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and click **Rocket M204**.

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About this Guide

This guide explains how to install and maintain the Rocket Model 204 database management system, including Dictionary/204, in an IBM z/VSE environment.

The installation and maintenance processes described in this guide provide a summary of the Model 204 system characteristics, operations, and installation procedures that are unique to Model 204 for z/VSE.

Installation requirements vary, so not all of the features described will be part of your installation.

Audience

This information is intended for the user or users who install and maintain Model 204, Dictionary/204, and related products at your site. Although a programming background is not essential, knowledge of job control language (JCL) and utilities is helpful.

Model 204 documentation

The complete commercially released documentation for the latest version of Model 204 is available for download from the Rocket M204 customer portal.

To access the Rocket Model 204 documentation:

1. Navigate to:
<http://www.rocketsoftware.com/m204>
2. From the drop-down menu, select **Products > Model 204 > Documentation**.
3. Click the link to the current release and select the document you want from the list.
4. Click the .zip file containing the document.
5. Choose whether to open or save the document:
 - Select **Open** and double-click the pdf file to open the document.
 - Select **Save as** and select a location to save the zip file to.

Documentation conventions

This guide uses the following standard notation conventions in statement syntax and examples:

Convention	Description
TABLE	Uppercase represents a keyword that you must enter exactly as shown.
TABLE <i>tablename</i>	In text, italics are used for variables and for emphasis. In examples, italics denote a variable value that you must supply. In this example, you must supply a value for <i>tablename</i> .
READ [SCREEN]	Square brackets ([]) enclose an optional argument or portion of an argument. In this case, specify READ or READ SCREEN.
UNIQUE PRIMARY KEY	A vertical bar () separates alternative options. In this example, specify either UNIQUE or PRIMARY KEY.
TRUST <u>NOTRUST</u>	Underlining indicates the default. In this example, NOTRUST is the default.
IS {NOT LIKE}	Braces ({ }) indicate that one of the enclosed alternatives is required. In this example, you must specify either IS NOT or IS LIKE.
item ...	An ellipsis (...) indicates that you can repeat the preceding item.
item ,...	An ellipsis preceded by a comma indicates that a comma is required to separate repeated items.
All other symbols	In syntax, all other symbols (such as parentheses) are literal syntactic elements and must appear as shown.
<i>nested-key</i> ::= <i>column_name</i>	A double colon followed by an equal sign indicates an equivalence. In this case, <i>nested-key</i> is equivalent to <i>column_name</i> .
Enter your account: sales11	In examples that include both system-supplied and user-entered text, or system prompts and user commands, boldface indicates what you enter. In this example, the system prompts for an account and the user enters sales11 .
File > Save As	A right angle bracket (>) identifies the sequence of actions that you perform to select a command from a pull-down menu. In this example, select the Save As command from the File menu.
EDIT	Partial bolding indicates a usable abbreviation, such as E for EDIT in this example.

1

Introduction and Preparing to Install Model 204

In this chapter

- Model 204
- Supported releases
- Model 204 Installation
- Distribution files
- z/VSE facilities
- Additional Model 204 Features
- Device support
- Model 204 disk space requirements
- Gathering reference materials
- Reserving a partition
- Summary of installation tasks

Model 204

The Model 204 database management system (DBMS) provides facilities for the creation, control, query, and maintenance of database files.

Data-intensive batch and Online application systems can be developed with Model 204's self-contained User Language and embedded TP monitor.

Application languages, such as Assembler, COBOL, PL/I, and FORTRAN, can communicate with Model 204 functions through the Model 204 Host Language Interface. Model 204 supports SQL queries from PCs.

Documentation on Model V7R1.0 features

To understand the functionality and features that were introduced in Model 204 V7R1.0, refer to the *Model 204 Version 7, Release 1.0 Release Notes* and the Model 204 V7R1.0 guides, available for direct download from the Rocket Software M204 web site. (See “Model 204 documentation” on page xi.)

Supported releases

To find the operating system environments that have been certified with Model 204 V7R4.0:

1. Go to the Rocket M204 web site:

`http://www.rocketsoftware.com/m204`

2. From the **Products** drop-down menu, select **Model 204 > Operating System Support**

This list is updated when Rocket certifies different environments with Model 204 releases. If you have questions about an environment that is not listed, contact Technical Support.

You perform most installation steps the same way for all supported z/VSE environments. This guide explicitly notes, where appropriate, any z/VSE release-specific variations in the installation process.

Preinstallation environment

High Level assembler is required to correctly assemble source.

Preinstallation tasks

If you are running z/VSE Version 4, Release 2.0, install the PTFs listed in “Operating system requirements”.

Operating system requirements

Model 204 V7R4.0 requires the following operating system support:

- Version 4 release 3.0, or
- Version 4 Release 2.1, or
- Version 4 Release 2.0, with these PTFs installed:
 - UD53436

- UD53437
- UD53438
- UD53439

Hardware requirements

Model 204 V7R4.0 requires the IBM z/890 or later processor.

Model 204 Installation

Software delivery

Software delivery is now electronic. Installation from tape is no longer supported.

Sample JCL procedures

The installation and maintenance processes described in this guide involve a set of job control language (JCL) procedures. Sample JCL is provided with the installation software distributed with each new release of Model 204. In most cases these sample JCLs require modification.

Distribution files

Your Model 204 distribution package includes FTP files containing all libraries and files required for installing Model 204, Dictionary/204, and SQL support for client/server applications.

Technical Support will provide you with a site access logon and password to download the M204 installation components as well as product installation and authorization keys.

Autofix files

If early warnings are available for this release, also download Autofix files from the Rocket Software Technical Support web site. The Autofix files include maintenance early warnings for Model 204 and User Language products. For more information, see “Applying early warnings” on page 50 and refer to the *Rocket Model 204 Autofix Installation and Operations Guide*.

z/VSE facilities

Supported configurations under Model 204 z/VSE

Model 204 for z/VSE currently supports the following configurations:

BATCH204	Handles a single user without the use of terminals
----------	--

ONLINE	Supports up to 30,000 Online users via one or more teleprocessing interfaces (CICS, Horizon, and VTAM), as well as IFAM2 Host Language applications
IFAM1	Host Language Interface single-thread configuration
BATCH2	Uses IFAM2 to access a Model 204 Online running in a separate partition

31-bit mode

Model 204 runs in 31-bit mode, which allows you to use up to 2GB of virtual storage.

Shared DASD support

Shared direct access storage devices (DASD) support lets Model 204 Onlines running on two separate z/VSE machines access the same files.

Using shared DASD locking via the LOCK and UNLOCK (SVC 110) supervisor calls, Model 204 ensures that only one Online at a time is available for updating.

Features that work differently under z/VSE

In general, Model 204 user requests and programs operate identically in any operating system environment. However, a small set of features and commands are not supported, or work differently under z/VSE, or are unique to z/VSE, as described in the following table:

Feature	Comments
ALLOCATE utility	This utility is unique to the z/VSE operating system. For more information about this utility, see the <i>Rocket Model 204 System Manager's Guide</i> .
CCASTAT	CCASTAT is defined with a nonzero expiration date. Model 204 displays a message on the operator console and waits for the operator to respond to the message. To prevent this wait and reduce the chances of overwriting CCASTAT, follow the directions in the <i>Rocket Model 204 System Manager's Guide</i> .
MAXBUF and SPCORE parameters	Because of the way z/VSE uses storage, set the SPCORE and MAXBUF parameters to allow enough extra storage for the operating system to allocate its control blocks.
SYSOPT parameter/ UPSI statement	In z/VSE, the SYSOPT parameter is passed in the UPSI statement. For more information about the UPSI equivalents to SYSOPT settings, see the <i>Rocket Model 204 System Manager's Guide</i> .

Unsupported Model 204 features

The following features are not supported in Model 204 under z/VSE:

- FLOD exits
- IFAM4 configurations
- Multiple journal buffers
- One-step FLOD
- Performance subtask

Additional Model 204 Features

The distribution package from Technical Support also includes any decryption keys you might need. Because control of Horizon and PQO has been moved to the CPUIDZAP and SNA Communications Server (VTAM) is now part of the delivered ONLINE code, you might see fewer keys than you have in previous Model 204 releases.

- You need to apply CPUIDZAP during the installation procedure.
- The decryption process is discussed on “Decrypting optional features” on page 25.

If your site has purchased additional features, such as the CICS Interface, you must decrypt a part of the feature before using it. For each feature you have purchased, review the appropriate section of this guide before installation.

CPUIDZAP file

After installing the Model 204 software, you must modify the CPUIDZAP file with values provided. This process is discussed in “Applying the CPU ID zap” on page 23.

When a CPU ID zap is needed

Your site needs a zap under these circumstances:

- Initial installation or upgrade of Model 204
- New CPU
- Relink of BATCH204, IFAM1, or ONLINE
- Disaster recovery CPU
- Additional virtual machine with a virtual serial number that differs from the real machine serial number
- Change in number of authorized Connect★ seats

How to obtain a new or additional CPU ID zap

You are provided with a CPU ID zap when you request a new release of Model 204. If you need a zap at any other time, contact Technical Support.

Installation considerations

The Model 204 delivery provides fully functional versions of the VTAM, Horizon, PQO/204, and Connect★. The number of concurrent users is determined by your contract with Rocket Software and is controlled by the CPUIDZAP file provided with the release.

The versions of these components limit the number of Connect★ Remote User Language and Remote SQL threads to two each. One communication thread is available for Horizon and for PQO/204. Monitor Early Warnings that might be released that affect these features.

With this release of Model 204 for IBM z/VSE, Horizon now includes client and server TCP/IP support. Connect★ performance improvements using TCP/IP instead of SNA connections should be significant.

Installing only defined communication threads

The CPU ID zap controls the number of communication threads that you can define in your ONLINE job. If your site uses Connect★, the authorized number of threads, as defined by IODEV 19 and 49, are validated against your contracts file.

If you exceed the number of IODEV 19 and 49 definitions, the following error message is generated.

```
M204.2606: ONLY nnnn IODEV ##s ARE LICENSED - RUN TERMINATED
```

The message indicates that your site has exceeded the maximum number of authorized RCL and SQL threads, and Online startup fails. You can overcome this situation by removing the extra IODEV definitions from the ONLINE job, adjusting the NUSERS parameter downward, and resubmitting the job.

If you believe Rocket's records are in error, or if you wish to expand the number of seats authorized, contact Technical Support. A new CPU ID zap will be issued. When applied it will update the number of Connect★ authorized threads.

Device support

Supported DASD devices

Model 204 supports DASD devices with the following track geometry configurations:

- IBM 9345
- IBM 3380
- IBM 3390
- FBA

Supported teleprocessing access interfaces

Model 204 provides interfaces to the following teleprocessing access methods and monitors:

This interface...	Supports...
CICS	IBM 3270 display terminals and TTY devices in both local and remote networks.
TCP/IP	TCP/IP Sockets Interface for Model 204, Horizon, and Connect★
VTAM	IBM 3267 and 3270 terminals, and terminal types supported by the IBM Network Terminal Option (NTO).

ECKD support

Model 204 supports the use of Extended Count, Key, and Data (ECKD) channel programs on z/VSE for database and server I/O.

Model 204 disk space requirements

Table 1-1 summarizes the *minimum* disk space requirements for the libraries as well as other information to help you calculate EXTENT information for Model 204 files.

Table 1-1. Minimum disk space requirements

Disk type	Minimum Model 204 library requirement	Bytes/track	Model 204 pages/track
3380	720 tracks	47476	7
3390	604 tracks	56664	8
9345	736 tracks	46456	6
FBA	67000 blocks	512 bytes/block	13 blocks/page

Gathering reference materials

As you begin Model 204 installation, consult the following documentation as needed. See “Model 204 documentation” on page xi for instructions on viewing the documentation.

Model 204 and related documentation

- *Rocket Model 204 Autofix Installation and Operations Guide*
- *Rocket Connect ★ Suite Installation and Programming Guide*
- *Rocket Model 204 Dictionary/204 and Data Administration Guide*
- *Rocket Model 204 File Manager's Guide*
- *Rocket Model 204 Late Breaking News*
- *Rocket Model 204 Parameter and Command Reference*
- *Rocket Model 204 Release Notes*
- *Rocket Model 204 System Manager's Guide*

Additional software package documentation

If you are installing or completing installations of other software packages, collect these documents as well; for example: *Rocket Model 204 Horizon: Intersystem Processing Guide*.

Decryption keys

Ensure that you have the decryption keys specific to your site for Model 204 and any additional products that you are installing. The decryption keys are provided by Technical Support.

Reserving a partition

Rocket recommends a minimum partition size of eight megabytes (8M) when installing Model 204.

Some Model 204 installation JCL (such as for Model 204 features that require decryption) might assign system files/devices (SYSIPT, SYSPCH, etc.) to disk; z/VSE requires that this JCL be run in a static partition.

Space requirement for the Model 204 library

The M204CATP job distributed with the Model 204 software will allocate the appropriate space for the Model 204 library. In the sublibrary name, *rrr* represents the release level, such as 740.

Sublibrary	Requires library blocks
<i>Jrrr</i>	700
<i>Vrrr</i>	17,800
<i>Errr</i>	1,000

Sublibrary	Requires library blocks
<i>Drrr</i>	700

Summary of installation tasks

Once you have completed the preinstallation task of reserving the partition, continue on to the following steps in the installation:

1. Install the nucleus first, customizing it for the features you have purchased. (See “Installing M204” on page 13.)
2. Customize the JCL as needed for the features you have purchased. (See “Decrypting optional features” on page 25.)
3. Install the purchased features. (See Chapter 3, “Installing Additional Features”.)
4. Create or update the system history file. See “Preparing the system history file” on page 22.
5. Link edit the Model 204 phases. (See “Link editing the Model 204 phases” on page 39.)
6. Install Dictionary/204 and other optional features. (See Chapter 5, “Preparing to Install Dictionary/204” and Chapter 8 on installing Connect★.)

2

Installing the Model 204 Nucleus

In this chapter

- Overview of the Model 204 library
- Installation checklist
- Installing M204
- Allocating space for libraries and files
- Cataloging procedures
- Preparing site-specific CDTB, FUNU, and MSGU modules
- Preparing the system history file
- Applying the CPU ID zap
- Linking the \$\$BVP204 phase

Overview of the Model 204 library

M204LIB contains all the materials needed to run the Model 204 z/VSE configurations (ONLINE, BATCH204, BATCH2, and IFAM1), and utilities.

M204LIB is composed of sublibraries: *Jrrr*, *Vrrr*, *Errr*, and *Drrr*, where *rrr* is the release level, such as 740.

Model 204 does not contain pre-linked phases. You must link all phases that you want to use. For details, see “Link editing the Model 204 phases” on page 39.

The sublibrary contents are listed in the following tables.

Vrrr sublibrary

The *Vrrr* sublibrary contains the components listed in Table 2-1.

Table 2-1. Contents of *Vrrr* sublibrary

Members	Type	Example
Source modules requiring assembly	A	MSGU, M204PRNT
Object modules	OBJ	RENG, PTCH

Errr sublibrary

The *Errr* sublibrary contains the installation materials for Rocket Model 204 separately purchased features. The components of *Errr* are stored with the same component types as their *Vrrr* counterparts. The decryption JCL does the following:

- Extracts members from the *Errr* sublibrary using the LIBR PUNCH command.
- Decrypts the members using XDECDS.
- Catalogs them into the *Vrrr* sublibrary, as shown in Table 2-2.

Table 2-2. Contents of *Errr* sublibrary

Members	Type
Source modules requiring decryption and assembly (if available)	A
Object modules requiring decryption (if available)	OBJ

Jrrr sublibrary

The *Jrrr* sublibrary contains the installation materials.

Table 2-3. Contents of *Jrrr* sublibrary

Members	Type
Distributed JCL	Y
Procedures generated by the installation procedure	PROC

Drrr sublibrary

The *Drrr* sublibrary contains the Model 204 Dictionary/204 Cross Reference components.

The *Drrr* sublibrary is restored optionally for Dictionary/204 customers using the Cross Reference subsystem; see “Installing the Cross-Reference facility” on page 75.

Table 2-4. Contents of *Drrr* sublibrary

Members	Type
Dictionary/204 Cross-Reference objects	OBJ

Installation checklist

The remainder of this chapter describes how to install Model 204.

This installation checklist summarizes the steps to install the Model 204 nucleus:

Step	Task	Page
1.	Install M204.	page 13
2.	Catalog work files.	page 17
3.	Catalog frequently used procedures.	page 18
4.	Customize the user code table, user functions, and user messages module (optional).	page 20
5.	Create the system history file.	page 22
6.	Apply the CPU ID zap.	page 23
7.	Copy the \$\$BVP204 phase.	page 23

Installing M204

This section describes how to locate and download the files that you need in order to install M204.

Downloading .zip files from the FTP server

1. Navigate to the Model 204 directory on the FTP server:
`ftp.cca-int.com`
2. Enter the userid and password provided by Technical Support.
3. Open the zVSE folder. (The .zip files are listed in Table 2-5.)
4. Follow the instructions below to install Model 204.

zVSE .zip files The .zip files available in the zVSE folder are listed below. The letters *rrr* represent the version, such as 740.

Table 2-5. Contents of zVSE folder

File	Description
m204.vrrr.demodb.zip	Demonstration Database DUMP files
m204.vrrr.dicdist.zip	Dictionary/204 and installation procedure DUMP files
m204.vrrr.sql.zip	CATPROC and TSFPROC DUMP files
m204.vrrr.zip	Model 204 nucleus
m204catp.jcl	Job to allocate and define M204 library and sublibraries and catalog M204JCL and M204LIB
ftpbatch.jcl	Sample job to allocate and transfer Model 204 DUMP files.
punch.jcl	Sample JCL to punch Model 204 JCL to a system editor
readme.doc	Installation instructions

Note: The installation instructions in this guide are written with the assumption that you will use the standard FTP method described.

If you use an alternative FTP method for downloading the files, or if you change the provided FTP batch job during the download process, adjust the subsequent installation instructions accordingly.

1. FTP the m204catp.jcl file to the mainframe. This file must be transferred in ASCII format.
2. Modify the M204CATP job as noted in the m204catp.jcl file.
3. Submit the M204CATP job.
4. FTP the m204.vrrr.zip file to your PC. This file must be transferred in binary format.
5. Unzip the m204.vrrr.zip file on your PC using WinZip or a similar program, resulting in four JCL files, where *rrr* is the release number (for example, 740):

JCL File	Description	Required/Optional
catdrrr.jcl	Dictionary/204 Cross-Reference Subsystem	Optional
caterrr.jcl	Encrypted modules for separately purchased features	Optional

JCL File	Description	Required/Optional
catjrrr.jcl	JCL	Required
catvrrr.jcl	Model 204 object and source	Required

These jobs will catalog object and source into each Model 204 sublibrary: Drrr, Errr, Jrrr, and Vrrr.

Note: catdrrr.jcl and caterrr.jcl are optional. FTP these files only if they pertain to your site.

6. FTP the JCL files to the POWER RDR queue, CLASS=0, in binary format. This will place the JCL files on HOLD in the RDR queue.
7. From the VSE console, release each job from the RDR queue; for example:

```
r rdr,catv740
```

At the pause, enter the DLBL statements for your Model 204 library.
8. A sample JCL job, punch.jcl, has also been provided to assist in punching all the Model 204 JCL to a system editor for updating. If you choose to use this sample JCL, transfer the file to the mainframe in ASCII format.
9. Complete the installation process as described in the remainder of this chapter.

Allocating space for libraries and files

You can print the procedures listed in Table 2-7 or view these same procedures on page 17 through page 18. After calculating your disk allocation requirements, modify the appropriate procedure. Allocate space on disk volumes for the entities listed in Table 2-6.

Table 2-6. Model 204 entities requiring disk allocation

Entity	Library	Procedure	Job
History file	IJSYSHF	M204MSHP	CATMSHP
Work files		M204WRK1	CATWRK1
Work files		M204WRK2	CATWRK2
Decryption files		M204DECR	CATDECR

A DASD volume for other files must be decided on for the other procedures. Their specific allocation specifications are determined in later jobs.

Cataloging procedures

After you have installed Model 204, you can store some of the more frequently used JCL in the form of cataloged procedures. The jobs to catalog these procedures are distributed in the JCL library.

Running jobs to catalog procedures

To catalog procedures, modify each of the jobs listed in Table 2-7 as follows:

- Add POWER JCL
- Add the appropriate DLBL, EXTENT, and ASSGN information

The jobs assume that the M204JCL procedure is in the system library (IJSYSRS.SYSLIB). All other Rocket-supplied procedures are cataloged into the JCL sublibrary.

The JCL to catalog frequently used procedures follows. Determine the new file, library volumes, and extents; then modify the procedures before cataloging them.

Procedures that can be cataloged

As needed, you can modify and catalog the following procedures using the jobs listed in Table 2-7.

Table 2-7. Cataloging frequently used procedures

Procedure name	Catalog job	Description
M204DECR	CATDECR	Decryption files
M204MSHP	CATMSHP	System history file
M204WRK1	CATWRK1	Work file for decryption, translation, and assembly
M204WRK2	CATWRK2	Work file for decryption, translation, and assembly
M204SYS	CATSYS	System files (CCASYS, CCASTAT, CCATEMP)
M204DD	DDINST, DDRINST	Dictionary/204 files. See “Jobs to install standard Dictionary/204 facilities” on page 53.

Cataloging procedures for end-user products

For end-user products, such as Dictionary/204, you catalog the procedure that contains file information specific to that product as part of the installation

procedure. For example, the M204DD procedure, which contains file information about Dictionary/204, is cataloged in the DDINST job.

Work file procedures

You must catalog work file procedures in the CATWRK1 and CATWRK2 jobs for the following jobs that perform decryption, translation, or assembly:

- CICS jobs
- DECRxxx jobs
- CDBTASMC, FUNUASMC, MSGUASMC jobs

Run CATWRK1 and CATWRK2 before cataloging any of the procedures listed in “Frequently used procedures” on page 18.

CATWRK1 job

```
// JOB CATWRK1
// EXEC PROC=M204JCL
// EXEC LIBR
ACCESS S=M204LIB.Jrrr
CATALOG M204WRK1.PROC REPLACE=YES
// PROC DLBNAME=IJSYSPH,PLU=SYSPCH
// DLBL &DLBNAME,'wrk1.fileid',0
// EXTENT &PLU,,1,0,start,100
ASSGN &PLU,DISK,VOL=volser,SHR
/+
/*
/ &
```

where *rrr* is the release level, such as 740.

Note: For a work file, 83 tracks of 3390 DASD space or 100 tracks of 3380 DASD space is given as the suggested size. Convert this as necessary for your device type.

CATWRK2 job

```
// JOB CATWRK2
// EXEC PROC=M204JCL
// EXEC LIBR
ACCESS S=M204LIB.Jrrr
CATALOG M204WRK2.PROC REPLACE=YES
// PROC DLBNAME=SYSUT2,PLU=SYS005
// DLBL &DLBNAME,'wrk1.fileid',0
// EXTENT &PLU,,1,0,start,100
ASSGN &PLU,DISK,VOL=volser,SHR
/+
/*
/ &
```

where *rrr* is the release level, such as 740.

Note: For a work file, 83 tracks of 3390 DASD space or 100 tracks of 3380 DASD space is given as the suggested size. Convert this as necessary for your device type.

If system files like SYSIPT or SYSPCH are assigned to a disk device, jobs using the M204WRK1 or M204WRK2 procedures must be run in a static partition. This is a z/VSE restriction.

Frequently used procedures

CATDECR job

You must catalog procedures in the CATDECR job for all optional features that require decrypting. For details, see “Decrypting optional features” on page 25.

```
// JOB CATDECR
// EXEC PROC=M204JCL
// LIBDEF PROC,SEARCH=M204LIB.Vrrr
// EXEC LIBR
ACCESS S=M204LIB.Jrrr
CATALOG M204DECR.PROC          REPLACE=YES
// PROC MODNAME='XXXXX.XX',KEY='$$$$$$$'
// ON $RC=0 CONTINUE
// EXEC PROC=M204Vrrr
ASSGN SYS099,SYSPCH
// EXEC PROC=M204WRK1,DLBNAME=IJSYSPH,PLU=SYSPCH
// EXEC LIBR,PARM='ACCESS S=M204LIB.Errr.;PU &MODNAME F=N EOF=N'
/*
CLOSE SYSPCH,SYS099
// EXEC PROC=M204Vrrr
// LIBDEF PHASE,SEARCH=M204LIB.Vrrr
// EXEC PROC=M204WRK1,DLBNAME=SYSUT1,PLU=SYS094
// EXEC PROC=M204WRK2,DLBNAME=SYSUT2,PLU=SYS095
// EXEC XDECDS,PARM='DECODE &KEY.'
// EXEC PROC=M204WRK2,DLBNAME=IJSYSIN,PLU=SYSIPT
// EXEC PROC=M204Vrrr
// EXEC LIBR,PARM='ACCESS S=M204LIB.Vrrr;CAT &MODNAME REP=YES'
CLOSE SYSIPT,SYSRDR
/*
/+
/&
```

where *rrr* is the release level, such as 740.

The M204DECR procedure, by default, assigns the SYSPCH file to disk. z/VSE requires that all such system file assignments be done in a *static* partition. Using this procedure in a *dynamic* partition causes an abnormal termination.

CATMSHP job

Use the CATMSHP job when you create the history file. For details, see “Preparing the system history file” on page 22.

```
// JOB CATMSHP
// EXEC PROC=M204JCL
// EXEC LIBR
ACCESS S=M204LIB.Jrrr
CATALOG M204MSHP.PROC REPLACE=YES
// DLBL IJSYSHF,'M204.SYSTEM.HISTORY.FILE',99/366,SD
// EXTENT SYSnnn,volser,,,start,length
/+
/*
/ &
```

where *rrr* is the release level, such as 740.

CATSYS job

Use the CATSYS job for a Dictionary/204 installation or reinstallation or to bring up an Online:

```
// JOB CATSYS
// EXEC PROC=M204JCL
// EXEC LIBR
ACCESS S=M204LIB.Jrrr
CATALOG M204SYS.PROC REPLACE=YES
// DLBL CCASTAT,'M204.CCASTAT',0,SD
// EXTENT SYSnnn,volser
// DLBL CCATEMP,'M204.CCATEMP',99/366,DA
// EXTENT SYSnnn,volser,,,start,length
/+
/*
/ &
```

where *rrr* is the release level, such as 740.

Preparing site-specific CDTB, FUNU, and MSGU modules

CDTBASMC, FUNUASMC, and MSGUASMC jobs

If you use translation tables or user-written functions, you must change the source code in the CDTB.A, FUNU.A, and MSGU.A sublibrary members to accommodate the requirements of your site, as shown in Table 2-8.

Table 2-8. Customizable user modules

If you use...	Then...	Using this job
\$CODE and \$DECODE functions to encode and decode character strings	Edit your own translation tables into the CDTB.A member	CDTBASMC
Your own User Language functions	Add them to the FUNU.A member	FUNUASMC
Error messages with your own User Language functions	Modify the MSGU.A member	MSGUASMC

The FUNU.A member contains one user function, \$SEP, which adds separators when a date is entered in the format *mm/dd/yy*. MSGU.A also contains one sample error message.

You can use FUNU.A and MSGU.A to write your own user functions. Instructions for coding user functions are in the *Model 204 System Manager's Guide*. The steps for installing the modules, as well as assembly considerations, are provided here.

It is recommended that if you think your site will make use of the TCP/IP Sockets Interface for Model 204, link the FUNU.A member during the installation process, even if you have not yet developed your own functions. This ensures access to the \$ASCII and \$EBCDIC functions.

Assembling CDTB, FUNU, and MSGU

Table 2-9 identifies the JCL to assemble CDTB, FUNU, and MSGU and catalog the object decks into the Model 204 sublibrary.

Table 2-9. JCL library member for user modules

Member	Assembles and catalogs user modules
CDTBASMC	CDTB (code table)
FUNUASMC	FUNU (functions)
MSGUASMC	MSGU (messages)

Once the modules are assembled and cataloged, link the Model 204 phases to contain user code tables and/or user functions, specifying the M204LIB.Vrrr sublibrary containing the CDTB, FUNU, and MSGU modules in the search list.

The M204LIB.Vrrr sublibrary members LKONLN and LKB204 distributed with this version contain the INCLUDE statements for CDTB, FUNU, and MSGU. The steps for linking the Model 204 phases are described in Chapter 4.

Assembly considerations for FUNU and MSGU

Some of the Model 204 macros and copy code needed to assemble FUNU and MSGU contain assembly language statements that are not supported by the z/VSE assembler. An assembly error occurs in the following circumstances:

- EQU statement specifies a length attribute or type attribute. The following example from the VARDEFS copy book illustrates the error:

```
VISLVL EQU 0,1 FIELD SECURITY LEVEL
```

The error generated for this statement is:

```
IPK122 INVALID DELIMITER, ',1'
```

- EQU statement specifies a value that is too long or too large by assembler rules. The following example from the STARTS macro illustrates the error:

```
MAXFS EQU 16777216/(4096*8) .MAX NUMBER OF INTERNAL  
FILE SEGMENTS
```

The error generated for this statement is:

```
IPK117 VALUE OF SELF-DEFINING TERM '16777216' TOO LARGE
```

See the z/VSE assembler error message IPK117 for more information.

- Symbol defined by an EQU statement of the type described above is referenced in a subsequent assembler statement. The following example from the STARTS macro illustrates the error:

```
IVBN EQU ((MAXFS+7)/8) . MAX # OF BYTES IN SEGMENT BIT  
PATTERN
```

Where the error occurs because MAXFS is undefined (see the example in the second bullet, above), the error generated for this statement is:

```
IPK149 SYMBOL 'MAXFS' NOT PREVIOUSLY DEFINED
```

- In FUNU, some undefined symbols generate the following statement:

```
QW9 ***** UNDEFINED *****
```

The error generated for this statement is:

```
IPK149 SYMBOL 'QW9' NOT PREVIOUSLY DEFINED
```

The text generated is executable and executes properly (barring logic errors) unless code that references an undefined symbol is executed.

Assembling FUNU and MSGU generates the errors described. However, in FUNU, no assembly errors occur within the FUNUTAB table entries or within the code for a user function (between the \$name ENTER statement that begins the function and the LEAVENUM, LEAVESTR, or LEAVEF0 macro that terminates it). In MSGU, no assembly errors occur after the MSGU\$ CSECT statement. CDTB receives no assembly errors.

z/VSE assembler errors

Rocket Software takes no responsibility for the errors generated by the z/VSE assembler. It is your responsibility to ensure that you do not code user functions referencing symbols that are undefined due to an assembler error.

Preparing the system history file

The system history file is used primarily for system maintenance. System history files can be:

- Created specifically for Model 204
- Shared between two versions of Model 204

This section describes how to create or update the system history file. Modify and run the CATMSHP procedure before creating a system history file. (See “CATMSHP job” on page 19.)

CREATHST and ARCHHST JCL

The JCL library member CREATHST contains the JCL to create a system history file and MSHP statements to:

- Create a system history file (CREATE)
- Personalize the history file (PERSONALIZE)

The JCL library member ARCHHST contains the JCL to identify Rocket products to the system history file:

- Archive the Model 204 product
- Archive the Dictionary/204 product

Before applying any early warnings or the CPU ID zap:

- Catalog the history file (M204MSHP), or replace the reference to the M204MSHP procedure with DLBL and EXTENT information.
- Submit CREATHST only if a system history file does not exist.

- Submit ARCHHST to identify Model 204 and Dictionary/204 as valid components to a system history file.

Considerations

If you use an existing system history file, or if you are sharing a system history file between two releases, do not submit CREATHST.

Modify the DLBL and EXTENT statements in the JCL to point to the correct file. You might want to catalog a procedure for the history file.

Applying the CPU ID zap

You must apply the CPU ID zap to KOMM.OBJ and link phases ONLINE, BATCH204, and IFAM1.

CPUIDZAP job

Edit and run the CPUIDZAP job as directed in the job comments. A new CPU ID zap is provided from Technical Support when you request a new release of Model 204.

Note: Do *not* use a zap value from a pre-7.4.0 release—it will not work.

Linking the \$\$BVP204 phase

The following information applies only to z/VSE sites running under z/VM.

The \$\$BVP204 phase is a transient: it is required for the z/VM-directed output feature, and it is invoked by Model 204 to issue diagnostic instructions in order to pass CP commands to z/VM. \$\$BVP204 is used to obtain the CPU ID.

Linking \$\$BVP204 to the system library improves performance.

LINK\$BVP SPJCL job

To link \$\$BVP204, use the LINK\$BVP SPJCL job from the JCL library.

This is a *required* step in a Model 204 installation on z/VSE running under z/VM.

COPYVMR job

To copy \$\$BVP204 to the System Residence Library, use the COPYVMR job from the JCL library.

This is a *required* step in a Model 204 installation on z/VSE running under z/VM.

3

Installing Additional Features

In this chapter

- Decrypting optional features
- Installing terminal access methods and communications features
- Installing the VTAM Interface
- Installing the Horizon Interface
- Installing Parallel Query Option/204
- Installing CRAM
- Installing the CICS Interface

Decrypting optional features

Included with the Model 204 nucleus installation software are the object and source materials required to install all separately purchased licensed features and interfaces. These modules are in an encrypted format that must be decrypted before you can use utilities such as the linkage editor and assembler to reference them.

A list of purchased features and interfaces along with the decryption keys is provided by Technical Support. You must use the decryption keys when executing the decryption utility.

Each feature is associated with a specific job in the JCL library that performs the decryption. Each library member is named DECRxxxx, where xxxx indicates the feature supported. See Table 3-1 for a list of decryption jobs. Most features and interfaces require other installation steps after decryption, which are described in the sections specific to each feature later in this chapter.

Review cataloging procedures

Carefully review “Cataloging procedures” on page 16 before running the decryption jobs.

Link the XDECODS decryption utility

Before running any specific decryption job, you must link the decryption utility, XDECODS, using the JCL library member LINKXDEC.

Decryption JCL library members

Table 3-1 lists the names of the decryption jobs and the features for which they are required. Because the decryption utility temporarily assigns the SYSPCH file to disk, you must run these jobs in *static* partitions.

Table 3-1. Decryption jobs

Job name	Feature or interface
DECRCICS	CICS

Decrypting features

To decrypt the features your site purchased, follow the instructions in this checklist.

Step	Task	Job
1.	Obtain the key from Technical Support for the feature you have purchased.	
2.	Specify the key in the KEY= parameter of each M204DECR step.	DECRxxxx
3.	Modify the job in accordance with the comments contained in the job. Do not modify or delete any EXEC M204DECR statements.	DECRxxxx
4.	Execute DECRxxxx.	DECRxxxx

Decryption utility return codes

The return codes and messages that appear in the report produced by the decryption utility are listed in Table 3-2. Appropriate diagnostic action is also suggested.

Table 3-2. Decryption utility return codes

RC	Message	Response
0	–	Decryption was successful.

Table 3-2. Decryption utility return codes (continued)

RC	Message	Response
8	No Control or Parm provided	The PARM= on the EXEC card is invalid or missing. Check the procedure for accuracy and verify that you followed the comment instructions.
12	Invalid command	DECODE was not specified on the EXEC card PARM= field. Check the procedure for accuracy and verify that you followed the comment instructions.
16	Invalid decryption key	The decryption key specified was not numeric or was not exactly eight bytes long. Check with Technical Support to verify the accuracy of the key specified.
20	Wrong decryption key	The decryption key does not match the encryption key. Check with Technical Support to verify the accuracy of the key specified.
24	Internal decryption xxxx error	xxxx can be: <ul style="list-style-type: none"> • Clear text length detected • Cipher text length • Clear checksum • Cipher checksum The decryption key specified does not match the encryption key. The module being installed or the material to be decrypted has been modified or tampered with. Check with Technical Support to verify the accuracy of the key specified.

Installing terminal access methods and communications features

This section presents basic steps for installing these terminal access methods and communications features:

- Model 204 Virtual Telecommunications Access Method (VTAM) Interface.
- Horizon intersystem communication feature, which is required for Connect ★ support. This feature is provided in a limited edition without encryption. See “Installation considerations” on page 6.
- Parallel Query Option/204, which enables distributed file processing.

General steps

The basic steps for installing these features with Model 204 are:

1. Link edit Model 204 with the appropriate object modules after commenting out the INCLUDEs for any features (PQO, Horizon, VTAM) not used at your site.

Note: The installation task list for each feature includes this step; however, you need to link edit Model 204 only once, after you apply the CPU ID zap and apply *all* available Early Warnings.

2. Complete the Model 204 installation (see Chapter 4).

Installing the VTAM Interface

Installing Model 204 with VTAM requires defining Model 204 as a VTAM application program. Model 204 provides 3270 support, as well as VTAM support for full-screen terminals that are not 3270-compatible, by providing a mechanism for writing exit routines to convert data outside of the VTAM 3270 interface.

Rules governing data conversion exit routine coding are described in the *Model 204 System Manager's Guide*.

To install the VTAM Interface, perform these steps:

Step	Task	Job
1.	Make sure that the link job contains INCLUDE LKVTAM.	LINKONLN
2.	Define Model 204 as a VTAM application node using an APPL statement in VTMAPPL.B.	
3.	Apply all early warnings and then link edit the Model 204 ONLINE phase.	LINKONLN

Specifying a VTAMNAME

The network name of the Model 204 run is specified for VTAM in the Model 204 system parameter VTAMNAME. The VTAMNAME parameter in CCAIN is the same as the APPL statement name field.

The value of VTAMNAME is a string composed of 1-8 characters. The default is M204. VTAMNAME can be specified by the system manager on the User 0 parameter line.

For more information on VTAM parameters, see the *Rocket Model 204 System Manager's Guide* and the *Rocket Model 204 Command Reference Manual*.

Installing the Horizon Interface

The Horizon intersystem communication feature is required for Connect ★ and TCP/IP support.

To install the Horizon Interface, perform these steps:

Step	Task	Job
1.	Make sure that the link job contains INCLUDE LKHRZN.	LINKONLN
2.	Apply all early warnings and then link edit the Model 204 ONLINE phase.	LINKONLN

For more information about Horizon, see the *Rocket Model 204 Horizon: Intersystem Processing Guide*.

Installing Parallel Query Option/204

Parallel Query Option/204 (PQO) enables distributed file processing.

To install PQO, perform these steps:

Step	Task	Job
1.	Make sure that the link job contains INCLUDE LKPQO.	LINKONLN
2.	Apply all early warnings and then link edit the Model 204 ONLINE phase.	LINKONLN

For more information about PQO, see the *Parallel Query Option/204 User's Guide*.

Installing CRAM

The Cross-Region Access Method (CRAM) lets two or more Model 204 users in two or more partitions communicate with each other.

CRAM is used by:

- BATCH2
- CICS Interface
- IFAM2

See the *Rocket Model 204 System Manager's Guide* for more information about CRAM.

Linking the CRAM phases

To link the CRAM phases (CRAMSWT, CRAMZWT, IGCLM244, and SNAPCRAM), use the LINKCRAM job from the JCL library.

Installing the CICS Interface

The CICS Interface provides CICS users with a pseudo conversational version of the full-screen and IFAM2 (Host Language and Remote User Language) interfaces of Model 204.

Pseudo conversational CICS allows no resources to be held by a task during a conversational iteration with the terminal operator.

Module configuration

Figure 3-1 illustrates the module configuration for the CICS Interface.

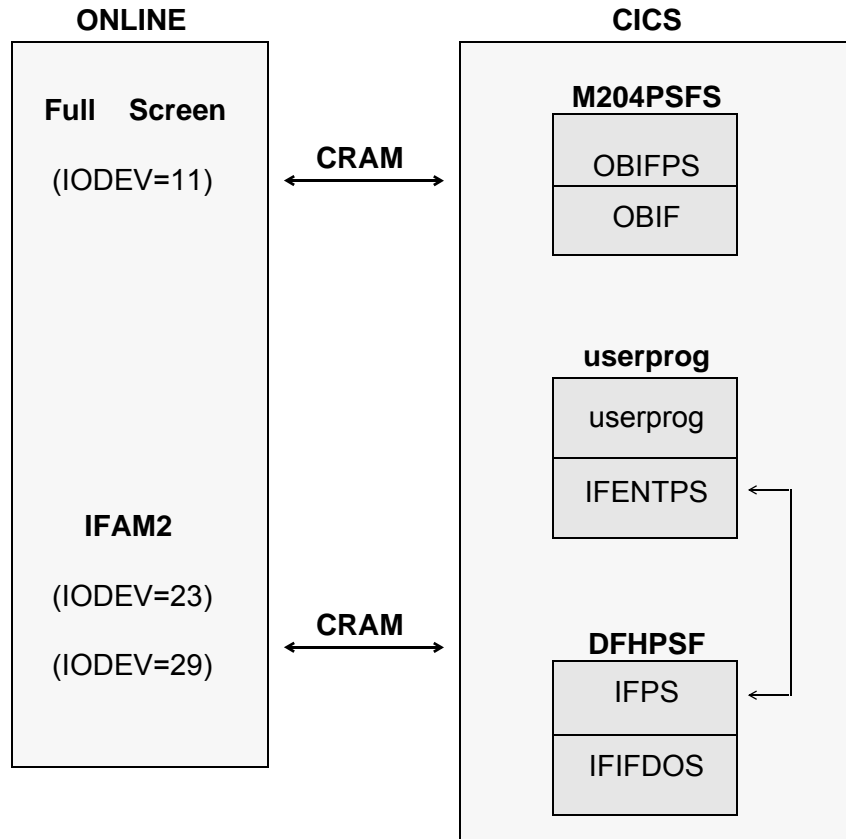


Figure 3-1. CICS Interface module configuration

Storage requirements

Storage requirements for the CICS Interface are shown in Table 3-3.

Table 3-3. CICS storage requirements

Shared subpool		Task subpool	
Bytes	Control block	Bytes	Control block
52 (34)	CRAM ICB	1920 (780)	Screen buffer
56 (38)	OBSTOR	2140 (85C)	CRAM buffer
568 (238)	Save area PDL		
248 (F8)	Abend PDL		
33 (21)	BIND area		
856 (358)	OBSTOBX work area		
304 (130)	COMMAREA		
1837 (72D)		4060 (FDC)	
- 33 (21)	BIND area		
1804 (70C)			

The following considerations apply:

- *BIND area* is used only during initial invocation; it is then released.
- *Buffers* are used only during a task; they are obtained from the task (isolated) storage subpool.
- *Control blocks* are from the shared storage subpool and exist until the user logs out of CICS.
- *Screen and CRAM buffer sizes* are dependent on the model type and LOUPTB size specification, respectively. The total number of bytes varies, because control blocks are allocated on a doubleword boundary that can result in a small increase.

CICS IFAM2 applications

If you run CICS IFAM2 applications written in COBOL II, set the &IFABEND parameter in CICFG to 'NO' to prevent the ABEND handler in IFENTPS from causing ASRAs.

Components

Table 3-4 lists the subset of Model 204 CICS Interface components that you might need to identify during the installation process.

Table 3-4. CICS Interface components

Module	Purpose	Usage comments
CICFG	COPY file	Specify installation-specific parameters
IFENTPS	IFAM2 application program interface module	Must be linked with the CICS user program and can be used with either a macro- or command-level version of the CICS Interface. The version is determined by a conditional assemble switch contained in CICFG.
IFIFDOS	Supports IFAM2	
IFPPCI	Interface for process-to-process applications	Must be linked with CICS user program
IFPS	CICS appendage to IFIF	
M204PRNT	Printing offline copies of 3270 screens to printer	
OBCIPR	Remote printer support	
OBIF	Outboard terminal interface	

Table 3-4. CICS Interface components (continued)

Module	Purpose	Usage comments
OBIFPS	Full-screen 3270 access to Model 204 from CICS	
OBPLTSD	Closes any full-screen and IFAM CRAM threads using CICS termination	Must be added to the CICS PLT shutdown table

CICS installation steps

To install the CICS Interface, complete the steps in Table 3-5. Details for steps 2 and 3 are provided after the table.

Table 3-5. CICS Interface installation steps

Step	Task	Job
1.	Decrypt the CICS object module: <ul style="list-style-type: none"> Obtain the decryption key from Technical Support. Modify the DECRCICS job as described in the job comments. Execute DECRCICS. 	DECRCICS
2.	Customize the interface.	
3.	Update the CICS System Definition (CSD) using one of the following methods: <ul style="list-style-type: none"> Resource Definition Online (CEDA) DFHCSDUP offline utility Processing the CICS Program Control Table (PCT) and Program Processing Table (PPT) 	
4.	Assemble, translate, and catalog the Model 204 CICS Interface modules.	CRPSASM ENTPSASM OPLTASM PPCIASM PRNTASMC PSFASM PSFSASM
5.	Relink the IFAM2 transactions requiring pseudo conversational support with IFENTPS.	
6.	Relink all user process-to-process partners with IFPPCI.	

Customizing the CICS interface

Although you can perform some of the following tasks listed after assembly and linkage, you must edit CICFG before then. If you edit CICFG, replace it in the

distribution Model 204 library as CICFG.A. Then proceed with the CICSASM and CICSLINK jobs.

Preventing A03 abends during CICS shutdown

To prevent A03 abends during shutdown, to control the closing of CRAM channels after a terminal is powered off, or to control a hardware failure while the pseudo conversational facility is in use:

1. Set the &CLRTMCH option in CICFG to 'YES'.

A temporary storage queue (named: *terminal_ID*PSFS) is built in main storage, which contains the addresses to both full-screen and IFAM CRAM ICB chains:

- CRAM ICB is used in the next invocation of the interface program to close the CRAM channel left hanging by a terminal failure.
 - CRAMM204 contains the address for the CRAM manager storage area.
2. Add program OBPLTSD, generated by running job OPLTASMC, to the CICSPLT termination list and link before DFHDELIM (if present).
 - During CICS shutdown, OBPLTSD reads the CRAM manager storage area and closes any open full-screen and IFAM CRAM threads.
 - The documentation in CICSPLT contains a PLT list, which can be assembled and used if no termination PLT list currently exists.

Using direct printer support for CICS

Set the Model 204 Online User 0 parameter WAITTIME equal to zero, so that CICS can spool printing, regardless of the printer's availability.

- M204PSFS uses a WAITTIME value greater than zero to pause until the printer task acquires the printer before continuing.
- &PRTWAIT parameter in CICFG causes M204PSFS to wait until the printing is physically completed on the printer. &PRTWAIT is ignored if WAITTIME equals zero.

To enable MACRO-level CICS support

In CICFG, set &IFCALLR to MACRO if you are not running IFAM2 at command level.

To use the DEBUG option

Set &TRACE to YES in CICFG. DEBUG turns on CICS TRACE entries.

Sharing CICS space

In the line of code, `&IFTWADP SETA 0`, edit the 0 to the number of bytes to displace the Model 204 area.

- IFAM2 interface requires 87 bytes of CICS TWA area. The Model 204 TWA area must be displaced within the TWA area if application programs require the TWA area. The displacement value must be expressed in multiples of four, because the Model 204 TWA area aligns on a fullword boundary.
- Assemble both IFENTPS and IFPS with the same CICFG copy member values. The TWA area is used to pass parameters between the two and so it must reference the same area.

Your site might have several compatible versions of IFENTPS and IFPS for applications that use different TWA areas. The CICS phase name that IFENTPS is linked to and its name in the CICS load library can be specified in `&IFAM2LM` within the CICFG copy member. Make sure that IFENTPS and IFPS are generated in compatible sets.

For example, consider a version of IFENTPS that has its TWA area displaced by 20 bytes and needs to link to a version of IFPS that also expects its TWA area to be displaced by 20 bytes. If the reference to the TWA area is the same, both a macro- and a command-level version of IFENTPS can then reference the same copy of IFPS.

Performance enhancements for Model 204 CICS

M204PSFS can be made resident and loaded at initialization using the Application Load Table (ALT) for performance and space considerations. Make M204PSFS resident only if it is frequently used and you have sufficient storage space.

Full-screen thread timeout option

Model 204 provides a CICS full-screen thread timeout option, which you can activate in the CICFG file. Be sure to evaluate its appropriateness for your site.

To use this option:

1. Set `&FSTOUT` to 'YES'.
2. Provide a timeout value in seconds for `&FSTTIME`.

Serious considerations using CICS

Do not use the IBM optimizer on Model 204 programs

If a dynamic storage area optimizer is installed in CICS (XA-REB), do not optimize Model 204 programs. The package relieves dynamic storage constraints by loading nonresident programs above the 16-megabyte line. If Model 204 programs are optimized, the results are unpredictable.

Keyboard mapping

Do not use PRINT=PA1 in the SIT definition.

PA1 is the Model 204 cancel request key. If PRINT=PA1 is specified, the print request is satisfied, and CICS discards the PA1 EIBAID when the transaction is started.

Configuring CICS

Choose basic mapping support (BMS) paging commands, which are defined in the SIT.

For example, if a line command is entered anywhere other than the first position when using the Model 204 editor, and an equal sign is the CICS paging command, a data stream is generated with an equal sign as the leading data character.

Because CICS passes control to BMS before passing control to the user transaction, a paging command is assumed, and BMS attempts to satisfy that request.

Specify BMS=STANDARD in the SIT, if full BMS and paging are not requirements.

Sizing the CICS buffer in Model 204

The LOU TPB parameter for IO DEV=11 determines the CRAM buffer size. It is sufficient to set the LOU TPB value slightly larger than the screen size for the 3270 model type used. If users are resetting model types, set LOU TPB to match the largest screen size.

For example, the screen size for a model 2 is 1920 bytes, and LOU TPB can be set at 2000.

Updating the CICS System Definition (CSD)

You can update the CSD either by using CED A, the DFHCSDUP utility, or by processing the CICS Program Control Table (PCT).

Use the values in Table 3-6, where appropriate for the method you choose. Information about using CED A or processing the PCT follows Table 3-6.

Table 3-6. CICS System Definition values

User program	Program name	Transaction ID	Modifiable CICS symbol	TWA size
IFAM2 pseudo conversational	DFHPSF	**		
Full-screen interface	M204PSFS	M204	&TRN	88

Table 3-6. CICS System Definition values (continued)

User program	Program name	Transaction ID	Modifiable CICFG symbol	TWA size
Screen copy transaction	M204CRPS	U204		
Screen print transaction	M204PRNT	P204	&COP	88

Note: Access DFHPSF using a CICS LINK. Never invoke it with a transaction ID from a terminal.

The Resource Definition Online transaction (CEDA) or the DFHCSDUP utility defines the transactions and programs to the CSD file. If you are not using tables, then define the transactions and programs using CEDA and the values in Table 3-6, as in the following example:

```

CEDA DEFINE PROG(program_name)
  GRoup(group_name)
  LANGuage (ASSEMBLER)
  RELoad (NO)
  RESident (NO) (Except for DFHPSF, RESident (YES))
  SStatus (ENABLED)

CEDA DEFINE TRANSACTION(trans_ID)
  GRoup(group_name)
  PROgram(program_name)
  TWASIZE(twasize_value)
  .
  .
  .

CEDA CHECK GRoup(group_name)

CEDA INSTALL GRoup(group_name)

```

If you use a transaction ID for a user program that is different from the value shown in Table 3-6, you must change the associated CICFG symbol shown in Table 3-6.

As shown in the example above, *group_name* is any valid group name for the user site.

Remember to add the groups to the GRPLIST for the particular CICS region. Otherwise, they are not installed during each CICS initialization.

Processing the PCT and PPT

The JCL library members PCTNTRY and PPTNTRY have the Program Control Table (PCT) and the Program Processing Table (PPT) default values shown in

the following code. You can update the CSD by adding to or modifying these default values and then assembling the tables.

PCT—Program Control Table

The PCT assigns user programs to their related CICS transaction identifiers (the transaction codes). Entries are required for both the 3270 full-screen interface and the screen print transaction. The PCT default values are:

```
DFHPCT TYPE=ENTRY , PROGRAM=M204PSFS , TRANSID=M204 , TWASIZE=88
DFHPCT TYPE=ENTRY , PROGRAM=M204PRNT , TRANSID=P204 , TWASIZE=88
DFHPCT TYPE=ENTRY , PROGRAM=M204CRPS , TRANSID=U204
```

The following entry in the PCT is required for all user IFAM2 transactions:

```
DFHPCT TYPE=ENTRY , PROGRAM=program_name , TRANSID=xxxx , TWASIZE=88
```

Use the values in Table 3-6 if you are updating the PCT. If you use a transaction ID for a user program that is different from the value shown in Table 3-6, you must change the associated CICFG symbol.

PPT—Program Processing Table

The PPT stores program attributes. Entries are required for the 3270 full-screen interface, direct printer support, and the IFAM2 interface.

Note: In the first line of the PPT, be sure to set the RES parameter to YES, otherwise, the transaction does not complete successfully.

The PPT default values are:

```
DFHPPT TYPE=ENTRY , PROGRAM=DFHPSF , RES=YES , PGMLANG=ASSEMBLER
DFHPPT TYPE=ENTRY , PROGRAM=M204CRPS , PGMLANG=ASSEMBLER
DFHPPT TYPE=ENTRY , PROGRAM=M204PRNT , PGMLANG=ASSEMBLER
DFHPPT TYPE=ENTRY , PROGRAM=M204PSFS , PGMLANG=ASSEMBLER
DFHPPT TYPE=ENTRY , PROGRAM=OBPLTSD , PGMLANG=ASSEMBLER
```

Assembling the CICS Interface modules

Assemble, in the sequence listed, the CICS Interface modules listed in the assembly step in Table 3-5.

Some assemblies display a warning message (DFHEIMSG 4) because the CSA address is release-dependent. If the interface program is running in the release under which it was assembled, ignore the warning.

After the modules are successfully built, relink as directed in Table 3-5.

4

Completing the Model 204 Installation

In this chapter

- Link editing the Model 204 phases
- Creating password and file group data sets
- Allocating CCATEMP
- Restoring the demonstration database files
- Applying early warnings

Link editing the Model 204 phases

This chapter describes steps you need to perform to complete the Model 204 installation.

You must link all required phases and any optional phases that you want to use, including utilities and sort exits.

When applying maintenance (Early Warnings), you must link or relink the phase affected by the Early Warning.

To link any of the Model 204 phases, run the job listed for that phase in Table 4-1. This table also lists utilities you might need and the jobs used to link or relink them.

Phases listed as Optional might be needed at your site depending on your installation requirements.

Table 4-1. Executable phases and jobs used for linking or relinking

Phase or utility	Purpose / Notes	Job	For more details, see ...
\$\$BVP204	z/VM-directed output logical transient. Required on z/VSE systems running under z/VM.	LINK\$BVP	"Linking the \$\$BVP204 phase" on page 23
ALLOCATE	Initializes Model 204 database files Required for Installation JCL, Dictionary/204, and SQL installation	LINKALOC	<i>Rocket Model 204 System Manager's Guide</i>
AUDIT204	Generates an audit trail for printing out later, and produces statistical reports and analysis	LINKAUDT	<i>Rocket Model 204 System Manager's Guide</i>
BATCH2	Establishes a User Language connection to a Model 204 ONLINE running in a separate region Optional; recommended for CRAM testing.	LINKBAT2	<i>Rocket Model 204 System Manager's Guide</i>
BATCH204	Handles a single user in batch mode Required to complete installation Link or relink when: <ul style="list-style-type: none"> • Applying a CPU ID zap • Installing user modules CDTB, FUNU, MSGU • Installing a new release of Model 204 • Moving to a different release of CICS (M204 CICS Interface) 	LINKB204	"Linking the BATCH204 phase" on page 44
CRAMSWT	CRAM non-master subtask	LINKCRAM	"Installing CRAM" on page 29
CRAMZWT	CRAM master subtask	LINKCRAM	"Installing CRAM" on page 29
DFHPSF	CICS/IFAM2 Interface	PSFASM	"Updating the CICS System Definition (CSD)" on page 35
HASH15	Sort exit for M204HASH	LINKHA15	<i>Rocket Model 204 File Manager's Guide</i>
IFAM1	Host Language Interface single-thread configuration Link or relink when: <ul style="list-style-type: none"> • Applying a CPU ID zap • Installing a new release of Model 204 (You can ignore UNRESOLVED ADCON messages.) 	LINKIFM1	<i>Rocket Model 204 System Manager's Guide</i>

Table 4-1. Executable phases and jobs used for linking or relinking

Phase or utility	Purpose / Notes	Job	For more details, see ...
IGCLM244	CRAM load module	LINKCRAM	“Installing CRAM” on page 29
LISTDOS	Dictionary/204 Cross-Reference Required only for the Dictionary/204 Cross Reference utility	LINKXREF	“Installing the Cross-Reference facility” on page 75
M204CRPS	CICS full-screen printer routine	CRPSASM	“Updating the CICS System Definition (CSD)” on page 35
M204PRNT	CICS 3270 print routine	PRNTASMC	“CICS IFAM2 applications” on page 31
M204PSFS	CICS full-screen remote User Language interface routine	PSFSASM	“Updating the CICS System Definition (CSD)” on page 35
MERGEJ	Media recovery journal merge utility	LINKMRGJ	<i>Rocket Model 204 System Manager’s Guide</i>
OI15	File Load utility sort exits	LINKOI15	<i>Rocket Model 204 File Manager’s Guide</i>
OI35	File Load utility sort exits	LINKOI35	<i>Rocket Model 204 File Manager’s Guide</i>
ONLINE	Link online; Required. Link or relink when: <ul style="list-style-type: none">• Installing VTAM, Horizon, or Parallel Query Option/204• Applying a CPU ID zap• Installing user modules CDTB, FUNU, MSGU• Installing a new release of Model 204• Moving to a different release of CICS (M204 CICS Interface)	LINKONLN	“Linking the ONLINE phase” on page 42
SNAPCRAM	CRAM control block SNAP dump routine	LINKCRAM	“Installing CRAM” on page 29
UTILC	Prints the Model 204 checkpoint file	LINKUTLC	<i>Rocket Model 204 System Manager’s Guide</i>
UTILJ	Prints and copies Model 204 journal files	LINKUTLJ	<i>Rocket Model 204 System Manager’s Guide</i>
UTLA	Prints the Model 204 audit trail	LINKUTLA	<i>Rocket Model 204 System Manager’s Guide</i>
XDECDOS	Decryption utility Required only if you purchased special features that require decryption	LINKXDEC	“Errr sublibrary” on page 12, “CATDECR job” on page 18

Table 4-1. Executable phases and jobs used for linking or relinking

Phase or utility	Purpose / Notes	Job	For more details, see ...
XREFDOS	Dictionary/204 Cross-reference facility Required only for the Dictionary/204 Cross Reference utility	LINKXREF	“Installing the Cross-Reference facility” on page 75 which describes how to define the Drrr sublibrary before running the LINKXREF job.
ZBLDTAB	Initializes the Model 204 password table. Required to allocate and initialize CCASTAT.	LINKZBTB	<i>Rocket Model 204 System Manager’s Guide</i>
ZCTLTAB	Convert CCASTAT for the Password Expiration feature. Required to convert an existing CCASTAT data set to allow data control of passwords.	LINKZCTB	<i>Rocket Model 204 System Manager’s Guide</i>

Linking the ONLINE phase

LINKONLN is the JCL member for linking the ONLINE phase and contains INCLUDE statements for a base loadlist and for each feature, as shown in Table 4-2.

Table 4-2. Loadlists for ONLINE and features

Loadlist	ONLINE or feature
LKHRZN	Horizon
LKONLN	Modules common across all features
LKPQO	Parallel Query Option/204
LKVTAM	VTAM

Because the features for CICS do not affect the ONLINE phase, no specific loadlists are necessary for this feature. The following sample LINKONLN JCL is prepared to link ONLINE with Horizon and VTAM.

LINKONLN JCL example

```
// EXEC PROC=M204JCL          DLBL for JCL sublibrary
// LIBDEF PROC,SEARCH=M204LIB.Vrrr
// EXEC PROC=M204Vrrr        DLBL for Vrrr M204 library
// LIBDEF PHASE,CATALOG=M204LIB.Vrrr
// LIBDEF OBJ,SEARCH=M204LIB.Vrrr
// OPTION CATAL
ACTION ERRLMT(500)
PHASE ONLINE,* REPLACE=YES
INCLUDE LKONLN
```

```

INCLUDE LKPQO
INCLUDE LKHRZN
INCLUDE LKVTAM
* INCLUDE IPNRSTUB /* For TCPNAME using TCPIP release 15E or later
  ENTRY MAINTASK
/*
// EXEC LNKEDT
/*
/&

```

where *rrr* is the release level, such as 740

Linking the IFAM1 phase

LINKIFM1 is the JCL member for linking the IFAM1 phase and contains INCLUDE statements for a base loadlist as shown in Table 4-3.

Table 4-3. Loadlists for IFAM1 and features

Loadlist	IFAM1 or feature
LKIFM1	IFAM1

The following sample LINKIFM1 JCL is prepared to link IFAM1.

LINKIFM1 JCL example

```

// EXEC PROC=M204JCL      DLBL for JCL sublibrary
// LIBDEF PROC,SEARCH=M204LIB.Vrrr
// EXEC PROC=M204Vrrr    DLBL for Vrrr M204 library
// LIBDEF PHASE,CATALOG=M204LIB.Vrrr
// LIBDEF OBJ,SEARCH=M204LIB.Vrrr
// OPTION CATAL
  PHASE IFAM1,* REPLACE=YES
  INCLUDE LKIFM1
  ENTRY IFI11
/*
// EXEC LNKEDT
/*
/&

```

where *rrr* is the release level, such as 740

Linking the BATCH204 phase

LINKB204 is the JCL member for linking the BATCH204 phase and contains INCLUDE statements for a base loadlist as shown in Table 4-4.

Table 4-4. Loadlists for BATCH204 and features

Loadlist	BATCH204 or feature
LKBTCH	BATCH204

The following sample LINKB204 JCL is prepared to link BATCH204.

LINKB204 JCL example

```
// EXEC PROC=M204JCL          DLBL for JCL sublibrary
// LIBDEF PROC,SEARCH=M204LIB.Vrrr
// EXEC PROC=M204Vrrr        DLBL for Vrrr M204 library
// LIBDEF PHASE,CATALOG=M204LIB.Vrrr
// LIBDEF OBJ,SEARCH=M204LIB.Vrrr
// OPTION CATAL
PHASE BATCH204,* REPLACE=YES
INCLUDE LKBTCH
ENTRY MAINTASK
/*
// EXEC LNKEDT
/*
/&
```

where *rrr* is the release level, such as 740

Link editing messages

When link editing any Model 204 programs, the following messages appear one or more times in the output listing:

```
2139I DUPLICATE SECTION DEFINITION: COPR *** SECTION
      IGNORED ***
```

```
2158I NO CSECT LENGTH SUPPLIED
```

These messages result from the linkage editor flagging any duplicate CSECT as an error in a new release of system software. If the message reads exactly as above, you can ignore it. If, however, the error message displays anything other than *COPR*, contact Technical Support.

Also, you will typically see Unresolved External warnings for the following references, which you may ignore:

- FORTRAN modules such as DTRNH, DSQRT, and so on.

Creating password and file group data sets

Before running ONLINE, BATCH204, or IFAM1 programs, prepare the following CCA nnn files:

File	Type of data set
CCAGRP	File group data set (required for file groups)
CCASTAT	Password data set (required)
CCATEMP	Scratch data set (required)

This section discusses how to prepare the CCASTAT and CCAGRP files. See “Allocating CCATEMP” on page 47 for information about scratch data set.

CCAGRP—Using permanent file groups

Before you can define permanent file groups in Model 204, you must allocate and initialize the CCAGRP file. See the *Model 204 System Manager’s Guide* for more information about using the CREATEG command to initialize CCAGRP.

ALOCGRUP job

Follow these steps to name and size the CCAGRP file:

Step	Task	Job
1.	Allocate CCAGRP.	ALOCGRUP
2.	Modify ONLINE, BATCH204, and IFAM1 JCL streams.	
3.	Issue the CREATEG command to initialize CCAGRP.	

CCASTAT—Building the Model 204 password table

If your site intends to use Model 204 security features, you must build the password table in the CCASTAT file. To access CCASTAT, modify ONLINE, BATCH204, and IFAM1 JCL streams. Refer to the *Model 204 System Manager’s Guide* for a discussion of this file.

ZBTBRUN job

Follow these steps to build the password table by creating CCASTAT:

Step	Task	Job
1.	Allocate and initialize CCASTAT.	ZBTBRUN
2.	Modify ONLINE, BATCH204, and IFAM1 JCL streams.	

1. Allocate and initialize the CCASTAT file by running the ZBTBRUN job, which executes the ZBLDTAB utility program. The amount of disk storage allocated must be sufficient to contain:
 - Two Model 204 pages (each page is 6184 bytes) for CKD devices.
 - Minimum allocation of 26 blocks for FBA devices.
2. ZBTBRUN does not usually produce a return code. Look at the listing for any indication of a problem.
3. When executing the ONLINE, BATCH204, or user-written IFAM1 program that uses this security file, add this label information in the execution JCL stream:

```
// DLBL CCASTAT, 'M204.CCASTAT', 0, SD
// EXTENT SYSnnn, volser, , , start, length
```

Updating the password table

You must provide the full CCASTAT file information for the execution of ONLINE or BATCH204 if you plan to update the password table with the LOGCTL command. When you update the password table, Model 204 opens the file as an output data set and completely rewrites it. It is suggested that you set the retention period for the CCASTAT data set at zero to avoid operator intervention. For more information about the retention period, see the *Model 204 System Manager's Guide*.

Activating security

In addition, to activate the security facilities of Model 204, turn on UPSI switch 3 (SYSOPT=16):

```
// UPSI xxx1xxxx
```

To create entries in the password table, use the LOGCTL command as described in the *Model 204 System Manager's Guide*.

Creating a Password Expiration CCASTAT

If your site would like to use the optional security feature that allows date control of passwords, you must convert an existing CCASTAT data set. This conversion may be run at any time and is irreversible.

Note: It is strongly recommended that you save a copy of the original CCASTAT file before converting it.

(If you need to create a CCASTAT file, consult the *Model 204 System Manager's Guide*, "Part II: Managing Security.")

Running the ZCTBRUN job

Follow these steps to convert a CCASTAT data set using the ZCTLTAB utility.

1. Read the *Model 204 System Manager's Guide* for a discussion of the options available for ZCTLTAB, and read the comments found in the job ZCTBRUN.
2. Save a copy of the original, unconverted CCASTAT file.
3. Modify job ZCTBRUN as needed and run it. This will run ZCTLTAB to convert the CCASTAT data set.

Allocating CCATEMP

CCATEMP is a required data set used by Model 204 as the system scratch file.

ALOCTEMP job

Allocate CCATEMP before running jobs that execute an ONLINE, BATCH204, or IFAM1 program.

Step	Task	Job
1.	Calculate the size of CCATEMP.	
2.	Allocate CCATEMP.	ALOCTEMP

Sizing CCATEMP

Allocate a minimum of 25 pages per user if your site uses file groups, otherwise allocate 20 pages per user.

Restoring the demonstration database files

The Model 204 downloadable software includes files for a demonstration auto insurance system. The files are used for Model 204 education classes, documentation examples, and to demonstrate the product's features.

To install the demonstration database files, transfer the files from the Model 204 FTP server to the mainframe using the FTPBATCH job:

1. FTP the .zip file, m204.vrrr.demodb.zip, to your PC in **binary** format. (*rrr* is the release number, for example 740)
2. Unzip the .zip file on your PC using WinZip or a similar program.
3. FTP the ftpbatch.jcl file to the mainframe. The FTPBATCH job is provided to assist you in transferring the Model 204 DUMP files from the FTP server to the mainframe. This file must be transferred in ASCII format.
4. Modify the FTPBATCH job as noted in the ftpbatch.jcl file. Comment out any DUMP files you will not be transferring.

Note: The FTPBATCH job defines the file names and data set names used in subsequent installation jobs. If you make changes to the names in FTPBATCH, you must use those names for all subsequent installation jobs; otherwise those jobs will fail.

5. Use the information in this chapter to determine size requirements for each DUMP file.
6. Submit the job.
7. Continue the installation as described in this chapter.

Table 4-5 describes the files that make up the demonstration database system.

Table 4-5. Demonstration database files

File name	Model 204 pages	Description
CLAIMS02	48	Accident claims in 2002
CLAIMS03	48	Accident claims in 2003
CLIENTS	216	POLICYHOLDER and DRIVER records
DAILY	200	Samples of VEHICLES and CLIENTS records; can be updated for education
DUMMY1	120	Dummy string table
MEMBERIN	104	Member information
MONTHIN	104	Month number and abbreviation
PRODUCTN	104	Product information
SALESDAT	104	Sales data
SCATTER	32	Scatter chart data
STAFF	216	Employee information
STATES	1016	States and mapping data
STOCKDAT	104	Stock data
STOCKDET	216	Stock details
STOCKIN	216	Stock information
STOCKMON	216	Stock monthly information
TEAMINFO	104	Sales team information
VEHICLES	128	Record for each insured auto

Required tasks: DEMOALLOC and DEMORST jobs

As with any Model 204 database in z/VSE, each demonstration database file must be prepared initially with the ALLOCATE utility program.

To use ALLOCATE, you must first link it using the LINKALOC job found in the JCL sublibrary. See the *Model 204 System Manager's Guide* for information about the ALLOCATE utility.

Step	Task	Job
1.	Allocate files.	DEMOALOC
2.	Restore files.	DEMORST
3.	Update CCASTAT.	

Calculate the space requirements for each file for the JCL before executing the job. Table 4-6 summarizes the Model 204 pages for each device type.

Table 4-6. Pages required for the demonstration database

Device type	Bytes per block/track	#Blocks/page	#Pages/track
3380	47476		7
3390	56664		8
9345	46456		6
FBA	512	13	

Updating CCASTAT

Most of the distributed files are public and updated by default with no password.

The following files are semipublic, with default privileges of read-only access:

CLAIMS02, CLAIMS03, CLIENTS, VEHICLES

To open a semipublic file for update after it has been restored, the system manager must create passwords with update privileges for each file.

Example

In this example, MANAGER is established as a password for the VEHICLES file with a privilege setting of X'BFFF'.

Since no values are provided for CLASS, SELECT, READ, UPDATE, and ADD, the default value of 0 will be used.

```
LOGCTL A :VEHICLES 1
```

```
*** ENTER FILE/GROUP PASSWORD, PRIVILEGES, CLASS, SELECT, READ, UPDATE, ADD
```

```
MANAGER, x'BFFF'
```

```
*** ENTER TERMINAL LIST, ALL, NONE, ADD, DEL, OR RETURN
```

```
ALL
```

Applying early warnings

Early warnings issued for Model 204 and the Dictionary/204 Cross-Reference batch facilities are distributed in a format compatible with the IBM MSHP utility. Refer to your IBM documentation for more information on the MSHP utility.

To apply maintenance, apply the MSHP CORRECT commands in the z/VSE early warnings against the Model 204 object modules. The JCL library member APPLYEW contains the JCL to apply the early warnings.

Input to APPLYEW (the MSHP CORRECT commands) is generated by Autofix. Alternatively, you can get this information from Technical Support.

For more information about Autofix and applying early warnings, see the *Autofix Installation and Operations Guide*.

After all early warnings have been applied, relink all affected phases using the sample JCL supplied in the Model 204 JCL library.

Reversing an early warning

If you need to reverse an early warning that has been applied, use the UNDO command to remove the early warning fix from the object module. Then relink the phases that had this fix applied.

The JCL library member UNDOEW contains the JCL to reverse an early warning.

Tracing Model 204 maintenance

Technical Support might request verification or documentation on the maintenance applied to Model 204. The MSHP RETRACE command provides a listing detailing your maintenance level.

The JCL library member TRACEEW contains the JCL to generate a maintenance history.

5

Preparing to Install Dictionary/204

In this chapter

- Overview
- Dictionary/204
- Installation jobs
- Entering site-specific values
- Required privileges
- Files used in Dictionary installation
- Files used in Dictionary/204 subsystems

Overview

This chapter describes the steps to prepare for installing Dictionary/204 the first time or upgrading your site's current release of Dictionary/204. The installation software contains the jobs required to install, upgrade, and support Dictionary/204 and optional Dictionary/204 facilities.

The Model 204 downloadable software includes the Dictionary/204 dump file. To FTP the dump file to the mainframe, follow the instructions in "Dictionary dump files" on page 52.

In this chapter are guidelines for modifying job streams so that their values are appropriate to your installation of Model 204. Two *SYSnnn* assignments are permanent for Model 204. Avoid using these numbers in assigning a *SYSnnn* to disk:

- SYS008 is assigned to the CCAUDIT file
- SYS021 is used for a Punch device in the MERGEJ utility

Remember to check your JCL before submitting any job.

Dictionary/204

Dictionary/204 is a set of facilities provided to all installations as part of Model 204. It is used to create and maintain information about:

- Model 204 files, fields, field groups, user accounts, records, and subsystems
- Site-specific applications, reports, and facilities
- Define Internal system definitions

For detailed information about Dictionary/204, see the *Model 204 Dictionary/204 and Data Administration Guide*.

Keeping Dictionary/204 compatible

If you use Dictionary/204 at your site, you must reinstall Dictionary/204 version V7R4.0 to be compatible with Model 204 V7R4.0.

Dictionary dump files

To install the Model 204 Dictionary/204 dump files:

1. FTP the .zip file, m204.vrrr.dicdist.zip, to your PC in **binary** format. (*rrr* is the release number, for example 740)
2. Unzip the .zip file on your PC using WinZip or a similar program.
3. If you have not already done so, FTP the ftpbatch.jcl file to the mainframe. The FTPBATCH job is provided to assist you in transferring the Model 204 DUMP files from the FTP server to the mainframe. This file must be transferred in ASCII format.
4. Modify the FTPBATCH job as noted in the ftpbatch.jcl file. Comment out any DUMP files you will not be transferring.

Note: The FTPBATCH job defines the file names and data set names used in subsequent installation jobs. If you make changes to the names in FTPBATCH, you must use those names for all subsequent installation jobs; otherwise those jobs will fail.

5. Use the information in this chapter and in Chapter 6, "Installing or Upgrading Dictionary/204", to determine size requirements for each DUMP file.
6. Submit the job.
7. Continue the installation as described in this chapter and in Chapter 6,

“Installing or Upgrading Dictionary/204”.

Installation jobs

The jobs created by the JCL with the installation software that are required to install, upgrade, and support Dictionary/204 are described in the following tables.

Note: Before running any of the jobs described in this section, you must link the ALLOCATE utility using the JCL member LINKALOC.

The JCL used to install and maintain end-user products (including Dictionary/204) uses the M204Vrrr, M204SYS, and M204DD procedures to refer to Model 204 files and libraries. See “Sample JCL procedures” on page 3 and “Running jobs to catalog procedures” on page 16 for more information on using procedures.

Jobs to prepare for installing or upgrading

Table 5-1. Installation and upgrade jobs

Member	Description
DDPROCI	Allocates, creates, and restores the M204INST procedure file, which contains procedures used in installing or upgrading products
PRCLOAD	Allocates, restores, and copies distribution procedure files for products being installed or upgraded from the restored distribution files into the M204PROC file

Jobs to install standard Dictionary/204 facilities

Table 5-2. Facilities installation jobs

Member	Description
DDINST	Catalogs the M204DD procedure, installs the standard Dictionary/204 facilities, allocates other Dictionary/204 files, and creates subsystem definitions
DDPROCP	Allocates and creates the M204PROC procedure file

Jobs to upgrade standard Dictionary/204 facilities

Table 5-3. Upgrade jobs

Member	Description
DDRINST	Backs up Dictionary files, reinstalls the standard Dictionary facilities, reallocates some Dictionary files, recreates subsystem definitions, and converts system stored 2-digit years to 4-digit years

Jobs for operation and file maintenance

Table 5-4. Operation and file maintenance jobs

Member	Description
DDBKP	Backs up Dictionary/204 files
DDBKPROC	Backs up M204PROC
DDFIMCMD	Performs File Management delayed processing of Model 204 files
DDGEN	Populates an installation's Dictionary/204 from Model 204 files
DDGENSET	Sets up a DDGEN run based on a set of files in an installation's Dictionary/204
DDROG	Reorganizes Dictionary/204 files
DDRSPROC	Restores M204PROC from a backup file
DDRST	Restores Dictionary/204 files from backup files
DDTINIT	Reinitializes the M204TEMP file

Entering site-specific values

During the installation process, you must modify the job streams so that they contain appropriate values for your site. This section explains how to correctly modify the jobs for your site.

Although each job requires different modifications, the general steps are the same:

1. Use the comments section in each job as a guide for making the required modifications for that job.
2. Modify the JOB statement to conform to the standards at your site.
3. Add ASSGN statements as needed.

In the JCL provided, standard assignments for the logical units (SYSxxx) are referenced in the EXTENT statements.

4. Add or modify DLBL and EXTENT statements for standard files always

needed in Model 204 jobs:

- CCASTAT
 - CCATEMP
5. Assign SYS008 to a POWER printer for the audit trail, or add DLBL and EXTENT statements for CCAUDIT.
 6. Add or modify DLBL and EXTENT statements for Model 204 files or other files required for that particular job.
 7. Change entries in the CCAIN input stream for every job, as shown in Table 5-5.

Table 5-5. Replacement entries for CCAIN input stream

Replace...	With...
USERID	Account at your installation that has the appropriate login privileges for the job
PASSWORD	Password for the USERID account

Other CCAIN replacements vary from job to job. For example, it might be necessary to specify particular statements or names, or remove comment characters.

8. For some jobs, you need to calculate file sizes appropriate for your site. The formulas provided to calculate file size generate results in Model 204 pages (6184 byte blocks of data). Calculate further EXTENT requirements for each file based on the type of device on which the files reside.

Required privileges

During file creation, you can secure files so that passwords are required for subsequent jobs that open these files. If the Dictionary/204 files have been secured, check the OPEN statements in each CCAIN file to determine which files are being used and to supply passwords. The following privileges are required to perform the specified functions:

Privilege required	Function
Superuser	Create files
File manager	Issue certain Model 204 commands, such as INITIALIZE or DUMP, for certain jobs
System manager	Open CCASYS to read or update subsystem definitions for certain jobs

Table 5-6 lists the Dictionary jobs with the login privileges required for each job.

Table 5-6. Login privileges required for Dictionary/204 jobs

Member	Ordinary User	Superuser	File manager	System manager
DDPROCI		X	X	
PRCLOAD	X	X	X	
DDPROCP		X	X	
DDINST		X	X	X
DDRINST		X	X	X
DDFIMCMD				X
DDBKP			X	X*
DDBKPROC			X	
DDRST			X	X*
DDRSPROC			X	
DDROG		X	X	X*
DDGEN	X			
DDGENSET	X			
DDTINIT		X	X	

* If operating on CCASYS, system manager login privileges are required.

Files used in Dictionary installation

During the installation process, the jobs listed in Table 5-6 allocate and use the files described in Table 5-7.

Table 5-7. Files used in Dictionary installation

File	Description
CCASYS	Data file containing an installation's subsystem definitions. The DDINST job creates CCASYS. For an explanation of how to use CCASYS when running subsystems, see the <i>Model 204 System Manager's Guide</i> .
D204RPT	Procedure file containing an installation's user-written procedures for Dictionary/204 reports. The DDINST job creates D204RPT.

Table 5-7. Files used in Dictionary installation (continued)

File	Description
D204SYS	Intermediate file used by the Dictionary/204 for importing and exporting Dictionary/204 data from one Model 204 environment to another. D204SYS needs to be created only once; subsequent Model 204 environments can then use the same file for importing and exporting. D204SYS is created in DDINST and recreated in DDRINST.
DATALINK	Data file containing relationships among an installation's Dictionary/204 entries. The DDINST job creates DATALINK.
DICDIST	Procedure file containing procedures for Dictionary/204 subsystems. DICDIST procedures are copied into the installation's M204PROC procedure file by restoring DICDIST to an intermediate file and then transferring it from the intermediate file to M204PROC (via PRCLOAD).
M204DCTL	Control file for the Cross-Reference facility. M204DCTL contains user profile information, help and error messages, and system EXECs. M204DCTL is created in DDINST and recreated in DDRINST.
M204INST	Procedure file for installing additional Rocket Model 204 products. M204INST is supplied with the installation files in dump format.
M204PROC	Procedure file for Dictionary/204. M204PROC is built by restoring and copying the procedure files supplied for the products you have ordered. Optional Rocket Model 204 products might also add procedures to the M204PROC file.
M204TEMP	Temporary data file used to store Dictionary/204 data. M204TEMP also contains lock records that control updating and records used for scrolling. M204TEMP is created by the DDINST job and is initialized by the DDTINIT job.
METADATA	Data file containing an installation's Dictionary/204 entries. The DDINST job creates METADATA.
OUTDDGN	File used to run DDGEN Online.
OUTFILE	Default file for reports from Dictionary/204.

Files used in Dictionary/204 subsystems

The Dictionary/204 subsystems are:

DIA	Dictionary/204 Administration facility
DIC	Dictionary/204 facility
DIR	Dictionary/204 Reports facility
DOC	Documentation facility

FIM	File Management facility
MIG	Dictionary/204 Migration facility
SUM	Subsystem Management facility
XRF	Cross-Reference facility

Table 5-8 shows file usage by Dictionary subsystems. In this table, the letter *P* signifies a procedure file, and *D* indicates a data file. Note that ACV is an optional subsystem.

Table 5-8. File usage by subsystem

Subsystem	DIA	DIC	DIR	DOC	FIM	MIG	SUM	XRF
No. of files	5	4	5	4	5	6	7	5
File name:								
M204PROC	P	P	P	P	P	P	P	P
M204TEMP	D	D	D	D	D	D	D	D
DATALINK	D	D	D	D	D	D	D	D
METADATA	D	D	D	D	D	D	D	D
D204RPT	D		D					
CCASYS							D	
M204DCTL					D	D	D	D
D204SYS						D	D	

6

Installing or Upgrading Dictionary/204

In this chapter

- Overview for common procedures
- Overview for new Dictionary/204 installations
- Allocating and creating M204PROC
- Restoring and transferring the Dictionary/204 procedure file
- Calculating Dictionary file sizes
- Defining initial Dictionary/204 entries
- Setting up the Model 204 Online
- Backing up Dictionary/204 files
- Authorizing Dictionary/204 access for all users
- Overview for upgrading Dictionary/204
- Allocating space for METADATA and DATALINK
- Restoring and transferring the Dictionary/204 procedure file
- Running the DDRINST job
- Backing up Dictionary/204 files
- Upgrading standard Dictionary/204 facilities
- Installing the Cross-Reference facility

- Cross-Reference facility JCL example

Overview for common procedures

This chapter explains steps to:

- Start an installation, whether you are installing Dictionary/204 for the first time or upgrading an existing version
- Install Dictionary/204 for the first time
- Upgrade an existing version of Dictionary/204

Before you begin installing or upgrading Dictionary/204, make sure that you have completed the tasks presented in Chapter 5.

DDPROCI job

The first two steps for installing Dictionary/204 apply whether you are installing Dictionary/204 for the first time or upgrading an existing version:

Step	Task	Job
1.	Calculate the size of M204INST.	DDPROCI
2.	Allocate, create, and restore M204INST.	DDPROCI

Calculating the size of M204INST

Determine the appropriate size for your site's M204INST file. You must know the size before you can modify the EXTENT statements for M204INST in the DDPROCI job:

1. Calculate an adequate EXTENT for M204INST, which requires 700 Model 204 pages at 6184 bytes/page, or approximately 1.8 megabytes.
2. Calculate EXTENT requirements based on known Model 204 pages.

For example, if M204INST is to reside on an FBA device with 512 byte blocks, the EXTENT is approximately 8000 blocks.

Allocating, creating, and restoring M204INST

In this step, use the member DDPROCI to:

- Make an entry in the VTOC for the M204INST file.
- Create M204INST as a Model 204 file.
- Restore the M204INST file from the Model 204 DUMP format file in the installation files.

Modify DDPROCI as specified in the JCL comments. Run DDPROCI as modified.

Overview for new Dictionary/204 installations

This section lists the steps necessary to install Dictionary for the first time. Additional information, as appropriate, follows in subsequent sections.

Before completing these tasks, be sure that you have:

- Sized the M204INST file (see page 60)
- Allocated, created, and restored the M204INST file (see page 60)

Note: If you make data set name changes in the FTPBATCH job, remember to carry those changes forward into the standard installation jobs that reference those files.

Step	Task	Job
1.	Allocate and create M204PROC.	DDPROCP
2.	Restore the Dictionary/204 procedure file and transfer it to M204PROC.	PRCLOAD
3.	Calculate file sizes for: CCASYS D204RPT D204SYS DATALINK M204DCTL M204TEMP METADATA	
4.	Catalog the M204SYS procedure.	CATSYS
5.	Define standard Dictionary/204 facilities.	DDINST
6.	Set up the Online.	
7.	Back up Dictionary/204 files (do not delete M204INST).	DDBKP DDBKPROC
8.	Authorize Dictionary/204 access for all users.	

Allocating and creating M204PROC

Determine the appropriate size for your site's M204PROC file. You must know the size before you can modify the EXTENT statements for M204PROC in the DDPROCP job.

Calculating the size of M204PROC

DICDIST is the name of the Dictionary/204 procedure file; it contains 910 TABLE D pages. The M204PROC file must be large enough to accommodate the standard Dictionary/204 facilities and any optional Rocket Model 204 products and Dictionary/204 facilities at your site. To install Dictionary/204, use a Table D size of 1700 blocks.

To calculate the size of M204PROC:

```
TABLE D pages = the sum of all TABLE D values of the dis-
tribution files for the products you are installing + 13
pages for Tables A, B, and C and the FCT (File Control
Table) combined.
```

Calculate an adequate EXTENT for the device type on which the file resides.

Creating M204PROC

1. Use the member DDPROCP to:
 - a. Make an entry in the VTOC for the M204PROC file.
 - b. Create M204PROC as a Model 204 file.
2. Modify DDPROCP as specified in the JCL comments.
3. Run DDPROCP as modified.

Restoring and transferring the Dictionary/204 procedure file

The member PRCLOAD restores the Dictionary/204 procedure file and copies all of the Dictionary procedures to M204PROC, thereby updating the Dictionary code to the latest version.

Modify and run PRCLOAD as described in this section.

Modifying and Running PRCLOAD

1. Modify PRCLOAD as follows:
 - a) Change 'M204.M204PROC' to your M204PROC data set name.
 - b) Insert your logon ID and password.
 - c) Make remaining changes as noted in the JCL comments.
2. Run the PRCLOAD job as modified.

Using PRCLOAD to reload other procedure files

The PRCLOAD job can reload any procedure file. For more general usage:

1. Change file names and data set names in the JCL and CCAIN to the name

of the dump file from which you are transferring procedures.

2. Change all M204PROC references in the JCL and CCAIN to reference the file to which you are transferring procedures.

Calculating Dictionary file sizes

Determine the appropriate sizes for the CCASYS, D204RPT, D204SYS, DATALINK, M204DCTL, M204TEMP, and METADATA files before modifying the file size specifications for the files created by the DDINST job.

When computing file sizes, consider the size requirements of all the products you are installing, including products other than Dictionary. See the *Rocket Model 204 Command Reference Manual* and the *Rocket Model 204 File Manager's Guide* for an explanation of the Model 204 parameters (for example, ATRPG, BSIZE). Calculate the EXTENT requirements for each file based on the type of device on which it resides.

To calculate the number of pages required:

```
FILESIZE = ASIZE + BSIZE + CSIZE + DSIZE + ESIZE + 8 (for  
the FCT)
```

CCASYS file

The CCASYS file, which contains your site's subsystem definitions and internal procedures, needs a minimum size of 25 pages. Determine the appropriate size for your site as follows:

1. Estimate:
 - Number of subsystems. Count all the subsystems that you are installing, including Dictionary/204 subsystems and other CCA and user-defined subsystems. Call this number *NS*.

Dictionary/204 has nine standard subsystems plus three optional subsystems. To obtain the number of subsystems for other products being installed, refer to the specific product's installation guide for your operating system.
 - Average number of files per subsystem. Call this number *NFS*. The number used for CCA subsystems is six.
 - Average number of users who are not in a default subsystem class. Call this number *NUS*.
 - Average number of subsystem classes per subsystem. Dictionary/204 subsystems use two. Call this number *NSC*.

2. Use these numbers in the following formula:

```
ATRPG = 1, FVFPG = 1, MVFPG = 1  
BRESERVE = 88  
BRECPPG = PGSIZE/BRESERVE
```

```

BSIZE = 2 * (NS * .03) + (NS * NFS * .03) + (NS * NUS
*.022)
CSIZE = (((14 * NS * NSC * NUS) +
(7 * ((NS * (2+NSC+NUS)/49152) + 1) *
(2 * NS (2 + NS (2 + NSC + NUS)))))/6144) * 1.2
DSIZE = 10 + NS
ESIZE = 0

```

The following sizes are suggested for calculating CCASYS. Depending on your data and applications, you might need to change these sizes at a later date.

```

ASIZE = 3   BRECPPG = 70
BSIZE = 40
CSIZE = 10
DSIZE = 40
ESIZE = 0
FCT   = 8

```

Total =101

D204RPT file

The D204RPT file contains the installation procedures for all user-defined Dictionary/204 reports. Use the following values to calculate its size:

```

ATRPG = 1, FVFPG = 1, MVFPG = 1
BSIZE = 5
CSIZE = 1
DSIZE = Number of procedures *(average pages per proce-
dure)/ + 6
ESIZE = 0

```

The following sizes for D204RPT are suggested. Depending on your data and applications, you might need to change these sizes at a later date.

```

from above 6
ASIZE = 3
DSIZE = 90
ESIZE = 0
FCT   = 8

```

Total = 107

D204SYS file

The D204SYS file is an intermediate file used by Dictionary/204 for importing and exporting Dictionary/204 data from one Model 204 environment to another. You create D204SYS only once; subsequent Model 204 environments can use the same file. The size of the file depends on the number of files and

subsystems you expect to export. Use the following values to calculate the size of D204SYS:

1. Estimate:

- Maximum number of files that will be exported to D204SYS at one time. Call this number *NF*.
- Maximum number of subsystems that will be exported to D204SYS at one time. Call this number *NS*.
- Average number of Dictionary/204 records per file; this includes both METADATA and DATALINK. Call this number *AF*.
- Size of the average file. Multiply *AF* by the average record length for METADATA and DATALINK records. Call this number *SF*.
- Size of the average subsystem. Call this number *SS*. Use the following formula as a specific guide:

$$SS = 1.2 * (\text{number of files in subsystem} * 55 * \text{number of sclasses}) + (\text{number of users} * 34)$$

2. Use the above numbers in the following formula:

```
BRESERVE = average record length
BRECPPG = (PGSIZE - 44)/BRESERVE
BSIZE = (2.3 * (NF * SF / (PGSIZE - 44) + (NS * SS
  / (PGSIZE - 44)))
CSIZE = 10
DSIZE = 15
ESIZE = 0
```

The following sizes are suggested for calculating D204SYS. Depending on your data and applications, you might need to change these sizes at a later date:

```
ASIZE = 3   BRECPPG = 35
BSIZE = 300 BRESERVE = 125
CSIZE = 30
DSIZE = 60
ESIZE = 0
FCT = 8

Total = 401
```

DATALINK file

The DATALINK file contains relationships among your site's Dictionary/204 entries. Use the following formula to calculate its size:

```
ATRPG = 1, FVFPG = 1, MVFPG = 1
BRESERVE = 120 (suggested)
BRECPPG = PGSIZE/BRESERVE
```

```

number of DATALINK records = 5 * number of expected
  METADATA records
BSIZE = number of DATALINK records/BRECPPG
CSIZE = BSIZE * .2
DSIZE = BSIZE * .1
ESIZE = 0

```

BRESERVE is based on an average name length of 30 characters. If the average name length for your installation is different, increase or decrease your BRESERVE by twice the difference between 30 and the average name length. The following sizes are suggested for calculating DATALINK. Depending on your data and applications, you might need to change these sizes at a later date:

```

ASIZE = 3   BRECPPG = 31
BSIZE = 300 BRESERVE = 200
CSIZE = 30
DSIZE = 8
ESIZE = 0

```

Total = 401

See the *Rocket Model 204 Dictionary/204 and Data Administration Guide* for information about Dictionary/204 entries and relationships.

M204DCTL file

The M204DCTL file is the control file for the Dictionary/204 Cross-Reference facility. This file also stores error messages and help information for other Dictionary/204 facilities. For this additional information, TABLE B requires 25 pages and TABLE D requires 12 pages. You might need to increase the data set space if not enough free space is available in the file.

Calculate the size of M204DCTL using the following values:

```

BRESERVE = 130
BRECPPG = 52
FCT = 8 pages
Table A = 3 pages
Table B = 25 pages for installation records (leaves a
  cushion for some growth) + (number of XREF users having
  profile records / 5)
Table C = 5 pages is ample for most situation.
Table D = 12 pages for installation data + 1 *number of
XREF users
Table E = 0 pages

```

Set the values for BRESERVE and BRECPPG in the DICN.DCTL.PARMS procedure. You might need to reset the values if a large number of users have profile records.

The following sizes for M204DCTL are suggested. Depending on your data and applications, you might need to change these sizes at a later date.

```
ASIZE = 3
BSIZE = 30
CSIZE = 5
DSIZE = 30
ESIZE = 0
FCT = 8

Total = 76
```

M204TEMP file

The M204TEMP file is a temporary data file used to store Dictionary/204 data. Use the following values to calculate an approximate size for this file:

```
BRECPPG = 75
BRESERVE = 140
BSIZE = 100
CSIZE = 10
DRESERVE = 15
DSIZE = 30
```

Multiply the values for BSIZE, CSIZE, and DSIZE by 1.1 for every 10 users. For a more exact calculation, see Appendix B.

The following sizes for M204TEMP are suggested. Depending on your data and applications, you might need to change these sizes at a later date:

```
from above 140
ASIZE = 3
FCT = 8

Total = 151
```

METADATA file

The METADATA file contains your site's Dictionary/204 entries. Use the following formula to calculate its size:

```
ATRPG = 1, FVFPG = 1, MVFPG = 1
BRESERVE = average record length (150-200 is suggested)
BRECPPG = page size/BRESERVE
BSIZE = number of expected entries/BRECPPG
CSIZE = BSIZE * .1
DSIZE = BSIZE * .2
ESIZE = 0
```

The following sizes are suggested for calculating METADATA. Depending on your data and applications, you might need to change these sizes at a later date:

```
ASIZE = 3   BRECPPG = 31
BSIZE = 300 BRESERVE = 200
CSIZE = 30
DSIZE = 60
ESIZE = 0
FCT = 8
```

```
Total = 401
```

See the *Rocket Model 204 Dictionary/204 and Data Administration Guide* for information about Dictionary/204 entries.

Defining initial Dictionary/204 entries

Use the member DDINST to:

- Make an entry in the VTOC for the CCASYS, METADATA, DATALINK, D204RPT, M204DCTL, M204TEMP, and D204SYS files, and create these files.

A step in the DDRINST job backs up the databases to disk. Condition code testing, following the backup step, controls execution for the rest of the job. Verify that all steps have successfully run.

- Define initial entries in the Dictionary/204 and CCASYS file for:

- Dictionary/204 administrator account

The dictionary administrator is authorized to use every Dictionary/204 facility, including the Subsystem Management facility. However, to use the Subsystem Management facility, the dictionary administrator must also have system manager privileges. The dictionary administrator can then use the Dictionary/204 Administration facility to authorize other users to use facilities.

- Standard Dictionary/204 entity types

- File Management facility defaults

The FACILITY entry in METADATA is updated automatically with all command processing options available: Active (Delayed or Immediate) and Inactive; the default option is set as Active Immediate. The default USE file and procedure file used for generated Inactive commands is updated as OUTFILE and the name of the procedure file you have supplied for the PROCFILE value. To alter these options, the dictionary administrator must enter File Management Facility Administration under Dictionary/204 Administration before using the File Management facility.

- Entries for CCA subsystems

The login account of the system manager running the DDINST job is added to the ADMIN class of each Dictionary/204 subsystem. The

system manager, who can start, stop, and test each subsystem, is also authorized to use the Subsystem Management facility, and can use it to start, stop, and test each Dictionary/204 subsystem.

- Internal CCASYS procedures
- Initial M204TEMP field definitions

Modify DDINST as specified in the JCL comments. Run the DDINST job as modified.

DDINST and DDRINST procedures

The cataloging portions of DDINST and DDRINST are identical. You can use the following JCL for either procedure:

```
// JOB DDINST
.
.
.
// EXEC PROC=M204JCL
/* // DLBL M204JCL, 'M204.JCL.LIBRARY', 99/365
/* // EXTENT SYSnnn, volser, , , start, length
// EXEC LIBR
        ACCESS S=M204JCL.Vrrr
        CATALOG M204DD.PROC REPLACE=YES
*   M204DD PROC: DLBL/EXTENT for M204 DICTIONARY
// DLBL   CCASYS, 'M204.CCASYS', 99/365, DA
// EXTENT SYSnnn, volser
// DLBL   M204PRO, 'M204.M204PROC', , DA
// EXTENT SYSnnn, volser
// DLBL   METADAT, 'M204.METADATA', , DA
// EXTENT SYSnnn, volser
// DLBL   DATALIN, 'M204.DATALINK', , DA
// EXTENT SYSnnn, volser
// DLBL   D204RPT, 'M204.D204RPT', , DA
// EXTENT SYSnnn, volser
// DLBL   M204TEM, 'M204.M204TEMP', , DA
// EXTENT SYSnnn, volser
// DLBL   M204DCT, 'M204.M204DCTL', , DA
// EXTENT SYSnnn, volser
// DLBL   D204SYS, 'M204.D204SYS', , DA
// EXTENT SYSnnn, volser
.
.
.
/+
/&
```

where *rrr* is the release level, such as 740.

For more information

- For more information about Dictionary/204 administration and facilities, see the *Rocket Model 204 Dictionary/204 and Data Administration Guide*.
- To secure Dictionary/204 files, see the OPENCTL and PRIVDEF parameters in the *Rocket Model 204 Command Reference Manual*.

Setting up the Model 204 Online

To run the Online, modify the statements, names, and parameters as described in this section. These modifications are for the standard Dictionary/204 facilities only.

DLBL and EXTENT statements

Include DLBL and EXTENT statements for all Dictionary/204 files:

```
CCASYS
D204RPT
D204SYS
DATALINK
M204DCTL
M204PROC
M204TEMP
METADATA
OUTDDGN
OUTFILE
```

OUTFILE is the default file for reports from Dictionary/204.

Add DLBL and EXTENT statements for other Dictionary/204 report files that you have defined. You can define OUTFILE as a sequential file. In this case, be careful that reports are not inadvertently overwritten when two or more OUTFILES are directed to the same report file.

Alternatively, you can define the report files as printers. See the discussion of directed output in the *Rocket Model 204 System Manager's Guide* for more information on this facility.

The OUTDDGN file is required to run the member DDGEN online, a sequential file.

Allocating CCATEMP

Allocate 1800 pages in CCATEMP for Dictionary/204 procedures.

Changing the CCAIN input stream

Change the values listed in Table 6-1 in the CCAIN stream.

Table 6-1. CCAIN parameters for Dictionary/204

Parameter	Value
LENQTBL	Include 250 entries for Dictionary/204.
LOUTPB	Set to at least 3000.
LPDLST	Set to at least 1500; the default value is 2600.
NDCBS NDIR NFILES	Include seven for Dictionary/204 files (METADATA, D204SYS, DATALINK, D204RPT, M204PROC, M204DCTL, and M204TEMP). These parameters are automatically advanced by one for CCASYS when SYSOPT is an odd number.
NORQS	Set to at least 10.
SERVSZ	Set to at least 220,000 for each server to support Dictionary/204 usage. (This assumes the default values for server tables FTBL, ITBL, TTBL and XTBL. If your values for these tables are larger than the default, adjust your SERVSZ accordingly.) If User 0 does not use any Dictionary/204 subsystems, only LGTBL must be set to at least 100 for User 0.
SPCORE	Increase by 3507+(6*NFILES) for Dictionary/204 system control blocks.
SYSOPT	To support both the File Management and Subsystem Management facilities, the UPSI setting must include both Option 4 and Option 1 (// UPSI 00000001). <ul style="list-style-type: none">• Option 1 (// UPSI 00000001) enables the CCASYS file. It must be set in order to OPEN and use CCASYS.• Option 4 (// UPSI 00000100) restricts the use of Model 204 data definition commands within a particular run. If SYSOPT includes option 4, Model 204 requires that file creation, definition, and subsequent maintenance of the file definitions in the run be accomplished through the File Management facility of Dictionary/204. The commands affected by option 4 are listed in the <i>Rocket Model 204 Command Reference Manual</i>.

Setting up recovery

Include Dictionary/204 files in your installation's recovery scheme. If any Dictionary/204 file is defined as a transaction back out file, you must define all Dictionary/204 files as transaction back out files.

To recover the CCASYS file via the RESTART command, the SYSOPT X'01' (// UPSI 00000001) option need not be set.

Backing up Dictionary/204 files

After installing the standard Dictionary facilities, use the members DDBKP and DDBKPROC to back up the data files and M204PROC. See "Backing up Dictionary/204 files" on page 79 and "Backing up M204PROC" on page 80 for complete instructions.

Authorizing Dictionary/204 access for all users

Before Dictionary/204 users can log in to any of the Dictionary/204 facilities, the dictionary administrator (the account name used when installing Dictionary/204) must add the user account names to the Dictionary/204 security function.

You can do this through the Dictionary/204 Administration facility by selecting the Security Administration function. See the *Rocket Model 204 Dictionary/204 and Data Administration Guide* for details on using the Dictionary/204 Administration facility.

Overview for upgrading Dictionary/204

This section lists the steps necessary to upgrade Dictionary/204 to the current version. The steps are summarized in the following checklist. Additional information, as appropriate, follows in subsequent sections.

Before completing these tasks, be sure that you have:

- Sized the M204INST file (see page 60)
- Allocated, created, and restored the M204INST file (see page 60)

Note: If you make data set name changes in the FTPBATCH job, remember to carry those changes forward into the standard installation jobs that reference those files.

Step	Task	Job
1.	Allocate space for METADATA and DATALINK.	
2.	Restore the Dictionary/204 procedure file and transfer it to M204PROC.	PRCLOAD
3.	Back up Dictionary/204 files and upgrade standard Dictionary/204 facilities.	DDRINST
4.	Back up files.	DDBKP DDBKPROC

Allocating space for METADATA and DATALINK

When running the DDRINST job, the DICN.REDEFINE procedure redefines some fields in METADATA and DATALINK to be ORDERED KEY to improve performance. However, the ORDERED attribute requires a significant increase in TABLE D space for these files.

- METADATA requires a 20–30% increase in TABLE D space.
- DATALINK requires a 40% increase in TABLE D space.

If there is not enough space in the file for such an increase, you can create more space using one of the following methods.

- Add data sets using the INCREASE command:

```
INCREASE DATASETS [with] ddname [, ddname...]
```

The additional space is added to FREESIZE. From there, you can add it to TABLE D with the INCREASE TABLED command. For more information about these commands, see the *Rocket Model 204 Command Reference Manual*.

If you choose this method, you need to add an additional DLBL for the new data set that was added to make the file larger.

- You can dump the existing file, delete and reallocate the existing data set as large as needed, and then restore the file from the dump.

If you choose this method, you do not need an additional DLBL.

Restoring and transferring the Dictionary/204 procedure file

The member PRCLOAD restores the Dictionary/204 procedure file and copies all of the Dictionary procedures to M204PROC, thereby updating the Dictionary code to the latest version.

Modify and run PRCLOAD as described in this section.

Modifying and running PRCLOAD

1. Modify PRCLOAD as follows:
 - a) Change 'M204.M204PROC' to your M204PROC data set name.
 - b) Insert your logon ID and password.
 - c) Make remaining changes as noted in the JCL comments.
2. Run the PRCLOAD job as modified.

Using PRCLOAD to reload other procedure files

The PRCLOAD job can reload any procedure file. For more general usage:

1. Change file names and data set names in the JCL and CCAIN to the name of the dump file from which you are transferring procedures.
2. Change all M204PROC references in the JCL and CCAIN to reference the file to which you are transferring procedures.

Running the DDRINST job

Modify the DDRINST as specified in the JCL comments. Run the DDRINST job as modified. For a copy of the DDRINST JCL, see “DDRINST and DDRINST procedures” on page 69.

Backing up Dictionary/204 files

DDBKP job

Use the DDBKP job to back up the following Dictionary/204 files:

CCASYS
DATALINK
M204DCTL
METADATA

If there are any problems while upgrading, restore your files to these backups and begin the upgrade process again.

DDBKPROC job

Use the DDBKPROC job to back up M204PROC.

Upgrading standard Dictionary/204 facilities

Dictionary/204 file backups are included in the DDRINST job. The backups must return a zero return code for the update portion of the job to execute. After running DDRINST, be sure all steps have completed normally before proceeding to the next step.

Use the member DDRINST to:

- Create or update the dictionary administrator account entry.

If the dictionary administrator has system manager privileges, then the administrator is authorized to use every Dictionary/204 facility, including the Subsystem Management facility. The dictionary administrator can then use the Dictionary/204 Administration facility to authorize other users to use facilities.

- Update existing entity types and add new standard Dictionary/204 entity types to the dictionary.

If you are creating new entity types and have existing definitions for some of these entity types, DDRINST merges the old definitions with the new ones. The ONLINE mode lets you choose which definitions to merge.

- Update and add entries for CCA subsystems.

The login account of the system manager running DDRINST is added to the ADMIN class of each Dictionary/204 subsystem. The system manager can start, stop, and test each subsystem. The system manager is also authorized to use the Subsystem Management facility and can do so to authorize other users to start, stop, and test each subsystem.

- Add CCASYS field definitions.
- Create the Dictionary/204 Migration facility (DDMIG).

- Define new fields for METADATA.
- Update METADATA facility entries.
- Initialize and regenerate M204TEMP file lock records.
- Allocate the D204SYS file.

Before running DDRINST, modify the JCL as specified in the JCL comments. Run DDRINST as modified.

Backing up files

After upgrading Dictionary/204 for your site, back up your files using the members DDBKP and DDBKPROC.

Do not delete M204INST, because the procedures are used by the DDROG job.

Installing the Cross-Reference facility

The Dictionary/204 User Language Cross-Reference facility consists of object modules that are link edited into the XREF phase. The object modules are stored in the M204LIB.Drrr sublibrary, where *rrr* is the release level.

You will need to download the Drrr sublibrary from the Rocket Model 204 FTP site as described in the readme file. Then run the LINKXREF job to link edit the XREFDOS phase.

Unloading the Cross-Reference batch programs

The M204CATP job defines the Drrr sublibrary, where *rrr* is the release level, such as 740. The Drrr sublibrary contains .OBJ members. You must run job LINKXREF to link the Cross Reference batch programs. The sublibrary occupies less than 700 library blocks of 1024 bytes each.

ONLINE modifications for using the Cross-Reference facility

An example of the z/VSE POWER JCL stream for the Online JCL follows:

```
* $$JOB JNM=MODEL204, CLASS=0
// JOB MODEL204 ONLINE
.
.
// ASSGN SYS021,X'FED' ----- POWER punch
.
// EXEC ONLINE,SIZE=AUTO
.
.
DEFINE DATASET CCAPPU WITH SCOPE=SYSTEM, DDNAME=SYS021
LOGIN system manager-id
```

```

password
.
DEFINE PUNCH XREFSERV WITH SCOPE=SYS-
TEM,ROUTER=POWER,INTRDR,CLASS=0
.
/*
/&
* $$ EOJ

```

Modifying the block size

For disk device types other than 3380s, you can override the default block size (9600) to decrease wasted space in the Cross-Reference facility work data set CCAREF. Override the BLKSIZE with a multiple of RECSIZE (240). However, the BLKSIZE cannot exceed 9600. On the initial job step, an additional eight bytes are required for a count field (for system use). However, the eight bytes are not needed on the other job steps. For example, to block 26 records on a 3350 disk requires the following in the first job step:

```
(RECSIZE * 26) + 8 = 6248
```

All other job steps require:

```
(RECSIZE * 26) = 6240
```

Cross-Reference facility JCL example

The following sample JCL is for the Cross-Reference facility. You can access it by pressing PF4 on the main XREF subsystem screen.:

```

* $$ JOB JNM=userid,LDEST=(*,userid),CLASS=0
* $$ LST CLASS=V
// JOB userid THE MODEL 204 CROSS REFERENCE UTILITY
/* To adapt this procedure to your installation:
/* 1. Modify JOB statement
/* 2. Modify the following in the job stream:
/*   nnn   - Release value for procname and library assignment:
/*         (e.g., // EXEC PROC=M204V610)
/*         (e.g., // LIBDEF PHASE,SEARCH=M204LIB.D610)
/*   ASSGN - This JCL assumes standard assignments
/*         for the logical units (SYS000) referenced
/*         in EXTENT statements. Add as needed:
/*         (e.g., // ASSGN SYS000,cuu)
/*   LENGTH - length of dataset in blocks/tracks/cylinders.
/*         If a MODEL 204 distribution file, see installation
/*         guide for number of 6184 byte pages.
/*   START - starting location of dataset.
/*   USERID - your userid.
/*   VOLID1 - location of work dataset CCAREF.

```



```

/* Notes:
/* 1. Substitute the actual name of your phase library in the
/* DLBL M204LIB, unless of course these are in standard
/* labels.
/* 2. See other notes below regarding CCAREF and sort
/* datasets.

/* *****
/* Step 1: Run the cross reference parser.
/* *****
/*
// EXEC PROC=M204JCL
// LIBDEF PROC,SEARCH=M204LIB.Jnnn
// EXEC PROC=M204Vnnn
// LIBDEF PHASE,SEARCH=M204LIB.Dnnn
/*
/* For CCAREF use any method of allocating a sequential
/* dataset that can be passed to the next two steps,
/* using the amount of space as discussed in the
/* Dictionary/204 manual.
/* The following example is for a manually allocated dataset.
/*
/* Note that you may override the default BLKSIZE for CCAREF
/* (9600) in order to decrease wasted space for certain disk
/* device types.
/* To override, BLKSIZE must be a multiple of RECSIZE (240) but
/* may not exceed 9600. For the first job step, also add 8.
/* For example, to block 26 records on the DLBL below, use:
/* // DLBL CCAREF,'userid.CCAREF',0,,BLKSIZE=6248
/* but for sort (step 2) in the INPFIL and OUTFIL lines,
/* and report (step 3) in the DLBL, use blksize=6240.
/*
// DLBL CCAREF,'userid.CCAREF',0
// EXTENT SYS011,volid1,,,start,length
// ASSGN SYS011,DISK,VOL=volid1,SHR
// EXEC XREFDOS,SIZE=AUTO
// *M204XREF
/*
/*
/* *****
/* Step 2: Sort the parser output.
/* *****
/*
/* Note: This sample uses the same dataset for input and output.
/* If you modify this, be sure to modify the CCAREF dataset in
/* step 3 following the sort.
/*
// DLBL SORTIN1,'userid.CCAREF'
// EXTENT SYS011,volid1
// DLBL SORTOUT,'userid.CCAREF'

```

```

// EXTENT SYS011,volid1,,,start,length
/* ASSGN SYS011,DISK,VOL=volid1,SHR - carried from above step
// EXEC SORT
  SORT FIELDS=(1,82,A,97,64,A,90,6,A,88,1,A),FORMAT=CH,WORK=1
  RECORD TYPE=F,LENGTH=240
  INPFIL BLKSIZE=9600
  OUTFIL BLKSIZE=9600
  END
/*
/*
/* *****
/* Step 3: Run report with sorted parser output.
/* *****
/*
// EXEC PROC=M204Vnnn
// LIBDEF PHASE,SEARCH=M204LIB.Dnnn
// DLBL CCAREF,'userid.CCAREF'
// EXTENT SYS011,volid1
// EXEC LISTDOS
55
/*
/&
* $$ EOJ

```

7

Dictionary/204 Operation and File Maintenance

In this chapter

- Backing up Dictionary/204 files
- Backing up M204PROC
- Restoring files
- Reorganizing Dictionary/204 files
- Populating Dictionary/204 from a Model 204 file
- Setting up DDGEN based on Dictionary/204 files
- Updating files using delayed processing
- Reinitializing M204TEMP

Backing up Dictionary/204 files

The JCL for jobs required for the daily operation of Dictionary/204 and for Dictionary/204 file maintenance are included in the M204LIB.Jrrr sublibrary. The operation and maintenance jobs are not run during installation, but it is suggested that you modify the JCL during installation to ensure consistent values.

Use the member DDBKP to back up all the Dictionary/204 files, including:

- CCASYS
- D204RPT
- DATALINK

- M204DCTL
- METADATA

During installation, change DDBKP as specified in the JCL comments. You can modify DDBKP to back up just one of these files or any combination of them. The default is to back up to cartridge, though backing up to DASD is also possible.

Table 7-1.

File	Backup requirements
D204SYS	Is not included in the backup options because it is an intermediate file that holds data on a temporary basis. If you want to back up D204SYS, modify DDBKP and DDRST accordingly.
M204PROC	Is backed up separately, because it must be backed up only after installing a new product, upgrading to a new release, or applying early warnings.
M204TEMP	Does not have to be backed up, because the member DDTINIT can be used to reinitialize the file at any time.

Backing up M204PROC

Use the member DDBKPROC to back up the M204PROC file.

Use DDBKPRC to back up M204PROC prior to, and again after, updating its contents to:

- Apply early warnings
- Add procedures to support additional product(s)
- Install a new version of a product

M204PROC might contain procedures for:

- Dictionary/204

You must back up M204PROC each time a product that transfers procedures into M204PROC is installed. Dictionary/204 does not update M204PROC.

Note: Back up M204PROC immediately after applying maintenance, because the Autofix-generated fixes add data records to TABLEB of M204PROC.

During installation, modify DDBKPROC as specified in the JCL comments.

Restoring files

Use the member DDRST to restore Dictionary/204 files from the dumped version created by the DDBKP job.

During installation, modify DDRST as specified in the JCL comments. Run DDRST as modified.

Use the member DDRSPROC to restore the M204PROC file from a DDBKPROC dump. During installation, modify DDRSPROC as specified in the JCL comments.

Reorganizing Dictionary/204 files

The member DDROG unloads, reallocates, recreates, and uses the Model 204 File Load utility to reload the specified file. See the *Rocket Model 204 File Manager's Guide* for information about the File Load utility and reorganizing files.

The file you are reorganizing cannot be in use when DDROG is run.

Use DDROG to reorganize any of the following Dictionary/204 files:

- CCASYS
- D204RPT
- DATALINK
- M204DCTL
- METADATA

You do not need to reorganize M204PROC, because it is not updated and must be restored from a backup or reconstructed from the installation software. M204TEMP can be reinitialized rather than reorganized.

Note: Make a current backup before attempting to reorganize a file.

Steps in the DDROG job

The DDROG job consists of the following steps:

1. Print out the records in the file to a sequential data set.
2. Deallocate the original file and allocate another to replace it.
3. Create the new file with correct parameters. Load the records into Table B using the FLOD program, deferring index updates.
4. Sort the index updates using the SORT utility program.
5. Load the index updates using the Z command, deferring FRV index updates.
6. Sort the FRV index updates using the z/VSE SORT utility program.
7. Load the FRV index updates using the Z command.

Changing the DDROG job

Change DDROG as follows and as directed in the comments of the job:

1. Activate and modify the commented DEFINE DATASET command for the file being reorganized, if the Model 204 file name is eight characters in the DEFINE DATASET command.
2. If you define fields using the procedures stored in M204PROC, activate the commented DEFINE DATASET and OPEN commands for M204PROC and remove the asterisks from statements that describe the field definitions for the particular file you want to reorganize. For example, if reorganizing the DATALINK file, remove the asterisks that precede these statements:

```
*INCLUDE DICN.DATFLD
*DEFAULT DATALINK
```

Also, if using these statements to define fields, remove the comments from the DLBL and EXTENT statements for the M204PROC file:

```
* // DLBL M204PRO, 'M204.M204PROC' , , DA
* // EXTENT SYS000, volser
```

3. If reorganizing the METADATA file, include the appropriate DEFINE FIELD statements for installation-specific definitions. Specify these statements after the statement that includes the procedure that defines the standard fields.

Note: The M204PROC procedure, DICN.METFLD, contains all the standard METADATA fields for the current Dictionary/204 release. For example:

```
*INCLUDE DICN.METFLD
*YOUR OWN DEFINE FIELD STATEMENTS
*DEFAULT METADATA
```

Reorganizing D204RPT

To reorganize D204RPT, take the following steps:

1. Run the member PRCLOAD described earlier to transfer procedures from D204RPT (replace FILENAME with D204RPT) to another Model 204 procedure file temporarily; for example, TEMPRPT (replace M204PROC with TEMPRPT).
2. Run DDROG for D204RPT to reorganize the data and change file parameters.
3. Run PRCLOAD again to transfer procedures from the temporary file (replace FILENAME with TEMPRPT) to the D204RPT file (replace M204PROC with D204RPT).

Reorganizing METADATA

The METADATA file requires reorganizing under the following circumstances:

- Your site uses any of Rocket’s optional end-user products.
- Dictionary/204 is extended because of new entity types or new attributes to existing entity types.

Use one of the following techniques to define METADATA fields:

- Use the DISPLAY command to display all the field definitions into an OUTFILE. Use this file as input for defining the fields again. See the *Rocket Model 204 Command Reference Manual* for more information.
- Run DDGEN for the METADATA file. In Dictionary/204 File Management, use the RECREATE command and execute the commands with the inactive option, which puts the DEFINE commands into a procedure or a sequential OUTFILE. Use this procedure or file as the input to the reorganization. It is not necessary to have M204INST available. Make sure that the DLBL and EXTENT statements that refer to M204INST are commented out.

Populating Dictionary/204 from a Model 204 file

The DDGEN member populates your installation’s Dictionary/204 from existing Model 204 files.

Up to 100 Model 204 files can be specified. Run this job when creating Dictionary/204 for the first time or when updating Dictionary/204 to include definitions of new files.

Note: The member DDGENSET described in “Setting up DDGEN based on Dictionary/204 files” on page 83 can be used as a front end to DDGEN.

Run the job in Online mode if you want. DDGEN uses OUTDDG1 as a work file, therefore, only one user at a time can run it.

DDGEN automatically sets the server sizes it requires and restores the original values of the server tables upon completion.

During installation, modify DDGEN as specified in the JCL comments and change the User 0 input stream as shown in “Setting up DDGEN based on Dictionary/204 files” on page 83. The file name and password specifications are read as input by DDGEN. If no passwords are needed for the specified files, supply blank lines as described in the JCL comments.

Setting up DDGEN based on Dictionary/204 files

Use the member DDGENSET to select a set of files that are already defined in Dictionary/204 to run through DDGEN. This might be used to synchronize the actual Model 204 files with Dictionary/204. DDGENSET reads your site’s dictionary and automatically creates CCAIN and DLBL and EXTENT statements from it for files defined to Dictionary/204. The CCAIN and DLBL and EXTENT statements are generated into OUTDDG1.

DDGENSET requires that a Dictionary/204 entry exist for each file that is used to populate the dictionary. The entry must contain valid data set name attribute values. No other attributes are required. If the entry contains valid information, then a valid step override statement is generated. Otherwise, you must edit the step override statement to fill in the data set name. If you do not add the data set name now, you must add it later through the Dictionary/204 File Management facility.

During installation, modify DDGENSET and change the CCAIN stream as specified in the JCL comments.

Updating files using delayed processing

The member DDFIMCMD performs a batch update of your Model 204 files based on pending commands specified in the Dictionary/204 File Management facility. Use DDFIMCMD to selectively update the Model 204 files to which these commands apply. Run the job to execute pending commands for one or more files.

Enter the following commands Online to obtain a list of the files that have pending commands:

```
OPEN METADATA
OPEN DATALINK
OPEN M204PROC
INCLUDE FIMO.PENDFILE
```

A prompt for an output USE filename is displayed. If you do not enter a file name, the list is displayed at the terminal.

See the *Rocket Model 204 Dictionary/204 and Data Administration Guide* for more information on the File Management facility.

During installation, modify DDFIMCMD and change the CCAIN stream as specified in the JCL comments.

Set the LOGADD parameter to the number of files to be processed by DDFIMCMD. Passwords are added for these files and then deleted during the run, because the user's privileges were verified when the commands were requested.

Reinitializing M204TEMP

Use the member DDTINIT to reinitialize the M204TEMP file when the file has become physically inconsistent or to change parameters that cannot be reset, such as CSIZE.

DDTINIT creates, initializes, and defines fields, and rebuilds the necessary Lock and Gate records in M204TEMP.

If M204TEMP becomes logically inconsistent or extraneous records are left in M204TEMP when a user is restarted, the data records are rebuilt automatically by the Dictionary/204 subsystem. The data records can also be rebuilt by the

dictionary administrator online. See the *Model 204 Dictionary/204 and Data Administration Guide* for more information.

During installation, modify DDINIT and change the CCAIN stream as specified in the JCL comments.

8

Installing Connect★ Support

In this chapter

- Overview
- Installing SQL
- Installing SQL catalog facilities and optional subsystems
- Reinstalling SQL catalog files and optional subsystems
- Loading the demonstration database DDL
- Verifying SQL installation
- Enabling client/server access

Overview

This chapter describes the installation tasks required for Connect★. It is assumed that you are installing this product as part of Model 204 installation or reinstallation.

For Connect★ installation, some of the information required is contained in this guide; some additional information is in the *Model 204 SQL Server User's Guide*; and most of the additional information is in the *Connect★ Installation and Administration Guide*.

For more information on the versions of Connect★ and Horizon available with this release, see “Installation considerations” on page 6.

“Installing SQL” on page 88 contains the main installation steps for Connect★. From there you are referred to other sections in this chapter or to other guides.

Before you begin

Before you can use or test Connect★ from your PC, you must complete the Model 204 installation and configure your online CCAIN for SQL/RCL connections.

If you expect to install CCATSF and CCACATREPT (See page 90), you must also install Dictionary/204 beforehand.

For more information about setting up an Online to support Connect★, see the *Rocket Model 204 SQL Server User's Guide*.

Installing SQL

Product and feature dependencies

Connect★ itself also requires installing other Model 204 products and features (see Table 8-1). The SQL installation steps (Table 8-2) include directions and pointers for the installation of these products and features.

Table 8-1. Model 204 SQL product and feature dependencies

If installing...	You must install...	You may install...
Connect★	Horizon	SQL catalog subsystems
SQL catalog subsystems	Dictionary/204	N/A

SQL DUMP files

The Model 204 downloadable software includes the SQL dump files, CATPROC and TSFPROC. This section describes how to FTP the SQL dump files to the mainframe and install them.

To install the Model 204 SQL dump files:

1. FTP the .zip file, m204.vrrr.sql.zip, to your PC in **binary** format. (*rrr* is the release number, for example 740)
2. Unzip the .zip file on your PC using WinZip or a similar program.
3. If you have not already done so, FTP the ftpbatch.jcl file to the mainframe. The FTPBATCH job is provided to assist you in transferring the Model 204 DUMP files from the FTP server to the mainframe. This file must be transferred in ASCII format.
4. Modify the FTPBATCH job as noted in the ftpbatch.jcl file. Comment out any DUMP files you will not be transferring.

Note: The FTPBATCH job defines the file names and data set names used in subsequent installation jobs. If you make changes to the names in FTPBATCH, you must use those names for all subsequent installation jobs; otherwise those jobs will fail.

5. Use the information in this chapter to determine size requirements for each DUMP file.
6. Submit the job.
7. Continue the installation as described in this chapter.

SQL installation steps

Include the SQL-specific steps and reminders in Table 8-2 in your Model 204 installation or reinstallation.

Table 8-2. SQL installation steps

Step	Action
1.	Install the Model 204 nucleus, with the Horizon object included.
2.	(Optional; only needed for SQL catalog subsystems) Install Dictionary/204. See Chapter 5 and Chapter 6.
3.	Allocate, create, and load the SQL catalog—or reinstall the SQL catalog—and support subsystem by customizing the SQLRINST job.
4.	Enable Connect★ as directed in the <i>Connect★ Installation and Administration Guide</i> .
5.	Verify your installation. See page 95.

Installing SQL catalog facilities and optional subsystems

Connect★ clients require the Model 204 SQL catalog to access their data. The catalog is a Model 204 file, CCACAT, that maps Model 204 files to SQL tables and Model 204 fields to SQL columns.

Before you can run an SQL application against an existing Model 204 file, you need to use a PC/Client utility to define the file and its field descriptions to the catalog. For details, see "Populating the SQL catalog" in the *Connect★ Suite Installation and Programming* guide.

The Model 204 SQL Table Specification Facility, CCATSF subsystem, is a tool for defining Model 204 files to the SQL catalog. The Model 204 SQL catalog reporting facility (CCACATREPT subsystem) provides reports of the contents of the SQL catalog. Unlike the SQL catalog itself, these catalog facilities are not required for SQL processing.

Before you can install CCACATREPT and CCATSF subsystems, the file M204INST must be available to the Online.

If you have already installed SQL catalog facilities or subsystems

If you installed SQL catalog facilities or subsystems earlier as part of a prior release of Model 204 installation, skip to the section “Reinstalling SQL catalog files and optional subsystems” on page 91.

Using CCACAT

CCACAT, the SQL catalog file, is populated and updated using SQL DDL. It is also maintained under Model 204 as a Model 204 file.

Note:Keep CCACAT SQL processing separate from CCACAT Model 204 file processing. Access to CCACAT for purposes other than normal SQL installation, operation, and reporting, and other than normal Model 204 operations like sizing, reorganizing, and recovery is highly discouraged.

CCACAT field attributes

All KEY field attributes in the CCACAT file are either ORDERED NUMERIC or ORDERED CHARACTER, as appropriate. This is part of the reinstallation process and does not affect any data that is currently stored in the CCACAT catalog file.

Use of the ORDERED attribute speeds up data retrieval and is also recommended for use with all fields which participate in SQL selection qualification, aggregate functions and queries using DISTINCT.

SQL catalog facilities

Before your users can access Connect★, you must install the Model 204 SQL catalog facilities. To do so, follow these steps:

1. Modify the SQLINST job as described in the job comments.
2. Submit SQLINST to allocate and create SQL catalog files.
3. If you plan to use the optional Table Specification Facility (CCATSF) and the catalog reporting tool (CCACATREPT) or want to add them at a later time, install Dictionary/204 as described in Chapter 4. The CCATSF and CCACATREPT subsystems utilize the Dictionary/204 subsystem management files METADATA, DATALINK, and CCASYS.

Installing SQL catalog subsystems

Install the SQL subsystems, the Table Specification Facility (CCATSF), and the catalog reporting tool (CCACATREPT), as described below. Dictionary/204 must be installed and a Model 204 SQL Online must be running.

Installing CCATSF

1. Enter:

```
OPEN TSFPROC
```

2. Enter:

```
IN TSFPROC INCLUDE INSTALL.CCATSF
```

3. Specify a CCATSF subsystem Administrator ID and passwords, if any, for the CCASYS, METADATA, and DATALINK files. You can change the Administrator ID later through Dictionary/204, if you want.
4. See the *Rocket Model 204 SQL Server User's Guide* for information about using the TSF. For example, CCATSF must first be started (with the START SUBSYSTEM command) before users can log in.

Installing CCACATREPT

1. Enter:

```
OPEN CATPROC
```

2. Enter:

```
IN CATPROC INCLUDE INSTALL.CCACATREPT
```

3. Specify a CCACATREPT subsystem Administrator ID and passwords, if any, for the CCASYS, METADATA, and DATALINK files. You can change the Administrator ID later through Dictionary/204, if you want.
4. See the *Rocket Model 204 SQL Server User's Guide* for information about using CCACATREPT. For example, CCACATREPT must first be started (with the START SUBSYSTEM command) before users can log in.

Reinstalling SQL catalog files and optional subsystems

This section contains instructions for rebuilding or updating your existing CCACAT SQL catalog file.

SQLRINST job for restoring CATPROC and TSFPROC

The SQLRINST job handles the restore of CATPROC and TSFPROC. This job defines two additional fields, MINIMUM_SCALE and MAXIMUM_SCALE, in CCACAT, and executes ODBCTABLES.INSTALL to update the System Tables in CCACAT. It also updates a previously existing SQL Catalog, CCACAT file, that was created in a prior release.

If you want to install the optional subsystems, CCATSF and CCACATREPT, see "Installing SQL catalog subsystems" on page 90.

At this time, you might want to rebuild the SQL Catalog to take advantage of newly installed System Table features. (See "Rebuilding the SQL catalog".) However, this is not necessary; previously defined tables will function as before.

Rebuilding the SQL catalog

To rebuild your catalog, complete the following tasks:

- Recreate the CCACAT file and reprocess all user DDL into the catalog using the new ONLINE module and the Connect★ CVI, PC/Client application. For details, see "Populating the SQL catalog" in the *Connect★ Suite Installation and Programming* guide.
- Use the new CATPROC file, which contains procedures, to create the CCACAT file and store queriable catalog definitions into it.

To rebuild the catalog:

1. Start CCACATREPT and use it to generate DDL based on the existing data within your catalog. At the Model 204 command prompt enter:

```
START SUBSYS CCACATREPT
CCACATREPT
```

Use option 1 from the main menu and supply the following for parameter values:

```
SCHEMA NAME: *
AUTHORIZATION ID: *
TABLE/VIEW NAME: *
DDL STATEMENT TYPES: TVG
USE COMMAND ARG: (to a machine readable file)
```

Route the output to a machine-readable file.

Note: Verify that you have correctly obtained a machine-readable file of DDL before proceeding with the recreation of the CCACAT file.

2. Dump your existing CCACAT file to ensure that you have a backup of the old file in case any problems occur.
3. Run SQLRINST.
4. Review your DDL and the rules for updatable tables for ODBC. Make any desired changes (you might, for example, want to assign primary keys).
5. Use this DDL as input to the Connect★ CVI, PC/Client application. For details, see "Populating the SQL catalog" in the *Connect★ Suite Installation and Programming* guide.

Note: If you are defining large schemas, you might want to break the schema definition into multiple transactions by adding SET SCHEMA statements as shown in the following sample.

Before SET SCHEMA added

```

1) CREATE SCHEMA FOO ...
   CREATE TABLE ...
   CREATE TABLE ...
   CREATE TABLE ...
   CREATE VIEW ...

```

After SET SCHEMA added

```

1) CREATE SCHEMA FOO ...
   CREATE TABLE ...
2) SET SCHEMA FOO
3) CREATE TABLE ...
4) CREATE TABLE ...
5) CREATE VIEW ...

```

Without a SET SCHEMA statement as shown in the second example, the entire schema definition starting at line 1 is treated as one large transaction. With the SET SCHEMA statement, there are five separate transactions as identified by the line numbers.

Updating your catalog without rebuilding

If you choose not to completely rebuild your catalog, then you must update your catalog by running SQLRINST.

1. Be sure that your SQL catalog facilities, CCATSF and CCACATREPT, are not active.
2. Modify SQLRINST as described in the job comments.
3. Submit SQLRINST.

Note: This procedure does not enable potential performance improvements of the full ODBC migration. Therefore, if you want to use ODBC in the future, you *must* convert the catalog using the instructions beginning on page 91.

Setting SQL runtime parameters

The following default and recommended parameter values have been modified to improve SQL and RCL processing. For more information, see Table 2-2 in the *SQL Connectivity Guide*.

Parameter	New value
LIBUFF	5000
LPDLST	32760
LTTBL	2000
LQTBL	2000

Parameter	New value
SERVSZ	350000
SQLBUFSZ	100000
SQLIQBSZ	32752

Loading the demonstration database DDL

If SQL clients want to use the Model 204 demonstration database, it must first be defined, or mapped, to the SQL catalog. Rocket provides a sample SQL DDL stream that maps the demonstration database to SQL views and tables. You may use the Connect★ Visual Interface (CVI) or any PC/CLIENT program to submit the DDL from the PC to Load the SQL catalog. For details, see "Populating the SQL catalog" in the *Connect★ Suite Installation and Programming* guide.

This section describes how to load the SQL catalog with the demonstration database DDL. For information about loading the catalog from a Connect★ Workstation, see "Populating the SQL catalog" in the *Connect★ Suite Installation and Programming* guide.

Procedure

1. Make sure that your Model 204 Online is running and is configured for SQL processing. The Model 204 Online requirements, described in the *Rocket Model 204 SQL Server User's Guide*, include:
 - DLBL statements for the SQL catalog (CCACAT file) and SQL utilities
 - Additional or modified CCAIN parameters for SQL processing
 - IODEV 19 threads
 - DEFINE LINK, DEFINE PROCESSGROUP, and DEFINE PROCESS commands for a TCP/IP SQL link
 - OPEN LINK command for the SQL link
2. Use the demotab.ddl provided with the Connect★ Suite software to define the DEMO database to the SQL Catalog.
3. Run the CVI application from any PC/Client to submit the DEMO DDL to the mainframe ONLINE.

Renaming your schema

Most of the examples available through the Connect★ Online help are based on the demonstration database and use DEMO as the schema name. You can either use this name or choose your own. If you do choose a different schema name, be sure to replace DEMO with your own schema name.

See the *Connect★ Suite Installation and Programming* guide for information about renaming your schema.

Verifying SQL installation

You can immediately test your SQL installation.

Connect★ provides the following ways to test your Connect★ installation:

- DatabaseConnectivity PC/Client application for JDBC
- DatabaseConnectivity PC/Client application for .NET
- Connect★ Visual Interface (CVI)

See the *Connect★ Suite Installation and Programming* guide and the online Help for more information.

Enabling client/server access

To provide your users with access to Connect★:

1. Install Horizon as described in Chapter 3.
2. Install Connect★ as directed in the *Connect★ Suite Installation and Programming* guide.

A

Object Modules

In this appendix

- Model 204 object modules (z/VSE)

Model 204 object modules (z/VSE)

The following object modules are link edited into the ONLINE, BATCH204, IFAM1, or BATCH2 configurations of Model 204.

M O D U L E	F E A T U R E	O N L I N E	B A T C H 2 0 4	I F A M 1	B A T C H 2	D E S C R I P T I O N
ANXV		X	X			ANALYZE command processor
APSY		X	X			Application subsystem support
APSZ		X	X			Application subsystem support
ARTH		X	X	X		Arithmetic compiler
ATIO		X	X	X		Audit trail formatting routines
AUTH		X	X	X		Security authorization services and features
BEGN		X	X	X		Model 204 initialization
BKUP		X	X			File DUMP/RESTORE commands
BOUT		X	X	X		Transaction backout feature
BXCI		X	X	X		Ordered index support
CDTB		X	X			\$CODE and \$DECODE functions
CHKP		X	X	X		Checkpoint/restart
CMIS		X	X	X		Server communication interface
CMPB		X	X	X		Boolean compiler
CMPF		X	X	X		File maintenance compiler
CMPI		X	X	X		Compiler sequential I/O
CMPJ		X	X	X		Miscellaneous routines compiler
CMPL		X	X	X		Compiler control routine
CMPR		X	X	X		Retrieval compiler
CMPS		X	X	X		General compiler subroutines
CMPU		X	X			TPROCESS statement compiler
CMPY		X	X			External record I/O image compiler
CMPZ		X	X			User Language screens and menus compiler

M O D U L E	F E A T U R E	O N L I N E	B A S I C M 1 2 0 4	I F A M 1 2	B A C H 2	DESCRIPTION
CNST		X	X	X		Support for RMODE 31 processing
CPIODOS		X	X	X		Checkpoint I/O routines
CRFS	CRAM	X				Full-screen remote User Language routine
CRIO	CRAM	X				Line-by-line remote User Language routine
CRPT		X				Remote printer support
CRSQ		X				CRAM remote SQL thread manager
CTCK		X	X	X		Password Expiration
CTTC		X	X	X		Account file security routines
CUST		X	X	X		Date/time stamp field data
DEBUG		X	X	X		Debugging facilities
DDLML		X	X	X		Extended field definition, displays
DEFN		X	X	X		USE command support
DFIL	PQO	X	X			Distributed file handling (LKONLN)
DKBM		X	X	X		Disk buffering monitor
DKIODOS		X	X	X		Disk I/O routines (Model 204 files)
DSPS		X	X	X		Model 204 dataspace support
DTME		X	X	X		Date and time routines
DTSR		X	X	X		Date time stamp routine
EDFS		X				Full-screen editor routine
EDIT		X	X			Line editor
EVAR		X	X	X		Arithmetic evaluator
EVBT		X	X	X		Ordered index
EVFM		X	X	X		File maintenance evaluator
EVIO		X	X	X		Sequential I/O evaluator
EVLU		X	X			Evaluator subroutines for interprocess communications
EVMI		X	X			External record I/O evaluator

M O D U L E	F E A T U R E	O N L I N E	B I T C H 2 0 4	I F M 1	B A T C H 2	DESCRIPTION
EVNM		X	X	X		Numeric range evaluator
EVNU		X	X	X		Evaluator control and Booleans
EVNV		X	X	X		Evaluator control and Booleans
EVSO		X	X	X		Sorted and hash key files evaluator
EWDP		X	X	X		Early Warning Recording/Display module
FENQ		X	X	X		File enqueueing routines
FILE		X	X	X		File OPEN/CLOSE routines
FLIO		X	X	X		FLOD and deferred update routines
FLL3			X	X		Z command processor
FLOD			X			Fast file load utility
FUNB	PQO	X	X			PQO functions
FUNC		X	X	X		Basic functions
FUND		X	X			Model 204 math functions and FORTRAN subroutines
FUNDLE		X	X			Model 204 LE mathematical functions and subroutines (with LENVDOS module)
FUNE		X	X			Editing functions
FUNF		X	X	X		More functions
FUNRDOS		X				TCP/IP
FUNU		X	X			User functions
FUNV		X	X	X		User functions used by Dictionary
FUNW		X	X	X		Functions for Target/204, Release 2.0
FUTL		X	X	X		File utility functions
GLBLDOS					X	File label retrieval
GLOB		X	X	X		Globals
GRUP		X	X	X		File group features
IFAM		X	X	X		IFAM function routines

M O D U L E	F E A T U R E	O N L I N E	B I T C H 2 0 4	I F M 1 2	B A T C H 2	DESCRIPTION
IFAS		X		X		IFAM function routines
IFCF		X	X	X		Interface to call C functions
IFDM		X		X		IFAM interface routines
IFET	PQO	X	X			PQO support
IFID		X	X			IFDIAL single user support
IFIFDOS					X	IFAM outboard interface subroutines
IFII		X				IFAM2 support
IFII1				X		IFAM1 dynamic loading
IFSQ		X	X	X		Routines to call IFAM from SQL
IF6C	HRZN	X				Client-side of LU6.2
IF6S	HRZN	X				Server-side of LU6.2
IOFS		X	X	X		I/O interface — full-screen device
IOIF		X	X	X		I/O interface — device independent
IOPC		X				I/O interface — PC device
IPIC		X				Interprocess Inbound Conversation Manager
JRIO		X	X	X		Journal I/O routines
KOMM		X	X	X		Common storage and parameter values
LARB		X	X	X		Logical I/O arbitration routines
LBUF		X	X	X		Logical I/O buffer handling
LCIO		X	X	X		Logical I/O module for streams
LCMD		X	X	X		COPY/OFFLOAD command processing
LENVDOS		X	X			Initialize LE environment to allow mathematical functions to use LE mathematical services (with FUNDLE module)
LIOS		X	X	X		Logical I/O subsystem
LPIO		X	X	X		Parallel I/O streams
LRIO		X	X	X		Ring I/O streams

M O D U L E	F E A T U R E	O N L I N E	B A S I C M 1 2 0 4	I F A M 1 2	B A T C H 2	DESCRIPTION
LSUB		X	X	X		Logical I/O common routines
LUCO		X	X			Control operator program for CNOS Horizon
LU62	HRZN	X				Distributed Application facility controller
MAIN		X	X	X		Command loop, error routines
MLNK		X	X	X		CCA debugging features
MSGP		X	X	X		Error message routines
MSGS		X	X	X		Model 204 error message table
MSGU		X	X			User error message table
NLANG		X	X	X		US and other language tables
ONLM		X				Online monitor package
PARM		X	X	X		Parameter VIEW and RESET routines
PARS		X	X	X		CCAIN and command parsing
PROC		X	X			Procedures subroutines
PROD		X	X	X		Procedures subroutines
PRPR		X				Process-to-process communications
PSEC		X	X			Procedure security
PTCH		X	X	X		Early warning code fix area
PTCN		X	X	X		Patch Number Table
RCLK		X	X	X		Record Locking manager
RCVY		X	X			Recovery RESTART command
RENG		X	X	X		Record and resource enqueueing routines
RM24		X	X	X		Implementation of support for RMODE 31 processing
RSQL		X	X	X		Remote SQL and Pattern Matcher
RUTL		X	X			Media recovery
SBDS	PQO	X	X			PQO support
SBD2	PQO	X	X	X		Common SQL/PQO routines

M O D U L E	F E A T U R E	O N L I N E	B A L T H 2 0 4	I A C M 1	B A T C H 2	DESCRIPTION
SBFM			X	X	X	File maintenance subroutines
SBIO			X	X	X	Sequential I/O subroutines
SBNU			X	X	X	Miscellaneous subroutines
SBNV			X	X	X	Conversion subroutines
SBPT			X	X	X	Subroutines for pattern matcher
SBSQ			X	X	X	BAL routines call from C
SBXM			X	X	X	Ordered Index maintenance subroutines
SCHD			X	X	X	Priority scheduler
SDIO			X	X	X	Sequential data sets I/O routines
SESM			X	X		Session management. for inter process communication
SM62DOS	HRZN		X			Horizon implementation of LU session management
SORT			X	X	X	SORT functions
SORU			X	X	X	UL sort compiler
SORX			X	X	X	Sort user exits
SPCL			X	X	X	Support for specials
SQIO			X	X	X	BSAM, QSAM sequential I/O
STAT			X	X	X	Statistics and accounting routines
SUPF			X	X	X	System-independent supervisor functions
SUSE			X	X		Directed output (USE) features
SVIODOS			X			Server feature
SWDB			X			Server-swapping Debug Facility
SYIODOS			X	X	X	System-dependent I/O functions
SYSFDOS			X	X	X	System-dependent supervisor function
TC62DOS			X			TCP/IP
TCVS			X			TCP/IP

MODULE	FEATURE	OPTIONAL				DESCRIPTION
		N	B	I	B	
TFRM		X	X			TRANSFORM command
ULIFDOS					X	BATCH2 utility module
UTIODOS					X	I/O subroutines for utility
VSIODOS		X	X			VSAM I/O functions
VTNTDOS	VTAM	X				VTAM 3767 and NTO support
VT62DOS	HRZN	X				Subroutines for interprocess communication with LU 6.2
VT75DOS	VTAM	X				VTAM 3270 support (full-screen)

B

M204TEMP File Space Calculations

In this appendix

- File space calculations

File space calculations

The variables in the following expressions, except where otherwise identified, are those used in the file space calculations in the *Rocket Model 204 File Manager's Guide*. A number of the values used are estimates only.

The M204TEMP file is an unordered file.

To calculate the approximate size of the M204TEMP file, let:

- u = Number of concurrent users
- x = Average number of nested facilities being invoked per user
- t = Average number of temporary records stored per user (use average number of lines being scrolled)
- k = Average number of entities being used per user

1. The total number of records stored for each user session, U_r , is then:

$$U_r = 1 + x + t$$

2. The total length of all records stored for each user session, U_l , is:

$$U_l = 30 + x * 650 + t * 175$$

where 650 and 175 are estimated average record lengths for the given type of record, and 30 represents an estimate for overhead.

3. The total number of records stored, N_r , is:

$$N_r = u * U_r + 2 * k$$

4. N , the file size multiplier, is:

$$N = N_r / 8 * \text{usable page size} = N_r / 49152$$

5. R , the average record length, is:

$$R = U_l / U_r$$

6. The index space per segment, I_s , is:

$$I_s = A + B + C + N \text{ (from the Model 204 File Manager's Guide)}$$

Because $B = 0$ here, $A = (6+2*N_r)/5222$, and $C = ((6*10+2) + (6+2*N_r))/5222$

$$I_s = (6+(2*N_r))/5222 + (68+(2*N_r))/5222 + N$$

$$I_s = ((74 + 4 * N_r) / 5222) + 1$$

7. And I , the total index space for N segments, is:

$$I = I_s * N + N$$

8. The total file size, in pages, is:

$$M204TEMP = ATRPG + FVFPG + MVFPG + BSIZE + CSIZE + DSIZE + 8$$

where the variables are the parameters listed below.

Table A parameters

$$\begin{aligned} ASTRPPG &= 6144/\text{average string length} = \\ &6144/((20*4)+155)/20 \\ &= 6144/12 \\ &= 512 \end{aligned}$$

$$\begin{aligned} ATRPG &= 1.1 * 28+(4+6)/512 \\ &= 0.82 \\ &= 1 \end{aligned}$$

$$FVFPG = 1$$

$$MVFPG = 1$$

Table B parameters

$$BRECPPG = 1.1 * (6140 / R)$$

$$BSIZE = 1.2 * (Nr/BRECPPG)$$

$$BRESERVE = R$$

Table C parameters

$$CSIZE = 1.2 * ((7 * N + 7) * (62 + 6 * Nr)) / 6144$$

Table D parameters

$$DRESERVE = 15 \text{ (default)}$$

$$PDSIZE = 1$$

$$DPGSRES = (DEST/50 + 2) \text{ or } 40, \text{ whichever is smaller (default)}$$

$$\begin{aligned} \text{where: } DEST &= I + F + P + (K * PDSIZE) + Q + OI \\ &= I + 0 + 0 + 1 + 0 + 0 \\ &= I + 1 \end{aligned}$$

$$\begin{aligned} DSIZE &= I + F + P + (K * PDSIZE) + Q + OI + DPGSRES \\ &= DEST + DPGSRES \\ &= I + 1 + DPGSRES \end{aligned}$$

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