to the value of the SSNAME parameter of IOA)
- WRKPREF
- WRKUNIT or WRKVOL
- AMPREF, AMPREFD and JB1PREF

### 5. Verify the Recipient Tree

Verify that the Recipient Tree is loaded and has no errors. The analysis phase contains new checks, and can reject recipients that were valid in previous versions. Error checking in the online environment is different than error checking in the Control-D monitor, so verify error-free loading for each case separately. BMC Software recommends that you correct all Recipient Tree records that are rejected.

### 6. Install the Control-D security interface

If the Control-D security interface was installed in the version you are now using, install the new Control-D security interface.

## Step 7. Install Control-V

If you do not intend to run Control-V at your site, skip this step.

Install Control-V following the instructions in the Control-V installation chapter of the *INCONTROL for z/OS Installation Guide: Installing*. Observe the following rules:

### 1. Assign parameter values

Use ICE to assign values to the current release parameter in the following table that is different than the value of the corresponding parameter in the version you are now using. For details, see the DEF Parm member in the IOA.PARM library.

**Table 9 Control-V parameters**

Parameter	Description
%OLPREFV%	Prefix of the Control-V Operations libraries

### 2. While you are testing the current release, the name of the IOA Archive server started task (IOASMON) must differ from the name of the same started task in the version you are now using.

### 3. Assign PROCPRFV value

Assign a value to be used as the prefix of Control-V procedure names. Then adjust the JCL of your production jobs accordingly. For details, see the explanation of PROCPRFA in substep 3 of [Step 3. Install the IOA component](#) (on page 30).

### 4. Assign values in the CTV Parm member

For the following parameters, BMC Software recommends that you assign values that are different than the values in the version you are now using. Assigning different values makes cleanup after testing easier. To find the values in the version you are now using, see the CTV Parm member in the IOA.PARM library.

- IXHPREF and IXPREF
- IXUNIT and IXVOL

### 5. Assign values in the IOASPRM member

For the following parameters, BMC Software recommends that you assign values that are different than the values in the version you are now using. Assigning different values makes cleanup after testing easier. To find the values in your current system, see the IOASPRM member in the IOA.PARM library.

- DSNPREF (In the "Media Specific Parameters" ICE step)
- SECPREF (During the definition of all media types)

To edit the IOASPRM member, do the following:

- Enter the main ICE screen.
- Select Customization.
- Enter CTV in the Product field.
- Select Product Customization.
- Select major step 2, "Archive Server Post-Installation."

- f. Select minor step 2, "Edit Media Parameters and Build IOASPRM."

## Step 8. Install Control-O

If you do not intend to run Control-O at your site, skip this step.

Control-M/Links for z/OS is a separately licensed product that enables customers to use Control-O functions to assist with Control-M operations. To install Control-M/Links follow the instructions for installing Control-O.

Install Control-O following the instructions in the Control-O installation chapter of the *INCONTROL for z/OS Installation Guide: Installing*. Observe the following rules:

### 1. Assign parameter values

Use ICE to assign values to the current release parameters in the following table that are different than the values of the corresponding parameters in the version you are now using. For details, see the DEFPARM member in the IOA.PARM library.

**Table 10 Control-O parameters**

Parameter	Description
%ILPREFO%	Prefix of the Control-O Installation library
%OLPREFO%	Prefix of the Control-O Operations libraries

2. While you are testing the current release, names of Control-O started tasks such as CONTROL0 must differ from the names of the same started tasks in the version you are now using.

### 3. Assign PROCPRFO value

Assign a value to the PROCPRFO parameter. This value is the prefix of Control-O procedure names. Then adjust the JCL of your production jobs accordingly. For details, see the explanation of PROCPRFA in substep 3 of [Step 3. Install the IOA component](#) (on page 30).

### 4. Assign values in the CTOPARM member

For the following parameters, assign values that are different than the values in the version you are now using. To find the values in the version you are now using, see the CTOPARM member in the IOA.PARM library.

- CTOQNAM
- JCMDSSN (only if JCMDSSN = subsystem name is used)

### 5. Reallocate Automation Log file

If you cannot reallocate the Automation Log because Control-O is running, skip this step; you will be instructed to reallocate in [Step 48. Migrate Control-O](#) (on page 68).

To reallocate the Automation Log file at this time, do the following:

- a. Use the IDCAMS utility to delete or rename both the CLUSTER and the DATA elements of the existing Automation Log files in each computer that is running Control-O.
- b. Enter the main ICE screen.
- c. Select Customization.

- d. Select an environment to customize.
  - e. Enter CTO in the Product field.
  - f. Select Product Customization.
  - g. Select major step 2, "Customize Control-O Dataset Parameters."
  - h. Select minor step 6, "Allocate the Automation Log File."
  - i. Submit and execute the job on every system that should run Control-O.
6. If the Control-O security interface was installed in the version you are now using, install the new Control-O security interface.

If you are using CMEM, you should have already installed the Control-O security interface as part of CMEM security interface installation. In this case, you only need to customize security definitions, as described in the *INCONTROL for z/OS Security Guide*.

Save security parameters. When upgrading from an earlier Control-O version when Control-O security is implemented at your site, do the following:

- a. Enter the main ICE screen.
- b. Select Customization.
- c. Select an environment to customize.
- d. Enter CTO in the Product field.
- e. Select Security Customization.
- f. Select major step 1, "Implement Control-O Security."
- g. Select minor step 3, "Save Security Parameters into Product."
- h. Select Control-O SECURITY.
- i. Perform minor steps 2, 3, and 4.

## Step 9. Install Control-M/Analyzer

If you do not intend to run Control-M/Analyzer at your site, skip this step.

Install Control-M/Analyzer following the instructions in the Control-M/Analyzer installation chapter of the *INCONTROL for z/OS Installation Guide: Installing*. Observe the following rules:

In the following steps, do not use ICE to allocate the Control-M/Analyzer repository. Instead, migrate the repository in the version you are now using to the current release, as explained in [Step 49. Migrate Control-M/Analyzer](#) (on page 69).

1. During testing, the Control-M/Analyzer current release procedure names such as CTBNDAY must differ from the corresponding earlier version procedure names.
2. Assign PROCPRFB value  
Assign a value to the PROCPRFB parameter. This value is used as the prefix of Control-M/Analyzer procedure names. Then adjust the JCL of your production jobs accordingly. For details, see the explanation of PROCPRFA in substep 3 of [Step 3. Install the IOA component](#) (on page 30).
3. Install security interface

If the Control-M/Analyzer security interface was installed in the version you are now using, install the new Control-M/Analyzer security interface.

## Step 10. Install Control-M/Tape

If you do not intend to run Control-M/Tape at your site, skip this step.

If you intend to run the Control-M/Tape current release in parallel with a previous version of Control-M/Tape, see [C Running two Control-M/Tapes in parallel](#) (on page 104).

Install Control-M/Tape following the instructions in the Control-M/Tape installation chapter of the *INCONTROL for z/OS Installation Guide: Installing*.

Observe the following rules:

**1. Assign parameter values**

Use ICE to assign values to the current release parameters in the following table that are different than the values of the corresponding parameters in your current system. For details, see the DEFPARM member in the IOA.PARM library.

**Table 11 Control-M/Tape parameters**

Parameter	Description
%ILPREFT%	Prefix of the Control-M/Tape Installation library
%OLPREFT%	Prefix of the Control-M/Tape Operations libraries
%DBPREFT%	Prefix of the Control-M/Tape Repository

**2. While you are testing the current release, the names of Control-M/Tape started tasks, such as CTTINIT, must differ from the names of the same started tasks in previous Control-M/Tape versions.**

**3. Assign PROCPRFT value**

Assign a value to the PROCPRFT parameter. This value is used as the prefix of Control-M/Tape procedure names. Then adjust the JCL of your production jobs accordingly. For details, see the explanation of PROCPRFA in substep 3 of [Step 3. Install the IOA component](#) (on page 30).

**4. Assign values in the CTTPARM member**

For the DBPREF and SVCNUM parameters, assign values that are different than the values in the version you are now using. To find the values in the version you are now using, see the CTTPARM member.

The DBPREFT IOA variable and the DBPREF CTTPARM parameter must contain the same value.

## Step 11. Install IOAGATE

Install IOAGATE following the instructions in the IOAGATE installation section of the IOA installation chapter of the *INCONTROL for z/OS Installation Guide: Installing*. Observe the following rules:

1. While you are testing the current release, the names of IOAGATE started tasks must differ from the names of the same started tasks in the version you are now using.
2. Assign parameter values

For the following parameters, use ICE to assign values that are different than the values of the corresponding parameters in the version you are now using. For details, see the ECAPARMS members (ECAPARMC, ECAPARMD, or ECAPARMM) in the IOA.PARM library.

- APPLIDS
- PORT

## Step 12. Install Control-M Application Server (CTMAS)

If you do not intend to run CTMAS at your site, skip this step.

Beginning with version 6.1.xx, the name of Enterprise Controlstation (ENTERPRISE/CS) was changed to Control-M/Enterprise Manager.

Before you install CTMAS, the Control-M/Enterprise Manager software must be upgraded to version 8.0.xx or later.

Install Control-M Application Server (CTMAS) following the instructions in the Control-M Application Server installation section of the IOA installation of the *INCONTROL for z/OS Installation Guide: Installing*.

## Step 13. Install Control-M/JCL Verify

If you do not intend to run Control-M/JCL Verify at your site, skip this step.

Install Control-M/JCL Verify following the instructions in the Control-M/JCL Verify installation chapter of the *INCONTROL for z/OS Installation Guide: Installing*.

Observe the following rules:

1. Assign parameter values.

Use ICE to assign values to the current release parameters in the following table. For details, see the DEFARM member in the IOA.PARM library.

Parameter	Description
%ILPREFJ%	Prefix of the Control-M/JCL Verify Installation library
%OLPREFJ%	Prefix of the Control-M/JCL Verify Operations libraries

The parameters listed in the above table do not exist in Control-M/JCL Verify version 7.

2. While you are testing the current release, the names of Control-M/JCL Verify started tasks, such as CTJAREF, must differ from the names of the same started tasks in the version you are now using.

3. Assign a value to the PROCPRFJ parameter. Assign a value to be used as the three-letter prefix for the Control-M/JCL Verify procedure names. Then adjust the JCL of your production jobs accordingly. For details, see the explanation of PROCPRFA in substep 3 of [Step 3. Install the IOA component](#) (on page 30).
4. For Edit Macro users, assign a value of the CLISTNMJ parameter. Assign a value to be used as REXX CTJXVER copied from IOA CLIST library to SYSPROC Site library. You can use any valid name for the CLIST that is different from the name of the REXX in the version you are now using.
5. Assign values in the CTJPARM member.
6. IOA Security interface must be installed in the version you are currently using. If is not, install the IOA security interface, and enable it.
7. For TSO users, ensure that Control-M/JCL Verify is authorized under TSO by adding CTJTZO and CTJTZONL to the authorized programs listed in both the AUTHPGM and AUTHTSF sections in the IKJTZOxx member (located in the SYS1.PARMLIB library). Refer to Chapter 12, Step 6.2 TSO Requirements in the *INCONTROL for z/OS Installation Guide: Installing*.

## Adjusting installed products

In this section you apply the adjustments you made to the version you are now using, to the current release IOA component and the installed INCONTROL products.

The IOACMPP utility can be used to compare the parameter members of two environments. For details, see the *INCONTROL for z/OS Utilities Guide*.

New features in the current release may eliminate the need for customizations that you made to your current system. Before you make any adjustments, review the enhancements to your products in:

- [A Technical considerations](#) (on page 78)
- What's New section of the INCONTROL for z/OS Release Notes

This section deals with the adjusting your current INCONTROL products to get ready to migrate them to version 8.0.02. It includes the following information:

The following table describes the steps you must follow in order to adjust the products and components of the full upgrade to version 8.0.02. Mark the Check column of the following table as you complete each step. Excluding those steps that are optional or not applicable to your site, you should complete these steps in sequence.

**Table 12 Adjusting checklist**

Check	Step and Description
	<a href="#">Step 14. Adjust the IOA component</a> (on page 41)
	<a href="#">Step 15. Adjust Control-M</a> (on page 43)
	<a href="#">Step 16. Adjust Control-M/Restart</a> (on page 43)
	<a href="#">Step 17. Adjust Control-D</a> (on page 43)

Check	Step and Description
	Step 18. Adjust Control-V (on page 44)
	Step 19. Adjust Control-O (on page 44)
	Step 20. Adjust Control-M/Analyzer (on page 44)
	Step 21. Adjust Control-M/Tape (on page 45)
	Step 22. Adjust IOAGATE (on page 45)
	Step 23. Adjust CTMAS (on page 46)
	Step 24. Adjust Control-M/JCL Verify (on page 46)
	Step 25. Test the installed environment (on page 46)

## Step 14. Adjust the IOA component

The topics described in this step refer to IOA and the INCONTROL products installed at your site. Specific adjustments appear in the step for each product.

Apply the adjustments to the version you are now using, to the current release IOA component as follows:

### 1. Adjust exits and security modules

For information about the exits, see "IOA Exits" in the Exits chapter in the *INCONTROL for z/OS Administrator Guide*. For information about security modules, see the *INCONTROL for z/OS Security Guide*.

### 2. Adjust security definitions

- Grant permission to production users to access their data sets.
- If the new IOA QNAME differs from that in the previous IOA production environment, modify the security definitions accordingly. For more information about the security entity structure that IOA and INCONTROL products use to validate authorization for each particular function, see the *INCONTROL for z/OS Security Guide*.
- Adjust CLISTs, ISPF panels, ROSCOE RPFs, and procedures.

### 3. Adjust messages and screens

For information about modifying messages and screens, see the IOA Administration chapter in the *INCONTROL for z/OS Administrator Guide*.

### 4. Adjust Dynamic Destination table

The IOADEST member in the IOA.PARM library now contains the Dynamic Destination table, replacing the CTMDEST load module. The IOAGDST utility can be used to convert a CTMDEST load module to a IOADEST member. For more information see the Dynamic Destination Table section in the IOA Shout facility section in Setting rules - Jobtrac Mainframe editor.

**5. Adjust KSL report programs and utilities**

Because of changes to screen layouts in the current release, you may need to adjust locally developed KSL scripts.

**6. Adjust profiles**

Specify values for profile variables following the Customization procedure in ICE, using profile variable values in your current IOA production system as a reference. Values entered in ICE are stored in the \$PROFMOD member in the IOA.PARM library.

To use the old profile values for a specific user, in the new environment, copy the user profile from the previous environment's IOA.PROF library to the new IOA.PROF library.

BMC Software recommends that you specify profile variables for all relevant INCONTROL products at the same time.

**7. Modify libraries**

Make modifications to the IOA BANNERS library and to the following Control-D libraries:

- ACIFPARM
- APAPARM
- DJDEPARM
- FTOPARM
- OUTPARMS
- SKL
- TRANSTO

All definitions and libraries created in the version you are now using can be used without change in the current release.

If reports with names between 20 and 50 characters long will be used, the corresponding members in these libraries should be created in accordance with the format described in the *INCONTROL for z/OS Administrator Guide*.

**8. Special options**

- If you are using the IOA Online monitor CICS interface and a CICS version earlier than 3.3, apply Optional Wish WI0787.
- If you are using the IOA Online monitor or the IOA VTAM monitor interface, note the following:
  - The built-in capabilities of a terminal that can be queried determine its color and size attributes. (A terminal that can be queried is one that has a LOGMODE that supports either EXTENDED DATA STREAM or GENERIC in the PSERVIC definition.) For example, a terminal that is able to display color does so even if the terminal is defined as monochrome in the LOGMODE.
  - If you want the terminal to use color and screen size attributes that are not based on its actual capabilities, do one of the following:

- Activate optional Wish WI0310. This forces the IOA VTAM monitor to use the color attributes of the ICOLOR parameter in the terminal's IOA PROFILE for all the terminals that log into the IOA VTAM monitor. Screen size is determined by the terminal's LOGMODE PSERVIC definitions.
- Define a LOGMODE that does not specify EXTENDED DATA STREAM or GENERIC. The terminal's attributes are taken from its LOGMODE PSERVIC definitions.

#### 9. Adjust IOADSNL member

Adjust the IOADSNL member of the current release to reflect any necessary modifications that were specified in the IOADSNL member of the previously installed version. Take special note of DATASET statements with DSN values that refer to the previously installed version, and correct them accordingly.

If you have Control-D installed at your site, and if you are upgrading from version 6.3.xx and you have a DADSKL definition in the IOADSNL member that points to operational library olprefd.SKL of the previously installed version, remove that definition because the Control-D SKL library is now an installation library (ilprefd.SKL).

#### 10. Adjust IOADFLTL member

Adjust the IOADFLTL member of the current release to reflect any WISH options that were specified in the IOADFLTL member of the previously installed version. Identify WISH statements that are now configured via standard parameters, and if you find any, remove them and set the corresponding parameters in the relevant product or component configuration.

### Step 15. Adjust Control-M

The CTMPARM member contains most Control-M defaults. Customize these defaults using ICE Customization for Control-M.

If you are using the CMEM function, the defaults are found in the IOACPRM member and are customized in the "Specify IOA computers" ICE step.

CTMCPU parameters and the CTM2SBS parameter are now defined in the IOACPRM member.

### Step 16. Adjust Control-M/Restart

The CTRPARM member contains all Control-M/Restart defaults. Customize these defaults using ICE Customization for Control-M/Restart.

### Step 17. Adjust Control-D

Apply the modifications to the CTDX001 through CTDX028 exits created in the version you are upgrading from.

Increase the AMFSIZE parameter by approximately 15% or use ICE to reformat the Active Mission file during the upgrade processing.

## Step 18. Adjust Control-V

- Create primary and secondary migration skeletons based on the corresponding MIGLIM and MICALIM members. The names of the new primary skeletons should be identical to the name of the migration missions. The names of the secondary skeletons should be identical to the names specified in the SECONDARY SKELETON parameter of the migration missions.
- Apply the modifications to the CTVX001 and CTDX002 exits created in the version you are upgrading from.

## Step 19. Adjust Control-O

Apply the adjustments to the version of Control-O you are now using, to the current release of Control-O as follows:

- If you rename the Control-O monitor during the testing, ensure that the server-started task has the same 3-character prefix.
- If Control-O/COSMOS is installed or you used the Control-O GLOBAL variable database, review and adjust the parameters of the GLOBAL variable database. In the current release this database is installed during IOA installation.

If you are using a customized version of the COSMOS table, it can be used as is in the current Control-O version. However, to take advantage of the new Sysplex facilities of COSMOS you may need to review your customized rules and adapt them to manage a Sysplex.

- If you are using the CMEM function, the defaults are found in the IOACPRM member and are customized in the "Specify IOA computers" ICE step.

## Step 20. Adjust Control-M/Analyzer

Apply the adjustments you made to the version of Control-M/Analyzer you are now using, to the current release, as follows:

### 1. Adjust exits and security modules

Move locally developed Control-M/Analyzer exits (for example, Control-M/Analyzer DO EXTRACT user processes) in the CTBX010 member to the corresponding Control-M/Analyzer current release IOA LOAD library. Alternatively you can recompile the CTBX010 module in the current release environment.

For information about Control-M/Analyzer exits, see the discussion of Control-M/Analyzer exits in the Exits chapter in the *INCONTROL for z/OS Administrator Guide*. For information about security modules, see the *INCONTROL for z/OS Security Guide*.

### 2. Modify locally developed rules

You may need to modify rules from the version you are upgrading from so that they can work in the Control-M/Analyzer current release.

## Step 21. Adjust Control-M/Tape

### 1. Control-M/Tape security definitions

If the new IOA or Control-M/Tape QNAME differs from that in the current Control-M/Tape production environment, modify the security definitions accordingly.

For information about the security entity structure that INCONTROL products use to validate authorization for each particular function, see the *INCONTROL for z/OS Security Guide*.

### 2. Copy rule definitions

Copy the rule definitions from the old Control-M/Tape RULES library to the Control-M/Tape current release RULES library.

### 3. Copy pool definitions

Copy the pool definitions (default member: \$\$POOL) from the old Control-M/Tape PARM library to the Control-M/Tape current release PARM library.

### 4. Copy vault definitions

Copy the vault definitions (default member: \$\$VAULT) from the old Control-M/Tape PARM library to the Control-M/Tape current release PARM library.

### 5. Copy Rule List

Copy the rule list member (default member: RULLIST) from the old Control-M/Tape PARM library to the Control-M/Tape current release PARM library. Change the RULES library name in the new RULLIST member to match the current release RULES library name.

### 6. Adjust Media Database and Stacking Database

In "CTT Customization" in ICE, select the "Upgrade Control-M/Tape Repository" major step, and perform its minor steps.

Select the "Adjustments" major step, and perform the "Building Vault Information in MDB" minor step.

### 7. Adjust interfaces

Adjust locally developed Control-M/Tape interfaces to automated tape libraries interfaces and other products, such as the External Data Manager interface.

For information about Control-M/Tape interfaces to other products, see the Control-M/Tape chapter in the *INCONTROL for z/OS Administrator Guide*.

### 8. Operate in parallel

For information about running the Control-M/Tape current release in parallel with a previous version of Control-M/Tape, see [C Running two Control-M/Tapes in parallel](#) (on page 104).

## Step 22. Adjust IOAGATE

Apply the IOAGATE adjustments from the version you are now using to the current release IOAGATE by modifying messages. For information about modifying messages, see the IOA Administration chapter in the *INCONTROL for z/OS Administrator Guide*.

## Step 23. Adjust CTMAS

If you defined applications to CTMAS using DD statement DAGROUP in the version you are upgrading from, add the same DAGROUP DD statement to the CTMAS the current release procedure.

For information about modifying messages, see the IOA Administration chapter in the *INCONTROL for z/OS Administrator Guide*.

## Step 24. Adjust Control-M/JCL Verify

1. The CTJPARM member contains most Control-M/JCL Verify defaults. Customize these defaults using ICE Customization for Control-M/JCL Verify.

2. Adjust the Control-M/JCL Verify CTJRULE.

Ensure that the CTJRULE member, in the Parameters library of the current version of Control-M/JCL Verify, %%OLPREFJ.PARM, references the correct rule definitions.

Control-M/JCL Verify makes use of one RULES library.

3. Adjust the JCLs in the Control-M/JCL Verify JCL library, %%ILPREFJ.JCL

## Step 25. Test the installed environment

Test IOA functionality and all your INCONTROL products. Pay special attention to adjustments that you copied from your earlier version.

## Preparing for migrating adjusted products

This section explains how to prepare to migrate your adjusted INCONTROL products to version 8.0.02.

Use Customization in the INCONTROL Installation and Customization Engine (ICE) to modify parameters. Customization facilitates data entry, saves the parameters, and rebuilds the formatting jobs.

To find out in which ICE step a variable is used, you may use the VREF command from any customization panel. For more information about using the VREF command, see the *INCONTROL for z/OS Installation Guide: Installing*.

The following table describes the steps you must follow in order to prepare your data and software for full upgrade to version 8.0.03. Mark the Check column of the following table as you complete each step. Excluding those steps that are optional or not applicable to your site, you should complete these steps in sequence.

**Table 13 Migration preparation checklist**

Check	Step and Description
	<a href="#">Step 26. Prepare IOA (on page 47)</a>
	<a href="#">Step 27. Prepare Control-M (on page 48)</a>
	<a href="#">Step 28. Prepare Control-M/Restart (on page 49)</a>

Check	Step and Description
	<a href="#">Step 29. Prepare Control-D (on page 49)</a>
	<a href="#">Step 30. Prepare Control-V (on page 52)</a>
	<a href="#">Step 31. Prepare Control-O (on page 53)</a>
	<a href="#">Step 32. Prepare Control-M/Analyzer (on page 53)</a>
	<a href="#">Step 33. Prepare Control-M/Tape (on page 54)</a>
	<a href="#">Step 34. Prepare IOAGATE (on page 54)</a>
	<a href="#">Step 35. Prepare CTMAS (on page 54)</a>
	<a href="#">Step 36. Prepare security definitions (on page 55)</a>
	<a href="#">Step 37. Prepare Control-M/JCL Verify (on page 55)</a>

## Step 26. Prepare IOA

### 1. Change data set parameters

To increase or decrease the size of data sets, change the current release IOA data set parameters. Changing data set parameters affects the allocation and formatting of IOA data sets.

You can change the values of most parameters and customize all formatting jobs in the "Customize IOA Dataset Parameters" major step, under Product Customization for IOA, in ICE Customization. This step lets you

- redo the space calculation for the IOA Log file and the Global Variables files
- specify new parameter values for the Conditions and the Manual Conditions files
- save the parameters in IOAPARM and DEFPARM members—mandatory if values were changed
- rebuild formatting jobs reflecting the new values

If you migrate the conditions from the old repository to the new one, you must specify new parameter values for the Condition and Manual Condition files that are at least the size of the current production repositories. If not, migration of the data from the old repositories to the new repositories will fail.

For each data set whose size you changed, delete or rename the older version of the data set outside of ICE.

### 2. Modify new installation parameters

Verify that the values of the following IOA parameters in the new installation are suitable for production.

**Table 14 IOA installation parameters**

Parameter	Additional considerations
QNAME	Using the same QNAME as the existing production environment may eliminate some changes to the security definitions.
SSNAME	You can use the same subsystem for different releases but you may need to perform IOASDISC in order to disconnect and then initialize the subsystem in the correct format.

**3. Save parameters**

Save the parameters by performing the "Save Parameters into Installation Libs." minor step.

**4. Reformat repository data sets**

If you modified the QNAME, reformat all repository data sets.

## Step 27. Prepare Control-M

**1. Prepare New Day procedure**

To prevent the New Day procedure from running twice on the same day (once on the old Control-M version and again on Control-M current release), do one of the following:

- After the New Day Procedure ends, copy the Active Jobs file and the History Jobs file from the previous version to the current release. The method for performing this procedure is described in items A and B of [Step 44. Migrate Control-M](#) (on page 63). For example, if the New Day procedure runs at 11:00 A.M. for about 3 minutes, copy the Active Jobs file at 11:15 when you are sure that the New Day procedure has ended.
- Migrate to the current release well before the New Day procedure is scheduled to run so that you complete the migration before the New Day procedure begins.

**2. Modify data set parameters**

If you want to increase or decrease the size of data sets, or change your mirroring option, modify the new Control-M data set parameters. Changes to these parameters affect the allocation and formatting of Control-M data sets.

You can change values by using the "Customize Control-M Dataset Parameters" major step, under Product Customization for Control-M, when in Customization in ICE. This step lets you

- specify new parameter values for Control-M repository
- save the parameters in the CTMPARM and DEFPARM members—mandatory if values were changed
- rebuild formatting jobs reflecting the new values

For each data set whose size you changed, delete or rename the older version of the data set outside of ICE before running the formatting job.

**3. Modify installation parameters**

Verify that the values assigned to the following installation parameters in the current release system are suitable for production. You can change values by using the "CTMPARM Post-Installation" major step, under Product Customization for Control-M, in ICE Customization.

**Table 15 Control-M installation parameters**

Parameter	Additional considerations
PROCNAMM	Set this parameter to the New Day procedure name.
DAYTIMEM	

**4. Save parameters**

Save parameters by performing the "Save Parameters into Product Libraries" minor step.

**5. Modify CMEM parameters**

You can increase or decrease the size of the CMEM communication data sets by modifying the new CMEM data set parameters in IOACPRM. Changes to these parameters affect the allocation and formatting of the communication files. Change the values of the parameters using the "Install Event Manager (CMEM)" major step, under Product Customization for Control-M, in ICE Customization.

## Step 28. Prepare Control-M/Restart

**1. Modify installation parameters**

Verify that the values assigned to the following installation parameters in the current release system are suitable for production.

- AMPREFR
- AMUNITR or AMVOLR
- AMBLK#R
- AMBLKSZR

You can change the values by using the "CTRPARM Post-Installation" major step, under Product Customization for Control-M/Restart, in ICE Customization.

**2. Save parameters**

Save parameters by performing the "Save Parameters into Product Libraries" minor step.

**3. Adjust Restart Control Parameters**

Adjust the Restart Control Parameters PARM library to use the new Control-M/Restart current release PARM library. Use ISPF option 3.3 to copy the contents of the PARM library from the version you are upgrading from.

## Step 29. Prepare Control-D

**1. Prepare New Day procedure**

To prevent the New Day procedure from running twice on the same day (once on the old Control-D version and again on Control-D the current release), do one of the following:

- Copy the Active Missions file (AMF or AMB) from the version you are now using to the current release after the New Day Procedure has completed. For example, if the New Day procedure runs at 10:00 A.M for 5 minutes, copy the Active Missions file at 10:15, after enough time has passed to ensure that the 10:00 A.M. run of the New Day procedure has completed.
- Migrate to the current release well before the New Day procedure is scheduled to run so that you complete the migration before the New Day procedure begins.

Print missions that ran on previous Control-D versions before upgrading cannot be rerun after upgrading. Such missions should be reordered manually in the new version of Control-D.

**2. Modify data set parameters**

Change data set parameter values and customize all formatting jobs in the "Customize Control-D User Files" and "Customize Control-D Dataset Parameters" major steps, under Product Customization for Control-D, in ICE Customization.

These steps let you

- Redo the space calculation for the Control-D user files
- Specify new parameter values for the Control-D repository
- Save the parameters in CTDPARM and DEFPARM members—mandatory if values were changed
- Rebuild formatting jobs reflecting the new values

**3. Change user report file parameters**

Recalculate the space of the following IOA Access Method files:

- Active User Report files
- History User Report files
- Permanent User Report files

**4. Change repository parameters**

The following parameters affect the allocation and formatting of the Control-D Repository:

**Table 16 Control-D repository parameters**

Parameter	Additional considerations
AMFSIZE	Number of records in the Control-D Active Missions file.
ATFBLK	Number of blocks in the Control-D/WebAccess Server Active Transmission file.
COMSIZE	The number of entries in the Control-D internal communication file.
AMPREF, AMPREFD, JB1PREF	If you change the values of any of these parameters and you defined a User Catalog, redefine the ALIAS name of the User Catalog.

**5. Modify installation parameters**

Review all the parameters in the CTDPARM member of the new installation. Verify that the values assigned to the parameters are suitable for production. Change the values by using the "CTDPARM Post-Installation" major step, under Product Customization for Control-D, in ICE Customization.

Check the following parameters:

**Table 17 Control-D installation parameters**

Parameter	Additional considerations
AMBLKSZD	Block size to be used when allocating Control-D CDAM sysout data sets.
AMUNITD	Unit for CDAM sysout data sets.
AMVOLD	Volume serial numbers for Control-D CDAM sysout data sets.
AMNAME	If you have production jobs that write directly to CDAM, it is very important to use the CDAM subsystem name of the current production installation. If this parameter has a different value, change it to the production system value. Be sure to place an initialization command in COMMANDxx of SYS1.PARMLIB for the new Control-D subsystem. For more information about this procedure, see the <i>INCONTROL for z/OS Installation Guide: Installing</i> .
DAYTIMED	Start time of the Control-D work day. The DAYTIMED parameter specifies to Control-D when a new work day begins.
SMF	Determines whether, and how many, SMF records are to be generated for accounting purposes.
PROCNAME and PRTSTC	Set these parameters to the procedure names of the current release Control-D production environment.

## 6. Delete files

Delete the following files:

- Active User Report files (.ACT\*)
- History User Report files (.HST\*)
- Permanent User Report files (.PRM\*)

Use the CTDFDEL sample job in the Control-D JCL library or ISPF option 3.4. For example, for the Active User file, use the CTDFDEL sample job with the %DBPREFD%.ACT prefix to delete all related files.

Alternatively, you can use ISPF option 3.4 to list all files with the %DBPREFD%.ACT\* prefix. The list includes the DATA file and its extents, the INDEX file and its extents, and the DUAL files. Delete all listed files.

## 7. Reformat files

Reformat the files using the jobs in ICE Customization.

## Step 30. Prepare Control-V

### 1. Change user file parameters

Change Control-V User files parameters by using the "Customize Control-V User Files" major step, under Product Customization for Control-V, in ICE Customization.

### 2. Recalculate file space

Recalculate the space of the IOA Access Method Migrated Users file and reformat by using the jobs in ICE Customization.

### 3. Modify installation parameters

Verify that the values assigned to the following installation parameters in the current version installation are suitable for production. Change the values using the "CTVPARM Post-Installation" ICE major step, under Product Customization for Control-V, in ICE Customization.

**Table 18 Control-V installation parameters**

Parameter	Additional considerations
IXHPREF, IXPREF	The value of IXHPREF must be different than the values of parameters DSNPREF and SECPREF. For details, see step 28.4.
IXUNIT or IXVOL	IXUNIT is the default unit for index files. IXVOL sets default volume serial numbers for index files.

### 4. Save parameters

Save parameters by performing the "Save Parameters into Product Libraries" minor step.

### 5. Modify definition parameters

Modify the new IOA Archive Server Media Definition parameters. Check the following parameters by using the "Edit Media Parameters and Build IOASPRM" minor step of the "Archive Server Post-Installation" major step, under Product Customization for Control-V, in ICE Customization.

**Table 19 IOA archive server media definition parameters**

Parameter	Additional considerations
DSNPREF	This parameter can optionally have the same value that it has in the version you are upgrading from.
SECPREF	The value of SECPREF must be different than IXHPREF and DSNPREF.

## Step 31. Prepare Control-O

### 1. Modify installation parameters

If necessary, modify the Control-O current release installation parameters. Verify that the values assigned to the following parameters in the current release installation are suitable for production. You can change the values by using the "CTOPARM Post-Installation" major step, under Product Customization for Control-O, in ICE Customization.

**Table 20 Control-O installation parameters**

Parameter	Additional considerations
DAYTIMEO	This definition must kept in the active Control-O
EMCSCONS	The definitions of the Extended MCS must not conflict with those of the other active Control-O system. For example you should <ul style="list-style-type: none"> <li>▪ ensure that test and production installations on the same MVS image do not use SMFID as the prefix of the consoles' names.</li> <li>▪ ensure that in a Sysplex environment no two installations use the IOA subsystem name as the prefix of the consoles' names.</li> </ul>
JCMDSSN	This definition must not conflict with that of the other active Control-O system.
NUMCONS	If EMCSCONS is assigned, this is unnecessary.

### 2. Save parameters

Save parameters by performing the "Save Parameters into Product Libraries" minor step.

### 3. Check blocks

Check the KOATERM blocks in the IOAKPRM member in the IOA.PARM library. Verify that all CPUs defined in the IOACPRM member (in the IOA.PARM library) are also defined for KOA.

## Step 32. Prepare Control-M/Analyzer

### 1. Modify installation parameters

If necessary, modify the Control-M/Analyzer current release installation parameters. Verify that the values assigned to the parameters in the new installation are suitable for production. You can change the values of the parameters by using the "CTBPARM Post-Installation" major step, under Product Customization for Control-M/Analyzer, in ICE Customization.

### 2. Save parameters

Save parameters by performing the "Save Parameters into Product Libraries" minor step.

### 3. Adjust defaults

Adjust the Control-M/Analyzer defaults for production.

## Step 33. Prepare Control-M/Tape

### 1. Change environment

To ensure that local changes to the production Control-M/Tape environment are applied to the Control-M/Tape current release, review [Step 21. Adjust Control-M/Tape](#) (on page 45) and the discussion of Upgrade dependencies.

If necessary, make final changes to the Control-M/Tape current release environment.

Verify that the following are identical to the corresponding definitions in the production Control-M/Tape system.

- Rule definitions
- Pool definitions
- Vault definitions
- Rule list member definitions

After making any changes in the vault definitions, you must run the CTTVTM utility in SLOTBLD and BOXBLD mode. Execute the utility using the "Building Vault Information in MDB" minor step under the "Adjustments" major step.

### 2. Modify installation parameters

You can change the values of Control-M/Tape installation parameters by using the "CTTPARM Post-Installation" major step 1, "Initialization Parameters" minor step 1, under Product Customization for Control-M/Tape, in ICE Customization. Set the value of the MODET installation parameter to PROD, and the value of the PARALLEL parameter to N.

### 3. Save parameters

Save parameters by performing the "Save Parameters into Product Libraries" minor step.

## Step 34. Prepare IOAGATE

If necessary, modify the IOAGATE installation parameters.

Verify that the values assigned to the parameters in the current release installation are suitable for production. You can change values by using the "Configure IOAGATE Parameters" minor step of the "Install IOAGATE" major step, under Product Customization for IOA, in ICE Customization.

## Step 35. Prepare CTMAS

If necessary, modify the CTMAS installation parameters.

Verify that the values assigned to the parameters in the current release installation are suitable for production. You can change values by using the "Install Control-M Application Server" major step, under Product Customization for IOA, in ICE Customization.

## Step 36. Prepare security definitions

For IOA and all installed INCONTROL products, do the following:

1. Verify that you have granted your production users permissions for their data sets.
2. If the IOA current release QNAME is different than that of the version you are now using, modify security definitions accordingly. For more information about the security entity structure used by INCONTROL products to validate authorization for each particular function, see the *INCONTROL for z/OS Security Guide*.

## Step 37. Prepare Control-M/JCL Verify

1. Modify installation parameters.

Verify that the values assigned to the parameters in the new installation are suitable for production.

2. Save parameters.

Save parameters by performing the "Save Parameters into Product Libraries" minor step.

The three-letter prefix for the Control-M/JCL Verify started tasks are defined in the Control-M/JCL parameter.

The Control-M/JCL Verify JCLs reside in the CTJ.JCL library.

## Migrating adjusted products

This section explains how to complete the migration of your adjusted INCONTROL products to version 8.0.02.

When you complete the migration of your INCONTROL products to version 8.0.02, you will be ready to run those products with all the features of the new version. Included below are the steps you must follow to complete the migration process. This section deals with the actual migration of your current INCONTROL products to version 8.0.02. It includes the following information:

The following table describes the steps you must follow in migrating the products and components of the full upgrade to version 8.0.02. Mark the Check column of the following table as you complete each step. Excluding those steps that are optional or not applicable to your site, you should complete these steps in sequence.

**Table 21 Migrating checklist**

Check	Step and Description
	<a href="#">Step 38. Copy definition libraries</a> (on page 56)
	<a href="#">Step 39. Back up libraries and repositories</a> (on page 59)
	<a href="#">Step 40. Stop all IOA activities</a> (on page 59)
	<a href="#">Step 41. Disconnect the IOA subsystem</a> (on page 61)
	<a href="#">Step 42. Back up libraries and repositories (again)</a> (on page 61)

Check	Step and Description
	Step 43. Migrate the IOA component (on page 61)
	Step 44. Migrate Control-M (on page 63)
	Step 45. Migrate Control-M/Restart (on page 65)
	Step 46. Migrate Control-D (on page 65)
	Step 47. Migrate Control-V (on page 67)
	Step 48. Migrate Control-O (on page 68)
	Step 49. Migrate Control-M/Analyzer (on page 69)
	Step 50. Migrate Control-M/Tape (on page 74)
	Step 51. Migrate IOAGATE (on page 75)
	Step 52. Migrate CTMAS (on page 76)
	Step 53. Migrate Control-M/JCL Verify (on page 76)
	Step 54. Restart IOA activities (on page 76)
	Step 55. Final adjustments (on page 76)

## Step 38. Copy definition libraries

### 1. Compatibility considerations

Current release library members, such as tables, missions, and rule definitions, have different internal formats than those found in earlier versions.

Current release products are backward compatible, meaning they can read definition members written in earlier versions. However, products from earlier versions may not be able to read members that were written in the current release.

When the current release reads a definition member that is in the format of an earlier version, its in-memory representation of the member is converted to the new format. When you exit the screen, you may be prompted to decide whether you want to save the definition member in the current release format, even if you did not modify the member. If you answer "Yes," the member is saved in the current release format.

**WARNING:** The member may then be unusable by your earlier version system.

For Control-M users, there is limited support for ordering and viewing version 7.0.xx tables in earlier versions.

Because using libraries saved in the current release may make them unusable by earlier versions, copy the old libraries to the current release libraries instead of using earlier version libraries in the current release.

Note: For additional considerations related to copying definition members and libraries, see the instructions for migrating individual INCONTROL products.

**2. Prohibit changes**

Prohibit changes to all IOA and INCONTROL product definition libraries, including those owned by users.

**3. Back up definition libraries**

Back up the following current release definition libraries:

**Table 22 Current release definition libraries**

Product	Definition	Suffix	Comments
IOA	Calendars	CAL	Usually referenced using DD statement DACAL
Control-M	Parameter Prompting	PROMP JCLPROMP	
	Tables	SCHEDULE	Also user-defined tables
	Master Plan	PLANMSTR	
Control-D	Print Missions	PRTMIS	
	Restore Missions	RSTMIS	
	Backup Missions	BKPMIS	
	Report Decollating Missions	REPORTS	Also user-defined report decollating missions
	Banners	BANNERS	An IOA operational library
	Printing Parameters	APAPARM ACIFPARM CCIFPARM DJDEPARM OUTPARMS TRANSTO	

Product	Definition	Suffix	Comments
	File Transfer Option Parameters	FTOPARM	
Control-V	Migration Missions	MIGMIS	
Control-O	Rules	RULES	
	Control-O GLOBAL variable pool list	PARM	DAGLBLST member
	Control-O rule table list	PARM	RULELIST member
	COSMOS parameters	PARM	COSMOLST member
	SolveWare	SOLV*	SolveWare was updated. Be sure to reapply local modifications to SolveWare members.
Control-M/Analyzer	Balance Missions	BALMIS	
	Rules	RULES	
Control-M/Tape	Rules Definitions	RULES	
	Pool Definitions	PARM	Default member – \$\$POOL
	Vault Definitions	PARM	Default member – \$\$VAULT
	Rule Table List	PARM	Default member – RULLIST

**4. Back up user-owned definition libraries**

Back up the current release definition libraries that are owned by users.

**5. Copy definition libraries**

Copy the previous version libraries to the current release libraries by using IEBCOPY or ISPF option 3.3. Use the previous table.

Edit all rule table list members to change, within the member, the library names to the current release rules library name.

**6. Copy user-owned definition libraries**

Copy definition libraries that are owned by users in the version you are now using, to the current release.

## Step 39. Back up libraries and repositories

Because libraries saved in the current release are unusable by earlier versions, you must back up the libraries in the version you are now using before you migrate to the current release. If you later decide to fall back to the earlier version, you will need this backup.

Back up all

- libraries, repositories and SMP/E data sets in the version you are now using, including user libraries that contain missions, rules, and schedules.
- current release libraries, repositories, and SMP/E data sets.

## Step 40. Stop all IOA activities

Read all documentation about stopping IOA activities and prepare your migration plan. Depending on your site configuration, you may have to perform an IPL.

If several INCONTROL products are installed, stop all IOA activities for all products before starting the migrating phase. This is essential because all products share the same database. (For example, all products share the same IOA Conditions file and IOA Log file.)

To stop all IOA activities, do the following:

### 1. Terminate online sessions

Terminate all IOA Online sessions, such as TSO, ROSCOE, IOA Online monitor, and the IOA VTAM monitor.

### 2. Stop initiators

If the JCL of production jobs runs an IOA utility or report, stop the JES initiators that handle such jobs during the migrating phase. Similarly, ensure that long-running address spaces and online services do not invoke IOA services.

### 3. Stop functions

Ensure that functions of CMEM, CDAM, and Control-O are not used during the migrating phase.

- a. Stop JES initiators that handle production jobs that use CDAM files.
- b. Ensure that occasional production jobs whose arrival may be acknowledged by either CMEM or Control-O are not submitted on any CPU on which CMEM or Control-O is active.
- c. Stop JES initiators that handle production jobs that may trigger events in CMEM or Control-O.
- d. Stop started tasks or log off all TSO users that may trigger events in CMEM or Control-O.

### 4. Stop tasks

Stop all tasks that allocate IOA files either by DD statements or by dynamic allocation.

### 5. Stop all Control-O activity

- a. For each Control-O or CMEM monitor that is part of your environment, stop the monitor by executing one of the following operator commands, and wait until the monitor address space and its dependent address spaces (Control-O servers) terminate
  - o STOP controlo
  - o P controlo

In the commands listed above, controlo is the name of the Control-O or CMEM monitor.

- b.** Stop the Control-O Application Server by executing the P CTOAS operator command and wait for shutdown.

**6.** Stop all Control-M activity

For each Control-M monitor that is part of your environment, stop the monitor by executing the P controlm operator command, and wait until the monitor address space terminates.

In this command, controlm is the name of the Control-M monitor. In a CTMPLEX configuration, BMC Software recommends first stopping the Local Sysplex Monitors (LSM) and then stopping the Global Sysplex Monitor (GSM).

**7.** Stop all Control-D activity

Stop the Control-D monitor that is part of your environment, stop the monitor by executing the P controld operator command, and wait until the monitor address space and all of its dependent address spaces (Print Monitors) terminate.

In this command, controld is the name of the Control-D monitor.

**8.** Stop all Control-V activity

Stop IOA Archive Server activities by executing the F IOASMON,STOP operator command and wait for shutdown of the server.

**9.** Stop all Control-M/Analyzer activity

- Do not invoke Control-M/Analyzer batch rules.
- Do not enter Control-M/Analyzer online screens.
- Do not run user application programs that invoke Control-M/Analyzer rules.

If Control-M/Analyzer is running with a Control-M or Control-D monitor, stop the monitor.

**10.** Stop all Control-M/Tape activity

- a.** Stop all tape activity.
- b.** Take Control-M/Tape down by using the S CTTINIT,PARM=TERM operator command and wait for termination of Control-M/Tape.

If you run a previous version of Control-M/Tape parallel to the Control-M/Tape current version, you must shut down both versions.

- c.** If you are using the optional IOA Functional Monitor, stop the IOA Functional Monitor, IOAFMON.

**11.** Inhibit automatic startup of INCONTROL products during IPL (optional).

Edit the COMMNDxx member in the SYS1.PARMLIB operating system library and remove all commands that start IOA activities.

Any activities that you stop during this step must not be restarted until you have done the following:

- completed [Step 41. Disconnect the IOA subsystem](#) (on page 61) through [Step 43. Migrate the IOA component](#) (on page 61).
- performed additional migration steps for the components that are linked to the activities that you stopped (beginning with [Step 44. Migrate Control-M](#) (on page 63))
- started Control-O or CMEM again, if they are part of your environment

## Step 41. Disconnect the IOA subsystem

If Control-O or CMEM is installed and the subsystem name (the value of the SSNAME parameter) is the same as in your current environment, disconnect the subsystem by executing the `S IOASDISC,SSNAME=ioa_subsystem` command.

Issue this command only after every activity specified in [Step 40. Stop all IOA activities](#) (on page 59) has ended.

The IOA subsystem will automatically connect to the applicable subsystem routines belonging to the new version when the Control-O, CMEM, or Control-D monitors are started with the new environment.

## Step 42. Back up libraries and repositories (again)

Make another backup of the libraries and repositories listed in [Step 39. Back up libraries and repositories](#) (on page 59).

This backup, made when all INCONTROL products are shut down, is a critical safety measure.

## Step 43. Migrate the IOA component

1. If the IOA LOAD library of the version you are migrating from is in the MVS Linklist, remove it. To remove it permanently, edit the LNKSTxx member in the SYS1.PARMLIB library and delete the reference to the library.
  - You may need an IPL to make the change effective. However, if you use a product that can dynamically modify the MVS Linklist, such as CA-LOOK, you can skip the IPL.
  - You can decide to add the new IOA LOAD library to the Linklist. If so, refresh the LLA and update the facilities that access the LOAD libraries.
2. If the IOA LOAD library of the version you are migrating from is not in the MVS LINKLIST, verify that it is not being used by any address space in the GRS complex by reviewing the output of the following operator command:

```
D GRS,RES=(SYSDSN,ioa.prev.load)
```

In this command, `ioa.prev.load` is the name of the previous version of the IOA LOAD library. The name will usually have the form of `ilprefa.LOAD`, where `ilprefa` is the IOA Installation prefix of the version you are upgrading from.

The following is a sample output for this command indicating that no address spaces are using that environment:

```
ISG343I 15.40.50 GRS STATUS 678  
NO REQUESTORS FOR RESOURCE SYSDSN IOAP.V900.INST.LOAD
```

As an alternative to the D GRS operator command, you can rename the IOA LOAD library of the version you are migrating from, and then rename it back. A successful rename indicates that no one is allocating that library. Note that renaming the library back is necessary, as it may still be used by some of the migration steps described in this chapter.

If any address spaces in the GRS complex are identified as allocating the library, resolve the situation by stopping them.

### 3. Replace IOA procedures

If you used IOA procedures in your jobs, you can use JCLLIB statement or you can copy these procedures to the procedure library at your site.

If IOA JCL procedure prefixes are not the same as prefixes of the previous version, modify the JCL of production jobs to refer to the new IOA JCL procedure names.

Rename the started tasks to those of the version you are migrating from.

### 4. Migrate the IOA Core

Rename or delete the current release LOG, LOGI, CND, NRS, NSN, and (optionally) ALTCND files that were used while testing the current release.

To migrate the IOA Core, do the following:

- a. Edit the FORMIOA member in the IOA INSTWORK library. Check that the JCL is correct and submit the job. The job allocates and formats the IOA Core.
- b. If you changed some parameters, you can tailor the FORMIOA job again by using the "Tailor Job" option in the INCONTROL Installation and Customization Engine (ICE), available by selecting Maintain your Environment => ICE refresh.
- c. Copy the conditions from the IOA Conditions file and Synchronization file in the version you are upgrading from by using the IOACCND sample job in the IOA JCL library. For more information, see the *INCONTROL for z/OS Utilities Guide*.
- d. IOA Log file

If you want to copy the previous IOA Log file to the current release IOA Log file, use the IOACPLOG utility from the new version. Before you copy the file, apply optional Wish WI0357.

Example:

```
//          JCLLIB ORDER=IOA. PROCLIB
//          INCLUDE MEMBER=IOASETnn
//COPYLOG  EXEC IOACPLOG
//DALOGCUR DD  DISP=SHR, DSN=previous log file
//DALOG    DD  DISP=SHR, DSN=new log file
//SYSIN    DD  *
          COPYTOLOG
```

- e. Update the IOA Manual Conditions file.

It is not necessary to update the IOA Manual Conditions file (NRS) during the migration of the IOA Core files. The IOA Manual Conditions file can be updated with data from your current release system by executing the IOALDNRS utility, after the migration of the Control-M Repository and the Control-D Repository (described in [Step 44. Migrate Control-M](#) (on page 63) and in [Step 46. Migrate Control-D](#) (on page 65)) have been completed.

See the *INCONTROL for z/OS Utilities Guide* for details on executing the IOALDNRS utility.

### 5. Migrate the AutoEdit Variable databases

If you used the AutoEdit Variable database facility in the version you are migrating from, you must copy your databases to the current release, as described below:

- a. Back up the AutoEdit Variable databases from the version you are migrating from.
- b. Unload the databases to flat files in the version you are migrating from by submitting the IOADBSUL, IOACOLUL, and IOAVARUL jobs from the IOAprefix.JCL library of the earlier version.

This creates three sequential files named IOAprefix.FLAT.DBSD, IOAprefix.FLAT.COLD, and IOAprefix.FLAT.VARD respectively.

- c. Rename the IOAprefix.FLAT.\* files from the version you are migrating from to IOAprefix.FLAT.\* using the IOA prefix of your current release installation.
  - d. Format the current version databases using the IOADBSBF, IOACOLBF, and IOAVARBF jobs from the IOAprefix.JCL library of the current version installation.
  - e. Load the current version databases using the IOADBSLD, IOACOLL, and IOAVARLD jobs from the IOAprefix.JCL library of the current version installation.
  - f. Build the indexes for the current version databases with the IOADBSBI, IOACOLBI, and IOAVARBI jobs from the IOAprefix.JCL library of the current version installation.
  - g. Start either Control-O or Control-M/Event Manager (CMEM).
  - h. Enter Screen IV from the current version IOA Main Menu, and verify that the databases contain the same data as the version you are migrating from.
  - i. Stop the application that you started in Step G.
6. Migrate INCONTROL security definitions

For IOA and each INCONTROL product, if necessary, activate the security definitions that you prepared in [Step 36. Prepare security definitions](#) (on page 55).

7. Put the new IOA Online interface, CLISTs, and panels into effect for all IOA users.

Startup CLISTs have been changed completely in INCONTROL version 7.0.xx. Do not use CLISTs from earlier versions. For more information, see "Entering the IOA Online Facility" in the IOA Administration chapter in the *INCONTROL for z/OS Administrator Guide*.

8. Migrate CMEM

Adjust the CMEM IOACMEML.

—Ensure that the IOACMEML member in the current release Parameters library references the correct rule definitions in the correct Rules libraries.

—Verify that the CMEM monitor procedure uses the correct names of the IOA GLOBAL database files.

For environments that use CMEM and do not use Control-O, the CTMCMEM monitor can be restarted at this point. After CMEM has been initialized, you can restart any other INCONTROL products as soon as you complete their migration steps.

For environments that do not use either CMEM or Control-O, any other INCONTROL products can be started as soon as you complete their migration steps.

## Step 44. Migrate Control-M

1. Replace Control-M procedures

If you used Control-M procedures in your jobs, you can use the JCLLIB statement or you can copy these procedures to the procedure library at your site.

If Control-M JCL procedure prefixes are not the same as prefixes of the previous version, modify the JCL of the production jobs to refer to the new Control-M JCL procedure names.

In cases where the name of a Control-M procedure does not follow the standard of PROCPREFM (3 characters) and then a suffix such as TROLM or TDAY, the name of the currently used procedure should be changed to another name, and the procedures for version 7.0.xx should be renamed to the customer's selected name.

## 2. Migrate the Control-M Repository

Rename or delete the current release CKP, BKP, journaling files (JNL, RESJNL, CKPJNL, CNDJNL), STATFILE, and optionally, the ALT files that were used while testing.

To reallocate the new Control-M Repository, enter Control-M Customization and select the "Customize Control-M Dataset Parameters" step.

If you have already copied the AJF as part of [Step 27. Prepare Control-M](#) (on page 48), then skip A and B below.

- a. Allocate and format the Control-M Active Jobs file (AJF) and the Control-M History Jobs file (HST).
- b. If the IOA QNAME was changed (as recommended in [Step 3. Install the IOA component](#) (on page 30), Item 4), copy the Active Jobs file using the CTMCAJF utility and copy the History Jobs file using the CTMHCOP utility.
- c. Copy the resources from the Control-M Resources file of the version you are migrating from into the new Control-M Resources file using the CTMCRES utility. A sample job is found in the Control-M JCL library. For more information on using the CTMCRES utility, see the *INCONTROL for z/OS Utilities Guide*.
- d. Copy the statistics from the Control-M STATFILE of the version you are migrating from into the new Control-M STATFILE file, using the IDCAMS IBM utility with the REPRO command.

If the old CONTROL-M STATFILE is from a version prior to IOA 6.3, upgrade the new STATFILE (after using the IDCAMS REPRO command) using the CTMCVSTT utility.

A sample job can be found in the Control-M JCL CTMCVSTT library member.

- e. Before version 7.0.00, the group name in jobs belonging to a group are inherited, and cannot be modified. Starting with release 7.0.00, the group name in jobs belonging to a SMART table are inherited, but can be modified. Since the job statistics file uses a key structure that includes both the job name and the group name, the customer is advised that changing the inherited group name will affect the job statistics for this job.

For example, assume that there are two jobs on panel 3 with the same name and the same group. If you look at the statistics for one of these jobs, you will see both jobs on the statistics panel. The average elapsed time and the median elapsed time, for example, will be calculated based on both these jobs. However, if there are two jobs on panel 3 with the same name, but different groups, there will be separate statistics for each of these jobs.

- f. Allocate and format the Control-M journaling files.

## 3. Compress the AJF file

Run the CTMCAJF utility with the "COMPRESS" option to update the pointers on the migrated AJF file.

## 4. Verify New Day procedure

Ensure that the current release Control-M New Day procedure, CTMTDAY, and any User daily jobs, all reference the same table names that were referenced in the version you are now using, in the appropriate scheduling library.

## 5. Adjust Date Control Records

Copy all date control records (all members that start with the DATEREC prefix) from the previous Control-M Parameters library to the current release Control-M PARM library.

**6.** Complete the IOA Core file migration

Execute the IOALDNRS utility to populate the IOA Manual Conditions file (NRS). See the *INCONTROL for z/OS Utilities Guide* for details on executing the IOALDNRS utility.

## Step 45. Migrate Control-M/Restart

Replace the Control-M/Restart procedure.

- Copy the new Control-M/Restart current release procedure to the MVS procedure library, using the production Control-M/Restart procedure name prefix. The new procedure replaces the procedure of the previous version.

If Control-M/Restart JCL procedure prefixes are not the same as prefixes of the previous Control-R version, modify the JCL of the production jobs to refer to the new Control-M/Restart JCL procedure names.

## Step 46. Migrate Control-D

**1.** Replace Control-D procedures

- a.** If you used Control-D procedures in your jobs you can use the JCLLIB statement or you can copy these procedures to the procedure library at your site.
- b.** Ensure that the Control-D procedures include all required output DD statements.

If Control-D JCL procedure prefixes are not the same as prefixes of the previous version, modify the JCL of the production jobs to refer to the new Control-D JCL procedure names.

- c.** Rename the current release started tasks to the names of the started task procedures in the version you are now using.
- d.** Prior to starting the new Control-D procedure, the previous CDAM subsystem must be shutdown. Run the IOASTERM task, matching its current release environment, and then run the IOASINIT task for the environment you want to load.

If you are not performing an IPL to the upgrade, the CDAM subsystem must be shutdown and started manually.

**2.** Migrate the Control-D Repository, as follows:

- a.** Delete the Control-D current release AMF, AMB, ATF, and ATB files that you used while testing.
- b.** To reallocate the new Control-D Repository, enter the Control-D Customization option and select the "Customize Control-D dataset Parameters" step.
- c.** Allocate the Control-D current release Active Missions file.

Use the CTDCAMF utility to copy the contents of the old Active Mission file to the current release Active Mission file. Sample JCL for running the utility is in the CTDCAMF member in the Control-D JCL library. Edit the sample, and add the OLDAMF=<previous AMF dsname> parameter and change NEWAMF=&DBPREFD..NEWAMF to NEWAMF=&DBPREFD..AMF.

- d.** Migrate the previous Control-D Active Transfer file.
  - a.** Format the Active Transfer file by using the "Format the A.T.F. File" step.

- b.** Use the CTDCATF utility to copy the contents of the old Active Transfer file to the current release Active Transfer file. Add the following parameters:

```
//CATF EXEC CTDCATF,P=COPY,  
// INATF='previous ATF dsname',  
// OUTATF='current ATF dsname'
```

For details, see the sample job in the *INCONTROL for z/OS Utilities Guide*.

- 3.** Migrate Control-D User files.

Run the CTDUFUL job from the Control-D JCL library in the version you are upgrading from, to back up the Active, Permanent, and History files.

Use the CTDUFRST sample job from the Control-D current release JCL library to restore the files. For each file modify the necessary lines in the job.

- 4.** Adjust the Control-D New Day procedure

The STARTCD member in the Control-D PARM library contains the MVS START command to start the Control-D procedure.

- 5.** Adjust Date Control Records

Copy the date control records, DDATEREC and DDATECU, from the previous Control-D PARM library to the current release Control-D PARM library.

- 6.** Copy the following members, (which contain lists of missions that are ordered by the CTDNDAY procedure) from the previous Control-D PARM library to the current release Control-D PARM library:

- PRTLST
- BKPLIST
- RSTLIST
- REPLIST
- GENLIST

- 7.** Copy Recipient Tree members from the previous Control-D PARM library to the current release Control-D PARM library. By default, the Recipient Tree member is named CTDTREE.

- 8.** Copy Generic User lists from the previous Control-D PARM library to the current release Control-D PARM library.

- 9.** Ensure that the current release procedure CTDNDAY and any User daily jobs reference

- the same table names that were referenced in the version you are now using
- the current release mission definition libraries

For details, see the discussion of member format changes in [Step 38. Copy definition libraries](#) (on page 56).

If you modified the BKPSKL skeleton library in the previous Control-D version, make the same modifications to the Control-D current release SKL skeleton library.

In version 7.0.xx, several members in the skeleton library are changed. Therefore, BMC Software does not recommend that you replace members of the INCONTROL version 7.0.xx skeleton library with members from the Control-D library of the version you are upgrading from.

**10.** Use ISPF option 3.3 or the IEBCOPY utility to copy the following production libraries to the current release:

- ACIFPARM
- APAPARM
- BANNERS
- DJDEPARM
- FTOPARM
- OUTPARMS
- TRANSTO

**11.** If necessary, adjust the parameters of the following Control-D exits in the SAMPEXIT library:

- CTDX003
- CTDX005
- CTDX014

**12.** To enable use of the Control-D reports transformation option, use the relevant option of the following:

- If you used the transformation option in a previous Control-D release, add the following definition to the member IOADSNL in the IOA PARM library, which allows you to continue using the CTD RESLIB library from the previous environment:

```
DATASET DARESLIB ,  
      SEQ=1 ,  
      DD=DARESLIB ,  
      DSN=old_PREFD.RESLIB
```

- If you did not previously work with transformers, create a new CTD RESLIB file for resource management, as follows:
  - a. Delete the CTD RESLIB allocated during installation.
  - b. Run CTDFRESL, which allocates the CTD RESLIB.

**13.** Complete the IOA Core file migration

Execute the IOALDNRS utility to populate the IOA Manual Conditions file (NRS). See the *INCONTROL for z/OS Utilities Guide* for details on executing the IOALDNRS utility.

## Step 47. Migrate Control-V

**1.** Modify the new Control-V data set parameters

- a. If you want to change the parameters of the Control-V Migrated User file, choose "Customize Control-V User Files" in ICE Customization.
- b. Delete or rename the file.
- c. List all files with the %DBPREFD%.MIG\* prefix. The list includes the DATA file and its extents, the INDEX file and its extents, and the DUAL files. Delete or rename all files in the list.



If necessary, use ISPF option 3.3 or the IEBCOPY utility to copy the members.

**5. Adjust the Control-O RULELIST.**

Ensure that the RULELIST member in the Control-O current version Parameters library references the correct rule definitions in the correct Rules libraries.

If you are using Control-O/COSMOS, add the COSMOS table to the RULELIST member. The COSMOS table is shipped in the Control-O Rules library.

If the Control-O Communications facility is installed, add the CTOGATEI table to the RULELIST member. The CTOGATEI table is shipped in the Control-O Rules library.

If you are using CMEM functions, ensure that the IOACMEML member in the current version Parameters library references the correct rule definitions in the correct Rules libraries.

**6. Adjust Control-O DAGLBLST.**

Verify that the DAGLBLST member in the Control-O current release Parameters library references the correct GLOBAL variable pools in the Control-O GLOBAL variable libraries and databases.

If you are using Control-O/COSMOS, add the COSMOS databases to the DAGLBLST member.

**7. Verify that an Automation Log exists.**

If the file has not been allocated because the Automation Log was allocated to an active Control-O monitor during installation, perform the below steps

- a. Use the IDCAMS utility to delete or rename both the CLUSTER and the DATA elements of the existing Automation Log files in each computer that is running Control-O.
  - b. Enter the main ICE screen.
  - c. Select Customization.
  - d. Select an environment to customize.
  - e. Enter CTO in the Product field.
  - f. Select Product Customization.
  - g. Select major step 2, "Customize Control-O Dataset Parameters."
  - h. Select minor step 6, "Allocate the Automation Log File."
  - i. Submit and execute the job on every system that should run Control-O.
- 8.** If you have installed Control-O/COSMOS or you intend to use the Control-O GLOBAL variable database, verify that the Control-O monitor procedure uses the correct names of the database files.

The Control-O monitor can be restarted at this point. After Control-O has been initialized, you can restart any other INCONTROL products for which all migration steps have been completed.

## Step 49. Migrate Control-M/Analyzer

This step uses examples and procedures that apply when you are upgrading from an earlier supported version to the most recent version. In many of the examples, and elsewhere through the explanation of this step, Vxxx is used to identify the supported version you are upgrading from, and the current release is used to identify the new version.

Throughout this explanation, the .GRPД file is used for illustration purposes. The procedures illustrated using the .GRPД file must also be applied to all the files in [Using existing production files in the new Control-M/Analyzer environment](#) (on page 70).

There are two ways to migrate from an earlier version of Control-M/Analyzer:

- You can use existing version production files in the new Control-M/Analyzer environment.
- You can back up your existing version production files and use those backups as the basis of the new Control-M/Analyzer environment, while retaining the original production files in place.

### Using existing production files in the new Control-M/Analyzer environment

The following procedure explains how to use existing production files in the new Control-M/Analyzer environment:

1. Prepare all relevant Control-M/Analyzer data sets from supported earlier versions (Vxxx), for use in the current release. The following table identifies the data sets that must be prepared.

**Table 23 Control-M/Analyzer data sets**

Data set name	Data file name	Index file name
Group	GRPД	GRPI
Model Variables Definition	MODD	MODI
Database Variables Generations	VARD	VARI
Rule Activity	JAFD	JAFI
Report	REPD	REPI
Active Balancing	ABF, ABFBKP	

The files shown in the previous table can receive different migration treatment, as follows:

2. Data files GRPD, MODD, and VARD must be migrated to ensure that the current release database contains the same database records that existed in Vxxx.
  - The GRPI, MODI, VARI, JAFI, and REPI index files can be re-indexed locally after the current release has been created, so these files can be omitted from the migration process.

It is not necessary to IEBGENER the index files, nor to back up or follow parts C, D, E, F, G, and H in step 3. Instead, you can use the new Vyyy index files created by the standard current release installation, and then submit the following members from the CTB.V6301.JCL installation library to rebuild those indexes (AFTER the corresponding data components have been adjusted):

- JOBBDBM
- JOBBDBV
- JOBBGRP
- JOBBJAF

o JOBBREP

This will cause the new index files to have all the necessary data that corresponds to your Vxxx data.

- Log and report files hold history data and ordered missions and rules. If you are not required to migrate these files from Vxxx to the current release, you can omit the JAFD, JAFI, REPD, REPI, ABF, and ABFBKP files from the migration process. If you omit these files from the migration process, the current release will only contain history and ordered missions and rules beginning with the point of migration point.

If any of the files you want to migrate already exist in current release format, delete them before continuing the migration process.

3. For each file shown in the previous table that you want to migrate, use the following procedure:
  - a. Ensure that you can allocate the file exclusively during the upgrade process. If Control-M or other jobs currently access and use the file you are to upgrade, delay the upgrade process until the file becomes exclusively available to Control-M/Analyzer, such as the time during Initial Program Load (IPL).
  - b. Use the IEBGENER utility to create a backup of the current Vxxx.GRPD file by copying the file to a new name.

The current Vxxx.GRPD file will become the file used by the current release environment. At the end of the upgrade process, the backup file you are now creating will become the .GRPDP file of the Vxxx environment.

- c. After you have finished creating the backup copy with a new name, run the IOADBF utility on the Vxxx.GRPD file, using the FUNC=CHANGE and (BYPASS) parameters. Ensure that the rc is 00.

Sample JCLs for substeps C and E (where Vxxx represents the version you are upgrading from) are:

```
//CTB#CE JOB
*//
// JCLLIB ORDER=IOA.Vxxx.PROCLIB
// INCLUDE MEMBER=IOASET
//*****
//* ADJUST QNAME FOR CTB DB FILE
//*****
*//
//CRE0001 EXEC IOADBF, FUNC=CHANGE, D=INSTWORK, M=DEFGRPD
//DAFILE DD DISP=SHR, DSN=CTB.Vxxx.GRPD.E000(BYPASS)
*//
//CRE0002 EXEC IOADBF, FUNC=CHANGE, D=INSTWORK, M=DEFGRPI
//DAFILE DD DISP=SHR, DSN=CTB.Vxxx.GRPI.E000(BYPASS)
//
```

For more information, see the description of the IOADBF utility in the *INCONTROL for z/OS Utilities Guide*.

This is a verification step to confirm that the file is accessible to name and qname changes. Because the current release parameters have not yet been supplied, at this point no changes will appear in the file.

- d. Change the DSN parameter in the IOA.Vxxx.INSTWORK (DEFGRPD) library member to reflect the new version CRname of the GRPD file. Do not include the .000 suffix when you change the parameter.
- e. Rerun the IOADBF utility. The internal name is modified, and rc becomes 02 or 00.
- f. Use ISPF option 3.2 to change the name of the original Vxxx.GRPD file to the new version 8000.GRPD filename.

**Rename CTB.Vxxx.GRPD.E000 to CTB.V9000.GRPD.E000**

- g. Change the JCL to run from the current release environment (steplib, procname), and the DAFILE to point to the new 8000.GRPD file.

Sample JCLs for step G (where 8000 represents the version you are upgrading to) are:

```
//CTB#G JOB
*//
// JCLLIB ORDER=IOA.V6301.PROCLIB
// INCLUDE MEMBER=IOASET
//*****
//* ADJUST QNAME FOR CTB DB FILE
//*****
*//
//CRE0001 EXEC IOADBF, FUNC=CHANGE, D=INSTWORK, M=DEFGRPD
//DAFILE DD DISP=SHR, DSN=CTB.V9000.GRPD.E000(BYPASS)
*//
//CRE0002 EXEC IOADBF, FUNC=CHANGE, D=INSTWORK, M=DEFGRPI
//DAFILE DD DISP=SHR, DSN=CTB.V9000.GRPI.E000(BYPASS)
//
```

- h. Rerun the IOADBF utility. The internal qname has been modified to adjust to the current release environment qname.
  - i. Rename the backup file created in step 3.B to the original Vxxx.GRPD file name.
  - j. Change the DSN parameter in the IOA.Vxxx.INSTWORK (DEFGRPD) library member to reflect the old Vxxx name of the GRPD file. Do not include the .000 suffix when you change the parameter.
4. If you used Control-M/Analyzer procedures in your jobs you can use JCLLIB statement or you can copy these procedures to the procedure library at your site.
- If Control-M/Analyzer JCL procedure prefixes are not the same as prefixes of the previous version, modify the JCL of the production jobs to refer to the new Control-M/Analyzer JCL procedure names.
- 5. Enable users of Control-M/Analyzer to access the Vyyy Control-M/Analyzer online interface, CLISTs, and panels.
  - 6. Copy the date control record from the Vxxx Control-M/Analyzer PARM library to the CTBDATE member in the current release Control-M/Analyzer PARM library.
  - 7. Copy the list of programs that are run by the New Day procedure.

8. Copy the list of programs from the Vxxx Control-M/Analyzer PARM library to the CTBPROGD member in the current release Control-M/Analyzer PARM library.
9. Copy the CTBMNDAY member from the Vxxx Control-M/Analyzer BALMIS library to the current release BALMIS library.
10. Copy the CTBX010 member in the Vxxx IOA LOAD library to CTBX010 in the current release IOA LOAD library. Alternatively, you can recompile the CTBX010 module in the current release environment.

### Using backups of existing production files in the new Control-M/Analyzer environment

The following procedure explains how to use backups of existing production files in the new Control-M/Analyzer environment:

1. Prepare all relevant Control-M/Analyzer data sets from supported earlier versions (Vxxx) for use in the current release. The following table identifies the data sets to prepare.

**Table 24 Control-M/Analyzer data sets**

Data set name	Data file name	Index file name
Group	GRPD	GRPI
Model Variables Definition	MODD	MODI
Database Variables Generations	VARD	VARI
Rule Activity	JAFD	JAFI
Report	REPD	REPI
Active Balancing	ABF	ABFBKP

If you are using the dual database option, files with D000 and E000 suffixes (one for each of the dual files you have), must be handled together in order to keep them synchronized. In the following procedure, information regarding the D000 parts of dual files is shown in bold. For example, if the current naming for Vxxx is as shown below for the GRP file (and this file is used in this procedure as a continuing example), dual files are identified as follows:

CTB.Vxxx.GRPD.D000

CTB.Vxxx.GRPD.E000

2. The files shown in the previous table can be migrated in one of the following ways:
  - Create backups (not simple copies) of your current Vxxx environment, to be used in the current release environment.
 

If you only copy the current file you still need the current release (rather than Vxxx) qnames and file names.

If you do copy the files, you should set the internal qname and file name using a zap utility, and not a standard editor.

- Use the IOADBF utility in the current release environment to create file names, which enables you to use current release (rather than Vxxx) qnames and file names, instead of manually allocating those names. This procedure, which BMC Software recommends that you use, will also create, in a single operation, both D000 and E000 files, provided that you specified DUAL=Y in the new IOAP.version 8000.INSTWORK(DEF\*) members.

Use the following syntax to create backup copies. The names of the files are set in the DEF\* members and according that IOADBF can create new files for you.

```
//EXEC IOADBF, FUNC=INIT, D=INSTCTB, M=DEFGRPD
```

3. Use the following procedure to copy the Vxxx GRP file you just created, to the target Vyyy data sets.

```
//STEP1 EXEC PGM=IEBGENER
//SYSPRINT DD SYSOUT=*
//SYSIN DD DUMMY
//SYSUT1 DD DISP=SHR, DSN=CTB.Vxxx.GRPD.D000
//SYSUT2 DD DISP=SHR, DSN=CTB.V9000.GRPD.D000
```

```
//STEP1 EXEC PGM=IEBGENER
//SYSPRINT DD SYSOUT=*
//SYSIN DD DUMMY
//SYSUT1 DD DISP=SHR, DSN=CTB.Vxxx.GRPD.E000
//SYSUT2 DD DISP=SHR, DSN=CTB.V9000.GRPD.E000
```

4. Adjust the qname and file name in the files.

Since these are not the original files, you cannot use IOADBF to make the adjustments. Instead of using the CREGRP1 migration step, you should use the AMASZAP or ABSDUMPT utility combination, and so on, to zap the data in both new data sets (CTB.V9000.GRPD.E000 and (CTB.V9000.GRPD.D000 in dual mode)) to the qname and file name of your Vyyy environment, as shown in the following table.

There is no need to adjust the DISK or VOLSER fields.

**Table 25 QNAME and file name changes**

Field	Offset	Length
QNAME	1C	8
FILENAME	2C	44

5. Repeat steps 1 - 4 for the rest of your files.

## Step 50. Migrate Control-M/Tape

1. Replace Control-M/Tape procedures.

If you used Control-M/Tape procedures in your jobs you can use JCLLIB statement or you can copy these procedures to the procedure library at your site.

If Control-M/Tape JCL procedure prefixes are not the same as prefixes of the previous version, modify the JCL of the production jobs to refer to the new Control-M/Tape JCL procedure names.

2. If the Control-M/Tape Repository file attributes used for the testing phase need to be changed, modify the new Control-M/Tape data set parameters. Changes in these parameters affect the allocation and formatting of Control-M/Tape data sets. You can modify values and customize formatting jobs by using the "Customize Control-M/Tape Datasets" major step in ICE Customization.

Complete the remaining minor steps in ICE. These steps update the file definition statements and the DEFPARM member so that the formatting jobs are customized and ready for submission in later steps.

3. If you are going to use the Media database of your previous Control-M/Tape version, and that database is shared by other systems, ensure that the DBPREFT ICE variable and DBPREF parameter in CTT Parm have the same value as in the previous version.
4. Upgrade Media Database and Stacking Database

In "CTT Customization" in ICE, select the "Upgrade Control-M/Tape Repository" major step, and perform its minor steps.

Select the "Adjustments" major step, and perform the "Building Vault Information in MDB" minor step.

5. Using static installation

While running in TEST mode, you cannot statically install the Control-M/Tape SVC and MVS Tape Label Processing Exits. For more information, and to help you determine whether you want to proceed with a static installation, review the description of ICE minor steps "Control-M/Tape SVC Installation." and "MVS Tape Label Processing Exits Installation" in the *INCONTROL for z/OS Installation Guide: Installing*.

6. Initialize Control-M/Tape.

## Step 51. Migrate IOAGATE

1. Replace IOAGATE procedures.

BMC Software recommends that you give the IOAGATE current release procedures the same names as the IOAGATE JCL procedures in the version you are upgrading from. This may save modifications to JCL of production jobs that invoke IOAGATE JCL procedures.

Back up the current procedures. Then copy the new IOAGATE current release JCL procedures to the MVS procedures library, using the production IOAGATE JCL procedure name prefix. The new procedures replace the procedures of the previous version. Instead of copying the procedures, you can use JCLLIB or /\*JOBPARM.

If IOAGATE JCL procedure prefixes are not the same as prefixes of the previous version, modify the JCL of the production jobs to refer to the new IOAGATE JCL procedure names.

2. Rename the application server started task procedures to those of the version you are upgrading from. Then change the corresponding procedure names accordingly. To do so, use the "Configure IOAGATE Parameters" ICE minor step of the "Install IOAGATE" major step, under "The INSTALL activity."
3. Recycle IOAGATE.

## Step 52. Migrate CTMAS

The CTMAS and Control-M versions must be the same.

Migrate to the Control-M current release before you migrate to the CTMAS current release.

## Step 53. Migrate Control-M/JCL Verify

1. If you used Control-M/JCL Verify procedures in your jobs you can use JCLLIB statement or you can copy these procedures to the procedure library at your site.
2. The three-letter prefix for the Control-M/JCL Verify started tasks are defined in the Control-M/JCL parameter.
3. Adjust the Control-M/JCL Verify CTJRULE.  
Ensure that in the current version of Control-M/JCL Verify, the CTJRULE member in the Parameters library references the correct rule definitions.
4. For Edit Macro users, copy the REXX CTJXVER created by installation from the SYSPROC test library to the SYSPROC Site production library.

You can rename the CLIST to any valid name different from the name of the REXX in the version you are currently using.

If you want to use the same name used in the previous release, backup a copy of the previous release, and then rename it.

## Step 54. Restart IOA activities

Restart any IOA activities that have not yet been restarted, and were stopped in [Step 40. Stop all IOA activities](#) (on page 59). If Control-O or CMEM are part of your environment, they must be restarted before you restart other activities.

## Step 55. Final adjustments

1. (optional) Add the new the current release IOA LOAD library to the MVS Linklist.

If the IOA LOAD library of the version you are now using was in the MVS Linklist and you want to permanently add the current release library to the list, edit the LNKLISTxx member in the SYS1.PARMLIB library, and add the reference to the new release IOA LOAD library.

You may have to IPL to make the change effective. However, if you use a product that can dynamically modify the MVS Linklist, such as CA-LOOK, you can skip the IPL.

If you commented out or removed STEPLIB DD statements from the IOA JCL procedures in the version you are now using, comment out the corresponding statements of the current release IOA JCL procedures. The STEPLIB DD statement is in the SIOAENV member in IOA PROCLIB. However, do not comment out STEPLIB DD statements from the Control-O monitor procedure or the CMEM monitor procedure.

BMC recommends that you comment out statements instead of removing them.

2. Modify COMMNDxx members to automatically start the installed products.
3. If subsystem names for the INCONTROL products have changed, modify IEFSSNxx members.

4. If you have products that enhance LLA performance, such as Quick-Fetch or PMO, and you have disabled them during the upgrade, restart them.
5. Migrate Control-M/Server definitions in the Control-M/Enterprise Manager database from the earlier version to version 8.0.00 by running the `migrate_dc` utility in the Control-M/Enterprise Manager environment. For more information on the `migrate_dc` utility, see the *Control-M Migration Guide*.
6. Re-implement previous customizations that were made to screens, exits, and so forth into the new environment.
7. Back up the entire IOA environment, including all new IOA and INCONTROL product libraries repositories, and definition libraries (for example, schedule, mission) owned by users.

## Part 2 Appendixes

## A Technical considerations

The internal format of the current release's library members such as tables, missions, and rule definitions might be different from the format in some earlier versions.

Version 8.0.xx products can read definition members written in earlier versions, but products from earlier versions may not be able to read members that were written in version 8.0.xx in a different format.

When a version 8.0.xx product reads a definition member that is in the format of an earlier version, its in-memory representation of the member is converted to the new format. When you exit the screen, it may be necessary to save the member in version 8.0.xx format. If so, you are prompted to decide if you want to save the definition member, even if you did not modify it. If you answer "Yes," the member is saved in version 8.0.xx format. The member may then be unusable by the version you are now using.

Therefore, do not test version 8.0.xx with your current production version libraries.

### Control-M

Major differences between earlier versions of Control-M and version 6.2.xx or later are described below. New features of version 6.2.xx are mentioned throughout this chapter, but not in full detail. For information regarding other recent Control-M changes, see the What's New section of the INCONTROL for z/OS Release Notes.

#### 1. Active Jobs file (AJF) internal structure

The internal structure of the Active Jobs file was redesigned to

- compress data
- improve performance
- reduce I/O

For instructions on migrating the AJF, see [Step 44. Migrate Control-M](#) (on page 63).

After migration:

- All user-written programs and local exits that directly access the Active Jobs file must be adapted to the new format.
- While the CTMMIT and CTMMIC DSECT members are thoroughly changed, the DSECT names and field names that map the different records in the Active Jobs file remain unchanged.
- Macros previously used to access the variable part of the job records (such as, CTMINI, CTMNXT, CTMRUT and CTMCNS) are obsolete, and are replaced by a single service macro CTMCOD. For more information about macro CTMCOD, see the *INCONTROL for z/OS Utilities Guide*.

All standard sample exits are modified to work with the new Active Jobs file format and macros. However, exits generated or locally modified by the user must be reviewed and changed as necessary to ensure their compliance with the new standards, as discussed in the exits section.

#### 2. Exits

Some sample exits that existed in versions prior to 8.0.xx are no longer required since their functionality was incorporated into the new base product and their source code has been removed.

All version 8.0.xx sample exits are adapted to use the new Active Jobs file format. You must use these exits or adapt your own code based on these samples.

Support for the CTM001X exit will be dropped in a future release. For condition references in IN and OUT conditions use the relative date format (+/-nnn) instead.

### 3. KSL scripts and JCL that executes KSLs

The Control-M JCL library now contains all the JCLs that execute standard Control-M KSLs. The new IOA.KSL library now contains all of these KSL scripts.

The new KSLs now reflect the changes related to the screens that have been updated since earlier versions.

Do not use KSLs from earlier versions.

Take special care regarding KSLs that access conditions, because in most of the screens, the Date field has moved. Also, be aware that many screens contain mixed case text so, carefully check and modify any user-written or customized KSLs to match the new screen changes.

Users upgrading from earlier versions with customized KSLs should review the note in step 5. on page 180.

As of version 6.2.xx the following KSLs are no longer supported:

- ORDERJOB
- REPCRCND

In place of KSLs that are no longer supported, use one of the following:

- Control-M CTMAPI (For information, see the *Control-M for z/OS User Guide*.)
- CTMJOB utility (For information, see the *INCONTROL for z/OS Utilities Guide*.)
- CTMXRF utility (For information, see the *INCONTROL for z/OS Utilities Guide*.)

### 4. Messages

All job-related messages now include the Order-ID of the job (OID=order), to differentiate messages that belong to different invocations of the same job. Note that this change may affect KSLs that access the IOA LOG screen (Screen 5), since the text of the message has been shifted to the right.

### 5. Enhanced and Changed Active Environment screen features (Screen 3)

Of special note are the following enhanced features of Screen 3:

Beginning with version 6.2.xx, the Show Screen Filter panel of screen 3 has been modified by the addition of the following parameter fields:

- Wait quant – Y/N/S field used to show or hide all jobs waiting for quantitative resources
- Wait cond – Y/N/S field used to show or hide all jobs waiting for input conditions
- Wait time – Y/N/S field used to show or hide all jobs waiting for from or until time data
- Wait contrl – Y/N/S field used to show or hide all jobs waiting for control resources
- Tbl Active – Y/N/S field used to show or hide all active SMART Tables
- Forced OK – Y/N/S field used to show or hide all jobs that were forced OK
- Tbl Held – Y/N/S field used to show or hide all <TBL Held> jobs

- CMEM Forc – Y/N/S field used to show or hide all jobs that were forced by CMEM
- Note – Y/N/S field used to show or hide all jobs that have a note attached to them
- Restarted – Y/N/S field used to show or hide all jobs that were restarted
- Job – field that enables you to select by jobname
- Appl – field that enables you to select by application
- CPU Id – field that enables you to select by CPU ID
- LPAR – field that enables you to select by LPAR
- Sch Lib – field used to identify the schedule library

Beginning with version 6.2.xx, the SACTLTO parameter was removed and replaced by the LATE parameter. When SACTLTO was used, late jobs could be combined with all other jobs in the Show Screen Filter window of screen 3. In such cases, however, SACTLTO allowed only late jobs to be displayed on screen 3. The LATE parameter permits the display of late jobs together with others.

Beginning with version 6.2.xx, character search criteria are based on masking instead of prefixes. This feature lets you use an asterisk (\*) or query (?) mask character at any point in a search string. The SACTMSK profile variable determines how to treat character search criteria from earlier versions, which do not use masking characters.

Table was added to the Show Screen Filter window.

The selection logic for Y/N fields for "In Process," "Ended," and "State" was modified. For further information see the *Control-M for z/OS User Guide*.

Beginning with version 6.2.xx, the following screen 3 enhancements have been added:

- Restart Flow options are available in the Restart window
- X (Exit) option invokes the CTMX008 exit
- K (Kill) option kills a job, meaning that the job is cancelled and the status of the job is changed to ENDED NOTOK

## 6. SYSPLEX System Logger

This feature improves communication between both CMEM and Control-O to Control-M in a SYSPLEX environment. CMEM and Control-O can communicate through the SYSPLEX System Logger instead of using Subsystem-to-Monitor files. This simplifies system configuration and dramatically speeds up Control-M. BMC Software recommends that you use this feature instead of the traditional S2M files, especially in a multiple CPU environment.

## 7. Control-M statistics file

You may not be able to readily identify some SMART Table Entity (for versions earlier than 8.0.00: group entity) statistics that reside in the Control-M statistics file if they were generated in earlier versions. This is due to internal changes made to the record key of SMART Table Entity (for versions earlier than 8.0.00: group entity) records. Job statistics are not affected by this change. As of version 7.0.03, the Control-M monitor must have update access authorization to the Control-M Statistics file.

## 8. Job statistics for jobs belonging to SMART tables

Before version 7.0.00, the group name in jobs belonging to a group are inherited, and cannot be modified. Starting with release 7.0.00, the group name in jobs belonging to a SMART table are inherited, but can be modified. Since the job statistics file uses a key structure that includes both the job name and the group name, the customer is advised that changing the inherited group name will affect the job statistics for this job.

For example, assume that there are two jobs on panel 3 with the same name and the same group. If you look at the statistics for one of these jobs, you will see both jobs on the statistics panel. The average elapsed time and the median elapsed time, for example, will be calculated based on both these jobs. However, if there are two jobs on panel 3 with the same name, but different groups, there will be separate statistics for each of these jobs.

## 9. Parameter Prompting Facilities

### 10. Enhanced Job Definition screen features (Screen 2)

Of special note are the following new parameters and features of Screen 2:

- The GROUP parameters in the jobs of a SMART parameter have been decoupled from the GROUP in the SMART table table entity. The job's GROUP parameter may now have different values (or blank) from that specified in the SMART table entity. All CTM utilities which create, set, or modify the GROUP parameter have been accordingly adjusted to support this.
- SCHEDULE RBC — Exclude RBCs are supported. Exclude RBCs are rule-based calendars that specify the days that jobs will NOT be ordered. To specify an Exclude RBC, an exclamation mark (!) must be added as a prefix when defining a Table level RBC, or as a prefix to the RBC name when referring to a Control-M (CTM) level RBC. When the scheduling criteria of the Exclude RBC are satisfied the job will not be scheduled. For more information, see item 17.
- SCHENV — The name of the workload management scheduling environment that is to be associated with the job.
- SYSTEM ID — In JES2, this parameter provides the identity of the system in which the job must be initiated and executed. In JES3, the parameter provinces the identity of the processor on which the job must execute.
- NJE NODE — Identifies the node in the JES system at which the job must execute.
- TIME ZONE — This parameter adjusts the values specified in the TIME parameter to those in a different time zone. Caution should be exercised to avoid defining a new time zone in an existing job definition, which may cause the job to be rescheduled on a day different than in earlier versions.
- FROM / UNTIL subparameters of the SCHEDULE RBC ACTIVE (for versions earlier than 8.0.00: SCHEDULE TAG ACTIVE) parameter—restrict the ordering of jobs using this parameter to those whose ordering dates occur after the FROM date and before the UNTIL date.
- +EVERY is a new reserved word in the ON PGMST statement of the ON parameter.
- FORCE, FLUSH, and SNRUN are new ON parameter CODES values.
- ON SYSOUT — This enhancement enables you to search for a string in the sysout of the job, and perform the actions in the accompanying DO statements if the string is found.
- DO REMEDY — Enables you to open a problem ticket within the Remedy Helpdesk System, for example, when a specific job fails.

- STAT CAL — Name of a periodic calendar used to gather average runtime statistics for the job, based on a time period.
- TIME + DAYS — Time and day limits (FROM, UNTIL, DUE OUT, SHOUT LATE(SUB)) for submitting a job or making a SMART Table active.
- OnOK and OnFail options are provided in the CONTROL and RESOURCE parameters.
- INSTREAM JCL — Determines whether Control-M submits a JCL stream defined within the job scheduling definition, which overrides the JCL in the member identified in the MEMLIB parameter and the OVERLIB parameter (if specified).
- ADJUST CONDITIONS — Provides an option that enables Control-M to order as a DUMMY job any job with scheduling criteria that are not satisfied on the current ODATE.

For further information about these parameters and features, see the job production parameters chapter of the *Control-M for z/OS User Guide*.

#### 11. IOA LOG considerations

Some Control-M messages that are issued to the IOA LOG file have been modified to include the Order ID of the jobs they refer to. Because the earlier versions of these messages did not include provision for an Order ID field, when the IOA LOG file is migrated to version 8.0.00, and when screen 3.L or screen 5 is used to view the IOA LOG, the Order ID of these migrated messages is displayed as a set of question marks, indicating that the Order ID of the message is unknown.

#### 12. Connect Direct Support

Connect Direct Support no longer uses the independent IOADDS started task to pass the data set name argument to Control-M. Connect Direct, via the IOADDC module, now passes the data set name to Control-M via the MVS System Logger facility, or directly, calling the IOADDR module (depending on the SYSTLOGR parameter in the IOACPRM IOA.PARM member).

#### 13. Security Considerations

- Control-M now checks that the user has update security authorization to the Control-M OVERLIB JCL library when the COPMEM20, DELOVRUN, or DELOVRER parameters (in the CTMPARM member of the IOA.PARM library) are set to Y.
- The Control-M New Day procedure and the IOACLCND Conditions Cleanup utility now require that update security authorization be defined to allow processing of conditions in the IOA Conditions file. The required definitions may be found in the description of module IOASE07 in the *INCONTROL for z/OS Security Guide*.

#### 14. End User Job Order interface - M6 ISPF utility

The utility no longer supports building a Job List containing duplicate JOBNAMEs from the same table and library.

#### 15. Support for 7-digit JES Job ID

The length of the MITJOBID field in the CTMMIT has not changed. For 7-digit support the actual content of the field indicates whether it is a 5-digit id or a 7-digit ID as follows:

- If the first byte of the field is not P, then the jobid is a regular 5-digit number in character format.
- If the first byte of the field is P, then the next 4 bytes are a packed number representing a 7-digit jobid.

## 16. Utilities

- From version 6.2.22, the CTMAPI utility no longer accepts commas as delimiter characters in the utility command syntax. The only acceptable delimiter character is a blank.
- The following keyword parameters have been changed in the CTMBLT utility:
  - MAIL-SUBJ is now MAIL-SB
  - MAIL-TEXT is now MAIL-TX
- If the user is upgrading from version 6.1.xx. or later or a release in which Control-M/Restart was not installed, then PTF PA14710 is required if the user wants to use the Control-M CTMTBUPD utility to modify the SCHENV, SYSTEM ID, or NJE NODE fields.
- The functionality of the CTMRAFL utility has been incorporated into the CTMRFLW utility. BMC Software recommends that you no longer use the CTMRAFL utility.
- Users who code the MODEL input statement to the CTMBLT utility must ensure that any tables specified in the MODEL statement are in the format required by version 8.0.xx. Failure to do so may lead to corruption in the table created by CTMBLT. To migrate tables to version 8.0.xx format, use the CTMTLB utility to disassemble the scheduling definition into statements that can be used as input to the CTMTLB utility. For details, see the CTMBLT section of the *INCONTROL for z/OS Utilities Guide*.
- A new utility, CTMTLB, is introduced with version 6.3.01. CTMTLB analyzes Control-M job scheduling definitions and produces the following output:
  - XML output for creating distributed job definitions in Control-M/EM and Control-M/Desktop
  - control statements suitable for input to the CTMBLT utility
- The behavior of the CTMAESIM (AutoEdit Simulation) utility has changed in version 8.0.03. In version 7.0.00 and earlier versions, when the first AutoEdit error was detected, the checking stopped and only the partial member (up to the line where the error occurred, but not including the error line) was sent to the submitter. Since the partial member did not contain the error, the additional line: `// THIS RECORD WAS ADDED BY AUTO-EDIT SIMULATION TO FAIL JOB` was added to the job to cause the job to fail.

In version 8.0.03, the utility now scans the entire member and does not stop after encountering the first AutoEdit error. This gives it the opportunity to find all errors in the member. If the SUBMIT or SUBSCAN commands are specified, the entire member is then submitted and the job will fail if there are any AutoEdit errors, hence there is no need for the additional line to be added. In addition, the return code was changed to 8 instead of 16, since the AutoEdit errors are all type 'E' errors and not 'S' (severe) errors.

## 17. Control-M scheduling algorithm

The Control-M scheduling algorithm has been modified so that the MONTHS parameter always takes precedence over the WDAY parameters. This means that if there are days in a week which starts in one month and ends in another, and one of the months is scheduled (marked Y) and the other is not scheduled (marked N), the days are scheduled according to the month in which they occur. The scheduling of these days is not dependent on the month in which the week begins or ends. Nevertheless, WDAY criteria, which depend on the working-day definition in a WCAL calendar are calculated according to the week in which they occur (but are not necessarily scheduled; scheduling depends on whether the MONTH is scheduled).

Since Exclude RBCs (see item 10) are specified by adding an exclamation mark (!) prefix to the RBC name, Include RBCs must not begin with the "!" character. The names of legacy (Include) RBCs, which do begin with the "!" character, must therefore be changed by removing or replacing the "!" character, otherwise they will be processed as Exclude RBCs. If the customer has a large number of legacy RBCs that begin with the "!" character, there are two options to save the time and effort involved in changing the names. One option is not to change the names, but to disable the Exclude RBC feature by setting the EXCLURBC parameter (located in the ORDER section of the CTMPARM member) to N. This way all RBCs, even ones whose names begin with the "!" character, are processed as regular RBCs, so that when the RBC scheduling criteria is satisfied the jobs will be scheduled. (For more information about EXCLURBC, see the *INCONTROL for z/OS Installation Guide: Customizing*.) The second time-saving option is to use the CTMXRF utility, with XRF=TAG, to generate a report that identifies which jobs or tables specify RBCs. To restrict the report to jobs or tables whose RBCs begin with the "!" character prefix, specify PARM=!\*. (For more information about using CTMXRF, see the *INCONTROL for z/OS Utilities Guide*.) After a list of the RBCs with the "!" prefix has been generated, the names can be more easily changed manually. Only after the names have been updated should the EXCLURBC parameter be set to Y.

## 18. Statistics file modifications

The internal structure of the Statistics file (see member CTMJST in the IOA MAC library) was redesigned in version 6.3.00, to

- accommodate additional data fields for each job occurrence (job name, order id, and job status)
- accommodate additional summary data fields (maximum, median, and standard deviation elapsed time)
- increase the maximum number job occurrences per record to 200 (see parameter STENT# in the CTMPARM member of the IOA PARM library)

The IOA online statistics display (using option S in screen 3 or the JOBSTAT command in screen 2) was totally redesigned in version 6.3.00 to accommodate the changes in the internal file structure described above.

The CTMJSA (Control-M Statistics Accumulation Utility) has been enhanced to

- allow jobs that ended NOTOK and Dummy jobs to be accumulated
- provide additional cleanup criteria and to allow individual job occurrences within the job statistics record to be cleaned up

For details, see the *INCONTROL for z/OS Utilities Guide*.

For customers using Control-M exits 5 and/or 13:

The User Data fields (JSTJUSER and JSTEUSER in member CTMJST) in the Statistics record file have been reduced to 30 characters each. Any user data exceeding this limit will be truncated.

The default space allocation for the Control-M Statistics file has been increased from 5 cylinders to 50.

## 19. SAMPLE library

The following members in the IOA SAMPLE library, which were introduced by PTF PA06129, have been removed: CTMCDAIL, CTMCJOBS, CTMJOBRO, and CTMPDALU.

Any user requiring the functionality provided by these members should use the Control-M CTMAPI utility. For details, see the section about the CTMAPI utility in the *Control-M for z/OS User Guide*.

## Control-M/Restart

Major differences between earlier versions of Control-R and Control-M/Restart version 8.0.xx are described below.

### 1. CTRPARM

The CTRPARM member is no longer a load module, but a source member.

### 2. Optional wishes

All Control-M/Restart optional wishes that were set using the IOADFLTC macro are now part of the standard CTRPARM member in source format. For more information on xxxPARM source format, see the IOA Administration chapter in the *INCONTROL for z/OS Administrator Guide*.

For wishes that are now parameters in the CTRPARM member, the old Wish ID next to the parameter indicates the correlation between the old wish and the new parameter.

### 3. Exclude data sets from Control-M/Restart processing

In 6.1.xx versions or later of Control-R, data sets were excluded from Control-R processing according to

- data set name, using the \$DEFAULT member in the Control-R RESTPARM library
- DDNAME, using the standard CTRX001E exit

### 4. Multi-volume support

Base Control-M/Restart functionality deletes DASD data sets from the first 6 volumes. Sample Exit CTRX001V deletes DASD data sets that exist on up to 20 additional volumes.

Changes include:

5. the renaming of the RESTPARM library to CTR.PARM, to conform to IOA standards
6. \$EXCLUDE, a member included in the PARM library as of version 6.1.xx or later, can now be used to exclude both DSNs and DDNAMEs. Sample Exit CTRX001E is no longer required and was removed from the product.
7. To preserve backward compatibility, the \$DEFAULT member can still be used for "EXCLUDE DSN" statements, but not to exclude DDNAME. However, BMC Software recommends that you place all exclude statements (both DSN and DDNAME) in the new \$EXCLUDE member.

## Control-M/Tape

Important differences between Control-M/Tape version 8.0.xx and earlier Control-M/Tape versions are listed below:

### 1. Database managed as IOA Access Method

All Control-M/Tape databases for version 8.0.xx (the Media and Stacking databases) are managed as IOA Access Method databases. Therefore, several new IOA Access Method database utilities have replaced the corresponding earlier utilities. The following table lists the new utilities and the old utilities that they replaced.

The Control-M/Tape trace file is not a database, and is therefore managed as it was in versions 6.1.xx or later.

**Table 27** New IOA access method database utilities

Old utilities	New utilities	Description
CTTDBF and CTTCRDF	IOADBF	Allocates and formats an IOA Access Method file.
CTTDBID	IOADIG	Verifies the integrity of an IOA Access Method file data component.
CTTDBII	IOADII	Verifies the integrity of an IOA Access Method file index component.
CTTDBDLD	IOADLD	Loads IOA Access Data components from a sequential data set.
CTTDBPRT	IOADPT	Prints records, in dump format, from an IOA Access Method database to a sysout.
CTTDBDUL	IOADUL	Unloads IOA Access Data components to a sequential data set.

Because the CTTDBDUL utility allocates the output sequential file with a disposition of OLD, while the IOADUL utility allocates the output sequential file with a disposition of NEW, BMC Software recommends that you specify the DISPO=OLD parameter when activating the IOADUL utility.

The record layout of the Media database (MDB) has been modified and enlarged to 660 bytes, and the record layout of the stacking database (STK) has been modified.

Since Control-M/Tape is now managed as IOA Access Method databases, the databases can be comprised of a limited number of physical files (extents). Therefore, sites that use software that was developed in-house, and those that read the Media or Stacking databases in QSAM mode, should change their software accordingly. If you use the standard API of Control-M/Tape, then you only need to recompile your programs with the new IOA.MAC and IOA.LOAD libraries.

**WARNING:** Since the number of available records in the database has now increased, you should consider that your earlier version cannot hold the same number of records. Due to this restriction, you should not increase your tape activity by, for example, defining new volumes or creating more data sets on a daily basis, until you are sure that you will not perform fallback to the earlier version.

## 2. Remove number of trace records parameter

The TRCSIZE CTTPARM parameter was removed, and the CTTAFR utility that used this parameter has been changed. Beginning with version 6.1.xx the CTTAFR utility receives the number of physical blocks of the Control-M/Tape trace file (TRC) as a program parameter. If you use the standard CTTAFR utility from the IOA.PROC library no changes are necessary, since the TRCBLKS parameter is automatically moved to the utility through the IOASET member in the JCL.

## 3. Support Large Block Interface

The data set block size field (DDSBLK) of the data set record in the Media database (MDB) was increased from two bytes to four bytes. This enables Control-M/Tape to support the new IBM Large Block Interface (LBI) feature.

**WARNING:** During fallback, data sets that were created with a block size larger than 32,760 bytes will be converted into a block size of 32,760 bytes.

**4. Flag name changes**

The INROBOT flag of the volume record that indicates whether the volume resides in an automated tape library has been renamed to INATL. In addition, the TI screen displays this status as "ATL" instead of "Robot".

The value "EMAS" of the RBTTYPE parameter in CTTPARM was changed to "HACC".

**5. Cartridge message display information**

Cartridge message display information has been consolidated in its own chapter. For further information see the cartridge message display customization chapter of the *Control-M/Tape Implementation Guide*.

**6. Measurement of data set size**

Data set size is the number of kilobytes that were sent to the tape (the uncompressed size), plus the number of kilobytes that were actually written to the tape (the compressed size).

**7. Volume capacity**

Volume capacity is the number of kilobytes that can be written to the volume. To adjust the volume capacity for each media type, set the CAPACITY parameter of the MEDIA definition, located in the CTTPARM member.

**8. Dynamic data set stacking controlled by rules**

Dynamic data set stacking is controlled by online rule parameters. For more information about dynamic data set stacking controlled by rules, see the *Control-M/Tape Implementation Guide*.

Exit CTTX010 is still supported. However, BMC Software recommends that features previously implemented using the exit now be implemented by rule parameters.

**9. Enhanced Automated Tape Library interface**

The robotic library is accessed from the online panels and from the CTTMUP utility, using the IOA Functional monitor, IOAFMON. This monitor is also responsible for a retry mechanism when robotic library requests have failed. For more information about the Control-M/Tape Robotic Library interface, see the *Control-M/Tape Implementation Guide*.

**10. User Exits**

User Exits CTTX002 and CTTX008 were redesigned for the new Robotic Library interface. Review the exit descriptions and adjust your current exits accordingly. For a complete description of each exit, see the source code of the exit.

**11. Volume record field name changes**

In the volume record, the name of the VUSEDKB field has been changed to VUSED, and the name of the VFREEKB field has been changed to VFREE. If you are using either of these fields in a Control-M/Tape utility input statement, such as CTRRPT, you must use the new field name.

## 12. UNITNAME removed from CTTPARM

The unit name field (UNITNAME) was removed from CTTPARM, and the unit name field (UNITNAME) of the Media database volume record is no longer updated using CTTPARM. Instead, the MVS generic unit name is automatically tracked in the Media database volume record in the UNITGNAM field. In addition, the MVS generic unit name, instead of the unit name, is now displayed in the TI screen Volume-Additional-Information panel.

The STKUNAM field in the Stacking database record now holds the MVS generic unit name instead of the old unit name.

## 13. Exit CTT3495 replaced by exit CTTOAM

If you use an IBM Automated Tape Library (ATL) or IBM Virtual Tape Server (VTS) you should compile exit CTTOAM instead of exit CTT3495. In addition, the RBTTYPE installation parameter should be set to OAM instead of IBMT or SMST.

## 14. TRACE Facility - Using new debugging mechanism

- a. The DBGLEVEL parameter has been removed from the following utilities: CTTIDB, CTTMER, CTTMUP, CTTTRM, CTTSD, CTTSYNC, CTTTPI, and CTTVTM.
- b. The CTTINIT parameters DBGLEVEL(DL) and DBGJOB(DJ) were replaced by TRACELEVEL(TL) and TRACEJOB(TJ) respectively.
- c. All Control-M/TAPE utilities can now use the new debugging mechanism. To activate the TRACE facility and apply it, add the following DD statement to the JCL of the Control-M/TAPE utility you want to trace:

```
//DATRCIN DD *  
TRACE=0300:0350  
/*
```

## 15. EDM Default Mode Change

The Control-M/Tape interface to External Data Manager (EDM) default mode has been changed from Immediate to Defer.

# Control-O

Important differences between earlier Control-O versions and Control-O version 8.0.xx are described below.

- Messages and format of the Rule Definition screen
- Some messages issued by the Rule Definition screen (Screen OR) and the format of statements have been changed. This may affect KSL scripts that look for specific message IDs on the screen.
- The Rule Definitions screen and the Automation Log screen displayed using the DI A operator command support the SYSPLEX console name and communication parameters. In-house KSL or KOA scripts that retrieve and manipulate those screens may need modification.
- As of Control-O version 6.1.xx, the Rule Definitions screen now contains the THRESHOLD statement to the general part of the rule. In-house KSL or KOA scripts that retrieve and manipulate those screens may need modification.

## IOA

Major differences between earlier versions of IOA and the current release of INCONTROL are described below. New features of the current release are mentioned throughout this chapter, but not always in full detail. For more information regarding some of these new features of IOA, see the What's New section in the Release Notes of the current release of INCONTROL for z/OS.

### 1. INSTxxx libraries

Beginning with version 6.1.xx, INSTxxx libraries are considered base libraries and are not resolved. All jobs submitted during installation must be tailored and their modified members must be saved in a new library, ilprefa.INSTWORK.

A job can also be tailored to reflect updated parameter values by selecting the INCONTROL Installation and Customization Engine (ICE) step, or by using the "Tailor Job" option in the INCONTROL Installation and Customization Engine (ICE), available by selecting Maintain your Environment => ICE refresh.

### 2. IOA.PARM library

Members from 6.1.xx versions or later, which were located in the IOA.PARM library, are now located in libraries qualified either as IOAENV or PARM. These libraries are concatenated to DD statement DAPARM in the IOAENV member in the IOA PROCLIB.

The PARM library contains few members when supplied. It is populated using ICE with parameter members such as IOAPARM, CTMPARM, and others. These parameter members are now in source format and do not require compiling and linkage.

Use the following members, populated using ICE, to make local changes at your site. These members are not overwritten when maintenance is applied since their contents override supplied defaults.

- The IOADSNL member contains local changes to the list of data sets in the IOADSN member.
- The IOADFLT member contains local changes to defaults in the IOADFLT member.
- The \$PROFMOD member contains local changes to profile variables in the \$PROFILE member.

### 3. Procedures and jobs

Procedures are located in the PROCLIB and PROCJCL libraries. PROCLIB contains all the procedures used in jobs and PROCJCL contains all the started tasks.

Ensure that the PROCJCL library is concatenated to DD statement IEFJOBS in the MSTJCLxx member of the SYS1.PARMLIB library. For more information, see the *INCONTROL for z/OS Installation Guide: Installing*.

Because most procedures are not copied to the procedure library at a site, the following JCL statements were added to the jobs in various JCL libraries:

```
//JCLLIB ORDER=ilprefa.PROCLIB
//INCLUDE MEMBER=IOASET
```

The IOASET member in the IOA PROCLIB library is built by ICE and contains the values for all the parameters used in procedures and jobs.

Because some procedures from the PROCLIB library are copied to the user's procedure library, there is no need to add JCLLIB and INCLUDE statements in the user's jobs. The procedures are copied and optionally renamed, and DSNAMES are entered into the ICE variable SITEPROC during installation. This allows the user to use jobs from earlier INCONTROL versions without change.

IOAENV is another important member (built by ICE) in the IOA PROCLIB library. It specifies the libraries in DD statements STEPLIB and DAPARM and can be used to concatenate additional site libraries to both DD statements.

#### 4. Euro support

The IOA default translation tables, contained in IOA Exit IOAX037, have been modified to support the Euro monetary symbol.

#### 5. JCL and ALC members

Since version 6.1.xx introduced a new infrastructure, old JCL and ALC members in the IOA.PARM library can no longer be used. For more information on the new IOA infrastructure, see the IOA Administration chapter in the *INCONTROL for z/OS Administrator Guide*.

#### 6. Source parameters

All parameter members such as IOAPARM and CTMPARM are now in source format that eliminates the need for compiling and linking. ICE builds the parameter members and places them in the IOA.PARM library.

Make all changes to parameter members using ICE. Since the ICE parameter repository is based upon these members all changes to them are reflected in the ICE tables.

In earlier versions, parameters, including those in the IOAPARM member, were accessed by a program by loading it into virtual storage. The IOAPARM member must be accessed using macro IOAENV. Users who have application programs that require access to the IOAPARM member, must use this macro instead of loading the IOAPARM member. For more information about the IOAENV macro, see the *INCONTROL for z/OS Administrator Guide*.

The DUALRES parameter has been removed from the IOAPARM member. The DUALDB parameter has been moved from the CTMPARM member to the IOAPARM member.

See the section of the *INCONTROL for z/OS Installation Guide: Installing* that describes IOA data set characteristics.

#### 7. Optional wishes

The optional wishes for IOA and INCONTROL products that were set using the IOADFLTC macro are now in source format (compilation not needed) in the IOADFLT member in the IOAENV library.

Wishes are set in the "Customize IOA Defaults" major step, under ICE Customization. The modified wishes are saved in the IOADFLTL member in the IOA.PARM library.

Most of the optional wishes for Control-M and Control-M/Restart are included in the CTMPARM and CTRPARM source parameter members. For more information, see the *INCONTROL for z/OS Installation Guide: Customizing*.

#### 8. New IOA Conditions file

The old IOA Conditions/Resources file has been split into two separate files; the IOA Conditions file (CND), and the Control-M Resources file (RES). The standard DD statement DACNDF now points to the IOA CND file. For more information about the new RES file, see the Control-M chapter of the *INCONTROL for z/OS Administrator Guide*.

#### 9. KSL scripts

KSL scripts reside in the IOA KSL and IOA SAMPLE libraries. The standard KSL procedure uses the KSL library in the DACALL DD statement.

Many screens have been changed in version 7.0.xx. All supplied KSLs have been modified to reflect those changes; therefore customers are recommended not to use KSLs from earlier versions.

User written or customized KSLs must be carefully checked to make any necessary changes based on the appropriate screen changes. In most of the screens the condition's Date field has moved, so special care must be taken with regard to KSLs accessing conditions and the date of the condition.

#### 10. User exits and I/O

The IOAMEM module is now used in place of CTMMEM in user created exits. For more information about this module, see the section that discusses assembler macros in the *INCONTROL for z/OS Administrator Guide*.

#### 11. IOA Global AutoEdit Variables database

A new set of files allows the sharing of variables between INCONTROL products (currently Control-M and Control-O only).

In Sysplex environments, variables are shared between INCONTROL products whose MVS images are members of the Sysplex.

An online facility creates and updates the source database IOAVAR using screen IV, and requires that either the Control-O or CMEM monitor be active.

#### 12. IOA Shout facility

##### a. Dynamic Destination Table

The IOADEST member in the IOA.PARM library now contains the Dynamic Destination table, replacing the CTMDEST load module. The IOAGDST utility can be used to convert a CTMDEST load module to a IOADEST member. To activate the utility, use the following JCL:

```
//IOADEST EXEC PGM=IOAGDST,PARM='member-name'  
//STEPLIB DD DISP=SHR,DSN=pref.V900.LOAD  
//LLIB630 DD DISP=SHR,DSN=pref.V900.LOAD  
//DAPARM DD DISP=SHR,DSN=pref.V900.PARM  
//SYSABEND DD SYSOUT=*
```

The LLIB630 DD name refers to the load library from the version preceding version 7.0.00. The utility scans the CTMDEST load module and forms the IOADEST member in the library specified in the DAPARM DD statement. The PARM field in the EXEC statement can optionally specify a member name as an alternative to IOADEST.

For more information about the new Dynamic Destination table, see the IOA chapter of the *INCONTROL for z/OS Administrator Guide*.

##### b. Location of destination parameters

Some of the parameters that were previously in the MAILDEST and SNMPDEST members were moved to the IOAPARM member.

## IOAGATE

IOAGATE and the Control-M Application Server work together and have taken over the functionality of the standalone gateway, ECSGATE. For more information about IOAGATE, and the configuration of CTMAS in conjunction with IOAGATE, see the IOAGATE chapter in the *INCONTROL for z/OS Administrator Guide*.

Important differences between earlier IOAGATE versions and IOAGATE version 8.0.xx are described below.

- As of version 6.1.xx, with the appropriate fixes, IOAGATE supports Sysplex Distributor for Control-D/Page on Demand application
- As of version 6.1.xx support for Control-D/WebAccess and support for application server address space sharing have both been removed.

## Utility comparisons

In the course of development, new utilities are added, old utilities are renamed or deleted, and the functionality of certain utilities is transferred to other operations. The following table illustrates these changes.

**Table 28 Utility comparison table**

Utility name	Present in version 6.2.xx	Present in version 6.3.xx	Present in version 7.0.xx
CTDAUTR	NO	YES	YES
CTDUFPR	YES	YES	YES
CTDUPTR	NO	YES	YES
CTMCSMF	NO	YES	YES
CTMMAJF	YES	YES	YES
CTMRAFL	Obsolete – Functionality now within CTMRFLW		
CTMRFLW	Replaces obsolete utility CTMRAFL		
CTMTLB	YES	YES	YES
CTOUSMDSC	YES	NO	NO
CTOOEDSC		Replaces obsolete utility CTOUSMDSC	Replaces obsolete utility CTOUSMDSC
CTTIDB			
CTTRLPT			
CTVACDB	YES	YES	YES
DEFSTAT	YES	YES	YES

Utility name	Present in version 6.2.xx	Present in version 6.3.xx	Present in version 7.0.xx
FORMAS4	YES	YES	YES
FORMDRES	YES	YES	YES
IOACLVL	NO	YES	YES
IOACMPP	NO	YES	YES
IOAPSCK	NO	YES	YES

## B Falling back from a full upgrade

This section describes how to return to your previous version after a full upgrade to the current release.

### Overview

Preparation for a possible fallback starts during the upgrade process and continues during the first week or two of production in the new environment after the migration (the transition period). The following guidelines will help you during the transition period:

- Avoid updating or making changes to exits, rules, missions or jobs.
- Keep the previous installation files on disk and cataloged during the transition period.
- Keep a log of changes made during the upgrade and the transition period.

If you did the above, falling back to your previous version will be considerably easier.

### Fallback steps

To fall back to your previous version, perform the steps in this section.

#### Step F1: Stop all IOA activities

Stop the monitor or job that connects to the components that you want to fall back to an earlier version.

Read all documentation about stopping IOA activities and prepare your fallback plan. Depending on your site configuration, you may have to perform an IPL.

If several INCONTROL products are installed, stop all IOA activities for all products before starting the fallback phase. This is essential because all products share the same database. (For example, all products share the same IOA Conditions file and IOA Log file.)

To stop all IOA activities, do the following:

**1. Terminate online sessions**

Terminate all IOA Online sessions, such as TSO, ROSCOE, IOA Online monitor, and the IOA VTAM monitor.

**2. Stop initiators**

If the JCL of production jobs runs an IOA utility or report, stop the JES initiators that handle such jobs during the fallback phase. Similarly, ensure that long-running address spaces and online services do not invoke IOA services.

**3. Stop functions**

Ensure that functions of CMEM, CDAM, and Control-O are not used during the fallback phase.

- a. Stop JES initiators that handle production jobs that use CDAM files.**



If you run a previous version of Control-M/Tape parallel to the Control-M/Tape current version, you must shut down both versions.

- c. If you are using the optional IOA Functional Monitor, stop the IOA Functional Monitor, IOAFMON.

#### 11. Stop IOAGATE

For each IOA Gateway that is part of your environment, stop the gateway by executing the P ioagate operator command, and wait until the gateway address space and all of its dependent address spaces (Application Servers) terminate.

In this command, ioagate is the name of the IOA Gateway.

#### 12. Inhibit automatic startup of INCONTROL products during IPL (optional).

Edit the COMMNDxx member in the SYS1.PARMLIB operating system library and remove all commands that start IOA activities.

Any activities that you stop during this step must not be restarted until you have done the following:

- completed [Step 41. Disconnect the IOA subsystem](#) (on page 61) through [Step 43. Migrate the IOA component](#) (on page 61).
- performed additional fallback steps for the components that are linked to the activities that you stopped (beginning with [Step 44. Migrate Control-M](#) (on page 63)).
- started Control-O or CMEM again, if they are part of your environment

## Step F2: Disconnect the IOA subsystem

If APAR WI2229 (which is part of maintenance 6.x.16) is installed, there is no need to disconnect the IOA subsystem during fallback. Otherwise, any fallback of a component that uses the IOA subsystem requires you to disconnect the IOA subsystem and restart the other components.

Use the following command when it is necessary to disconnect the IOA subsystem:

```
S IOASDISC,SSNAME=ioa_subsystem
```

IOASDISC is release-independent.

## Step F3: Back up the environment with the current release

For IOA and all INCONTROL products, make backups of the following:

- Installation libraries
- Operational libraries
- IOA core and INCONTROL product repositories

## Step F4: Review definition libraries

Review all definition libraries and members that you copied from the previous version to the current release during the upgrade.

If you changed any definitions, exits, or JCL procedures, after migrating to the current release, consider applying the changes to your previous system.

In particular, check

- the detailed site upgrade plan
- the upgrade change log
- the transition period change log
- the table of libraries in step 35
- other "Migrating" steps

Also, check the following date control record members for Control-M, Control-D, or Control-M/Analyzer:

- Control-M New Day procedure and User Daily jobs (list of libraries and tables)
- Control-D New Day procedure and User Daily jobs (list of libraries and tables)
- Control-D PARM members
  - Lists of missions
  - Recipient Tree definitions
  - Generic User lists
- Control-V list of migration missions
- Control-O rule list in the PARM library
- Control-M/Analyzer list of missions in the PARM library and rules
- Control-M/Tape rules, rule list, vault definition and pool definition members.

## Step F5: IOA fallback

1. Restore the IOA component and INCONTROL product procedures.

If during the upgrade process you replaced the previous version procedures with the current release procedures as recommended, you need to restore the previous version procedures.

If the prefix of the procedures is different in the two versions, make sure that all production jobs refer to the previous version environment.

Restore the started task procedures to the previous version's contents.

2. Restore locally developed KSLs.
3. Restore locally developed exits and security modules.
4. Restore the previous security definitions. Ensure that the security definitions used in previous version are in effect.
5. Put the previous IOA and Control-M, Control-M/Restart, Control-D, Control-V, Control-O, Control-M/Analyzer and Control-M/Tape online interfaces, CLISTs, ISPF panels, ISPF tables, ISPF skeletons, and ISPF messages into effect for all IOA users. This can be done in one of the following ways:
  - Concatenate the previous IOA libraries to the appropriate DD statements in the appropriate TSO LOGON procedures.

- Copy the previous version's IOA libraries to libraries that are automatically referenced by the appropriate TSO LOGON procedures.
- 6. Restore the IOA Conditions file by copying the IOA Conditions file from the current release to the previous version's file.
- 7. Restore the IOA Manual Conditions file by copying the IOA Manual Conditions file from the current release to the previous version's file.

## Step F6: Control-M fallback

In general, it is not necessary to restore Control-M databases because of Control-M Minus-One Support (for details, see Chapter 1 in the *Control-M for z/OS User Guide*). However, certain exceptions and cautions must be observed as detailed below:

- Before performing fallback, do the following:
    - check that all components of the new environment are down
    - perform a full backup of all the Control-M files, including the journal file
  - If any job scheduling definitions were saved and you are falling back to a version earlier than 6.3.xx, then the affected job scheduling library of the earlier version must be restored because of certain incompatibilities.
  - When falling back to version 6.3.xx, the following message is issued by the 6.3.xx monitor:

```
*CTML11W AJF/CONDITION JOURNALING DISABLED
*xx CTML12W REPLY 'C' CONTINUE WITHOUT JOURNALING, 'I' INITIALIZE, OR 'E'
END
```

Reply with "I" to this question.
  - If you have modified global control parameters in IOAPARM or CTMPARM members (in the IOA.PARM library), changes would be required when falling back from the current release to a previous version. For example, enlarging the AJF in the current release file and reverting back to a previous version, would result in a mismatch of the AJF size between the CTMPARM AJF size value of the earlier version and the actual physical file size of the AJF.  
Similarly, installing the current release with a different QNAME, and then falling back to a previous version would create a mismatch in the QNAME IOAPARM of the earlier version and the QNAME imbedded in various product components.
1. Restore the CMEM environment
    - a. Restore the copy of the CMEM rules table.
    - b. Reformat the previous set of CMEM communications files.
  2. Adjust Date Control records  
Copy all date records (meaning, all members that start with the DATEREC prefix) from the Control-M PARM library in the current release to the Control-M PARM library in the previous version.

## Step F7: Control-M Application Server (CTMAS) fallback

### 1. Restore the Control-M Application Server procedure.

If during the upgrade process you replaced the previous version procedure with the procedure from the current release, as recommended, you must restore the previous version procedure.

If the prefix of the procedure is different in the two versions, make sure that the production job refers to the previous version environment.

### 2. QNAME and M2G file considerations

Installing the current release with a different QNAME, and then falling back to a previous version creates a mismatch between the previous version QNAME in IOAPARM and the QNAME imbedded in the M2G file.

If you upgrade from version 9.0.00 or later, falling back to a previous version creates a mismatch between the previous version QNAME in IOAPARM and the QNAME imbedded in the following CTMAS files: M2G, M2F, CSTMP, and REQFR.

## Step F8: Control-D and Control-V fallback

### 1. Restore the Control-D and Control-V Repository.

#### a. Restore the User Reports List files

To restore the User files, use the CTDUFDUL job from the CTD JCL library to unload the files from the current release. Use the CTDUFRST job to restore those files to the previous version.

Restoration of the User Reports List files is not mandatory if upgrading from 6.3.xx to 7.0.xx. If you use the same naming convention and IOA QNAME for User Reports List files in both 6.3.xx and 7.0.xx, you may omit this step.

#### b. Format the Active Missions file of the previous version of Control-D using the FORMAMF job in the previous IOA INSTWORK library.

#### c. Format the Active Transfer file of the previous Control-D version using the FORMATF job in the IOA INSTWORK library of that version.

### 2. Control-D version 7.0.xx mission definition members are not usable by the earlier version. Therefore, you must use mission definition members of the previous version. If you changed these members in Control-D version 7.0.xx, reapply the changes to the members of the previous version.

### 3. Adjust Date Control records.

Copy all date records (meaning, all members that start with the DDAT prefix) from the version 7.0.xx Control-D PARM library to the previous Control-D PARM library.

### 4. Ensure that the security definitions that were used in the previous version are in effect.

## Step F9: Control-O fallback

### 1. Use the saved copy of Control-O rules.

If you defined new rules in version 7.0.xx, define them in the restored environment. Make sure you remove version 7.0.xx features.

### 2. Restore the previous Automation Log file.

3. Restore the previous SOLVEWARE libraries.
4. Restore the Control-O global variables database files.
5. Issue the following command:

```
RUN IOASDISC,SSNAME=ioa_subsystem
```

## Step F10: Control-M/Analyzer fallback

This performs fallback to any original version 6.1.xx or later format.

1. If you modified rules in version 6.3.xx, apply the modifications to rules in the previous version of Control-M/Analyzer.
2. The database structure is the same among all supported versions. You only need to restore the previous Control-M/Analyzer Repository, and no conversion is needed. Once you have restored the repository, you must adjust the data set name (external and internal in record #0 in each file) and the QNAME parameter (internal in record #0), in each restored file. For a list of data sets that must be restored and adjusted, refer to [Using backups of existing production files in the new Control-M/Analyzer environment](#) (on page 73).

You must zap the following fields in the files referred to in the table below:

Field	Offset	Length (in characters)
QNAME	1C	8
FILE NAME	2C	44

3. Mission definition members of Control-M/Analyzer version 7.0.xx can be accessed by earlier versions of Control-M/Analyzer. Therefore, the existing mission definition members can be used. If you changed these members in Control-M/Analyzer version 7.0.xx, apply the changes to the members of the previous version.
4. Adjust Date Control Records.  
Copy all date records (meaning, all members that start with the DDAT prefix) from the new Control-M/Analyzer PARM library to the previous Control-M/Analyzer PARM library.
5. Ensure that the security definitions used in previous version are in effect.

## Step F11: Control-M/Tape fallback

1. Update Rules.

Adjust the rule definitions in the Rules library of the previous versions to be identical to those of version 7.0.xx.

The rule members of Control-M/Tape version 7.0.xx cannot be copied as they are to the Rules library of the previous version since they have a different structure.

2. Update Rule list.

Update the Rule List members of the previous Control-M/Tape version (default member: RULLIST in the Control-M/Tape PARM library) to point to all required rule members.

**3. Update pool definitions.**

Adjust the pool definitions (default member: \$\$POOL in the Control-M/Tape PARM library) of the previous version of Control-M/Tape to be identical to those of Control-M/Tape version 7.0.xx.

The pool definition members of Control-M/Tape version 7.0.xx can be copied, as is, to the pool definition member of the previous version.

**4. Update vault definitions.**

Adjust the vault definitions (default member: \$\$VAULT in the Control-M/Tape PARM library) of the previous version of Control-M/Tape to be identical to those of Control-M/Tape version 7.0.xx.

The vault definition members of Control-M/Tape version 7.0.xx can be copied, as is, to the Vault Definition library of the previous version.

**5. Format the Media Database of your earlier version.**

**a.** Before migrating the version 7.0.xx Media Database to your earlier version Media Database, the data and index components of the earlier version Media Database must be formatted and empty.

**b.** When falling back to 6.0.xx:

—Edit the CTTMADB member in the INSTWORK library of the earlier version. This job allocates and formats the data and index components of the Media Database of the earlier version. Verify that the values that set the size of the Media Database are correct.

When falling back to version 6.1.xx or 6.2.xx:

—Edit the CTTMDBD and CTTMDBI members in the INSTWORK library of the earlier version. Verify that the values that set the size of the Media Database are correct. The job CTTMADB allocates and formats the data and index components of the Media Database of the earlier version.

**WARNING:** Before you submit this job, verify that it formats components of the earlier version Media Database, and not components of the version 6.3.xx Database.

**c.** Submit the job and verify that all job steps ended with a condition code of 0.

**6. Migrate the Media Database.**

For fall-back to version version 6.2.xx, perform the following actions:

**a.** In the 6.3.xx environment, use the IOADUL utility to unload the 6.3.xx MDB into a flat file.

**b.** In the fall-back environment (6.2.xx), use the IOADLD utility to load the flat file back to the fall-back MDB.

**c.** In the fall-back environment, use the CTTBIX utility to rebuild the index.

**7.** Run the CTTVTM utility in your previous version, with TYPEVLT MODE=SLOTBLD, then with TYPEVLT MODE=BOXBLD, in order to rebuild the slot and box records in the database of your previous version.

Do not use INCLUDE or EXCLUDE statements while running the CTTVTM utility in these MODEs

**8. Control-M/Tape SVC**

Read carefully the description of Control-M/Tape SVC installation in the Control-M/Tape chapter of the *INCONTROL for z/OS Installation Guide: Installing* of the version to which you are falling back. Then decide whether you want to install Static or Dynamic SVC.

The actions that you need to perform are dependent on both the type of the SVC you had in the version 7.0.xx environment and the type of SVC you want to have in the version to which you are falling back.

**Table 29 Control-M/Tape SVC fallback**

From: To:	Dynamic SVC in Control-M/Tape version 7.0.xx	Static SVC in Control-M/Tape version 7.0.xx
Dynamic SVC in previous Control-M/Tape versions	No action required.	Edit the IEASVCxx member in the SYS1.PARMLIB member and delete the following line:  SVC Parm n,REPLACE,TYPE(4),APF(NO)  where n is the SVCNUM that was used in version 7.0.xx.  IPL the system.
Static SVC in previous Control-M/Tape versions	Do all the steps for static SVC that are described under "Control-M/Tape SVC Installation" in the Control-M/Tape chapter of the previous version of the <i>INCONTROL for z/OS Installation Guide: Installing</i> .  IPL the system.	Edit the IEASVCxx member in the SYS1.PARMLIB member and delete the following line:  SVC Parm n,REPLACE,TYPE(4),APF(NO)  where n is the SVCNUM that was used in version 7.0.xx  Perform all the steps for static SVC that are described under "Control-M/Tape SVC Installation" in the Control-M/Tape chapter of the previous version of the <i>INCONTROL for z/OS Installation Guide: Installing</i> .  IPL the system.

**9. Control-M/Tape Operating System Interfaces**

Read the description of Control-M/Tape Operating System Interfaces in the Control-M/Tape chapter of the *INCONTROL for z/OS Installation Guide: Installing* of the version to which you are falling back. Then decide whether you want to install Static or Dynamic Operating System Interfaces.

In this step, IPL means IPL CLPA.

The actions that you need to perform depend on both the type of operating system interfaces that you had in the earlier version environment and the type of operating system interfaces that you want to have in the version to which you are falling back. These are illustrated in the following table.

**Table 30 Control-M/Tape operating system interface fallback**

From: To:	Dynamic operating system interfaces in Control-M/Tape version 7.0.xx	Static operating system interfaces in Control-M/Tape version 7.0.xx
Dynamic Operating System Interfaces in previous Control-M/Tape versions	<ul style="list-style-type: none"> <li>▪ No action required.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Restore Operating System CSECTs (IFG0194F, IFG0195H, IFG0196Q, IFG0552B, IFG0202J, IFG0553H, IFG0552F, IFG0195B, and IFG0194K) to the latest operating system level without Control-M/Tape interfaces in them.</li> <li>▪ IPL the system.</li> </ul>
Static Operating System Interfaces in previous Control-M/Tape versions	<ul style="list-style-type: none"> <li>▪ Perform all the steps that are described under "Control-M/Tape MVS Interfaces" for "Static Interfaces" in the Control-M/Tape chapter of the previous version of the <i>INCONTROL for z/OS Installation Guide: Installing</i>.</li> <li>▪ IPL the system.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Restore Operating System CSECTs (IFG0194F, IFG0195H, IFG0196Q, IFG0552B, IFG0202J, IFG0553H, IFG0552F, IFG0195B and IFG0194K) to the latest operating system level without Control-M/Tape interfaces in them.</li> <li>▪ IPL the system.</li> <li>▪ Perform all the steps that are described under "Control-M/Tape MVS Interfaces" for "Static Interfaces" in the Control-M/Tape chapter of the previous version of the <i>INCONTROL for z/OS Installation Guide: Installing</i>.</li> <li>▪ IPL the system.</li> </ul>

**10.** Migrate the Control-M/Tape Stacking Database.

**11.** Make sure all external exits are used from the old IOA LOAD library. For example, if you are using OAM, make sure CBRUXENT, CBRUXEJC, CBRUXCUA, and CBRUXVNL from the old IOA LOAD library reside in the LINKLIST.

**12.** Make sure all manual allocations for the IOA LOAD library are changed to the old ones. For example, if you are using DFSMSHsm and the IOA LOAD library is concatenated to the STEPLIB of an DFSMSHsm procedure, then edit the procedure to make sure that the old IOA LOAD library will be used.

## Step F12: Activate the restored environment

Review the instructions in [Step 54. Restart IOA activities](#) (on page 76) and [Step 55. Final adjustments](#) (on page 76) in [Full Upgrade](#) (on page 28) regarding the version to which you are falling back.

Perform any necessary adjustments and restart any stopped IOA components, or perform an IPL and have them started automatically.

## C Running two Control-M/Tapes in parallel

The second half of this section contains information about External Data Manager (EDM) support while running the two versions in parallel.

The procedure described below is relevant only for the combination of Control-M/Tape version 7.0.xx and an earlier Control-M/Tape version. Different instructions are provided for each prior version of Control-M/Tape.

Working with your prior Control-M/Tape version in Production mode while running Control-M/Tape version 7.0.xx in Test mode enables you to test version 7.0.xx as part of the upgrade process.

When two versions are working in parallel, output such as vaulting and retention management reports can be compared on a daily basis to ensure that Control-M/Tape version 7.0.xx provides information that is consistent with the information provided by the earlier Control-M/Tape version. Most of the new features supplied with version 7.0.xx can also be examined while working in parallel Test mode.

Throughout the test period, shutting down Control-M/Tape 7.0.xx while the production Control-M/Tape continues to operate can create differences in the Media Databases, making reports inconsistent. This sort of inconsistency may make it necessary to reconvert the production Media Database (in the earlier version) for use as a test Media Database (in version 7.0.xx).

To facilitate comparison of the output from the two systems, BMC Software recommends that both systems start with the same Media Database contents. Therefore, although it is not always necessary to stop the earlier Control-M/Tape version to start version 7.0.xx in parallel, BMC Software recommends that you stop tape processing before performing database conversion from the earlier version to version 7.0.xx.

When the testing period is over and you want to continue working with only version 7.0.xx Control-M/Tape, parallel execution support must be removed. The following paragraphs describe how to install and remove parallel execution support.

### Installing parallel execution support

To install Control-M/Tape parallel execution support, do the following:

1. Shut down Control-M/Tape version 7.0.xx.

If Control-M/Tape version 7.0.xx is active, bring it down using the following operator command:

```
S xxxINIT,PARM=TERM
```

where xxx is the procedure prefix selected during Control-M/Tape version 7.0.xx installation.

- Set CTTPARM parameters in version 7.0.xx using the Customization (Post installation customization) option in the INCONTROL Installation and Customization Engine (ICE):

Parameter	Minor step in major step 1 of Customization
MODET=TEST	Minor step 1 - Initialization Parameters
PARALLEL=S	Minor step 1 - Initialization Parameters
RBTTYPE=NONE	Minor step 10 - Automated Tape Libraries

Ensure that the SVC number for version 7.0.xx (the SVCNUM parameter in the CTTPARM member) is different from the SVC number used by the earlier version. Identical SVC numbers produce unpredictable results.

- Prepare production Control-M/Tape environment for the version you are upgrading from.  
Ensure that the following parameter value is already set in the CTTPARM member of the version you are upgrading from:  
PARALLEL=N
- Start Control-M/Tape version 7.0.xx by using the following operator command:  
S xxxINIT  
  
In this command, xxx is the procedure prefix selected during Control-M/Tape version 7.0.xx installation.
- Remove the "Check Control-M/Tape Operation Mode" step from the New Day Procedure in the Control-M/Tape production environment.

## Removing parallel execution support

When you finish testing the two versions in parallel, you must remove the changes applied by the above procedure. The following steps describe how to remove the relevant changes:

- Shut down Control-M/Tape version 7.0.xx.  
If Control-M/Tape version 7.0.xx is active, bring it down using the following operator command:  
S xxxINIT,PARM=TERM  
  
where xxx is the procedure prefix that you selected during Control-M/Tape version 7.0.xx installation.
- Set CTTPARM parameters in version 7.0.xx.  
Set the following parameters in the version 7.0.xx CTTPARM member:  
MODET=PROD  
PARALLEL=N  
RBTTYPE=(according to site configuration)

After you remove parallel execution support, only one Control-M/Tape system can be active in each system. Running two systems in parallel without the required support can cause unpredictable results.

## EDM support for running Control-M/Tape version 7.0.xx and an earlier Control-M/Tape version in parallel

The following paragraphs describe how to modify the External Data Manager (EDM) so that both versions work in parallel.

The interface between an EDM and Control-M/Tape is achieved using a Tape Volume exit of the EDM. Sample Tape Volume exits for interfacing with each type of EDM are supplied with the installation tape.

When more than one Control-M/Tape version runs at the same time (for example, in parallel), the Tape Volume exits that interface with each version must be modified so that they perform the same functions. This ensures that the two databases are updated and kept synchronized.

The text shown below is a general description of Control-M/Tape EDM support during parallel execution. For more information about support for specific EDMs, see "External Data Manager Support" in the *Control-M/Tape Implementation Guide*.

### Installing parallel EDM support with earlier Control-M/Tape versions

The Tape Volume exit that is currently used must be changed in order to support activation of version modules in the version you are upgrading from and in the current version.

Ignore the source exit header remarks in the earlier Control-M/Tape version. Those remarks may be different from the instructions below.

Modify the Tape Volume exit source as follows:

1. Create a load module of the version 7.0.xx Tape Volume exit.

Use the ICE Automatic Exit Installation Tool (described in the Exits chapter of the *INCONTROL for z/OS Administrator Guide*) to compile and link the version 7.0.xx Tape Volume exit. For example, for an DFSMSHsm interface, compile the ARCTVEXT source exit.

2. Rename the module created in the 7.0.xx IOA LOAD library in the previous step, in accordance with the following table.

**Table 31 Exit name revisions**

EDM interface	Standard exit name	Renamed exit
DFSMSHsm	ARCTVEXT	ARCTVEXN
A-Disk	TMSCTLEX	TMSCTLEN
CA-ASM2	\$FTEXT	\$FTEXTN
ExHPDM	SOVCTTEX	SOVCTEXN

3. Recreate the load module of the old Control-M/Tape version Tape Volume exit, as follows:

- a. First, save a copy of the prior Tape Volume exit for backup.

Your earlier Control-M/Tape version is supplied with an exit for parallel processing. Use the following table to find the relevant parallel exit you need to compile.

**Table 32 Parallel support exit table**

EDM interface	Standard exit name	Parallel support exit name
DFSMSHsm	ARCTVEXT	ARCTPRLL
CA-Disk	TMSCTLEX	TMSCPRLL
CA-ASM2	\$FTEXIT	AS2FPRLL
ExHPDM	SOVCTTEX	SOVCPRL

- b. Compile the exit using the instructions in the External Data Managers chapter of the *Control-M/Tape Implementation Guide*. Ensure that you compile it in the previous Control-M/Tape environment. This means using the previous Control-M/Tape version macro libraries, and the output module created in the previous Control-M/Tape version IOA LOAD library.
4. Use the information in the following table to add to the EDM procedure a DD statement that references the version 7.0.xx IOA LOAD library. The EDM must be stopped and restarted for this change to take effect. The STEPLIB in the EDM procedure will continue to reference the old IOA LOAD library, as it was before the parallel support

**Table 33 IOA LOAD library DD names**

Previous Control-M/Tape version	DD name for parallel support
6.2.xx	LOADPRLL
6.3.xx	LOADPRLL

## Removing parallel EDM support with ControlM/Tape

When you finish testing and want to work with only version 7.0.xx Control-M/Tape, remove parallel execution support by doing the following:

Remove the version 7.0.xx IOA LOAD library from the EDM procedure by commenting out the DD statement added at step 4 of [Installing parallel EDM support with earlier Control-M/Tape versions](#) (on page 106).

1. Change the STEPLIB in the EDM procedure to reference to the IOA LOAD library of version 7.0.xx.
2. Rename the EDM module in the IOA LOAD library of version 7.0.xx back to its standard name. Use Table 31 for guidance.

## D Load modules supplied for third-party conversions

Customers who have in the past converted from a third-party scheduling party no longer need to propagate (copy) certain load modules to their newly created IOA Load library from their existing IOA Load library. The affected load modules (see the following table) are now supplied as part of the IOA Installation.

**Table 56 Load modules supplied for third-party conversions**

Third-party scheduling product	Load modules
CA-7	CTMUTIL
CA-SCHEDULER	CTMUTIL
CA-JOBTRAC	CTMUTIL
OPC (TWS - Tivoli Workload Scheduler)	CTMUTIL
ZEKE	CTMZSET



450665