



Control-M for z/OS for CA-JOBTRAC 9.0.00 Conversion Guide



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 - 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
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About this guide

This conversion guide reviews basic concepts relevant to converting from CA-JOBTRAC to Control-M, and optionally to Control-O, and provides step-by-step instructions on how to use the Control-M conversion tool.

Overview of Contents

The guide is divided into the following chapters:

Chapter 1 – Conceptual Overview

Overview of basic concepts relating to conversion from CA-JOBTRAC to Control-M

Chapter 2 – Conversion Process Flow

Description of the flow of the conversion process. Details of the conversion process batch jobs are also provided

Chapter 3 – Conversion Steps

Step-by-step procedure for installing and operating the conversion tool

Chapter 4 – Conversion Details

Definitions of relevant CA-JOBTRAC data parameters in relation to corresponding Control-M parameters

Appendix A – Downloading and installing the Control-M Conversion tool

Description of the Control-M Conversion tools, and the procedure for downloading and installing them.

Appendix B – Conversion Parameters

Various parameters for the conversion process

Appendix C – Messages

Messages of the conversion process

Appendix D – The CTMUTIL utility

Description of the CTMUTIL program, which may be useful during and after the conversion process

Appendix E – Planning the Conversion

Advance planning before carrying out the conversion

Appendix F – Problem Reporting

Instructions on reporting problems to BMC Software Customer Support

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 PF Keys. 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.

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.

Related Publications

INCONTROL for z/OS Installation Guide

A step-by-step guide to installing, customizing, maintaining, and upgrading INCONTROL products using the INCONTROL Customization and Installation Engine (ICE) application.

The guide is divided into the following volumes:

- *INCONTROL for z/OS Installation Guide: Installing*
This guide describes the procedures and steps required for installing INCONTROL products.
The following installation tracks are available:
 - express installation
 - customized installation
 - cloning
- *INCONTROL for z/OS Installation Guide: Customizing*
This guide describes the procedures and steps required for customizing INCONTROL products.
- *INCONTROL for z/OS Installation Guide: Maintaining*
This guide describes the procedures and steps required for maintaining INCONTROL products.
The following maintenance procedures are described:
 - periodic maintenance
 - ad hoc maintenance

- change deployment
- *INCONTROL for z/OS Installation Guide: Upgrading*

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.

INCONTROL for z/OS Messages Manual

A comprehensive listing and explanation of all IOA and INCONTROL messages.

INCONTROL for z/OS Security Guide

Step-by-step guide to implementing security in INCONTROL products using the ICE application. Security guides are currently available for IOA interaction with RACF, CA-TOP SECRET and CA-ACF2.

INCONTROL for z/OS Utilities Guide

A detailed description of the utilities designed to perform specific administrative tasks that are available to INCONTROL products. The guide contains an alphabetized reference of all utilities for each INCONTROL product.

User Guides

Product-specific guides containing comprehensive information about the operation and implementation of each INCONTROL product.

1 Conceptual Overview

This chapter includes the following topics:

Overview 18

[Schedule and Event Definition](#) (on page 13)

[Successor and Predecessor Dependencies](#) (on page 14)

[Scheduling](#) (on page 15)

[Calendars](#) (on page 15)

[User Documentation](#) (on page 16)

[Control-M Event Manager \(CMEM\)](#) (on page 16)

[Resource Management](#) (on page 16)

[New Day Processing](#) (on page 18)

[JCL Considerations](#) (on page 19)

[CCPF \(Condition Code Program Filter\) Tables](#) (on page 20)

[ADR \(Automatic Data Set Recognition\) Tables](#) (on page 20)

[AMR \(Automatic Message Recognition\) Tables](#) (on page 20)

[SCS \(System Command Scheduling\) Tables](#) (on page 21)

[Control-M CA-JOBTRAC conversion tool](#) (on page 21)

Introduction

This conceptual overview is intended for production control personnel who are familiar with CA-JOBTRAC terminology. Experience with Control-M is recommended, as well as experience with Control-M/Desktop and Control-M/EM if your Jobtrac job definitions contain distributed job definitions on platforms such as UNIX, AIX, and so on.

The CA-JOBTRAC to Control-M conversion tool is provided by BMC Software to assist in the creation of the primary product elements for Control-M. It is designed to expedite the conversion process by automatically translating the most commonly built CA-JOBTRAC scheduling elements into functionally equivalent processes in Control-M. For more information on the CA-JOBTRAC conversion tool, see [Control-M CA-JOBTRAC conversion tool](#) (on page 21).

Note: The Control-M Conversion Tool, which is a graphic user interface conversion tool used for converting third-party scheduling software to Control-M, is also capable of converting CA-JOBTRAC to Control-M. The installation files for the Control-M Conversion Tool version can be obtained using EPD from <https://webapps.bmc.com/epd/>.

CA-JOBTRAC offers a multi-tier structure in implementing a scheduling strategy for events:

Table 1 CA-JOBTRAC Scheduling Strategy

Tier	Description
Tier 1	Business groups (or application systems) that consist of a series of related events
Tier 2	Business units are the point at which schedules are defined and controlled using the CA-JOBTRAC location ID, which is useful in implementing a decentralized strategy.
Tier 3	Master schedule that is used to monitor the schedule and provide maintenance and service level compliance

Under CA-JOBTRAC, defining a production application is a process that requires the use of one of the following:

- the CA-JOBTRAC GSO (Generate Schedules Online) facility
- CA-JOBTRAC/PC (a microcomputer Windows facility)
- manual input to SCL partitioned data set members

Control-M supports the CA-JOBTRAC scheduling structure by optionally grouping CA-JOBTRAC events according to Business Group designation.

Under Control-M, all comparable definitions are handled using the following screens:

- the Job Scheduling Definition screen (Screen 2)
- the IOA Conditions/Resources screen (Screen 4)
- the IOA Calendar facility (Screen 8)
- the CMEM facility (Screen C)
- the Control-M/EM GUI and desktop (for distributed jobs)

In addition, if CA-JOBTRAC extended scheduling services, that is Automatic Data Set Recognition (ADR), Automatic Message Recognition (AMR), or System Command Scheduling (SCS) are utilized, the Control-O Rule definition screen (Screen OR) is required.

Each component of the CA-JOBTRAC event definition is discussed on the following pages in relation to the management of the corresponding components under Control-M.

Schedule and Event Definition

A CA-JOBTRAC schedule contains Schedule Control Language (SCL) that defines global parameters, when an event is scheduled (scheduling dependencies), and how and when an event is executed (execution dependencies). An event is any job, schedule, dummy job, CA-JOBTRAC task, or REXX IMOD. The conversion tool does not support CA-JOBTRAC tasks or REXX IMODs.

CA-JOBTRAC schedules are stored as standard partitioned data set (PDS) members in SCL libraries. The events comprising the schedule are records of the member.

In Control-M, the basic scheduling unit is the job scheduling definition. Job scheduling definitions are defined using the Job Scheduling Definition screen, and are stored in PDSs called table libraries. Application job grouping is performed by defining related jobs in one table. The table name is taken from the CA-JOBTRAC Business Group. The CA-JOBTRAC event name is used for the MEMNAME Control-M parameter. For more information on the MEMNAME Control-M parameter, see the *Control-M for z/OS User Guide*.

For more information, see [6. EVENT NAME \(EVENTNM\)](#) (on page 47).

Successor and Predecessor Dependencies

In CA-JOBTRAC, successor and predecessor dependencies are specified using the REFERBACK and the RELEASE n parameters. The exact type of dependency is specified in the REFERBACK parameters as follows:

Table 2 Successor and Predecessor Dependencies

Type	Description
+	Successor
blank	Successor
-	Predecessor
=	Conditional predecessor

Predecessors are events that must successfully complete before the event for which they are defined can be submitted. Successors are events that cannot be submitted until the event for which they are defined has successfully completed. A conditional predecessor establishes a predecessor relationship with an event only if that event is already on the current schedule when the primary event is added.

In Control-M, the job execution sequence is controlled by means of prerequisite conditions. A prerequisite condition is a descriptive name given to a certain situation, event, or condition. The prerequisite condition is the basic mechanism used by Control-M to control job execution flow. In Control-M prerequisite condition terminology, an IN condition is specified for a job when the job must wait for the occurrence of an event. A condition may be added (to the IOA Conditions file) when an event occurs, for example, job completion. The OUT condition can be used to add or delete conditions after successful or unsuccessful job completion, based on user specification. For more information, see the description of the prerequisite condition concept in the *Control-M for z/OS User Guide*.

In addition, Control-M has a Maybe job feature that can simulate the handling of CA-JOBTRAC conditional predecessors. For instructions on utilizing this feature, see the discussion of the Manual Conditions File and Maybe jobs in the *Control-M for z/OS User Guide*. The conversion tool facilitates use of the Maybe job feature by creating IN conditions with special prefixes. For more information, see [10. RELEASE \$n\$ \(SUCCESSOR and/or PREDECESSOR\)](#) (on page 49).

The conversion tool automatically converts CA-JOBTRAC predecessor and successor dependencies into IN and/or OUT prerequisite condition definitions, to establish the same schedule tree structure.

The processing period of each predecessor job is checked before the job is defined in an IN condition of a successor job.

- If the processing periods for the predecessor and successor jobs are identical, the IN condition is created according to information in the REFERBACK parameter.
- If the processing periods of the predecessor and successor jobs differ, the predecessor job is specified as a Maybe IN condition to avoid the creation of manual IN conditions on days when the predecessor job is not scheduled but the successor job is scheduled.

For more information, see [10. RELEASEn \(SUCCESSOR and/or PREDECESSOR\)](#) (on page 49).

Scheduling

In CA-JOBTRAC, the Process Period parameter is used to specify scheduling information, such as every day or once a month. The entries permitted in the Process Period parameter are (Cyclic) process period keywords (reserved words), user-defined process period keywords, and generic dates that establish a period during which an event can be scheduled for execution. The CA-JOBTRAC Process Period keywords are converted to Control-M basic scheduling parameters.

Calendars

CA-JOBTRAC calendars are defined for each CA-JOBTRAC location. Holiday calendars are used in all workday calculations and must be defined for CA-JOBTRAC to function properly. Cyclic calendars are optional, and are defined only for events that are processed based on periods other than calendar months.

Several of the CA-JOBTRAC process period keywords cause the conversion to create a calendar name in the DCAL Control-M job scheduling parameter.

Examples

- The `WORKDAYxx` process period keyword causes the conversion tool to place into the DCAL parameter a calendar name in the form `WORKDnnn`, where `nnn` is the CA-JOBTRAC Location ID.
- The `CYCDAYxx` process period keyword causes the conversion tool to place into the DCAL parameter a calendar name in the form `CYCnnn`, where `nnn` is the CA-JOBTRAC Location ID.

Frequently these calendars must be combined when there are multiple process periods per event.

The conversion tool may also be unable to convert user-defined process periods specified using `UDEFx` and `XUDEFx` keywords to values for the `DATES` Control-M parameter. For more information, see Table 8 on page 55. This is normally due to a `UDEFx` definition that contains more than 12 dates or specifies a generic date (`mm**` or `**dd`). This may also be due to specification of the `UDEF=C` conversion parameter. For more information, see "UDEF" on page 90.

It is your responsibility to create and, when necessary, combine the above mentioned calendars and place them into the Control-M Calendar library.

In addition, since events may be scheduled to fall on holidays, CA-JOBTRAC provides a `HOLIDAY ACTION` parameter to indicate the action to be taken when a target scheduling day is a holiday, such as "Do not schedule the event", "Shift the event to the day following the holiday." For more information, see [25. HOLIDAY ACTION](#) (on page 58).

User Documentation

The conversion tool utilizes the CA-JOBTRAC user documentation libraries as the Control-M documentation library in the Job Scheduling Definition screen. For more information, see "DOCLIB" on page 88.

Control-M Event Manager (CMEM)

In CA-JOBTRAC, events such as the beginning of a job can be used to indicate job dependency. This is accomplished using the CA-JOBTRAC facility for managing group resources. A resource code can be assigned to any event with the resource requirements defined for the code. An event with a resource code, specified using SCL REFERBACK R, cannot be submitted until the conditions defined for the code are satisfied.

In Control-M, the corresponding facility is the Control-M Event Manager (CMEM) that manages external events. CMEM performs predefined actions in response to the occurrence of events in the system. The CA-JOBTRAC RESOURCE statement specifying a JOB event name is equivalent to the CMEM JOBARRIVAL event that adds prerequisite conditions to the IOA Conditions file.

For details on the exact conversion process, see *Control-M for z/OS User Guide*. For more information regarding the CMEM facility, see the *Control-M for z/OS User Guide*.

Resource Management

CA-JOBTRAC Resource Management provides several features:

- Scheduling of mutually exclusive events. This feature prevents the simultaneous execution of events. CA-JOBTRAC provides an EXCLPARM member in the TRACPARM library that contains lists of event names or prefixes that are grouped for mutual exclusion recognition.

The CONTROL Control-M job scheduling definition parameter is used to control all job resource sharing, as well as to prevent concurrent runs of jobs. This is implemented by defining Control-M resources with a Shared or Exclusive attribute.

The conversion tool converts CA-JOBTRAC mutually exclusive events according to the state specified in the CONTROL Control-M parameter. The CONTROL parameter is in the format:

eventname x

where *x* is either E (Exclusive) or S (Shared).

Shown below are examples of CA-JOBTRAC exclusion rules and how the conversion tool converts them to Control-M resources.

Exclusion rule containing event names that do not contain mask characters such as * or @.

Example 1

For (EVT1,EVT2,EVT3), add the following Control-M resources:

- (EVT1 E) to EVT1; (EVT1 S) to EVT2 and EVT3
- (EVT2 E) to EVT2; (EVT2 S) to EVT1 and EVT3

- (EVT3 E) to EVT3; (EVT3 S) to EVT1 and EVT2

Exclusion rule containing a single *-type prefix.

Example 2

For (PRFX*), add Control-M resource (PRFX* E) to every event whose name begins with PRFX

Exclusion rule containing a standard event name and a @-type prefix.

Example 3

For (EVT,PRFX@), add the following Control-M resources:

- (PRFX@ E) to EVT
- (PRFX@ S) to all events beginning with PRFX

Exclusion rule containing a standard event name and a *-type prefix.

Example 4

For (EVT,PRFX*), add the following Control-M resources:

- (PRFX* S) to EVT
- (PRFX* E) to all events beginning with PRFX
- (EVT S) to all events beginning with PRFX
- (EVT E) to EVT

Exclusion rule containing one *-type and one @-type prefix.

Example 5

For (AT@,AST*), add the following Control-M resources:

- (AST* E) to all events beginning with AST
- (AST* S) to all events beginning with AT

- Managing generic group resources. This feature defines resource conditions that must be met before an event can be submitted. CA-JOBTRAC provides a RESOURCE member in the TRACPARM library in which resource conditions are defined, and where an ID code is assigned to each definition. The resource code is then assigned to any event requiring the defined resource using the SCL REFERBACK parameter.

In Control-M, this type of resource management is implemented in various ways, depending on the elements of the RESOURCE statement specified, as shown in the following table.

Table 3 Managing Generic Group Resources

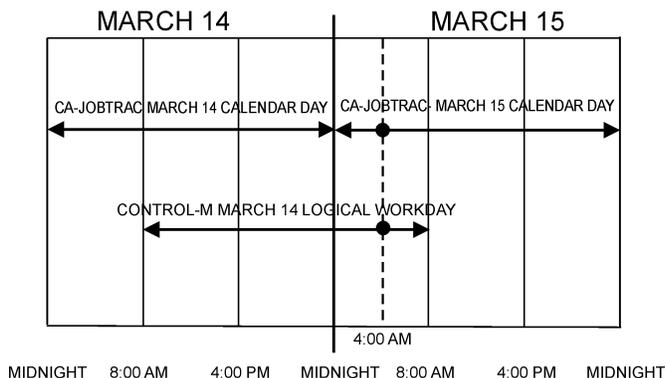
Element	Description
JOB= <i>eventname</i>	Specifies that <i>eventname</i> must be executing. An event with the resource ID code of this statement cannot be submitted unless <i>eventname</i> is executing. In Control-M, this is converted to CMEM JOBARRIVAL events and IN and OUT conditions. For more information, see Control-M Event Manager (CMEM) (on page 16), and see 1 Conceptual Overview (on page 12)
NOJOB = <i>eventname</i>	Specifies that the event must not be executing. An event with the resource ID code of this statement cannot be submitted while <i>eventname</i> is executing. In Control-M this is converted by defining Control-M resources in the job scheduling definition with a Shared or Exclusive attribute.
GENERIC(<i>nn</i>)	<p>Specifies that no more than <i>nn</i> events having the resource ID of the statement can execute simultaneously. In Control-M this is converted by defining Quantitative resources in the job scheduling definition with a quantity of 1. In addition, the conversion tool creates a CONTROL statement to add a resource to the Control-M Resources file for the IOACND utility, in the format</p> <pre>ADD RESOURCE x_GENERIC nn</pre> <p>where</p> <ul style="list-style-type: none"> ▪ <i>x</i> is the resource code ID ▪ <i>nn</i> is the quantity of the resource

New Day Processing

Control-M production jobs are scheduled using New Day processing, performed once each day at a predefined time, according to your local site requirements. Control-M, using New Day processing, presumes that workdays do not always begin at the start of a calendar day. Instead, Control-M enables you to define a logical workday that begins at a specified time. Other scheduling products, such as CA-JOBTRAC, begin every workday at the first moment of a new calendar day. The Control-M CA-JOBTRAC conversion tool is designed to convert CA-JOBTRAC scheduling data so it can be used in Control-M scheduling.

The following example illustrates how the CA-JOBTRAC scheduling method is converted to the Control-M scheduling method.

Figure 1 New Day Processing Example



The above example assumes that your logical business date changes at 8:00 A.M. You want to take a job scheduled in CA-JOBTRAC to begin at 4:00 A.M. on March 15th, and convert it to be run as a Control-M job. The conversion tool converts this CA-JOBTRAC job to a Control-M job that begins at 4:00 A.M. on the March 14th logical business day.

Note: Control-M enables you to define logical workdays that begin at a time best suited to the scheduling requirements of your organization, without being subject to the limits that might be imposed by strict adherence to calendar days.

The conversion tool handles this conversion process automatically.

JCL Considerations

CA-JOBTRAC provides the following JCL facilities:

Table 4 JCL Facilities Provided by CA-JOBTRAC

Facility	Description
Automatic JCL Override (AJO)	AJO is used to automatically delete or insert specified JCL statements based on dates placed in the JCL statements.
JCL Management Facility (JMF)	JMF allows the centralization and control of variable JCL information by eliminating the daily updating of production JCL streams.
Automatic Date Insertion (ADI)	ADI permits automatic insertion of JCL records into JCL run-streams.

The conversion tool supports all the above by converting the JCL libraries to Control-M format using the Control-M AutoEdit language.

In addition, the CA-JOBTRAC AUTO-SCHD program (\$A) is converted to the Control-M IOACND utility to satisfy manual triggering conditions.

For more information on the JCL conversion process, see [1 Conceptual Overview](#) (on page 12)

CCPF (Condition Code Program Filter) Tables

CCPF enables CA-JOBTRAC users to impose condition code processing on completion of specified programs, jobs, job steps, or procedure steps.

Each line in a CCPF table specifies an event (a program, a job, or a specific step) and a condition code that must be considered OK. By default, CA-JOBTRAC considers all non-zero condition codes errors. Masks (asterisks) can be used to indicate generic event names in this table.

When a specified job, program, or specific step returns a condition code specified in this table, CA-JOBTRAC considers the event to have ended OK and continues processing normally.

Control-M uses the ON PGMST statements for condition code processing. CA-JOBTRAC CCPF tables are converted to ON PGMST statements in the appropriate Control-M job scheduling definitions. For more information, see Table 10 on page 57.

Note: The SCL condition code REFERBACK parameter is not supported by the conversion tool. Therefore, all SCL condition code REFERBACKs must be replaced with entries in the CCPF table before the conversion is performed.

ADR (Automatic Data Set Recognition) Tables

CA-JOBTRAC ADR performs specified actions automatically when data sets are closed following creation or update. After the defined data set is closed, additional conditions may be specified, and these conditions must be met before the specified actions can be performed. The types of conditions that may be specified are

- the setting of limitations on the period within which a process is executed
- the triggering of an event by a data set that must be created by a specified event
- the triggering of an event by a data set that must be created during a specified time range

CA-JOBTRAC can take several different actions based on the data set closure. However, only the RUN action is supported by the conversion tool. For more information, see Table 11 on page 57.

AMR (Automatic Message Recognition) Tables

CA-JOBTRAC AMR automatically performs specified actions when messages (or portions of messages) are issued by MVS. Additional conditions may be specified that must be met before the specified actions can be performed. Conditions that may be defined are:

- the setting of limitations on the period within which a process is executed
- the triggering of an event by a message that must be issued by or as a result of a specified event
- the triggering of an event by a message that must be created during a specified time range

CA-JOBTRAC can take several different actions based on the issuance of the message. The conversion tool converts CA-JOBTRAC AMR events to Control-O rules. For more information, see Table 12 on page 57.

SCS (System Command Scheduling) Tables

CA-JOBTRAC SCS automatically schedules system commands. Before these commands are issued certain conditions must be met. These include:

- the process period during which the command can be issued
- the time at which the command is issued
- the time range during which the command can be issued
- the interval at which the command is to be issued

The conversion tool converts CA-JOBTRAC SCS events to CONTROL-O rules. For more information, see Table 13 on page 58.

Control-M CA-JOBTRAC conversion tool

The conversion consists of a sequence of batch jobs. Although these jobs run independently of CA-JOBTRAC and Control-M, Control-M must be installed in order to perform the conversion.

The conversion performs the following functions:

- Builds Control-M tables and definitions from CA-JOBTRAC Scheduling Control Language (SCL) and Business Groups
- Builds Control-O rules tables and definitions from CA-JOBTRAC Automatic Data Recognition (ADR) and Automatic Message Recognition (AMR)
- Converts the following CA-JOBTRAC JCL features to Control-M AutoEdit format and Control-M step (IOACND)
 - Automatic JCL Override (AJO)
 - JCL Management Facility (JMF) variables
 - Automatic Date Insertion (ADI)
 - AUTO-SCHD feature
- Enables customers to automatically set unique Control-M options in the resulting Control-M tables
- Issues messages if problems and errors are encountered in the CA-JOBTRAC definitions

The conversion tool is delivered in source format. If special requirements exist, the conversion tool can be tailored locally.

2 Conversion Process Flow

This chapter includes the following topics:

[Overview of conversion process flow](#) (on page 22)

JOB0. Packs, compresses, and uploads the JOBTRAC files to the FTP site

JOB1. Create Job Scheduling Library, CMEM Rules Table, and XML Definitions

JOB2. Convert JCL Libraries and JMF Variables

JOB3. Create Control-O Rules Library (optional)

Overview of conversion process flow

This chapter describes in detail the components of the conversion process from the perspective of jobs, programs, and data sets.

A familiarity with the conversion process flow helps in understanding the conversion logic and the installation and operation steps discussed in [4 Conversion Details](#) (on page 38).

The process is comprised of the following jobs:

Table 2 Jobs in the Conversion Process

Job	Description
JOB0	Packs, compresses, and uploads to the BMC FTP site the JOBTRAC files that will be used by the conversion
JOB1	Creates the Control-M table library, the CMEM rules table, and XML definitions
JOB2	Converts JCL members and JMF Variable Definition members and creates an INCLIB library
JOB3	Converts ADR and AMR tables and creates a Control-O Rules library

JOB0. Packs, compresses, and uploads the JOBTRAC files to the FTP site

JOB0

- packs all the CA-JOBTRAC files into a single DFDSS DUMP file
- compresses the single DFDSS DUMP file, using the TERSE utility
- uploads the TERSED file to the BMC support site, using FTP

JOB0 Input

- CA-JOBTRAC EXCLPARM member in the TRACPARM library
- CA-JOBTRAC RESOURCE member in the TRACPARM library
- CA-JOBTRAC SCL library(s)
- Print image file of the CA-JOBTRAC CCPF (Condition Code Program Filter) table
- CA-JOBTRAC JMFSYM01 member in the DATELIB library
- CA-JOBTRAC PRODDATE member in the DATELIB library
- Optional: CA-JOBTRAC ADR and AMR reports

JOB0 Output

A tersed file that is uploaded to the BMC support site.

JOB1. Create Job Scheduling Library, CMEM Rules Table, and XML Definitions

JOB1

- creates the Control-M tables from the CA-JOBTRAC SCL libraries, using the CTMBLT utility
- creates a CMEM rule table for jobs triggered by CA-JOBTRAC Resource requirements
- invokes the CTMTLB utility to create XML table definitions for distributed jobs from the table created by the CTMBLT utility.

JOB1 Input

1. CONTROL-M scheduling table library

One or more SCL libraries may be processed in a single execution of the conversion tool. See "Step 6 – Modify and Run the JOB1 Member" on page 44 for instructions on concatenating more than 1 SCL library.

This library must not contain non-SCL members.

2. CA-JOBTRAC EXCLPARM member in the TRACPARM library
3. CA-JOBTRAC RESOURCE member in the TRACPARM library
4. Print image file of the CA-JOBTRAC CCPF (Condition Code Program Filter) table
This file must be created, and copied from the JES spool to a disk data set (fixed block format). For more information on how to produce this file, see the *CA-JOBTRAC Extended Scheduling Services Guide*, version 3.2 or later. For version 3.1 or earlier the CCPF table must be converted manually. Contact CA-JOBTRAC support on how to extract CCPF table information from the VSAM HISTORY file.

JOB1 Output

1. Intermediate Control-M table library
Default file name: CTM.Vxxx.SCHED (where xxx refers to the version number)
Library characteristics: PDS; record length 80; block size 3,120
2. Control-M CMEM table containing JOBARRIVAL triggering events
Default file name: CTM.Vxxx.CMEM
File characteristics: sequential; record length 80; block size 3,120
This file must be specified as a member within a CMEM rule table library. The member contains a CMEM rule table specifying ON JOBARRIVAL rules.
3. Table definition file
Default file name: CTM.JBT.OUTLST
File characteristics: sequential; record length 100; block size 23,400
4. File containing the JCL for the IOACND utility job that adds resources to the Control-M Resources file
Default file name CTM.JBT.DAPRM
File characteristics: record length 80; block size 3,120
5. XML file containing distributed job definitions
Default file name: CTM.Vxxx.XML
File characteristics: sequential; record length 255; block size 27795
6. File containing conversion messages

JOB2. Convert JCL Libraries and JMF Variables

JOB2

- creates a Control-M AutoEdit member containing user-defined variables, and their assigned values, using the CA-JOBTRAC JMFSYM01 member in the DATELIB library
- creates a Control-M INCLUDE library from the CA-JOBTRAC PRODDATE member in the DATELIB library
- converts, in-place, the CA-JOBTRAC JCL libraries into Control-M format

JOB2 Input

1. CA-JOBTRAC JMFSYM01 JCL JMF variable member in the DATELIB library

2. CA-JOBTRAC PRODDATE member in the DATELIB library containing insertion control records
The PRODDATE member can be processed regardless of whether the logical record length of the DATELIB library is 80 or 88.
3. Copies of the CA-JOBTRAC JCL libraries

JOB2 Output

1. JCL libraries in Control-M AutoEdit format
2. Control-M JMFSYM01 INCLUDE member
This member must be placed in the library defined by the INCLIB conversion parameter, which is described in "INCLIB" in [B Conversion Parameters](#) (on page 66).
3. An INCLUDE library, defined by the INCLIB conversion parameter, containing members for all JCL Automatic Date Insertion (ADI) control statements
Default file name: CTM.Vxxx.INCLIB (where xxx refers to the version number)
File characteristics: PDS; record length 80; block size 3,120
4. JCL conversion report

JOB3. Create Control-O Rules Library (optional)

JOB3 creates Control-O rules tables from the CA-JOBTRAC ADR, AMR, and SCS reports. JOB3 is optional and must only be executed if

- Control-O is installed.
- You make use of the CA-JOBTRAC ADR , AMR, and/or SCS extended scheduling services.

JOB3 Input

Print image file of the CA-JOBTRAC ADR table

1. Print image file of the CA-JOBTRAC AMR table
2. Print image file of the CA-JOBTRAC SCS table
3. Control-M job scheduling library (created in JOB1)

Note: The above print image files must be created, and copied from the JES spool to a disk data set (fixed block format). For more information on how to produce this file, see the *CA-JOBTRAC Extended Scheduling Services Guide*, version 3.2 or later. For version 3.1 or earlier, the ADR , AMR, and SCS tables must be converted manually; contact CA-JOBTRAC support on how to extract the ADR, AMR, and SCS tables information from the VSAM HISTORY file.

JOB3 Output

1. Control-O Rules table containing ON DSNEVENT triggering events
Default file name: CTM.Vxxx.CTODSN (where xxx refers to the version number)
File characteristics: sequential; record length 80; block size 3,120
Note: This file must be specified as a member within a Control-O rule table library. The member contains a Control-O rule table specifying ON DSNEVENT rules.
2. Control-O Rules table containing ON MESSAGE and/or ON STRING triggering events
Default file name: CTM.Vxxx.CTOMSG
File characteristics: sequential; record length 80; block size 3,120
Note: This file must be specified as a member within a Control-O rule table library. The member contains a Control-O rule table specifying ON MESSAGE and/or ON STRING rules.
3. Control-O Rules table containing ON EVENT rules which issue system commands based on scheduling and runtime criteria.
Default file name: CTM.Vxxx.CTOEVT
File characteristics: sequential; record length 80; block size 3,120
Note: This file must be specified as a member within a Control-O rule table library. The member contains a Control-O rule table specifying ON EVENT rules.
4. File containing conversion messages

3 Conversion Steps

This chapter includes the following topics:

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[Step 1 – Create the Conversion Source and Load Libraries](#) (on page 28)

[Step 2 – Copy CA-JOBTRAC JCL Libraries and JMF Members](#) (on page 28)

[Step 3 – Check and Modify the Parameters in the DEFAULTS Member](#) (on page 29)

[Step 4 – Modify and Run the ASMLINK Member](#) (on page 29)

[Step 5 – Modify and Run the JOB0 Member](#) (on page 29)

[Step 6 – Modify and Run the JOB1 Member](#) (on page 31)

[Step 7 – Modify and Run the JOB2 Member](#) (on page 33)

[Step 8 – Modify and Run the JOB3 Member](#) (on page 34)

[Step 9 – Final Adjustments](#) (on page 34)

[Step 10 – Check the Conversion Results](#) (on page 35)

[Step 11 – Add New Tables to the New Day Procedure](#) (on page 36)

[Step 12 – Create Control-M Calendars](#) (on page 37)

[Step 13 – Add Resources to the Control-M Resources File](#) (on page 37)

Overview of conversion tool operation

Note: If you have not yet downloaded and installed the Control-M conversion tools, do so now according to the instructions in [A Downloading and installing the Control-M conversion tools](#) (on page 64).

Installation and operation of the conversion tool consists of a series of steps.

BMC Software recommends that you first review the contents of Appendix E, "Planning the Conversion," then read through the remainder of this chapter before performing the steps. It is important to follow the outlined sequence of the steps to ensure a successful conversion.

The following is a summary checklist of the steps:

1. Create the conversion source and load libraries
2. Copy CA-JOBTRAC JCL Libraries and JMF Members
3. Check and modify parameters in the DEFAULTS member
4. Modify and run the ASMLINK member
5. Modify and run the JOB0 member
6. Modify and run the JOB1 member

7. Modify and run the JOB2 member
8. Modify and run the JOB3 member
9. Final adjustments
10. Check the conversion results
11. Add new tables to the New Day Procedure
12. Create Control-M Calendars
13. Add resources to the Control-M Resources File

Step 1 – Create the Conversion Source and Load Libraries

1. Run the \$\$INIT job in the IOA CONV library to create the JOBTRAC conversion Source library and allocate the conversion Load library.
2. Tailor the following parameters in the member in accordance with your local site conventions.

Table 6 Parameters to be Adjusted

Parameter	Description
Job statement	
INLIB	IOA CONV library name
OUTLIB	JOBTRAC conversion source library name
LOADLIB	JOBTRAC conversion load library name
UNIT	Unit name of DASD device
VOLSER	Volser of DASD device
PRODUCT	JOBTRAC

3. Submit the job for execution. The job must finish with a completion code of 0.

Step 2 – Copy CA-JOBTRAC JCL Libraries and JMF Members

To prevent changes to the current production JCL environment, you should create a copy of the CA-JOBTRAC JCL libraries and JMF members. JMF members include the JMFSYM01 member in the DATELIB library, and any alternate JMF members.

A sample job for copying these production JCL libraries is provided in the COPYLIBS member in the conversion source library.

For CA-LIBRARIAN or CA-PANVALET libraries, use the utilities supplied by Computer Associates International, Inc. to create and copy the production JCL libraries into partitioned data sets for use by the conversion tool.

New libraries must be allocated with enough space and directory blocks to enable update of all their members.

Step 3 – Check and Modify the Parameters in the DEFAULTS Member

Edit the DEFAULTS member in the conversion source library. Adjust the Control-M parameters according to your site requirements. In addition, to set a MAXWAIT default value, set optional wish WM2367 (in member IOADFLT of the IOA IOAENV library) at this point.

For a detailed description of these conversion parameters, see [A Downloading and installing the Control-M conversion tools](#) (on page 64)

Step 4 – Modify and Run the ASMLINK Member

The ASMLINK member in the conversion source library assembles and link-edits all conversion programs using the DEFAULTS parameter member, which was tailored in the previous step.

Edit the ASMLINK member to adjust the following specifications in accordance with your local conventions, in both the ASMMCL and LKED procedures:

- job statement
- conversion Source library name (the SRCLIB parameter) created in Step 1
- conversion Load library name (the LOADLIB parameter) allocated in Step 1
- IOA LOAD library name (the IOALOAD parameter)
- IOA MAC library name (the IOAMAC parameter)
- IOA SMP/E Distribution LOAD library name, set in the ALOAD parameter

Submit the job and check the sysout for completion code and error messages. A condition code of 4 in the link-edit steps is acceptable, if caused by unresolved external references. All other steps must complete with a condition code of 0.

Note: This step must be re-executed whenever changes are made to the parameters in the DEFAULTS member or a source fix is applied to any module. If necessary, also perform an LLA REFRESH after changes are made.

Step 5 – Modify and Run the JOB0 Member

JOB0 packs all the CA-JOBTRAC files into a single DFDSS DUMP file, and uses FTP to upload the TERSED file to the BMC support site.

Edit the JOB0 member in the conversion source library. Adjust the following specifications according to your local conventions:

- the job statement
- the name of the CA-JOBTRAC EXCLPARM member in the TRACPARM library, specified in the DAEXCL DD statement in STEP0
- the name of the CA-JOBTRAC RESOURCE member in the TRACPARM library, specified in the DARESIN DD statement in STEP0
- the name of the CA-JOBTRAC JMFSYM01 member in the DATELIB library, specified in the DATELIB1 DD statement in STEP0
- the name of the CA-JOBTRAC PRODDATE member in the DATELIB library, specified in the DATELIB2 DD statement in STEP0
- the name of the CA-JOBTRAC EXCLPARM library, specified in the EXCLPARM DD statement in STEP0. The library name must be the same as for DD statement DAEXCL.
- the name of the CA-JOBTRAC RESOURCE library, specified in the RESOURCE DD statement in STEP0
- the name of the CA-JOBTRAC DATELIB library, specified in the JMFSYM01 DD statement in STEP0. The library name must be the same as for DD statement DATELIB1.
- the name of the CA-JOBTRAC DATELIB library, specified in the PRODDATE DD statement in STEP0. The library name must be the same as for DD statement DATELIB1.
- the name of the CA-JOBTRAC SCLLIB library in STEP6
- the name of the CA-JOBTRAC EXCLPARM library in STEP6. The library name must be the same as for DD statement DAEXCL in STEP0.
- the name of the CA-JOBTRAC RESOURCE library in STEP6. The library name must be the same as for DD statement RESOURCE in STEP0.
- the name of the CA-JOBTRAC CCPF report in STEP6
- the name CTM.JBT.JMFSYM01 in STEP6 to be the same as in DD statement JMFSYM01 in STEP0
- the name CTM.JBT.PRODDATE in STEP6 to be the same as in DD statement PRODDATE in STEP0
- the name of the CA-JOBTRAC ADR report in STEP6
- the name of the CA-JOBTRAC AMR report in STEP6
- the name of the CA-JOBTRAC SCS report in STEP6
- the name of the tersed file in step TERSE
- the email address in step FTP1
- the opened issue number (2 places) in step FTP1
- the email address in step FTP1
- the name of the tersed file in step FTP1. This name must be the same as in step TERSE.

Submit the job and check the sysout for completion code and error messages. For message explanations, see [C Messages](#) (on page 71)

Step 6 – Modify and Run the JOB1 Member

JOB1 creates the Control-M table and Calendar library.

Edit the JOB1 member in the conversion source library. Adjust the following specifications according to your local conventions:

- job statement
- conversion load library name (specified in the CTMLOAD DD statement in STEP0)
- IOA LOAD library name (specified in the IOALOAD DD statement in STEP0)
- IOA PARM library name (specified in the IOAPARM DD statement in STEP0)
- IOA LOG library name (specified in the IOALOG DD statement in STEP0)
- IOA IOAENV library name (specified in the IOAENV DD statement in STEP0)
- name of the CA-JOBTRAC schedule library containing the Schedule Control Language (SCL) members (specified in the DASCL DD statement in STEP0)

If you want to concatenate multiple SCL libraries in a single execution, change JOB1 as follows:

In STEP0 add the following DD statements:

```
//DASCL2 DD DISP=SHR,DSN=second-SCL-lib
//DASCL3 DD DISP=SHR,DSN=third-SCL-lib
//DASCL4 DD DISP=SHR,DSN=fourth-SCL-lib
//DASCLn DD DISP=SHR,DSN=nth-SCL-lib
```

And in both STEP2 and STEP6 change the DASCHD DD as follows:

```
//DASCHD DD DSN=* .STEP0.DASCL,DISP=SHR
//      DD DSN=* .STEP0.DASCL2,DISP=SHR
//      DD DSN=* .STEP0.DASCL3,DISP=SHR
//      DD DSN=* .STEP0.DASCL4,DISP=SHR
//      DD DSN=* .STEP0.DASCLn,DISP=SHR
```

- name of the CA-JOBTRAC TRACPARM library containing the EXCLPARM member (specified in the DAEXCL DD statement in STEP0,)
- name of the CA-JOBTRAC TRACPARM library containing the RESOURCE member (specified in the DACND DD statement in STEP0)
- name and location of the Control-M CMEM Rule table (specified in the DACMEM DD statement in STEP0)
- name and location of the table definition file (specified in the DABLT DD statement in STEP0)
This file is the input to the CTMBLT utility
- name and location of the CONTROL-M scheduling table library (specified in the DASCHD DD statement in STEP0).
- name and location of the Control-M IOACND JCL utility that adds resources to the Control-M Resources file (specified in the DAPRM DD statement in STEP0)
- name of the CA-JOBTRAC CCPF table print image file (specified in the DAREPORT DD statement in STEP0)
- the name and location of the output distributed job definition XML (DAXML DD statement in STEP0). Several CTMTLB parameters must be manually set (DATACENTER, SCHEDULE-LIB). For details, see the *INCONTROL for z/OS Utilities Guide*.
- the name and location of the output mainframe job definition XML (DAXML2 DD statement in STEP0). Several CTMTLB parameters must be manually set (DATACENTER, SCHEDULE-LIB). For details, see the *INCONTROL for z/OS Utilities Guide*.

Submit the job and check the sysout for completion code and error messages. For message explanations, see [C Messages](#) (on page 71)

The message IEF283I NOT DELETED 8 may be ignored for the first (or only) run of JOB1.

Note: If you are allocating files on SMS-managed volumes, you must, prior to executing JOB1 the first time, pre-allocate all files referred to by DD statements DACMEM, DABLT, DASCHD, and INCLIB.

Note: If the JOBTRAC SCLs do not contain any distributed jobs definitions, delete the following from JOB1:

- In STEP0 and STEP1, the DAXML DD statement
- STEP10

Step 7 – Modify and Run the JOB2 Member

JOB2 converts the CA-JOBTRAC JCL libraries and JMFSYM01 members to Control-M AutoEdit format.

Edit the JOB2 member in the conversion source library. Adjust the following specifications according to your local conventions:

- job statement
- conversion Load library name (specified in the CTMLOAD DD statement in STEP0)
- IOA LOAD library name (specified in the IOALOAD DD statement in STEP0)
- name of the CA-JOBTRAC DATELIB library containing the JMFSYM01 member (specified in the DAJMF DD statement in STEP0)

Ensure that this name, and any alternate JMF members, are not the actual JMFSYM01 production members, but only copies; for instructions, see [Step 2 – Copy CA-JOBTRAC JCL Libraries and JMF Members](#) (on page 28).

- name of the CA-JOBTRAC DATELIB library containing the PRODDATE member (specified in the DAPDATE DD statement in STEP0)
- name and location of the partitioned data set into which the members containing Control-M AutoEdit %%INCLIB statements (for CA-JOBTRAC JCL ADI statements) are to be placed (specified in the DAINCLIB DD statement in STEP0)
- name of the CA-JOBTRAC JCL library (specified in the JBTJCL DD statement in STEP0)
- name of the CA-JOBTRAC SCS table print image file (specified in the DASCS DD statement in STEP0)
- name and location of the Control-O Rule table for ON EVENT rules (specified in the DARULE3 DD statement in STEP0)

Ensure that this name is not the actual production JCL library name, but only a copy; for instructions, see [Step 2 – Copy CA-JOBTRAC JCL Libraries and JMF Members](#) (on page 28). STEP3 in JOB2 must be executed as many times as there are CA-JOBTRAC JCL libraries

Submit the job and check the sysout for completion code and error messages. For message explanations, see [C Messages](#) (on page 71) The job must finish with a condition code of 0.

Step 8 – Modify and Run the JOB3 Member

JOB2 converts the CA-JOBTRAC ADR and AMR tables to Control-O Rules tables.

Edit the JOB3 member in the conversion Source library. Adjust the following specifications according to your local conventions:

- job statement
- conversion Load library name (specified in the CTMLOAD DD statement in STEP0)
- IOA LOAD library name (specified in the IOALOAD DD statement in STEP0)
- IOA PARM library name (specified in the IOAARM DD statement in STEP0)
- IOA LOG library name (specified in the IOALOG DD statement in STEP0)
- IOA IOAENV library name (specified in the IOAENV DD statement in STEP0)
- name of the Control-M Job Scheduling library created in JOB1 (specified in the DASCHD DD statement in STEP0)
- name of the CA-JOBTRAC ADR table print image file (specified in the DAADR DD statement in STEP0)
- name of the CA-JOBTRAC AMR table print image file (specified in the DAAMR DD statement in STEP0)
- name and location of the Control-O Rule table for ON DSNEVENT rules (specified in the DARULE1 DD statement in STEP0)
- name and location of the Control-O Rule table for ON MESSAGE and ON STRING rules (specified in the DARULE2 DD statement in STEP0)

Submit the job and check the sysout for completion code and error messages. For message explanations, see [C Messages](#) (on page 71) The job must finish with a condition code of 0.

Step 9 – Final Adjustments

1. If a CMEM rule table was built in the CMEM file created in JOB1, follow the instructions on managing the CMEM facility in the *INCONTROL for z/OS Administrator Guide*.
2. Ensure that the JCL libraries specified by the DAINCLIB and JBTJCL DD statements in Step 6 are concatenated in member IOADSN in the IOA IOAENV library (or member IOADSNL in the IOA PARM library) via the KEY parameter for a DALIB DD statement. For further information about the IOADSN member, see the section about Allocation Members in the *INCONTROL for z/OS Administrator Guide*.
3. Copy the DYNAMIC member from the conversion Source library and the JMFSYM01 member specified by the DAJMF DD statement, which is referred to in Step 6, to the library named in the INCLIB conversion parameter, which is described in "INCLIB" on page 88.
4. Set the MAXCCOK parameter to the maximum acceptable condition code for any job step. For further information on this parameter, see the CTMPARM member in the IOA PARM library.
5. If conversion option TOCLS was set to blank due to distributed job definitions in your JOBTRAC SCLs, but you nevertheless require the SYSOUT requeuing feature for the JOBTRAC mainframe jobs (described in [Unique Control-M Parameters](#) (on page 62)) , you should customize and install sample user exit CTMX001D, which is provided in the IOA SAMPEXIT library.

Note: This exit may be tailored to local requirements. Carefully read the comments in the CTMX001D members of the IOA SAMPEXIT library to determine the desired method of implementation. If Exits 1 is currently being used, the supplied exit must be incorporated into the current exit.

6. If the JOBTRAC SCLs contain distributed job definitions, follow the instructions in Step 5 (JOB1, DD statement DAXML) for processing the XML scripts produced by the CTMTLB utility for uploading to the proper distributed platform.

Step 10 – Check the Conversion Results

1. Export the job schedule definitions of both Control-M for z/OS jobs and Control-M for Distributed Systems jobs.

In the conversion jobs, specify unique names of all the required Control-Ms for the DATACENTER parameter values used as input to the CTMTLB utility.

The specified names of the Control-Ms must be the same names that will be used in Step 4, where the Control-Ms are defined using the Control-M Configuration Manager.

If required, Control-M for Distributed Systems jobs can be divided among more than one Control-M. (Tip: use a table name prefix, or a list of table names.) To achieve this, the export to XML step must be repeated, and in each run, a different Control-M and different table names must be specified. This process must be performed on the job created in the conversion job library.

2. Export the calendars created in the conversion process.

Create a calendar XML for each Control-M (either Control-M for z/OS jobs or Control-M for Distributed Systems jobs), so it is possible to load them to all Control-Ms. If there are manual adjustments to calendars, or entire calendars that have to be created, either create them before the export process, or do it from Control-M/EM after loading the exported ones.

3. Start up Control-M Monitor and IOAGATE on the mainframe for Control-M for z/OS jobs. Start up Control-M Server and its corresponding Gateway for Control-M for Distributed Systems jobs.

Verify that all are connected and working properly before continuing.

4. Define all Control-Ms (Control-M for z/OS jobs and Control-M for Distributed Systems) in the Control-M/Enterprise Manager environment.

Define all required Control-Ms using the Control-M Configuration Manager. It is preferable to use the automatic discovery method. If the manual definition method must be used, verify that all settings and parameters are according to the attributes of the Control-M. The Platform attribute (Distributed or z/OS) is the most important setting that cannot be changed later.

In any case, you must use the same names of the Control-Ms that were specified for the DATACENTER parameter values in Step 1.

5. Import the exported Calendars to all Control-Ms on Control-M/EM.

Use the Control-M/EM defcal utility. If there are manual modifications or whole calendars to be created, verify that all are available.

6. Define the GCS distribution list.

It must be the same file used by the Control-M for z/OS conversion process to add the right prefix to the various combinations of conditions based on their source and destination.

7. Load each XML file to Control-M/Desktop and write it to the Control-M/EM database, by doing the following:
 - a. Save the XML draft files in a folder accessible to Control-M/Desktop.
 - b. Open Control-M/Desktop.
 - c. Select **File => Open**. Navigate to the folder where you saved the XML draft files. Set the Files of type to (ExportDefTable Format) (*.xml).
 - d. Select the XML draft file and click **Open**.
 - e. The jobs are displayed in a Workspace.
 - f. After performing any necessary adjustments to the job definitions, write the job definitions to the Control-M/EM database, by selecting **Action => Write**.

For more information, see the *Control-M User Guide*.

Review any error messages, and resolve them. Some errors are detected and reported during the loading of the XML to Control-M/Desktop, and some errors are reported only when the draft is written to Control-M/EM. You might be required to re-run several conversion steps in Control-M for z/OS and then continue with step 1 of the testing.

8. Set the New Day mechanism. For both Control-M for z/OS and Control-M for Distributed Systems, define the User-Daily jobs to be scheduled from the system daily and run at suitable times. Verify that every table is covered by at least one User-Daily. On the Control-M for z/OS, the User Daily can be either based on jobs that reference the various tables, or by job that uses the value of the table User-Daily field. Use the conversion created report as the basis for this process.
9. Set Forecast User-Daily setting for the Control-M for z/OS tables. For more details, see the *Control-M Business Service Management Solution User Guide*.
10. Run Control-M/Forecast for the Control-M or table, and create a full year plan of all jobs. This plan can be exported to text and compared with the reports that are produced from your current scheduling tool.
11. Load Forecast from Control-M/Desktop on a specific date (as many times and various days as required), and compare the predicted flow with the current scheduling tool reports.

Step 11 – Add New Tables to the New Day Procedure

Specify the new tables (created in JOB1) in the DAJOB DD statement of the Control-M New Day procedure.

Step 12 – Create Control-M Calendars

The conversion tool places calendar names in the DCAL Control-M job scheduling parameter. The names used are *WORKDnnn*, *HOLID*, *CYCLEnnn*, and *CYCnnn*. In each of these names, *nnn* is the CA-JOBTRAC Location ID. In addition, the conversion tool may place other calendar names in the DCAL parameter in either of the following cases:

- the Control-M Basic Scheduling parameters require a non-standard (periodic) calendar name. Calendar names such as *xxxCYCyy* may be created.
- user-defined scheduling criteria (*UDEFx*) cannot be completely or consistently converted to values for the *DATES* Control-M parameter, or *C* is specified for the *UDEF* conversion parameter.

For further information, see [Calendars](#) (on page 15).

The CTMXRF Control-M utility aids in the identification of calendar names used in the Control-M tables. All calendar names specified in the CTMXRF Calendar Cross Reference report (*XRF=CAL*) must be manually created using the Control-M IOA Calendar facility.

Step 13 – Add Resources to the Control-M Resources File

Examine the DAPRM file created in JOB1 (see Step 5). If there are any *ADD RESOURCE* control statements present, run the job in this file; otherwise skip this step.

4 Conversion Details

This section details the conversion of relevant CA-JOBTRAC components into Control-M job scheduling definition parameters, and also describes the unique Control-M conversion parameters that can be specified. It includes the following topics:

[Component Conversion Summary](#) (on page 39)

[Component Conversion Detail](#) (on page 44)

1. [EVENT TYPE](#) (on page 44)

2. [TIME and THRESHOLD](#) (on page 45)

3. [DATE](#) (on page 45)

4. [@BUSGRP/@SCHDID](#) (on page 46)

5. [@dateform](#) (on page 47)

6. [EVENT NAME \(EVENTNM\)](#) (on page 47)

7. [DEPS](#) (on page 48)

10. [RELEASEn \(SUCCESSOR and/or PREDECESSOR\)](#) (on page 49)

11. [MAXIMUM CONDITION CODE \(CCDE\)](#) (on page 51)

12. [LOCATION ID \(LOC\)](#) (on page 51)

13. [VERSION NUMBER \(VV\)](#) (on page 51)

15. [@HOL, @CYC, UDEFx, XUDEFx, Parameters Requiring Calendars](#) (on page 52)

16. [WDAYS, DATES](#) (on page 52)

17. [X \(not\)](#) (on page 52)

18. [AJO \(Automatic JCL Override\)](#) (on page 52)

19. [JMF \(JCL Management Facility\)](#) (on page 54)

20. [Current Day Dynamic Variables](#) (on page 56)

21. [ADI //: CONTROL STATEMENT](#) (on page 57)

22. [ADI DATE VARIABLES](#) (on page 57)

23. [AUTO-SCHD Feature \(\\$A Program\)](#) (on page 57)

24. [SCL Member Name](#) (on page 58)

25. [HOLIDAY ACTION](#) (on page 58)

26. [CCPF Table](#) (on page 59)

27. [EVnday\(x\)](#) (on page 60)

28. [SCS Table](#) (on page 60)

30. [ADR Table](#) (on page 60)

[31. AMR Table](#) (on page 61)

[35. @WORKD and @WDnnn](#) (on page 62)

[Unique Control-M Parameters](#) (on page 62)

[DO SYSOUT](#) (on page 63)

[RESOURCE](#) (on page 63)

[Control-M/Restart facility](#) (on page 63)

Component Conversion Summary

The conversion tables on the following pages list CA-JOBTRAC components that are converted to corresponding Control-M parameters.

Note: Item number (Item No.) in the following tables refers to the topic number in this chapter.

Table 7 **Components of CA-JOBTRAC SCL Members**

CA-JOBTRAC Parameter	Control-M Job Scheduling Definition Parameter	Item No.
EVENT TYPE	OVERLIB=DUMMY	1
TIME and THRESHOLD	TIME FROM, UNTIL SHOUT WHEN LATESUB	2
DATE	MONTHS, DAYS IN <i>condition relative date reference</i>	3
@BUSGRP/@SCHDID	GROUP, OWNER, <i>table name</i>	4
@DATEFORM	MONTHS, DAYS	5
EVENT NAME	MEMNAME, OWNER	6
DEPS	CONFIRM=Y, IN <i>conditions (manual)</i> , ON PGMST <i>statements</i>	7
REFERBACK I=	TASKTYP=CYC, INTERVAL	8
REFERBACK R=	CONTROL, RESOURCE, CMEM, IN and/or OUT <i>conditions</i>	9
REFERBACK A=	In-stream JCL	14
REFERBACK IP=	CMDLINE	32
REFERBACK NODE=	NODEID	33

CA-JOBTRAC Parameter	Control-M Job Scheduling Definition Parameter	Item No.
REFERBACK ED=	SETVAR	34
@WORKD	DCAL, WCAL, CONFCAL	35
@WDnnn	DCAL, WCAL, CONFCAL	35
RELEASE <i>n</i> (SUCCESSOR/ PREDECESSOR)	IN and/or OUT <i>conditions</i>	10
SCL <i>member name</i>	APPL, OWNER, GROUP	24
MAXIMUM CONDITION CODE	ON PGMST ANYSTEP CODES <i>Cnnnn</i> DO OK	11
LOCATION ID	DCAL	12
VERSION NUMBER	IN and/or OUT <i>conditions</i>	13
@HOL, @CYC, UDEF <i>x</i>	DCAL	15
HOLIDAY ACTION	CONFCAL, SHIFT	25

Table 8 CA-JOBTRAC Process Period (PROCESSP) Keywords

Process Period	Control-M Basic Scheduling Criteria	Item No.
DAILY	DAYS=ALL	
=MTWTFSS or MONDAY-SUNDAY	WDAYS=1-0	16, 17
<i>day#n</i>	WDAYS=DmWn, <i>m</i> =1-0	16
<i>day#LAST</i>	WDAYS= 1-0 AND DAYS=L1, ..., L7	16
<i>day#Mn</i>	WDAYS=1-0 AND DAYS=(L(7*n)-6, ..., L(7*n))	16
<i>Xday#n</i>	WDAYS=DdayW1,DdayW2,DdayW3,D dayW4,DdayW5 excluding the entry for week <i>n</i> (DdayWn)	16
<i>Xday#LAST</i>	WDAYS=1-0 AND DAYS=(-L1,-L2,-L3,-L4,-L5,-L6,-L7)	16

Process Period	Control-M Basic Scheduling Criteria	Item No.
EOY	DAYS=L1, MONTHS=12	
EOM, XEOM	DAYS=L1, -L1	17
FOM	DAYS=D1	15,17
LASTDAY	DAYS=L1	17
WORKDAYS WORKDAYMnn WORKDAY#nn WORKDAYXnn WORKDAY>nn WORKDAY<nn	DAYS=Lnn DAYS=Dnn DAYS=-Dnn DAYS=n+1, n+2, ..., 31 DAYS=1,2, ..., n-1	15,17
CYCDAYMnnn CYCDAY#nnn CYCDAYXnnn	DAYS=LnnnP* DAYS=DnnnP* DAYS=-DnnnP*	15,17
QTRn	DAYS=D1, MONTHS=m (m=1,4,7,10)	
QTRnA	MONTHS=(m,m+1,m+2) (m=1,4,7,10)	
/ddl	DAYS=dd	17
mm/**/**	MONTHS=mm DCAL=ALLDAYS	17
mm/ddl**	DATES=mmdd	16
UDEFx XUDEFx	DATES=mmdd	15, 16
CYCLAST	DAYS=L1P*	15
dddCYC#nnn		15
CYCLEnn	DAYS=D*Px (x=1,2,...D,E)	15

Process Period	Control-M Basic Scheduling Criteria	Item No.
Conditional operators: +,X	RELATION=A, 'not' logic	17
WEEKDAY# <i>n</i> WEEKDAY#L WEEKDAYX <i>n</i>	WDAYS= <i>Dn</i> WDAYS=L1 WDAYS=- <i>Dn</i>	17
--/--/yy	ACTIVE-FROM=0101yy, ACTIVE-UNTIL=3112yy	
<i>dddCYC#nn</i>		15
EV <i>nday(x)</i>	Cyclic scheduling criteria	27

Table 9 Components of the CA-JOBTRAC JCL Conversion

CA-JOBTRAC Component	Control-M AutoEdit Parameter	Item No.
AJO <i>x=mmddy</i>	%%IF, %%ENDIF	18
JMF Variables and dates	%% AutoEdit variables	19
Current Day Dynamic Variables	%% AutoEdit variables	20
ADI //: control stmt	%%INCLIB, %%INCMEM	21
ADI date variable	%%AutoEdit variables	22
AUTO-SCHD (\$A) program	IOACND ADD COND	23

Table 10 Condition Code Program Filter (CCPF) Table Components

CA-JOBTRAC CCPF TABLE Component	Control-M Parameter	Item No.
Event Name		26
Step Name	ON PGMST	26
Procstep Name	ON PGMST ° PROCST	26
Conddcode Operator/Value	ON PGMST ° CODES	26

Table 11 Automatic Data Set Recognition (ADR) Table Components

CA-JOBTRAC ADR TABLE Component	Control-O Rule Parameter	Item No.
DSN	DSN	30
CPU	SMFID	30
ACT RUN	DO FORCEJOB ... JOB	30
TOD Threshold	TIME FROM and/or UNTIL	30
Trigger Event	See ACT RUN	30
Create Event	ON DSNEVENT	30
Trigger Process Pe		30

Table 12 Automatic Message Recognition (AMR) Table Components

CA-JOBTRAC ADR TABLE Component	Control-O Rule Parameter	Item No.
Msg Text	ON MESSAGE/STRING	31
Offset (first occurrence)	COL	31
Command/Reply	<i>command/ wtor</i>	31
Altered Text	<i>newtext</i>	31
Offset (second occurrence)		31
Process Pe	Basic scheduling criteria	31
Create Event	JNAME	31
Trigger Event	See Trg Act RUN	31
TOD Range	TIME FROM and/or UNTIL	31
SYS	SMFID	31

CA-JOBTRAC ADR TABLE Component	Control-O Rule Parameter	Item No.
Trg Act ALTR CMD NOND RPLY RUN SUPP	DO DISPLAY ... NEWTEXT DO COMMAND DESC=2 DO ASKOPER DO FORCEJOB ... JOB DO DISPLAY ... SUPPRESS Y	31
Extended Text		31

Table 13 System Command Scheduling (SCS) Table Components

CA-JOBTRAC SCS TABLE Component	Control-O Rule Parameter	Item No.
Table	ON EVENT	28
CMD	DO COMMAND	28
Intv	INTERVAL	28
Range	TIME FROM and/or UNTIL	28
Process Pe	Basic scheduling criteria	28
SYSID	SYSTEM	28

Component Conversion Detail

1. EVENT TYPE

The EVENT TYPE CA-JOBTRAC parameter identifies the type of event being defined. The EVENT TYPE parameter can contain E (REXX IMOD), D (dummy job) or blank (any other type of event).

Only EVENT TYPEs D and blank are supported by the conversion tool.

In Control-M, an OVERLIB parameter specified as DUMMY indicates that the job must not be submitted. When the EVENT TYPE is D, the conversion tool sets the OVERLIB parameter of the Control-M job scheduling definition to DUMMY.

2. TIME and THRESHOLD

The CA-JOBTRAC TIME parameter defines the time of day when the action specified by the THRESHOLD parameter is performed.

The CA-JOBTRAC THRESHOLD value of blank or S (start time) uses TIME to indicate the earliest time that an event can be submitted. The conversion tool uses the CA-JOBTRAC TIME in the Control-M TIME FROM scheduling definition parameter to specify the lower time limit for job submission. If a start time is not defined, the default start time, that is, the Control-M FROM time, is the same as the target time (described below).

A value of ASAP in the CA-JOBTRAC TIME parameter is translated as blanks in the Control-M TIME FROM parameter.

Note: When the threshold value is blank, a Control-M SHOUT WHEN LATESUB message is set. This message is sent when the specified TIME has passed.

The CA-JOBTRAC threshold value T (target time) indicates that an event can be submitted after being loaded to the schedule, but the event is considered late if it has not been submitted by the specified time. The conversion tool uses the CA-JOBTRAC TIME to set a Control-M SHOUT WHEN LATESUB message to indicate that the job is late when this time has passed. If the TIME value specifies ASAP, the T threshold value is ignored.

The CA-JOBTRAC threshold value A indicates that the event must be purged from the schedule if the job has not been submitted by a specific time. The conversion tool creates the Control-M TIME UNTIL subparameter from the CA-JOBTRAC TIME to indicate the job cannot be submitted after this time.

CA-JOBTRAC historical start time (*) is ignored by the conversion tool.

For additional information regarding when the days offset is specified in the TIME parameter, see [3. DATE](#) (on page 45).

3. DATE

The CA-JOBTRAC DATE parameter can be a fixed, generic, or relative date. This parameter determines the date for which an event is scheduled. The date and process period for each event have a Boolean AND relationship that determines when the event is scheduled. Fixed and generic dates are converted to Control-M DAYS and MONTHS job scheduling parameters as follows:

Table 14 Conversion of Date Parameters

Format	Converted Format
<i>mmdd</i>	MONTHS= <i>mm</i> , DAYS= <i>dd</i>
<i>mm**</i>	MONTHS= <i>mm</i>
<i>**dd</i>	DAYS= <i>dd</i>

Relative dates cause an event to be scheduled if the process period of an event matches the calendar resolution of the current date. Depending on the relative date entry, the event is scheduled for the current date or some date relative to the current date. The conversion tool supports relative dates with the following formats:

Table 15 Relative Date Formats

Format	Description
*	Current date. The event is scheduled if the process period is matched. The conversion tool converts the processing period. No additional action is necessary.
*- <i>n</i>	Used with predecessor scheduling to indicate that a predecessor event is scheduled to run <i>n</i> days before the successor event. The conversion tool converts all predecessor events with negative relative dates to IN conditions with a relative date reference of <i>-nnn</i> .
*+ <i>n</i>	Indicates that the event is to be scheduled in <i>n</i> days from the current day. Relative dates in this format are used together with the TIME parameter to schedule events that are to run on some future day. The conversion tool sets the Control-M TIME FROM + DAYS offset parameter to <i>n</i> . Similarly, when a Control-M SHOUT WHEN LATESUB parameter is generated, the same + DAYS offset is set in the SHOUT TIME parameter. For more information on these TIME parameters, see 2. TIME and THRESHOLD (on page 45).

Note: The DATE parameter is placed in the Control-M DESC job scheduling parameter.

4. @BUSGRP/@SCHDID

The CA-JOBTRAC @BUSGRP/@SCHDID parameter identifies the business group of which the event is a part. The conversion tool optionally creates the Control-M GROUP parameter from the 8-character CA-JOBTRAC @BUSGRP/@SCHDID parameter.

The @BUSGRP/@SCHDID parameter may also be used to create the Control-M OWNER parameter. For more details, see "OWNER" on page 89

Control-M automatically supports CA-JOBTRAC multi-tier business group scheduling by grouping CA-JOBTRAC events into Control-M tables that correspond to CA-JOBTRAC Business Groups. The CA-JOBTRAC @BUSGRP/@SCHDID parameter is used as the table name.

The default table name for jobs not belonging to a Business Group is the CA-JOBTRAC SCL member name.

5. @dateform

The CA-JOBTRAC @DATEFROM control record specifies the format of the dates used in the SCL members. @DATEFORM=A specifies mm/dd format, and @DATEFORM=I specifies dd/mm format. The conversion tool uses the @DATEFORM control record to determine the format of CA-JOBTRAC date parameters when converting them to Control-M MONTHS and DAYS job scheduling parameters.

6. EVENT NAME (EVENTNM)

The CA-JOBTRAC EVENT NAME identifies the event being scheduled, or indicates that the SCL record is a continuation of a previous SCL record. The EVENT NAME can be a job name, a REXX IMOD, a schedule name (prefixed with a 0), or a CA-JOBTRAC task, such as OARCHIVE, OSYSARCH, or OJOBARCH.

The conversion tool supports both EVENT NAME jobname and schedule name types. The jobname is the name of any job to be scheduled and must match both

- the jobname entered in the MVS JCL job statement
- the member name of the job in the JCL library

except when the REFERBACK A CA-JOBTRAC parameter is specified, as described in The conversion tool creates the MEMNAME Control-M parameter from the EVENT NAME CA-JOBTRAC parameter.

When a schedule name type is specified, you must ensure that a @BUSGRP parameter is not specified in the SCL member for that schedule as this would cause the conversion tool to change the name of the resultant Control-M table. Jobtrac schedules are converted to Control-M Started task definitions which invoke the STC CTMJOBPR that resides in the IOA PROCLIB library. You must copy CTMJOBPR to an MVS library from which Started tasks can be executed (see the *INCONTROL for z/OS Installation Guide: Installing*, Chapter 4 Installing IOA, Step 5.3 for details).

In addition, the following Control-M parameters are set in the job scheduling definition:

- MEMNAME=CTMJOBPR
- MEMLIB=*,LIB=%%SCHLIB, TABLE=schname (extracted from the Jobtrac SCL event name Oschname)
- TASKTYPE=STC
- SET VAR=%%SCHLIB=schedule-lib-name (taken from the &SCHLIB parameter in the DEFAULTS conversion member)
- CTMJOBPR invokes the Control-M batch utility CTMJOB which orders jobs and tables.

When the EVENT NAME is a Jobtrac Archive task, a CTMJT003-10E error message is issued.

It may also be used to create the Control-M OWNER parameter; for details, see "OWNER" on page 89.

JOBTRAC jobs on distributed platforms are identified as event type C. For such jobs, the Control-M MEMNAME parameter is omitted. In addition, a Control-M JOBNAME XML parameter is created from the Event name.

7. DEPS

The CA-JOBTRAC DEPS parameter specifies execution dependencies that must be satisfied before an event can be submitted.

The entries set out in the following table are supported by the conversion tool:

Table 16 Execution Dependencies

CA-JOBTRAC Dependency	Control-M Job Scheduling Parameter
M (Manual release dependency)	CONFIRM=Y
J (JCL required dependency)	IN=JCL-REQU- <i>eventnm</i> (manual condition)
E (Edit JCL dependency)	IN=EDIT-JCL- <i>eventnm</i> (manual condition)
? (View documentation dependency)	IN=VIEW-DOC- <i>eventnm</i> (manual condition)
Q (Queued release dependency)	IN=Q-RELEAS- <i>eventnm</i> (manual condition)
A (Abend bypass)	ONPGM STEP=ANYSTEP CODES=(U****,S****) DO=OK

8. REFERBACK I

The CA-JOBTRAC REFERBACK I parameter specifies a time interval at which an event must be submitted. At each interval the event is resubmitted. A stopping time may optionally be defined to specify when the event must cease to be resubmitted. In addition, a third subparameter may optionally be specified, to indicate the point from which the interval is to be calculated.

When the REFERBACK I parameter is specified, the conversion tool creates the event as a cyclic job using the Control-M TASKTYPE=CYC job scheduling parameter. The time interval specified in I=*hhmm* is converted to the Control-M INTERVAL parameter. If an optional stop time is also specified as a secondary parameter (that is, I=*hhmm/hhmm*) the stop time is placed into the Control-M TIME UNTIL parameter, to prevent infinite recycling. If an optional third subparameter (that is, I=*hhmm/.../r*) is specified, it is converted to the Control-M INTERVAL FROM parameter, as follows:

- *r*=E == => FROM END
- *r*=A == => FROM STRT
- *r*=S == => FROM TRGT

9. REFERBACK R

The CA-JOBTRAC REFERBACK R parameter specifies resource conditions that must be satisfied before an event can be submitted.

The conversion tool converts the RESOURCE REFERBACK parameter depending on how the resource code ID is defined in the RESOURCE member of the CA-JOBTRAC TRACPARM library. For more information, see [Resource Management](#) (on page 16).

When the CA-JOBTRAC resource code ID definition specifies NOJOB=*eventname*, the conversion tool creates Control-M CONTROL parameters in the format

```
x_eventname
```

where *x* is the Resource ID code

The resource mode of the CONTROL resource in the job identified by *eventname* is Exclusive (E), while the resource mode of the CONTROL resource in the jobs that contain a REFERBACK to the resource code ID is Shared (S).

When the CA-JOBTRAC resource code ID definition specifies JOB=*eventname*, the conversion tool creates a CMEM rule defining a JOBARRIVAL event. The CMEM rule specifies that upon arrival of job *eventname*, a condition in the format

```
x_eventname ODAT
```

is to be added to the Control-M Resources file, where *x* is the resource code ID

In addition, the conversion tool creates Control-M IN conditions of the same format as above for jobs that contain a REFERBACK to the resource code ID. For the job whose jobname is *eventname* a post processing OUT condition in the format

```
x_eventname ODAT -
```

is placed in the job scheduling definition that deletes the condition added by the CMEM JOBARRIVAL event just described

When the CA-JOBTRAC resource code ID definition specifies GENERIC(*nn*), the conversion tool creates, for all jobs that contain a REFERBACK to the resource code ID, Control-M RESOURCE statements in the following format:

```
x_GENERIC nnnn
```

where *nnnn* is the total quantity of all Quantitative resources with a prefix of *x*

The conversion tool also creates a JCL job to run utility IOACND to add resources to the Control-M Resources file, with control statements in the form

```
ADD RESOURCE x_GENERIC nn
```

10. RELEASE n (SUCCESSOR and/or PREDECESSOR)

The CA-JOBTRAC RELEASE n parameter specifies various types of successor and predecessor conditions that correspond to Control-M IN and OUT condition parameter definitions.

A REFERBACK parameter value of blank or + indicates that the event names in the RELEASE n parameters are successors. A REFERBACK parameter value of - indicates that the event names in the RELEASE n parameters are predecessors.

The conversion tool converts both predecessors and successors jobs to IN or OUT condition names in the form

[*prefix*] *fromtablename*-*fromeventname*[+*vv*]_ [*totablename*-] *toeventname*[+*vv*] *dateref*

where

- *fromtablename* is the name of the SCL or business group in which the predecessor event resides
- *fromeventname* is the name of the predecessor event
- *totablename* is the name of the SCL or business group in which the successor event resides
- *toeventname* is the name of the successor event
- *vv* is the version number and is present only if the from/to event is associated with a non-blank version number; for more information, see [13. VERSION NUMBER \(VV\)](#) (on page 51).
- *dateref* is ODAT unless a negative relative DATE (*-n) is specified for a predecessor event, in which case *dateref* is set to -*nnn*. For more information, see [3. DATE](#) (on page 45).

The *totablename* is omitted when it is the same as the *fromtablename*.

The above condition is created as an OUT condition in the Control-M predecessor job scheduling definition and as an IN condition in the successor job definition. All of these IN conditions are deleted via an OUT condition which specifies a *dateref* of

'***** _'.

The REFERBACK parameter value of "=" indicates a conditional predecessor dependency, which allows you to create conditions referring to jobs that may or may not be in the schedule. Conditional dependencies become predecessors only if they are already on the current schedule when the primary event is added.

Control-M has a Maybe Jobs feature that can simulate this conditional handling of predecessor prerequisite; for instructions on utilizing this feature, see the *Control-M for z/OS User Guide*. The conversion tool facilitates use of the Maybe Jobs feature by creating IN and OUT condition names with a special character prefix of '¢' (hexadecimal '4A') which allows the Control-M ADDMNCND KSL to specify the condition name prefix '¢' as a Maybe job indicator.

Conditions using this special prefix are also created when predecessor and successor jobs have different processing periods. For more information, see [Successor and Predecessor Dependencies](#) (on page 14).

Predecessor and successor schedule types (event names starting with 0) are not supported. If a schedule of this type is detected, the CTMJT001-10E message, which is described on page 92, is issued. These schedules must be manually converted as follows:

- When an SCL schedule awaits the completion of a job, convert the corresponding Control-M table to a SMART Table, using, for example, the CTMBTBL utility, and add an IN condition that forces the table to wait for the indicated job to the SMART Table Entity.
- When a job awaits the completion of an SCL schedule, convert the corresponding Control-M table to a SMART Table and add an OUT condition to the SMART Table Entity. This same condition must be added as an IN condition to the successor job.

11. MAXIMUM CONDITION CODE (CCDE)

The CA-JOBTRAC Maximum Condition Code provides a means to test condition codes at the event level. If the defined condition code is violated CA-JOBTRAC imposes a dependency requiring that the output of the event be checked before successor events can be submitted.

In Control-M, the ON PGMST post-processing parameter specifies the codes-event (a combination of job steps and status codes) on which DO actions are performed.

The CA-JOBTRAC Maximum Condition Code, *nnnn*, is converted to

```
ON PGMST ANYSTEP CODES <C(nnnn+1)
DO OK
```

If the CA-JOBTRAC Maximum Condition Code is 4 or less and the MAXCCOK parameter in the CTMPARM member in the IOA PARM library is set to 0, the Maximum Condition Code is converted to

```
ON PGMST ANYSTEP CODES >Cnnnn
DO NOTOK
```

CA-JOBTRAC step level condition codes are not supported.

12. LOCATION ID (LOC)

The CA-JOBTRAC Location ID provides distributed control over production. For example, the location ID is used for determining the holiday and cyclic calendars and workdays. The conversion tool uses the location ID to form calendar names for the Control-M DCAL parameter. For more information, see [Calendars](#) (on page 15).

13. VERSION NUMBER (VV)

The CA-JOBTRAC Version Number assigns a version number to an event. The same event can be on the current schedule more than once only if each occurrence has a unique Version Number. The Version Number allows the same event to be scheduled multiple times under different scheduling criteria, such as different starting times.

The conversion tool supports the CA-JOBTRAC Version Number by creating multiple Control-M job scheduling definitions for the same CA-JOBTRAC event. In addition, the IN and OUT conditions associated with events having non-blank Version Numbers are modified so that the Version Number is added to the condition name to ensure the proper triggering of like-named events. For more information, see [10. RELEASEn \(SUCCESSOR and/or PREDECESSOR\)](#) (on page 49).

The Version Number is also placed in the Control-M DESC job scheduling parameter.

14. REFERBACK A

The CA-JOBTRAC REFERBACK A parameter specifies an alternative production JCL member name that does not match the event name. This is the member that contains the JCL to be submitted for the event.

The conversion tool uses the name specified in this parameter to create the following in-stream JCL in the converted job scheduling definition:

```
//* %%INCLIB &JCLLIB %%INCMEM memname
```

where *memname* is the alternate member name specified in the REFERBACK A parameter. The JCLLIB conversion parameter is described in "JCLLIB" on page 88.

15. @HOL, @CYC, UDEFx, XUDEFx, Parameters Requiring Calendars

For full details, see [Calendars](#) (on page 15).

16. WDAY, DATES

The setting of the Control-M WDAY and DATES parameters depends on the setting of the SWEEK and DATETYP IOA Installation Parameters. Table 4.2 illustrations all assume SWEEK=MON and DATETYP=A (*mmdyy*). If SWEEK=SUN, add 1 (modulo 7) to all WDAY or *Dn* specifications.

17. X (not)

The X conditional operator, and the X prefix used in the Process Period Keywords, are supported preceding the following keywords:

- =MTWTFSS
- SUNDAY-SAT
- WORKDAY *xnn*
- EOM, *date*
- CYC *xnnn*
- WEEKDAY# *n*

When the Process Period Keyword is converted to a Control-M DAYS or WDAY parameter, X has the effect of placing a minus sign in front of the value. For example, X TUESDAY is converted to WDAY=-2.

18. AJO (Automatic JCL Override)

The CA-JOBTRAC AJO facility is used to automatically delete or insert specified JCL statements based on specific dates. AJO is defined by placing codes in the JCL statement to be affected by the override action. The code must begin in column 73, and is in the form

```
x={mm|**}{dd|**}{yy|**}
```

where *x*=D, I, R, or A

The conversion tool converts this by "sandwiching" the affected JCL statements between the following Control-M AutoEdit statements:

```
%%IF {%%YEAR. } {%%MONTH. } {%%DAY} oper {yy} {mm} {dd}
<JCL statements>
%%ENDIF
```

where *oper* depends on the value of *x* as follows:

x=D, I, R, A; oper=NE, EQ, GE, LT

Only the parts of the date that are not generic, that is, are not **, cause the conversion tool to generate the corresponding Control-M AutoEdit date system variable.

Example

If the CA-JOBTRAC AJO statement specifies I=01**01, the conversion tool generates

```
%%IF %%YEAR.%%MONTH EQ 0001
```

A specification of process period in column 60 and {D|I}=SCHD in column 73 in a JCL statement is supported for some column 60 values similar to the above (the <JCL statement> and %%ENDIF are not shown in the converted AutoEdit statements below). The supported column 60 values are:

Column 60 = {mm|**}{dd|**}{yy|**} creates:

```
%%IF {%%YEAR.}{%%MONTH.}{%%DAY} oper {yy}{mm}{dd}
```

Column 60 = MONDAY|TUESDAY|WEDNESDAY... creates:

```
%%IF %%WDAY EQ n
```

Column 60 = =MTWT.. creates:

```
%%IF %%WDAY EQ n (for each 'day' specification in the =MTW...)
```

Column 60 = WORKDAY>nn creates:

```
%%SET %%0=%%$WCALC %%$ODATE > MTWTF
%%IF %%0 EQ %%$ODATE
%%SET %%0=%%$CALCDTE %%$OYEAR.%%OMONTH%. 01 - 1
%%SET %%0=%%$WCALC %%0 + nn MTWTF
%%IF %%$ODATE GT %%0
```

Column 60 = WORKDAY<nn creates:

```
%%SET %%0=%%$WCALC %%$ODATE > MTWTF
%%IF %%0 EQ %%$ODATE
%%SET %%0=%%$CALCDTE %%$OYEAR.%%OMONTH%.01 - 1
%%SET %%0=%%$WCALC %%0 + nn MTWTF
%%IF %%$ODATE LT %%0
```

Column 60 = WORKDAY#nn creates:

```
%%SET %%0=%%$WCALC %%$ODATE > MTWTF
%%IF %%0 EQ %%$ODATE
```

```
%%SET %%0=%%$CALCDTE %%$OYEAR.%%OMONTH%%.01 - 1
%%SET %%0=%%$WCALC %%0 + nn MTWTF
%%IF %%$ODATE EQ %%0
```

Column 60 = LASTDAY creates:

```
%%SET %%0=%%$CALCDTE %%$OYEAR. %%OMONTH%%. 01 + M1
%%SET %%0=%%$CALCDTE %%0 - 1
%%IF %%$ODATE EQ %%0
```

Column 60 = EOM creates:

```
%%SET %%0=%%$CALCDTE %%$OYEAR. %%OMONTH%%. 01 + M1
%%SET %%0=%%$WCALC %%0 - 1
%%IF %%$ODATE EQ %%0
```

Column 60 = FOM creates:

```
%%SET %%0=%%$WCALC %%$OYEAR. %%OMONTH%%. 01 > MTWTF
%%IF %%$ODATE EQ %%0
```

19. JMF (JCL Management Facility)

CA-JOBTRAC JMF facility enables

- global variable changes to JCL submitted through CA-JOBTRAC and parameters in cataloged procedures
- insertion of parameter statements or values into JCL
- input definitions from multiple partitioned database libraries
- assignment of Current Day Dynamic Variables, as explained in the following item

The JMF variables specified in the JMFSYM01 member of the DATELIB library, and in any alternate location JCL libraries, are converted to Control-M AutoEdit variables.

JMF alternate library definitions are converted to the AutoEdit statement

```
%%INCLIB libname %%INCMEM memname
```

All JMF variable definitions are converted to AutoEdit %%SET statements with variables of the type JMF &: converted to %% variables, both in the JMF member and wherever they appear in JCL members. Embedded blanks in JMF variables are converted to the AutoEdit system variable %%BLANK*n*.

JMF date specifications allow JMF variables to contain different values depending on the date appended to the variable value. The JMF date specification enables a variable to take on a specific value either before, after, on, or within a range of dates. The conversion tool handles these situations by using the %%SET statement to set the variable value within AutoEdit %%IF and %%ENDIF statements. For example, the JMF statement

```
VAR=&:GMMDDYY,(01026,01055)
```

is converted to

```
%%IF %%YEAR.%%JULDAY GE 01026
%%IF %%YEAR.%%JULDAY LE 01055
%%SET %%VAR = %%GMMDDYY
%%ENDIF
%%ENDIF
```

Note: The Control-M JOBTRAC conversion tool does not support JOBTRAC JMF TODDATE and OSDDATE control statements that specify calendar or working day offsets. For example, TODDATE:+2 and OSDDATE:-10W are not supported.

Control-M %%INCLIB xxxx %%INCMEM xxxx statements are inserted into the JCL members to aid in resolving user-defined JMF variables to their assigned values.

Standard Jobtrac variables &:var are normally converted to Control-M AutoEdit variables (%%var). The exceptions are shown in Table 17.

Table 17 CA-JOBTRAC variable conversion

CA-JOBTRAC variables	Control-M AutoEdit variables
&:VAR.. <i>constant</i>	%%VAR. <i>constant</i> (One of the periods is deleted.)
&:VAR..&:VAR2	%%VAR..%%VAR2 (The double period is retained.)
&:VAR.&:VAR2	%%VAR.%%VAR2 (The single period is retained.)
&:VAR. <i>constant</i>	%%VAR%%. <i>constant</i> (The period is replaced by the '%%.' operator. The <i>constant</i> does not begin with one of the delimiters listed below.)
&:VAR.# <i>xxx</i>	%%VAR# <i>xxx</i> (The period is deleted. # is any of the delimiters listed below.)
<p>LIST of delimiters:</p> <ul style="list-style-type: none"> ▪ ' (quote) ▪ & (ampersand) ▪ () (open and close parentheses) ▪ , (comma) ▪ / (slash) ▪ * (asterisk) ▪ % (percent) ▪ - (dash) ▪ + (plus) ▪ = (equal) ▪ ? (question) ▪ Blank 	

20. Current Day Dynamic Variables

The DYNAMIC member in the conversion Source library contains the translation of all CA-JOBTRAC Current Day Dynamic Variables to Control-M AutoEdit format.

This member is inserted in all converted CA-JOBTRAC JCL members, as an AutoEdit %%INCLIB statement, to provide default values for any converted JMF variables that may reside in the JCL run-stream.

21. ADI //: CONTROL STATEMENT

The Automatic Date Insertion (ADI) feature enables automatic insertion of JCL records in JCL run-streams. A CA-JOBTRAC JCL statement in the form `//:(cntlname)` indicates that the record identified by the tag *cntlname* (in the PRODDATE member of the CA-JOBTRAC DATELIB library) must replace the `//:` statement.

The conversion tool supports this feature by creating a member in an INCLIB partitioned data set for each record in the PRODDATE member. The member name used is the *cntlname* tag in the PRODDATE record. In addition, the `//:` statement in the JCL is converted to the following AutoEdit statement:

```
%%INCLIB inclib-name %%INCMEM cntlname
```

22. ADI DATE VARIABLES

The ADI feature described in the preceding item enables replacement lines to contain date code variables. CA-JOBTRAC automatically determines the date on which an event was added to the schedule and converts the date to the specified format.

The conversion tool converts the date code variables as shown in Table 18:

Table 18 Conversion of Date Code Variables

Variable	Output
\M	%%OMONTH.
\D	%%ODAY.
\Y	%%OYEAR
\YDDD	%%OYEAR.%%OJULDAY
\M3	%%OSM3 (see the DYNAMIC member in the conversion Source library)
\M9	%%OSM9 (see the DYNAMIC member in the conversion Source library)

23. AUTO-SCHD Feature (\$A Program)

The CA-JOBTRAC AUTO-SCHD feature (the \$A program) provides JCL batch services to

- add a previously unscheduled event, such as an on-request event, to the current schedule and track event execution
- manually submit JCL to remove a dependency of an event already on the current schedule

The conversion tool supports use of the AUTO-SCHD feature using a CA-JOBTRAC JCL step in the form

```
// $AUTO EXEC PGM=$A, COND=(0,op), PARM='x, . . . '
```

where *x* is the control character specifying the AUTO-SCHD function

The conversion tool supports control characters T and Q that are used to remove a dependency of an event already on the schedule. The conversion tool converts the \$AUTO step to the IOA IOACND utility step, which adds conditions to the IOA Conditions File, in the following format:

```
//SAUTO EXEC IOACND, COND=(0,op),
// PARM='ADD COND cond-prefix-eventname %%OMONTH. %%ODAY'
```

where *cond-prefix* is either JCL-REQU (for control character T) or Q-RELEAS (for control character Q)

24. SCL Member Name

CA-JOBTRAC SCL (Schedule Control Language) PDS members specify the events contained in a CA-JOBTRAC schedule.

The conversion tool uses the SCL member name as the value for the Control-M APPL parameter in each job scheduling definition generated from a CA-JOBTRAC event in the SCL member.

The SCL member name is also used as the Control-M scheduling table name and as the value for the GROUP (when the SCL member does not specify @BUSGRP/@SCHDID parameters) and optionally OWNER Control-M parameters. For more information, see "OWNER" on page 89.

25. HOLIDAY ACTION

The CA-JOBTRAC HOLIDAY ACTION parameter provides a number of ways for you to handle events that occur on holidays. For example, if the date on which an event is to be scheduled is a holiday, the event can be coded so that it is scheduled on the first working day before or after the holiday.

In Control-M, CONFICAL calendars and the SHIFT parameter are used for handling holidays and other scheduling exceptions, by checking scheduling dates and shifting jobs if they cannot be scheduled on the originally specified day.

The following values for the HOLIDAY ACTION parameter are supported by the conversion tool:

Table 19 **Holiday Action Parameters**

CA-JOBTRAC HOLIDAY ACTION	Control-M Job Scheduling Parameter
blank	CONFICAL=WORKD
P	CONFICAL=WORKD, SHIFT=<
W	CONFICAL=WORKD, SHIFT=>
S	CONFICAL=WORKD, SHIFT=@
H	CONFICAL=WORKD, SHIFT=@ IN=HOLIDAYH- <i>eventname</i> (manual condit)

CA-JOBTRAC HOLIDAY ACTION	Control-M Job Scheduling Parameter
N	CONFICAL=WORKD, SHIFT=@+1
O	CONFICAL=HOLID

Note: You must build the HOLID calendar manually. This calendar identifies holidays, and must specify only holidays as scheduling days.

26. CCPF Table

Event names in the CCPF table are used to determine which Control-M job scheduling definitions include a corresponding ON PGMST statement. When a mask (a prefix followed by an asterisk) is specified for the event name in the CCPF table, the corresponding ON PGMST statement is inserted into all job scheduling definitions in which the job name matched the generic event name (that is, the mask). For more information on the CCPF table, see [CCPF \(Condition Code Program Filter\) Tables](#) (on page 20).

CCPF Step Name and Procstep Name are normally copied as they are to the Control-M ON PGMST ... PROCST statement.

- If an asterisk (*) is specified for the Step Name, a value of ANYSTEP is specified for the Control-M ON PGMST parameter.
- If an asterisk (*) is specified for the Procstep Name, blanks are inserted in the Control-M ON PROCST parameter.
- All other masks for the CA-JOBTRAC Step Name and Procstep Name parameters are not supported by the conversion tool.

CCPF Concode Operators and Values are converted as described in the following table:

Table 20 Conversion of CCPF Concode Operators and Values

CCPF Concode Operator/Value	Control-M CODES
EQ <i>nnnn</i>	<i>Cnnnn</i>
LT <i>nnnn</i>	< <i>Cnnnn</i>
LE <i>nnnn</i>	< <i>C(nnnn+1)</i>
GT <i>nnnn</i>	> <i>Cnnnn</i>
GE <i>nnnn</i>	> <i>C(nnnn-1)</i>

If the MAXCCOK parameter in the CTMPARM member of the IOA PARM library is greater than the CCPF Concode, then for operators LT and LE only, the above table is modified as follows:

Table 21 Conversion of CCPF Concode Operators and Values (*when the MAXCCOK parameter is greater than the CCPF Concode*)

CCPF Concode Operator/Value	Control-M CODES
LT <i>nnnn</i>	>C(<i>nnnn</i> -1) DO NOTOK
LE <i>nnnn</i>	>C <i>nnnn</i> DO NOTOK

All ON PGMST statements converted from the CCPF table specify DO OK to set the status of the relevant job step to OK.

Note: Numbers 27 through 29 are not currently in use.

27. EVnday(x)

The Jobtrac processing period *EVnday(x)* schedules a job every *n*th weekday (day) of the year, starting with the *x*th occurrence of the weekday. The conversion tool supports this process period for the following values: *n* < 7 and *x* < 5 and converts it as follows:

TASKTYPE=CYC

INTERVAL=*n**7 Days

WDAYS=D*day*W*x*

MONTHS=1

MAXWAIT=99

28. SCS Table

The CA-JOBTRAC SCS table is used to create a CONTROL-O ON EVENT rules table. For more information on the SCS table, see Table 13 on page 58.

The conversion of the SCS table is a fairly straightforward one-to-one correspondence as illustrated in Table 13 on page xx. However, the following must be noted:

- A time range of 0000 through 2359 is converted to blanks in both the TIME FROM and UNTIL parameters.
- Commands F T,cmdmbr which cause the commands in member cmdmbr to be executed are not supported.
- Command SCHD#nnn to schedule a message reply is not supported.
- Process Periods that are supported are SUNDAY-SATURDAY and DAILY

30. ADR Table

The CA-JOBTRAC ADR table is used to create a Control-O ON DSNEVENT rules table. For more information on ADR tables, see [ADR \(Automatic Data Set Recognition\) Tables](#) (on page 20).

The conversion of the ADR table is a fairly straightforward one-to-one correspondence, as illustrated in Table 11 on page 57. However, the following must be noted:

- A TOD threshold of 0000 through 2359 is converted to blanks in both the TIME FROM and UNTIL parameters.
- A Trigger Event name in the form *0sclname* causes the jobname in the DO FORCEJOB ... JOB parameter to remain blank and the *sclname* to be used in the TABLE subparameter. Otherwise the trigger event is copied as the jobname and the TABLE name is extracted from the CTMXRF XRF=JOB cross-reference report. This report lists every job (event) and all the tables in which it appears.
- If the Create Event parameter is left blank, then an '*' is placed in the ON DSNEVENT parameter.
- Non-blank Process Periods (in both Create and Trigger) are not supported by the conversion tool.
- Only the RUN action is supported.

31. AMR Table

The CA-JOBTRAC AMR table is used to create a Control-O ON MESSAGE or ON STRING rules table. For more information on the AMR table, see [AMR \(Automatic Message Recognition\) Tables](#) (on page 20).

The conversion of the AMR table is a fairly straightforward one-to-one correspondence as illustrated in Table 12 on page 57. However, the following must be noted:

- A TOD threshold of 0000 through 2359 is converted to blanks in both the TIME FROM and UNTIL parameters.
- Any message texts that contain just a message identifier are converted to ON MESSAGE rules. All others are converted to ON STRING rules.
- Any message texts containing a double slash (//) are converted to multiple ON STRING rules connected with an AND relationship.
- When Trg Act=RUN, a Trigger Event name in the form *0sclname* causes the jobname in the DO FORCEJOB ... JOB parameter to remain blank and the *sclname* to be used in the TABLE subparameter name. Otherwise the trigger event is copied as the jobname and the TABLE subparameter name is extracted from the CTMXRF XRF=JOB cross-reference report. This report lists every job (event) and all the tables in which it appears.
- Process Periods that are supported are SUNDAY–SATURDAY and DAILY
- Extended lines are not supported
- Trg Actions blank, EXIT, and PURG are not supported

32. REFERBACK IP=

Depending on the Event type (see [1. EVENT TYPE](#) (on page 44)), the CA-JOBTRAC REFERBACK IP parameter may specify an argument to pass to a REXX IMOD (event type E) or a path name/directory name and arguments for distributed job execution (event type C). Event type E is not supported.

For event type C, the conversion tool sets the Control-M TASKTYPE parameter to 'Command' and the Control-M CMDLINE parameter is set to the command string in the IP parameter. Any arguments specified in the IP parameter are converted to Control-M AutoEdit job submission variables %%PARMn (n=1-9).

When a CMDLINE parameter is created in the job definition XML, neither a MEMLIB nor a MEMNAME parameter are created.

33. REFERBACK NODE=

The CA-JOBTRAC REFERBACK NODE parameter identifies the specific distributed platform where the job runs. The conversion sets the Control-M NODEID parameter (host name of an agent computer) to the agent name.

34. REFERBACK ED=

The CA-JOBTRAC ED statement defines an environmental dependency to a REXX IMOD, batch file, script, command, or program for distributed job definitions. These variables are converted to Control-M AutoEdit variables of the form:

```
AUTOEDIT EXP=" %%environmental-dependency-name=environmental-dependency-argument"
```

Embedded blanks in the argument are converted using the AutoEdit %%BLANKn variable.

35. @WORKD and @WDnnn

The Jobtrac @WORKD global control record resets the workdays parameter for location 000 to include Saturday (SAT), Sunday (SUN), or Saturday and Sunday (SATSUN), or returns the workdays parameter to Monday through Friday (MTWTF).

The Jobtrac @WDnnn global control record overrides the location zero workday calculations. It is used to add Saturday or Sunday or both to locations other than zero. *nnn* is the location ID of the location affected.

The conversion supports the above global (SCL-wide) parameters by specifying calendar names MTWTF, SAT, SUN or SATSUN in the Control-M DCAL, WCAL and/or CONFCAL scheduling criteria parameters whenever a workdays calendar is required in any of these parameters. For jobs whose location is 000 (or blank), the current setting of the @WORKD parameter is used. If @WORKD has not been set, then a default value of MTWTF is used. For jobs whose location ID is *nnn* (other than 000), the current setting of @WDnnn parameter is used. If @WDnnn has not been set, then the current setting of @WORKD is used.

It is the user's responsibility to actually create IOA Calendars with the names MTWTF, SAT, SUN, and SATSUN.

Unique Control-M Parameters

Several unique Control-M job scheduling definition parameters can be set by the conversion tool during creation of the Control-M tables.

The DEFAULTS parameters member in the conversion Source library contains the default settings for these unique parameters, and must be reviewed and modified to specify your local Control-M preferences. For more information regarding these parameters, see [A Downloading and installing the Control-M conversion tools](#) (on page 64) and the *Control-M for z/OS User Guide*.

DO SYSOUT

This Control-M parameter specifies how the job output is handled.

At job completion, Control-M analyzes the job output. To enable Control-M to locate the job output on the system spool, Control-M modifies the JCL MSGCLASS parameter of the job, at time of submission, to the automatically held output class defined during installation, namely the Control-M HLDCLAS parameter. After analyzing the sysout, Control-M may be ordered to requeue the sysout. For more information on DO SYSOUT options, see the *Control-M for z/OS User Guide*.

The conversion tool can be instructed to specify various actions using the Control-M DO SYSOUT facility.

The TOCLS conversion parameter, which is described in "TOCLS" on page 90, specifies the output class to which Control-M requeues the job output.

The RELEASE conversion parameter controls whether Control-M releases the job output for printing on the system spool. The default is Y (Yes). For more information on RELEASE, see "RELEASE" on page 89.

If the JOBTRAC SCLs contain distributed job definitions (that is, for platforms such as UNIX, AIX, and so on), then the TOCLS parameter is set to blank by the conversion tool. If you nevertheless require the TOCLS SYSOUT requeuing feature for the mainframe jobs defined in the JOBTRAC SCLs, you should customize and install sample user exit CTMX001D provided in the IOA SAMPEXIT library, which provides the same functionality.

RESOURCE

A Control-M Quantitative resource that may be added to all job scheduling definitions. For example, resource INIT may be used for controlling initiators. For more information, see "INIT" on page 88.

Control-M/Restart facility

If the site has Control-M/Restart installed along with Control-M, the Control-M/Restart PREVENT-NCT2 parameter is set to Y and the following statements are inserted into the job scheduling definitions:

- ON PGMST ANYSTEP CODES EXERR
- DO IFRERUN FROM \$EXERR
- DO RERUN

A Downloading and installing the Control-M conversion tools

Note: Ensure that Control-M for z/OS is installed before proceeding with this installation.

1. Prepare your system.

Do one of the following actions:

- Download the Control-M Conversion tools from the EPD site at <https://webapps.bmc.com/signon/content/logon.jsp>.
- Copy the file from the product CD.

Transfer the image file to the mainframe as a binary file. For more information about the space requirements, see the Release Notes that accompany the Control-M Conversion tools. The DCB information for the image file is as follows:

```
RECFM = FB, LRECL=1024,BLKSIZE=6144
```

2. Uncompress the image file.

The image file is compressed using the IBM TRSMAIN program. If you do not have TRSMAIN on your mainframe, instructions for downloading and installing it can be found at the following URL:

<http://techsupport.services.ibm.com/390/trsmain.html>

Once the image file has been uploaded to your mainframe, make the necessary changes in the following UNTERSE job to uncompress the image file.

ppp,ss,dd represents the space requirements for the UNTERSE file. For more information, refer to the Release Notes that accompany the Control-M Conversion tools.

```
***** Top of Data *****
//UNTERSE JOB                <=== tailor job card to local standards
//*
//UNTERSES EXEC PGM=TRSMAIN, PARM=UNPACK
//SYSPRINT DD SYSOUT=*
//INFILE DD DISP=SHR, DSN=uploaded. image. file. from. step1 <===UPDATE
//OUTFILE DD DISP=(NEW, CATLG, DELETE),
// UNIT=di sk_ uni t, VOL=SER=di sk_ vol ser, <===UPDATE
// DSN=basepref. CONVLIB, <===UPDATE
// SPACE=(CYL, (ppp, ss, dd)) <===UPDATE
***** Bottom of Data *****
```

In the preceding UNTERSE job, *basepref* represents your choice of prefix for the base libraries, which are described in the Installation and Customization Engine (ICE) chapter in the *INCONTROL for z/OS Installation Guide*. This parameter must be specified again later in the installation process.

Submit the above job and review the output of the job. Ensure that the return code is 0.

3. Install the Conversion tools.

To install the Conversion tools, do the following:

- Select Customization from the ICE main menu.
- Specify product CTM.
- Select step 8 (Conversion installation).
- Select minor step 1 (Conversion installation).
- Submit the job.

This job consists of 5 steps:

a. ADDDEF

This step adds SMP/E DDDEFs for the conversion target and distribution libraries.

b. ALLOCT

This step allocates the conversion libraries.

- The target conversion library name is *ilprefa.CONV*.
- The distribution conversion library name is *spdpref.ACONV*.

c. RCVAPLC

This step performs the RECEIVE and APPLY CHECK operations for the conversion FMID and PTFs. The FMID and PTFs are located in the CONVINST member in the *basepref.CONVLIB* library.

d. APLACC

This step performs the APPLY and ACCEPT CHECK operations for the conversion FMID and PTFs.

e. ACCEPT

This step performs the ACCEPT operation for the conversion FMID and PTFs.

4. Find any relevant updates.

Look for Solution SLN000000197255 (List of APARs required for conversion to Control-M) in the Knowledge Base on the BMC Customer Support Site for the latest fixes and instructions.

B Conversion Parameters

The Control-M conversion parameters are defined in the DEFAULTS member in the conversion source library. These conversion parameters must be modified to fit your local site requirements. The parameters are described below.

Table 22 Control-M Conversion Parameters

Parameter	Description
DEFTYPE	<p>Support distributed job definitions in the CA-JOBTRAC conversion tool.</p> <p>Valid values are:</p> <ul style="list-style-type: none"> ▪ MF – all CA-JOBTRAC job definitions are for the MVS, z/OS platform (default) ▪ NONMF – some CA-JOBTRAC job definitions are for distributed platforms. Those jobs are identified as having an Event type of C. The job's path name/directory name, node, and environmental parameters are specified on the JOBTRAC REFERBACK parameters IP, NODE and ED. See 1 Conceptual Overview (on page 12) for further details about these parameters.
	<p>Note: When DEFTYPE is set to NONMF, the TOCLS parameter will automatically be set to blank. For the implications of this, see Unique Control-M Parameters (on page 62).</p>

Parameter	Description
DEST	<p>Destination for all SHOUT messages</p> <p>Valid values are:</p> <ul style="list-style-type: none"> ▪ OPER – Issue the SHOUT message to the console. Default ▪ OPER2 – Same as OPER but as highlighted and unrollable ▪ TSO-uid – Issue the SHOUT message to a specific TSO userid, where <i>uid</i> is a specific user ID (up to 7 characters) <p>For additional options, see the SHOUT parameter description in the <i>Control-M for z/OS User Guide</i>.</p>
DIRMAX	<p>Maximum number of members in a CA-JOBTRAC SCL or JCL library.</p> <p>Default: 5000</p>
DOCLIB	<p>Data set name of the Control-M Documentation library. Either the CA-JOBTRAC documentation library or a copy of it may be specified.</p> <p>Default: CTM.JBT.DOCLIB</p>
FRMCLS	<p>Which of the held sysout clauses must be requeued. Specify ' ' (Blank) if all held sysouts are required. Default: Blank.</p> <p>When TOCLS is ' ', this parameter is ignored.</p>
INCLIB	<p>Name of the Control-M library into which the following are placed</p> <ul style="list-style-type: none"> ▪ CA-JOBTRAC ADI records as PDS members. For more information, see 22. ADI DATE VARIABLES (on page 57). ▪ the DYNAMIC member of the conversion source library ▪ the JMFSYM01 member referred to by the DAJMF DD statement in JOB2 <p>Default: CTM.Vxxx.INCLIB (where <i>xxx</i> refers to the version number)</p>
JCLLIB	<p>Name of the CA-JOBTRAC library from which alternate JCL members are copied, using AutoEdit %%INCLIB statements. These members are specified using the CA-JOBTRAC REFERBACK A parameter. For more information, see</p> <p>Default: CTM.JBT.JCLLIB</p>
INIT	<p>INIT is the name of a Quantitative resource with a quantity of 1 that is placed into each Control-M job scheduling definition.</p> <p>When this parameter is set to ' ' (Blank), no Quantitative resource is placed into the job scheduling definition.</p> <p>Default: INIT</p>

Parameter	Description
LINMAX	Maximum number of lines in a CA-JOBTRAC SCL or JCL or JMF member. Default: 5000
MAXRRUN	Maximum number of reruns to be performed for non-cyclic jobs when rerun is required. Default: 001
OVERLIB	Name of the Control-M JCL override library (the OVERLIB parameter) to be specified for each job scheduling definition, except for DUMMY jobs. Default: CTM.JBT.OVERLIB
	Note: For distributed jobs, the Control-M OVERLIB parameter is set to %%BLANK.

Parameter	Description
OWNER	<p>The source for the Control-M OWNER job scheduling parameter. The OWNER parameter is useful for implementing security checking by various Control-M components. The following may be specified:</p> <ul style="list-style-type: none"> ▪ JOBNAME – First <i>n</i> characters (see the OWNLEN parameter, which follows in this table) of the CA-JOBTRAC EVENTNAME parameter. ▪ BUSGRP – First <i>n</i> characters of the CA-JOBTRAC @BUSGRP/@SCHDID control statement. The OWNLEN conversion parameter (which follows) provides the value of <i>n</i>. ▪ MEMBER – First <i>n</i> characters of the CA-JOBTRAC SCL member name. The OWNLEN conversion parameter (which follows) provides the value of <i>n</i>. ▪ =xxxxxxx – A constant OWNER parameter of xxxxxxxx (from 1 through 8 characters) for every Control-M job scheduling definition. <p>Default: BUSGRP</p>
OWNLEN	<p>When the OWNER conversion parameter is specified as JOBNAME, MEMBER, and BUSGRP, this value specifies the number of characters of the specified parameter to use for the Control-M OWNER parameter. Default: 8</p>
RELEASE	<p>Specifies whether the job sysouts are released for printing after they are analyzed by Control-M</p> <p>Valid values are:</p> <ul style="list-style-type: none"> ▪ Y (Yes) – Release sysouts for print. Default. ▪ N (No) – Do not release sysouts.
SCHLIB	<p>Control-M table library name. The table library name must be the same as the name specified in DD statement DASCHD for JOB1.</p> <p>Default: CTM.Vxxx.SCHEDULE (where xxx refers to the version number)</p>
SHOUTN	<p>Job failed SHOUT message.</p> <p>Valid values are:</p> <ul style="list-style-type: none"> ▪ Specify a text for the SHOUT WHEN NOTOK message that is sent when a job fails. ▪ Specify ' ' (Blank) to suppress the message. <p>Default: %%JOBNAME J%%JOBID ENDED NOTOK!</p>

Parameter	Description
TOCLS	<p>New output class to which Control-M is to requeue the JCL MSGCLASS sysouts of the job</p> <p>Valid values are:</p> <ul style="list-style-type: none"> ▪ Any valid output class ▪ ' ' (Blank) – reroute is not required ▪ * – the MSGCLASS sysouts of the job are to be requeued to the original MSGCLASS of the job after they are analyzed by Control-M. Default.
UDEF	<p>Date format of the UDEF Process Period parameters. Valid values are:</p> <ul style="list-style-type: none"> ▪ U – <i>mmd</i> (USA). Default ▪ W – <i>ddmm</i> (International) ▪ C – All UDEF process periods are converted to calendar names (and not to DATES parameters). You are responsible for creation of the necessary calendars in the IOA CALENDAR library.

C Messages

This list contains messages produced by the components of the conversion tool, except those issued by the CTMBLT utility. Messages issued by the CTMBLT utility are described in the *INCONTROL for z/OS Messages Manual*.

A message code usually consists of the following parts:

CTMJTxxx-nnS

where CTMJT indicates that the message pertains to the Control-M JOBTRAC conversion tool, and where

Item	Explanation
xxx	3-character identifier of the program that produced the message.
nn	2-character numeric identifier for the message
S	1-character alphabetic identifier for the severity of the message <ul style="list-style-type: none"> ▪ A – Action ▪ E – Error ▪ I – Information ▪ S – Severe ▪ W – Warning.

Message descriptions contain any or all of the following:

Explanation: Description of the cause of the message, and other related information

System action: System action when this message is issued

User response: Recommended actions to correct the problem

BLTnnn *ctmbt-message*

Explanation: An error occurred in the CTMBLT utility. The CTMBLT utility is invoked during JOB1 of the conversion, to build job scheduling tables. For details of this utility, see the *INCONTROL for z/OS Utilities Guide*.

BLTnnn messages are generated by the CTMBLT utility, not by the conversion programs. nnn represents any message code issued by the utility. All BLT messages are individually documented and explained in the *INCONTROL for z/OS Messages Manual*.

System action: The utility continues processing normally and terminates with a condition code of 8.

User response: : Check the *INCONTROL for z/OS Messages Manual* for the meaning of the specific message, and perform the corrective action indicated. Then rerun the job, if necessary.

Message series 1:

CTM89BE PLEASE SPECIFY MEMNAME

BLT893I CURRENT TABLE *table-name* LIBRARY *schedule-lib-name* indicate that a Jobtrac SCL member contains @BUSGRP/@SCHDID statements which will be used as the Control-M table name and that an empty Control-M table will be created under the SCL member name during the conversion process. This situation is not an error and may be ignored.

CTM89BE/BLT893I can also be ignored in the case that an SCL member (named in the BLT893I message) is empty or contains only comment statements.

Message series 2:

BLT893I CURRENT TABLE *table-name* LIBRARY *schedule-library*

CTM391S INVALID COMBINATION OF PARAMETERS ENCOUNTERED

BLT895I JOB=CTMJOBPR, KEYWORD=TASKTYPE

The above series of messages indicates that a Jobtrac schedule type event was converted to the Control-M Started task CTMJOBPR. To correct this error, blank out the value specified for the OVERLIB parameter in the *table-name* Control-M table and in the CTMJOBPR job.

CTMJT001-10E scl *mem* SCL REFERBACK *sucl/pred* UNSUPPORTD

Explanation: Predecessor and Successor schedule types (event names starting with 0) are not supported. If a schedule of this type is detected, the above message is issued and the schedules must be manually converted as outlined in [10. RELEASEn \(SUCCESSOR and/or PREDECESSOR\)](#) (on page 49).

User response: Manually convert the above entries.

CTMJT002-02W DOUBLE @-SIGN ENTRIES NOT SUPPORTED

Explanation: The EXCLPARM member in the CA-JOBTRAC TRACPARM library contains entries specifying exclusionary rules with double @-sign event prefixes. The conversion tool does not support these entries.

User response: Manually convert the above entries.

CTMJT003-01E RESOURCE TABLE EXCEEDED

Explanation: The RESOURCE member in the CA-JOBTRAC TRACPARM library contains more than 250 entries.

User response: Increase the MAXRES entry in the CTMJT003 program; rerun the ASMLINK and JOB1 jobs.

CTMJT003-00I *mem*, MEMBER PROCESSING STARTED

Explanation: During the conversion process, at least one CA-JOBTRAC feature could not be converted.

This informational message serves as the header message for any error messages that follow, which detail problems encountered during conversion of a CA-JOBTRAC feature.

CTMJT003-*nnE txt* NOT SUPPORTED [X]

Explanation: The conversion tool does not support the CA-JOBTRAC feature number *nn*, where *nn* is a 2-digit numeral, described in *txt*.

If X is included in the message, the process period specified in the text could not be converted due to a logical EXCEPT (X) relationship in the prior job record.

System action: The event containing the unsupported option is not fully converted.

User response: You must manually complete the job conversion.

CTMJT004-01E *resrce_stmt* UNSUPPORTED RESOURCE COND

Explanation: The *resrce_stmt* resource definition in the RESOURCE member of the CA-JOBTRAC TRACPARM library is not supported.

User response: Manually convert the *resrce_stmt* resource definition.

System action: The program continues processing.

CTMJT006-01E CCPF *type ename* NOT SUPPORTED

Explanation: The *ename* entry of the specified *type* (PROGRAM, STEPNAME, or PROCNAME) in the CA-JOBTRAC CCPF table could not be converted.

The *ename* entry is in a format that is not handled by the conversion tool. One of the following is true:

- A program name other than * was specified.
- A prefix and mask were specified for the step name.
- A prefix and mask were specified for the procstep name.

System action: The specified CCPF entry is not converted. The conversion program continues normally.

User response: Correct and convert the specified CCPF entry manually.

CTMJT006-02W SET GLOBAL COND-CODE USING MAXCCOK

Explanation: The CCPF table entry specified an event name of *.

Specifying an asterisk as the event name in a CCPF table indicates that a global default condition code check must be implemented for all jobs.

This option is more efficiently performed by implementation of the MAXCCOK parameter. For more information on the MAXCCOK parameter, see the CTMPARM member in the IOA PARM library.

System action: The conversion tool ignores the global entry and continues normal operation.

User response: The Control-M default is that all condition codes less than or equal to 4 are considered OK. You can optionally change this default so that Control-M considers only steps ending with a condition code of 0 as OK, by setting the MAXCCOK parameter in the CTMPARM member in the IOA PARM library to 0.

CTMJT008-01E %% *varname* VARIABLE VALUE OVERFLOW

Explanation: An attempt to convert the *varname* CA-JOBTRAC variable to Control-M format failed because the converted variable value contained too many characters. This may happen when CA-JOBTRAC variables contain embedded blanks that the conversion tool replaces with %%BLANK*nr*%, which usually expands the length of the variable value.

System action: The variable value is incompletely converted.

User response: Manually convert the CA-JOBTRAC variable to Control-M format.

CTMJT008-02E *jmf_stmt* NOT SUPPORTED

Explanation: A JMF statement in the JMFSYM01 member (or an alternate member) of the CA-JOBTRAC DATELIB library is not supported.

User response: Manually convert the JMF statement.

System action: The program continues processing.

CTMJT009-01I MODIFICATIONS WERE DONE TO MEMBER *memname* DSNAME *lib*

Explanation: An informational message indicating that the conversion tool modified the *memname* JCL member in the *lib* JCL library.

CTMJT010-05/06E *txt*, MEMBER=*memname*

Explanation: During conversion processing, a line in the *memname* JCL member could not be converted. *txt* is the JCL line in question.

Some common problems encountered are

- I/D=SCHD AJO feature not supported
- ADI original schedule date (OSD) feature not supported

System action: The indicated JCL line is not converted, but conversion processing continues.

User response: If necessary, manually convert the indicated JCL line.

CTMJT010-02E JCL LIBRARY IS EMPTY

Explanation: A JCL library specified in the JBTJCL DD statement has no members.

System action: Program terminates.

CTMJT010-08W UTILITY GJTRVSCH ENCOUNTERED - CONVERT TO CTMJOB, MEMBER=*memname*

Explanation: During the conversion processing, the CA-JOBTRAC GJTRVSCH procedure was encountered in a JCL EXEC statement in the *memname* member.

System action: The JCL EXEC statement is not converted, but conversion processing continues.

User response: Manually convert the GJTRVSCH procedure to the Control-M CTMJOB utility, which performs an equivalent function.

It is your responsibility to ensure that the CA-JOBTRAC SCL pointed to by the SYSIN statement, or directly contained in the JCL job stream, is converted to a Control-M table or ORDER statement.

For more information about the CTMJOB utility, see the *INCONTROL for z/OS Utilities Guide*.

CTMJT010-03I END CONVERSION OF JCL LIBRARY

Explanation: The JCL library conversion has ended.

User response: None.

CTMJT011-01E INCLIB RECORD CANNOT BE CREATED DUE TO DATE CODES, CNTRLNAM=*mem*

Explanation: In converting an ADI statement in the PRODDATE member of the CA-JOBTRAC DATELIB library, the conversion tool encountered date codes (\code) that would cause the line to overflow beyond column 80 after conversion.

System action: Processing continues.

User response: Examine the JCL line in question and manually ensure that no data is lost or truncated.

CTMJT012-01E ADR *xxx yyy* NOT SUPPORTED DSN=*zzz*

Explanation: A Jobtrac ADR (Automatic Dataset Recognition) feature is not supported by the conversion tool.

xxx can be one of the following:

- PROCESSP - the processing period specified in the CREATE or TRIGGER PROCESS PE is not supported or the CREATE and TRIGGER processing periods do not match. In this case, *yyy* is the value of the PROCESSP causing the error.

- ACT - the action code is not supported. Currently the only supported actions are RUN and DCNT. In this case, *yyy* is the value of the ACT causing the error.

zzz - the dataset name of the Jobtrac triggering rule

User response: If necessary, manually modify or create the CTO rule.

CTMJT013-01E AMR *xxx yyy* NOT SUPPORTED MSG=*zzz*

Explanation: A Jobtrac AMR (Automatic Message Recognition) feature is not supported by the conversion tool.

xxx can be one of the following:

- PROCESSP - the processing period specified in the PROCESS PE is not supported.
- ACT - the action code is not supported. Currently the only supported actions are RUN, ALTR, RPLY, SUPP and CMD.
- XCMD, XMSG, XALT - extended commands, messages and altered text lines are not supported.
- DOCMD - an ACT=CMD text line was too long.
- ALTOFFSET - non-zero altered text offset is not supported.

yyy - the value causing the error

zzz - the dataset name of the Jobtrac triggering rule

User response: If necessary, manually modify or create the CTO rule.

CTMJT014-01E SCS *xxx yyy* NOT SUPPORTED CMD=*zzz*

Explanation: A Jobtrac SCS (System Command Scheduling) feature is not supported by the conversion tool.

xxx can be one of the following:

- PROCESSP - the processing period specified in the PROCESS PE is not supported.
- DOCMD - an ACT=CMD text line was too long.

yyy - the value causing the error

zzz - the dataset name of the Jobtrac triggering rule

User response: If necessary, manually modify or create the CTO rule.

CTMJT099-02E *func* FAILED FOR *area* [MEMBER=*memname* DDNAME=*ddname*]

Explanation: An MVS memory acquisition (GETMAIN) or free (FREEMAIN) function failed for the specified *area*. This usually (but not always) occurs because the JCL REGION parameter specification is not large enough.

User response: Increase the value of the REGION parameter for the failing step, and rerun the job.

CTMJTGAP-01E INTERNAL ERROR (*rsn*) IN PROCESSING, MEMBER=*member_name*

Explanation: Unsupported JCL syntax. An internal error with reason code (*rsn*) occurred while parsing the JCL containing the GJTRABTR utility in the *member_name* member. The reason code (*rsn*) is intended for internal use only by BMC Customer Support.

System action: Problematic member is skipped. The program continues processing.

User response: Send the problematic member to BMC Customer Support for analysis.

CTMJTGAP-02E "DEP" PARAMETER VALUE IS NOT SUPPORTED, MEMBER=*member_name*

Explanation: While converting the JCL containing the GJTRABTR utility in the *member_name* member, an unsupported value was used for the DEP parameter (only -Q is supported) in the MOD/POST command.

System action: Problematic member is skipped. The program continues processing.

User response: Manually convert the *member_name* member.

CTMJTGAP-03E A MANDATORY JOB PARAMETER IS MISSING, MEMBER=*member_name*

Explanation: A mandatory JOB parameter was missing, while converting the JCL containing GJTRABTR utility in the *member_name* member.

System action: Problematic member is skipped. The program continues processing.

User response: Manually convert the *member_name* member.

CTMJTGAP-04E A VALUE USED FOR JOB NAME IS NOT SUPPORTED, MEMBER=*member_name*

Explanation: While converting the JCL containing the GJTRABTR utility in the *member_name* member, an unsupported special symbol was detected in the job name.

System action: Problematic member is skipped. The program continues processing.

User response: Check input syntax of the *member_name* member.

CTMJTGAP-05E MISSING PARAMETERS FOR JOBTRAC, MEMBER=*member_name*

Explanation: While converting the JCL containing the GJTRABTR utility in the *member_name* member, an unsupported function was detected. Only ADD, MOD, POST, PURGE are supported.

System action: Problematic member is skipped. The program continues processing.

User response: Manually convert the *member_name* member.

CTMJTGAP-06E A SYSIN CARD STATEMENT IS NOT SUPPORTED, MEMBER=*member_name*

Explanation: While converting the JCL containing the GJTRABTR utility in the *member_name* member, an unsupported SYSIN DD card was detected. The conversion only supports SYSIN statements from the input stream.

System action: Problematic member is skipped. The program continues processing.

User response: Manually convert the *member_name* member.

CTMJTGAP-07WDEP(-M) IS NOT SUPPORTED AND IS IGNORED, MEMBER=*member_name*

Explanation: The conversion process ignores the unsupported DEP(-M) parameter, while converting the JCL containing GJTRABTR utility in the *member_name* member.

System action: The program continues processing.

User response: Check the input syntax of the *member_name* member.

CTMJTGAP-08WPURGE WITH VERSION, PLEASE VERIFY, MEMBER=*member_name*

Explanation: Conversion process found PURGE with an unsupported version parameter, while converting the JCL containing the GJTRABTR utility in the *member_name* member.

System action: The program continues processing.

User response: Check the input syntax of the *member_name* member.

CTMJTGAP-09E JTRVSCH PARM1 MISSING, MEMBER=*member_name*

Explanation: The PARM1 parameter is missing when using the JTRVSCH procedure, while converting the JCL in the *member_name* member.

System action: Problematic member is skipped. The program continues processing.

User response: Manually convert the *member_name* member.

CTMJTGAP-10E GJTRVSCH IS NOT SUPPORTED, MEMBER=*member_name*

Explanation: An unsupported GJTRVSCH program was found, while converting the JCL in the *member_name* member.

System action: Problematic member is skipped. The program continues processing.

User response: Manually convert the *member_name* member.

D The CTMUTIL utility

This appendix details the CTMUTIL utility program, which is available with the conversion tool. This utility is independent of the conversion tool, and is not required for a successful conversion to Control-M. However, the utility may be very useful either during or after the conversion process.

The CTMUTIL utility is used to invoke the IOAAPI IOA utility, and the CTMAPI and CTMRELSR Control-M utilities. For a detailed description of these utilities, see the *INCONTROL for z/OS Utilities Guide*, the *INCONTROL for z/OS Administrator Guide*, and the *Control-M for z/OS User Guide*.

In JOB2, the CTMUTIL utility replaces the JOBTRAC GJTRABTR and GJTRVSCH steps in the converted JOBTRAC JCL libraries. It provides the equivalent functionality.

- The CTMUTIL utility invokes the IOACND utility to do the following:
 - to add conditions to the IOA Conditions file, using the command `COND ADD conditionName ODAT`

This replaces the JOBTRAC DEP(-Q) sub parameter of the ADD command.

- The CTMUTIL utility invokes the CTMAPI utility to do the following:
 - To treat jobs as DUMMY (by bypassing JCL processing) jobs using the command `AJF BYPJCL MEM=xxx`

This replaces the JOBTRAC PURGE commands.

- The CTMUTIL utility invokes the CTMBLT utility to do the following:
 - To order jobs into the Control-M Active Jobs file, using the command `ORDER DSN=schedule-lib MEM=jobname` to replace the JOBTRAC GJTRVSCH utility.

CTMBLT is also invoked to perform on-the-fly job ordering for ADD commands in the GJTRABTR utility. In such cases, the following CTMBLT control statement stream is inserted into the JCL:

```
MEM- OVERWRITE=FORCE
MEMLIB=&XEVTLIB (see the DEFAULTS conversion source member)
TABLE=j obname
MEMNAME=j obname
APPL=location-id (if LOC is specified in the ADD command)
GROUP=location-id (if LOC is specified in the ADD command)
IN=MANUAL_DEP_jobname (if DEP(M) is specified in the ADD command)
```

CTMUTIL also provides the parallel functionality of the ADD and RUN commands specified in the ADR (Automatic Dataset Recognition) and AMR (Automatic Message Recognition) reports using the command:

```
CREATE parm-1 parm-2 parm-3
```

The CREATE Command causes the CTMBLT utility to be invoked and to perform an on-the-fly job order. The following parameters are passed:

- parm-1=MEMLIB
- parm-2=MEMNAME
- parm-3=Y/N

When parm-3=Y an IN-COND 'MANUAL-DEP_parm-2 ODAT' is added to the CTMBLT control statements.

You must set up a JCL procedure with the procedure name CTMUTIL for invoking the CTMUTIL utility program. The procedure must include the following DD statements:

- STEPLIB (IOA LOAD library)
- DAPARM (IOA PARM library)
- SYSPRINT
- DAPRINT
- DAAPIOUT
- PRTDBG (dummy)
- DALOG
- DACKPT
- DACNDF
- DACAL
- DASCHD (a Control-M Scheduling library used by CTMBLT)
- SYSIN (optional)

The files to which these DD statements refer can be determined directly from the existing Control-M IOAAPI, CTMAPI, and CTMBLT procedures, which can be found in the IOA PROCLIB library and the CTM JCL library.

SYSIN is the file containing the ADD COND, ORDER, AJF and CREATE commands. It can be coded as DDNAME=SYSIN, or it can be omitted from the procedure.

Table 23 GJTRABTR and GJTRVSCH Conversion - Summary

JobTrac element	converted to:
GJTRABTR/SRVBATCH ADD	MEM-OVERWRITE=FORCE LIBRARY=GENERAL TABLE= <i>event-name</i> MEMNAME= <i>event-name</i> APPL= <i>loc-id</i> (if specified) GROUP= <i>busgrp</i> (if specified) END
GJTRABTR/SRVBATCH MOD/POST DEP(-Q)	COND ADD Q-DEPENDENCY- <i>jobname</i> ODAT
GJTRABTR/SRVBATCH PURGE	AJF BYPASSJCL MEM= <i>jobname</i>

E Planning the Conversion

To assist the smooth running of the conversion process, BMC Software recommends that you carry out a number of steps before starting the conversion itself. These steps are set out in this appendix.

This appendix outlines the key Business Integrated Scheduling (BIS) functions and environmental metrics required to determine the initial level of effort associated with the migration of business processing to Control-M.

1: Organize the Conversion Team

1. Identify those who will be involved in the conversion process. They should participate in planning the conversion and implementing the steps in this appendix before beginning the conversion.

Include in this list those who support the current environment and who require training or retraining and/or mentoring, such as operators, production control administrators, product administrators, production analysts, application support and programming personnel, security administrators, data storage (SMS) administrators, and so on.

2. Ensure that the conversion team has sufficient knowledge of
 - the features and operation of
 - CA-JOBTRAC
 - Control-M
 - the conversion utilities
 - your existing scheduling information and its operation procedures
 - your site rules on data set organization, naming conventions, and so on
 - your expectations from the conversion project
3. Identify the exact release or version number of CA-JOBTRAC that you are currently using.
4. Identify the operating system and platforms to be supported by Control-M in the target environment. In relation to each platform, identify the release level, number of systems, and physical location.

2: Analyze Your Hardware and Software

Consider the configuration of the system currently in use at your site, and whether you are making the best use of your hardware resources.

Obtain sufficient information to respond to the issues raised in this section. Record the answers carefully, because they will be of importance during and after the conversion to Control-M.

- What resources, such as tape drives, initiators, and so on, do you use at your site?
- What MVS images, that is, CPUs, LPARs, and/or Sysplexes, will be available to Control-M when running production jobs?
- How are your MVS images connected? Is the connection by
 - coupling facility
 - shared spool
 - NJE
 - some other method

Are the systems managed separately or collectively? Is there job flow between systems?

- Do you currently have multi-system dependencies, either on the same platform type, or using different platforms? If so,
 - how many?
 - how are they managed?
- If your site Storage Facility Manager (SMS) limits the amount of space that a job can allocate to any given file, then depending on the number of schedules/jobs that must be converted (see [5: Generic discovery questionnaire](#) (on page 86)), your Storage Administrator might be required to lift the restrictions on space allocations required by the conversion to avoid Sx37-type space abends.

3: Consider Current Practices

Consider the current practices at your site. The relevant issues include at least the questions set out in this section. Do not hesitate to ask others for information they may be able to provide. Take all software and hardware platforms into account when answering. Record the answers carefully, because they will be of importance during and after the conversion to Control-M.

1. How is production scheduling currently handled on your computers?
2. Who currently uses your system?
 - Is there a single production department or are there several?
 - Who are the end users of the system?
3. Consider the typical application flows at your site. The following are useful questions to ask:
 - Which are the three key applications, in terms of size, complexity, or value to your business?
 - How are those applications scheduled?
 - How are their internal dependencies managed?
 - Are there currently any performance bottlenecks or constraints in scheduling implementation?
4. List any products you use to support production scheduling, such as console automation, job restart products, and so on.
 - What function does each such product perform?
 - Will Control-M replace that function?

If you think that Control-M will not make some product redundant, obtain as much information as possible about that product, to enable you to decide how the product will interface with Control-M.

5. List all your applications, interfaces, user or system exits, reports, and similar material, that

- operators, system programmers, and other third parties have customized, and
- form part of the implementation of your current production scheduling

Include interfaces used to submit jobs from an internal front-end process, as well as any interface used to issue commands and/or perform tasks using batch utility programs.

Consider whether you can use Control-M to implement these functions and/or features.

6. Do you manually schedule any jobs or their logical successors on demand, instead of allowing the system to schedule jobs? If you do,

- list each job and record the way you deal with it
- consider whether Control-M can be used to schedule these jobs automatically

7. Do your jobs run automatically, on rigid scheduling, or do you frequently modify job schedules and/or dependencies to meet needs as they arise?

8. Consider your job concurrency requirements, and the way you meet those requirements. Examples of questions to ask are the following:

- Do you use job triggering, so that the completion of one job causes another job to be submitted or ordered?
- Do you use job dependencies, meaning that one job (the "waiting job") does not start until another has finished, even though the waiting job is submitted or ordered in some other way?
- Do you use negative job dependencies, meaning that if a job fails, another job starts?

9. How do you manage such resources as tape drives, initiators, and so on?

10. Consider the following questions about the jobs your systems currently perform:

- How many jobs do you currently have defined?
- How many jobs are run on a daily, weekly, or monthly basis?
- How many jobs run on peak days, for example, end of year processing?
- How many jobs run "on request", that is, demand jobs (see Question 6)?
- Are your existing job definitions satisfactory in every respect?
- Do you use all your existing job definitions, or are many now obsolete?
- How many jobs use JCL automation features? Identify the type of automation used.
- How many jobs are scheduled using data set triggering?
- How many jobs require manual intervention prior to submission?

11. How many jobs use JCL automation features? Identify the type of automation used.

12. How many jobs are scheduled using data set triggering?

13. How many jobs require manual intervention prior to submission?

Table 24 lists additional metrics to be considered for current practices.

Table 24 CA-JobTrac discovery questionnaire

Metric	Response / Notes
Identify the number of CA-JobTrac environments that require conversion to BMC Control-M.	For each: <ul style="list-style-type: none"> ▪ List the version of CA-JobTrac ▪ Identify the environment that it supports in the organization (IE- Mainframe LPARS SYSA, PROD, TEST, and so on)
Identify any ancillary tools used in conjunction with CA-JobTrac.	This includes: <ul style="list-style-type: none"> ▪ CA-RunTrac / CA-11. ▪ CA-DRIVER. ▪ Connectivity through CA-UNICENTER (UWCC) ▪ CA-JobTrac Distributed Systems Agents, and so on.
For each CA-JobTrac environment list the number of defined Events / Procedures / Jobs. This information can be obtained through the SCL library.	Where relevant identify the number of mainframe and distributed systems job schedules.
For each CA-JobTrac environment list the number of defined schedules. This information can be obtained through the SCL library.	Where relevant identify the number of mainframe and distributed systems job schedules.
List the approximate number of jobs submitted each day by each CA-JobTrac environment.	Where relevant identify the number of mainframe and distributed systems job schedules.
List the type and number of external events tracked by CA-JobTrac that triggers or otherwise serves as a prerequisite 'event' for the managed workload.	This includes but is not limited to: <ul style="list-style-type: none"> ▪ Dataset / File Activity (ADR) ▪ System / Application Messages (AMR) ▪ End User Submitted Jobs ▪ JCL / Script resident utility programs. ▪ Application code resident API calls.
Identify, if any the use of CA-JobTrac utility steps that are imbedded in Production or User Submitted JCL or that are called from locally developed applications.	

Metric	Response / Notes
Identify any integration points between CA-JobTrac and other applications. For each integration requirement identify the name and version of the external item.	This includes but is not limited to: <ul style="list-style-type: none"> ▪ Packaged business applications. <ul style="list-style-type: none"> — ERP / CRM — Reporting o Change / Problem Management — Security ▪ Locally developed application(s)
List the number of jobs that utilize CA-JOBTRAC JCL Facilities:	<ul style="list-style-type: none"> ▪ Automatic JCL Override (AJO) ▪ Automatic Date Insertion (ADI) ▪ JCL Management Facility (JMF)
Identify any customization that has been locally applied to CA-JobTrac that alter and/or extend their capabilities.	This includes EXIT code modifications, site specific vendor supplied code 'zaps', locally developed automation processes.
Identify the number of Administrators / Operators / Schedulers and Business Owners that will use BMC Control-M and require formal product education.	<ul style="list-style-type: none"> ▪ Administrators: ▪ Schedulers / Operators: ▪ Business / Application Owners:

4: Read the Conversion Guide

Read through this conversion guide. While doing so, consider the following points.

1. Identify any "special" situations. These can arise where
 - the conversion will not be performed automatically
 - your existing system is otherwise incompatible with Control-M, for example, where calendar generation may serve as a substitute for some scheduling parameters

Are the proposed solutions acceptable in all cases? If not, identify alternative solutions, such as the use of the supplied user exits.
2. Is there any aspect of the way you use JOBTRAC that may not be reflected in the reports and parameter files used by the conversion program?
3. Prepare the names to be used for libraries, table names, job names, conditions, resources, and so on, in the output of the conversion, in order to reflect the way you want the Control-M environment to appear to users.
4. Consider whether at this stage you are converting the entire production environment, or just one application? If you are only converting one application, determine

- how typical it is of the work done at your site
- what are the principal differences between this application and other applications

Consider whether you can yet identify any other pitfalls ahead, and if so, how to avoid the problems they appear to present.

5: Generic discovery questionnaire

Use the questionnaire in Table 25 to aid in the collection of information.

Table 25 **Generic discovery questionnaire**

Metric	Responses / Notes
Identify the current scheduling tool(s) and processes that require conversion to BMC Control-M.	For each: <ul style="list-style-type: none"> ▪ List the name of the tool. ▪ List the version of the tool. ▪ Identify the environment that it supports in your organization (IE- 'x' UNIX servers / 'x' Mainframe LPARS...)
Identify any ancillary tools used in conjunction with the scheduling tool.	This includes RERUN / RESTART components, Platform or Application Agents/Adaptors and Graphic User Interface (GUI) components.
List the number of job / tasks defined for each tool that requires conversion.	
List the approximate number of jobs submitted each day by each instance of the scheduling tool.	
Identify if any script / JCL variables are used with the current scheduling tool.	If so - identify the approximate number of jobs that make use of the job scheduler specific variables.
List the type and number of external events tracked by the scheduling tool that triggers or otherwise effects managed workload.	This includes but is not limited to: <ul style="list-style-type: none"> ▪ Dataset / File Activity ▪ System / Application Messages ▪ End User Submitted Jobs ▪ JCL / Script resident utility programs ▪ Application code resident API calls

Metric	Responses / Notes
<p>Identify any external integration points between the current scheduling tool and other applications. For each integration requirement identify the name and version of the external item.</p>	<p>This includes but is not limited to:</p> <ul style="list-style-type: none"> ▪ Packaged business applications ▪ ERP / CRM ▪ Reporting ▪ Change / Problem Management ▪ Security ▪ Locally developed application
<p>Identify any customization that has been locally applied to the current tools that alter and/or extend their capabilities.</p>	<p>This includes EXIT code modifications, site specific vendor supplied code 'zaps', locally developed automation processes.</p>
<p>Identify the number of Administrators / Operators / Schedulers and Business Owners that will use BMC Control-M and require formal product education.</p>	<ul style="list-style-type: none"> ▪ Administrators: ▪ Schedulers / Operators: ▪ Business / Application Owners:

F Problem Reporting

Please supply all the information requested below when reporting a problem related to the conversion tool.

- the version number of Control-M (for example, 8.0.00) and the MVS operating system, such as z/OS 1.12
- the release number of JOBTRAC (for example, 3.2) from which you are converting
- the latest PTF applied to the conversion tool
- a copy of the DEFAULTS member
- the full text of all Job Log messages, in addition to all error messages in the error files, DAPRINT, SYSPRINT, and so on
- any source fixes or zaps applied to the conversion tool
Also, check if REFRESH LLA was done after changes were applied.

If an abend has occurred, send the symptom dump to BMC Software Customer Support and have a full dump (SYSUDUMP) available for use by Customer Support staff.

Whenever a change is made to the DEFAULTS member, or a source fix is applied, you should re-perform [Step 1 – Create the Conversion Source and Load Libraries](#) (on page 28) [Step 3 – Check and Modify the Parameters in the DEFAULTS Member](#) (on page 29) and [Step 4 – Modify and Run the ASMLINK Member](#) (on page 29).

