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and click **Rocket M204**.

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About this Guide

This *Model 204 Installation Guide for IBM z/OS* contains the information needed to install Model 204 in a z/OS environment. The information in this manual is for Model 204 and Dictionary/204.

The installation and maintenance processes described in this manual provide a summary of the Model 204 system characteristics, operations, and installation procedures that are unique to the z/OS version of Model 204. This guide is a supplement to the documents that comprise the Model 204 documentation set.

This document is not customized to your site's requirements and might supply instructions for features that you do not use.

Audience

This guide is directed to those responsible for installing and maintaining Model 204 at your site. Specifically, the z/OS systems programmer and the Model 204 installer both have required tasks during a Model 204 installation.

Model 204 documentation set

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 manual 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

In this chapter

- Overview of Model 204
- INS204 installation system
- Changes to INS204 for Model 204 V7R4.0
- Distribution files

Overview of Model 204

This chapter introduces INS204, the automated installation system, and describes the recommended preparation for installing Model 204 in the z/OS environment.

Model 204 is a database management system (DBMS) that 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, C, COBOL, PL/1, and FORTRAN can communicate with Model 204 functions through the Model 204 Host Language Interface.

Model 204 also supports SQL and Remote User Language transactions from:

- Internet using Horizon with Connect★

- PC using Horizon with Connect★
- Software products using the Connect★ Suite of drivers for .NET, JDBC, or ODBC; including, but not limited to:
 - Programming languages: Visual Basic, C#, JAVA, C, C++
 - Programming IDEs: Java Eclipse, Java NetBeans, Microsoft Visual Studio 2005
 - Third party software: Microsoft Access, Crystal Reports, PowerBuilder

Documentation on Model 204 V7R1.0 features

If you are migrating to V7R4.0 from a Model 204 release prior to V7R1.0, you need 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 set” on page iii.)

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/OS environments. This guide explicitly notes, where appropriate, any z/OS release-specific variations in the installation process.

INS204 installation system

INS204, the automated installation system, provides the interface you use to install or reinstall the Model 204 nucleus, Model 204 features such as CA-ACF2 (the Model 204 CA-ACF2 Interface), and Model 204 add-on products. INS204 offers these advantages:

- Generates site-specific installation jobs and instructions for Model 204 and other add-on products
- Significantly reduces the need to edit JCL members for new product releases

- Provides default values for substitutable parameters used in JCL procedures and CCAIN streams
- Provides a single file that you can edit to:
 - Specify products and features to install or reinstall
 - Override default parameter values

INS204 is the only supported installation method for z/OS. The standard JCL library contains only those jobs that are not generated by INS204.

Changes to INS204 for Model 204 V7R4.0

Software delivery

Installation from tape is no longer supported.

Rocket provides you with site access logon and password to download the M204 installation components as well as product installation and authorization keys.

INSPARMS features

Because of the changes highlighted in this section, you must pay attention to the information in “Modifications to INS204” on page 21, to correctly install Model 204 V7R4.0.

Installation considerations for Freeway/204

As of V5R1, the INS204 installation process has been simplified by incorporating SNA Communications Server and Horizon code directly into the core Model 204 nucleus code by default.

If you are concerned about the increased size of the Model 204 nucleus caused by this packaging decision or wish to defer this new benefit, you need to override some of the new default settings found in the INSPARMS member of the INS204.JCLLIB data set. Customers who are already enjoying the advantages of these products will see no growth in code size, but they should review the abbreviated install process for changes that might affect their final configuration.

Note: Early Warning maintenance for these default features should be monitored.

SVC-less Cross Memory Services option

INS204 allows NOSVC as a value for the CRAM-SVC-NUM and XMEM-SVC-NUM parameters in INSPARMS. This is to allow generation of an ONLINE module which does not require the use of an SVC. See “Installing CRAM without an SVC” on page 61.

Distribution files

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

You will be provided a site access logon and password to download the Model 204 installation components, product installation and authorization keys, and a CPU ID zap specific to your site.

Contents of the Model 204 distribution files

Table 1-1 lists the contents of the distribution files.

Table 1-1. Distribution file contents

File No.	Library/files	Contents
1.	JCL Library	JCL procedures for installation. Sample JCL for Model 204 execution. New ZCTLTAB utility sample JCL. Operational JCL for Dictionary/204 and other add-on products.
2.	M204INST	Procedure file for installing Dictionary/204 and other add-on products.
3.	INS204 Load Library	The INS204 Load Library containing special BATCH204 modules for supported operating systems, which is for installation only.
4.	INSPROC	INS204 Model 204 procedure file.
5.	INSCUSTM	INS204 Model 204 data file containing INS204 modifiable default values for parameters used in building executable JCL. Once updated, it stores your site-specific values.
6.	INSCONFG	INS204 configuration data file that defines installation attributes of all products supported by INS204.
7.	INS204 JCL Library	INS204 JCL Library containing JCL members: <ul style="list-style-type: none">• GENJCL — A job that processes INSPARMS, updates INSCUSTM, and generates executable JCL and a checklist of JCL jobs to run.• INSBKUP — A job that backs up the INS204 Model 204 files.• INSPARMS — A member that you edit to specify updates to the INSCUSTM file and to select products and features for installation or reinstallation.
8.	OBJLIB	Model 204 object modules.
9.	EOBJLIB	Encrypted object modules of separately purchased features.
10.	MACLIB	Source code and macros required to customize and assemble Model 204 modules.
11.	EMACLIB	Encrypted macros and source programs of separately purchased features.

Table 1-1. Distribution file contents (continued)

File No.	Library/files	Contents
12.	DEMODB	Demonstration database dump files.
13.	C runtime libraries	SQL support.
14.	LOADLIB	<ul style="list-style-type: none">• M204LIST• M204XGRM• M204XCSA• M204XDM• M204XMON• M204XREF• M204XSVC
15.	TSFPROC	CCATSF procedure dump file for SQL.
16.	CATPROC	CATPROC procedure dump file for SQL.
17.	DICDIST	Dictionary/204 procedure dump file.

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, refer to the *Rocket Model 204 Autofix Installation and Operations Guide*.

Decryption keys

Rocket M204 Support will provide any decryption keys you need. You may see fewer keys than you have in previous Model 204 releases: control of Horizon, PQO, and MP/204 has been moved to the CPUIDZAP, and SNA Communications Server is now part of the delivered ONLINE code.

Some modules in the distribution files are in an encrypted format. If your license with Rocket includes any of the encrypted modules, the decryption keys will be included in your distribution package.

CPUIDZAP file

Rocket also provides a CPU ID zap specific to your site. You need to apply this zap during the installation procedure.

The CPU zap is part of the INSUNLD job. You must modify and run the CPUIDZAP job with values provided by Rocket. The purpose of this process is discussed in “CPUIDZAP job” on page 78.

When a zap is needed

Your site needs a zap for:

- Initial installation or upgrade of Model 204
- New CPU
- Relink of ONLINE, BATCH204, IFAM1, or IFAM4
- Disaster recovery CPU
- Additional virtual machine that has a virtual serial number that differs from the real machine serial number
- Change in number of authorized Connect★ seats
- Purchases of the PQO or Horizon features
- Activation of the MP/204 feature

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.

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★ Suite, note that 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 Rocket M204 Support. A new CPU ID zap will be issued. When applied it will update the number of Connect★ authorized threads.

If you do not own the PQO or Horizon features, you may still define a communication thread for each, if you installed with the default INSPARMS values for these features.

2

Preparing to Install Model 204

In this chapter

- Overview
- Preinstallation task list
- Defining Model 204 to TP access methods
- Deactivating Online system swapping activity
- Authorizing Model 204
- Initializing the system (IPL)
- Using IDCAMS to generate a generation data group definition
- Using mathematical functions
- Implementing the date/time stamp feature
- Installing the date/time stamp feature

Overview

This chapter lists the tasks you must complete before you install Model 204. The remaining chapters explain how to install Model 204 and additional, related features.

Preinstallation environment

High Level assembler 1.6 or higher is required to correctly assemble source.

If your site has assembler programs that reference the Model 204 macro library, you must reassemble with each new release of Model 204.

The length of the statistic block has changed, necessitating reassembly.

Operating system requirements

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

Version 1 Release 7 is sufficient for all new functionality except for the following features:

- Large (1 MB) page support requires **Version 1 Release 9**.
- Extended Address Volumes (EAV) requires **Version 1 Release 12**.

Hardware requirements

Model 204 V7R4.0 requires the **IBM z/890 or later** processor, except for the following feature:

- The large (1 MB) page support feature requires the **IBM z10 or later** processor.

MQ/204 environment requirements

MQ/204 has been validated with all currently supported versions of Websphere MQ for z/OS.

Preinstallation task list

Before you begin

Before generating JCL for Model 204 and installing the features and components, the z/OS system programmer and Model 204 installer must decide which is best for your site:

- To take advantage of the efficiency and speed of your IBM system by running Model 204 in an APF-authorized library.
- To have the security of isolating Model 204 from the rest of your IBM system by running Model 204 using SVCs as needed, which may require a system IPL.

Anticipating SVC usage

The previous decisions affect the jobs marked with an asterisk (*) in Table 4-1 on page 51 as follows:

- For a non-SVC installation, the ONLINE, IFAM4, and BATCH204 load modules must be linked as follows:
 - With object module M204XSVC

- With linkage editor option AC=1
- Into an APF-authorized load library
- For an SVC installation, you must install new SVCs for each new release of Model 204. Rocket does not support transferring SVCs from a previous release into a newer release. To install new SVCs, perform the following steps:
 - Install a new SVC using the M204XSVC job. This is necessary whether or not you are using IOS BRANCH or Timer PC.
 - Include the following User 0 parameters in your CCAIN stream:

Set XMEMOPT to the desired nonzero value. Refer to the *Model 204 Parameter and Command Reference* for the settings.

XMEMSVC=*nnn* where *nnn* is the SVC number assigned to the M204XSVC job.

Perform these steps before you run any jobs that include these modules, including INS204-generated jobs such as CREATEG, RESTDEMO, and jobs used to install Model 204 applications.

Users running IFAM1 applications must set XMEMOPT and XMEMSVC as described, whether the IFAM module is authorized or not.

Updating CRAM and M204XSVC

Rocket requires that CRAM and M204XSVC be installed at the comparable release level of Model 204. You cannot run a new release of Model 204 with prior versions of these SVCs. When you migrate to a new version of Model 204, you must also migrate to the new version of these components. Rocket does not support or warrant running new Model 204 versions with earlier versions of CRAM or M204XSVC.

Tasks for the z/OS systems programmer and Model 204 installer

You must perform the system-related tasks listed in Table 2-1 before downloading the Model 204 files. If this installation of Model 204 is an upgrade to a new release, some of the tasks might already be done. Do these tasks in the sequence in which they appear in Table 2-1. These tasks are assigned to the Model 204 installer or the z/OS systems programmer. If you want to run Model 204 without SVCs, bypass Steps 5 and 7.

Table 2-1. Preinstallation tasks

Step	Task for...	Task for z/OS	Discussion
1.	Systems programmer	Define Model 204 to TP access methods	See “Defining Model 204 to TP access methods” on page 11.
2.	Systems programmer	Deactivate Online system swapping activity	See “Deactivating Online system swapping activity” on page 12.

Table 2-1. Preinstallation tasks (continued)

Step	Task for...	Task for z/OS	Discussion
3.	Model 204 installer	Arrange for space. The LOADLIB data set will be at least 50 cylinders.	For 3390-3 disk, 160 cylinders
4.	Systems programmer	APF-authorize the LOADLIB for the nucleus, if a non-SVC installation is planned.	LOADLIB data set created in job INSUNLD. See "APF LOADLIB considerations" on page 13 and "Understanding M204XSVC" on page 62.
5.	Systems programmer	To install using a CRAM SVC, select a type 4 enabled SVC and update the IEASVCyy table in SYS1.PARMLIB with the selected CRAM SVC member. Specify this as: SVC Parm <i>nnn</i> , REPLACE, TYPE (4) Parameters SSN= <i>nn</i> , SVC= <i>nn</i> , FIX= <i>nn</i> , SCH= <i>nn</i> , APF= <i>nn</i> (or PROG= <i>nn</i>), and LPA= <i>nn</i> in the IEASYS <i>nn</i> member (where <i>nn</i> is specified at the time of IPL) point to the correct IEFSS <i>nn</i> , IEASVC <i>nn</i> , IEAFIX <i>nn</i> , SCHED <i>nn</i> , IEAAPF <i>nn</i> (or PROG <i>nn</i>), and LPALST <i>nn</i> members, respectively.	In z/OS systems, Type 4 SVC load modules can reside in the Fixed Link Pack Area (FLPA) or the Pageable Link Pack Area (PLPA) section of the link pack area. See Appendix B for more information about the Link Pack Area, including naming conventions for SVC load modules. Values may be between 200 and 250, or if an SVC-less installation is desired, NOSVC.
6.	Systems programmer	Select a secondary subsystem name for CRAM and update the IEFSS <i>nn</i> table in SYS1.PARMLIB with that name.	The secondary subsystem name must not be the same as any started task. This is required for both XDM and non-XDM options of CRAM.
7.	Systems programmer	To install using a Cross Memory Services SVC, select a type 3 enabled SVC. You can store in any LPALST library.	Make an entry in the IEASVC <i>nn</i> member in the PARMLIB before the system IPL. Values may be between 200 and 250, or if an SVC-less installation is desired, NOSVC.
8.	Systems programmer	Initialize the system (IPL), if necessary, to enable an authorized library.	See "Initializing the system (IPL)" on page 16.
9.	Systems programmer	Establish a privileged User ID.	For: <ul style="list-style-type: none"> • ZAPS • Authorizing Model 204 • EXCPVR • Nonswappable Model 204

Table 2-1. Preinstallation tasks (continued)

Step	Task for...	Task for z/OS	Discussion
10.	Model 204 installer	Plan a Generation Data Group (GDG) definition, if you want to use GDG for recovery data sets.	IDCAMS can be used (see “Using IDCAMS to generate a generation data group definition” on page 16).
11.	Model 204 installer	Prepare a sample JOBCARD.	

Defining Model 204 to TP access methods

The instructions given in this section are for defining Model 204 to SNA Communications Server (formerly VTAM) for full-screen terminal support. Model 204 provides SNA Communications Server support for full-screen terminals that are not 3270-compatible by providing a mechanism for writing exit routines to convert data outside of the SNA Communications Server 3270 interface. Rules governing data conversion exit routine coding are described in the *Model 204 System Manager's Guide*.

In addition to the SNA Communications Server definition described below, you must define any Horizon and/or SQL links individually to SNA Communications Server. For information on defining Horizon and SQL links, see the *Model 204 Parameter and Command Reference*.

Defining SNA Communications Server to Model 204

Installation of Model 204 with SNA Communications Server requires definition of Model 204 as a SNA Communications Server application program. Define Model 204 as a SNA Communications Server application node using VBUILD and APPL definition statements in SYS1.VTAMLST. For example, the following VBUILD statement begins a SNA Communications Server major node definition for Model 204, where M204 is the major node name:

```
M204      VBUILD TYPE=APPL
```

One or more APPL statements follow the VBUILD statement, each of which defines a single application. The following example is an APPL statement where the APPL name is M204PROD:

```
M204PROD  APPL
```

Unless the APPL operand *ACBNAME* is explicitly defined in the APPL statement (see the following “Specifying APPL operands”), the APPL name is the name that must correspond to the value of the VTAMNAME parameter in the CCAIN stream.

Specifying APPL operands

If SYS1.VTAMLST includes a set of APPL statements with each defining an application program, the following operands can be specified at the time of SNA Communications Server startup:

- *ACBNAME* specifies the application program name. If you do not specify *ACBNAME*, it defaults to the APPL name.

For ACF/SNA Communications Server, *ACBNAME* must match the name specified in the application program access method control block (ACB).

The name of the Model 204 run is specified for SNA Communications Server in the Model 204 system parameter VTAMNAME. The value of VTAMNAME is an 8-character string. The system manager can specify the default, M204, on the User 0 parameter line.

- *AUTH* indicates whether the application program has authority to use certain SNA Communications Server functions. The AUTH=(NOACQ) setting is the default. The AUTH=(PASS) setting is required if your site uses the SNA Communications Server TRANSFER CONTROL facility.

Deactivating Online system swapping activity

z/OS uses the System Resource Manager (SRM) component to control system workloads and throughput. One of the ways the SRM attempts to balance system resource consumption is by temporarily deactivating (swapping out) address spaces that use scarce resources heavily, such as large Online configurations of Model 204.

Swapping out generally shows as degradations in the response time of an Online system. To avoid response time fluctuations, ask your system programmer to specify the nonswapping attribute for the Model 204 ONLINE load module.

To deactivate the swapping activity, follow the directions in Table 2-2.

Table 2-2. Deactivating system swapping

Step	Task
1.	Authorize Model 204 (see page 13).
2.	Enter the nonswapping attribute. Add the following PPT entry to the active SCHED nn member of SYS1.PARMLIB: <pre>PPT PGMNAME(ONLINE) /* Model 204 name */ NOSWAP /* nonswappable */</pre> Note: Do not specify KEY(0). During initialization, Model 204 processing checks whether it is running in KEY(0). If the key is 0 and the region is running APF-authorized, the key is switched to KEY(8) (user key), and a message is issued to the audit trail. If the region is not running APF-authorized, a message is issued to the audit trail, and the run is terminated.

Authorizing Model 204

The Authorized Program Facility (APF) lets selected programs access sensitive system and restricted functions, even when not in key (0) or supervisor state.

Note:A z/OS system programmer must implement these procedures.

APF LOADLIB considerations

The Model 204 installer and z/OS systems programmer must confer about the items related to Model 204 that require an APF LOADLIB.

- Linking ONLINE, BATCH204, IFAM1, and IFAM4 into a load library authorized under APF is required for any of the following:
 - IOS BRANCH ENTRY
 - EXCPVR
 - PAGEFIX
 - Security interfaces (CA-ACF2, Security Server (formerly RACF), and CA-Top Secret)
 - Model 204 is going to run as nonswappable.
 - M204XSVC linked into ONLINE, BATCH204, or IFAM4 to support IOS Branch Entry and XDM-CRAM without an SVC.
 - You use the Rocket distributed B204XA or B204XF module provided for Model 204 during the installation process.

Abends pointing to an authorized function

If an abend pointing to an issue with an authorized function occurs during the execution of a module requested to be APF-authorized, perform the following steps:

1. Confirm that LOADLIB was created on the pack pointed to by member IEAAPF nn (or PROG nn) in SYS1.PARMLIB.
2. Confirm that LOADLIB was not migrated off the pack pointed to by IEAAPF nn (or PROG nn).
3. Recheck that the link output of the module has an authorization code of 1.
4. Check the JCL STEPLIB or JOBLIB steps to assure that all libraries in the concatenation are APF-authorized.

Authorizing Model 204 under z/OS

Load modules of the various configurations of Model 204 are linked into your load library by the JCL library member M204LINK, which automatically provides an authorization code of 1.

After linking your Model 204 load modules into a load library, you must specify the APF parameter in the SYS1.PARMLIB member IEASYS00 and add the Model 204 load library name to the SYS1.PARMLIB member IEAAPF*nn*.

To authorize Model 204, complete the steps listed in Table 2-3.

Table 2-3. Steps to authorize Model 204

Step	Task	Job
1.	Determine if APF= <i>nn</i> (or PROG= <i>nn</i>) is specified in the SYS1.PARMLIB member IEASYS00.	LISTPLIB
2.	Add APF=00 (or PROG=00) to IEASYS00, if it is not already specified.	UPDTDFLT
3.	Add SYS1.PARMLIB member IEAAPF00 (or PROG00), specifying the Model 204 load library, if APF=00 (or PROG=00) is added to IEASYS00.	UPDTDFLT
4.	Add a record for the Model 204 load library to the SYS1.PARMLIB member IEAAPF <i>nn</i> , if APF= <i>nn</i> is specified in IEASYS00.	IEBUPDTE

Listing SYS1.PARMLIB

The following JCL lists the code for the members of SYS1.PARMLIB:

```
//LISTPLIB EXEC PGM=IEBPTPCH,REGION=96K
//SYSPRINT DD SYSOUT=A
//SYSUT2 DD SYSOUT=A
//SYSUT1 DD DSN=SYS1.PARMLIB,DISP=SHR
//SYSIN DD *
PRINT TYPORG=PO,MAXFLDS=1
TITLE ITEM=('SYS1.PARMLIB LISTING',60)
RECORD FIELD=(80,,30)
/*
```

Adding APF=*nn* to IEASYS00 and load library to SYS1.PARMLIB

The following JCL adds APF=00 to IEASYS00 and the Model 204 load library to SYS1.PARMLIB member IEAAPF00:

```
//UPDTDFLT EXEC PGM=IEBUPDTE,REGION=64K
//SYSPRINT DD SYSOUT=A
//SYSUT1 DD DSN=SYS1.PARMLIB,DISP=SHR
//SYSUT2 DD DSN=SYS1.PARMLIB,DISP=OLD
```

```
//SYSIN      DD      *
./ CHANGE NAME=IEASYS00
last-record,
APF=00
./ ADD NAME=IEAAPF00
M204-load-library vol-id
/*
```

where:

- *last-record* is the name of the last record listed in IEASYS00. A comma (continuation character) is required.
- *vol-id* is the serial number of the volume holding the data set. *vol-id* must be separated from *M204-load-library* by at least one space.

Example If the last records of IEASYS00 are CSA=256, and the name of the Model 204 load library is SYSM.M204.Vnnnn.LOADLIB, the input stream for UPDTDFLT is:

```
//SYSIN DD *
./ CHANGE NAME=IEASYS00
CSA=256,
APF=00
./ ADD NAME=IEAAPF00
SYSM.M204.Vnnnn.LOADLIB  STOR01
/*
```

Adding the load library to IEAAPFnn

The following input stream for IEBUPDTE adds the Model 204 load library to the list of authorized data sets in the SYS1.PARMLIB member IEAAPFnn:

```
//SYSIN      DD*
./ CHANGE NAME=IEAAPFnn
last-record vol-id,
M204-load-library vol-id
/*
```

where:

- *last-record* is the last current record listed in IEAAPFnn. A comma (continuation character) must be added at the end of the line.
- *vol-id* is the serial number of the volume holding the data set. *vol-id* must be separated from *M204-load-library* by at least one space.

Only one library name and corresponding volume serial number can be placed on a line.

Example If the last line of IEAAPFnn is:

```
SYS2.HACKS  SYS301
```

then the following input to UPDTDFLT adds the Model 204 load library to IEAAPFnn:

```
//SYSIN DD *
./ CHANGE NAME=IEAAPFnn
SYS2.HACKS SYS301,
SYSM.M204.Vnnnn.LOADLIB STOR01
/*
```

Initializing the system (IPL)

A system initial program load (IPL) might be required after installing Model 204 and the Model 204 special features chosen for your site. If an IPL is required, schedule IPL well in advance to allow for the operational demands of production at your site.

The features and interfaces that may require an IPL are:

- “Installing CRAM with an SVC” on page 58
- “Installing M204XSVC as an SVC” on page 62
- “Installing the EXCPVR appendage” on page 64

Using IDCAMS to generate a generation data group definition

Recovery data sets can be kept as members of a generation data group (GDG). The following standard example shows how to define a GDG for Model 204 Checkpoint and Journal recovery data sets. You can build a similar definition for backup files of Model 204 databases.

You can create an uncataloged model data set control block (DSCB) for checkpoint and journal data sets on the same volume as the GDG user catalog (GDGCTL), using the following sample JCL:

```
//A EXEC PGM=IDCAMS
//SYSPRINT DD SYSOUT=A
//SYSIN DD *
DEFINE GDG (-
    NAME (M204.CHKPT) -
    NOEMPTY -
    SCRATCH -
    LIMIT(10))
DEFINE GDG (-
    NAME (M204.JOURNAL) -
    NOEMPTY -
    SCRATCH -
    LIMIT(10))
/*
```

Using mathematical functions

The Model 204 mathematical functions can access certain IBM mathematical routines. Model 204 V7R4.0 and later supports the FORTRAN run-time library (VS FORTRAN Version 2 Release 6) or the newer LE mathematical functions that are included in the z/OS operating system, if selected.

For mathematical functions...	Apply PTF for z/OS...
VS FORTRAN Version 2.6	UN99432
LE	Not required

Check with IBM to see if any other PTFs are required.

Implementing the date/time stamp feature

A date/time stamp (DTS) feature has been added to Model 204 so that you can easily discern when a record in a file was last changed.

Your site may customize:

- The date/time stamp field name
Model 204 is shipped to you without a default date/time stamp field name. You can define the date/time stamp field name in the CUST source code or on User 0's parameter line by setting the new DTSFN parameter.
- The field definition
With file manager privileges, you can define the date/time stamp field for each file you want enabled, and subsequently you must set the FOPT parameter to include X'10'. Please note the FOPT=X'10' value cannot be set until the date/time stamp field has been defined to the file.
- The data that is inserted into this field
Model 204 is shipped to you with a default date/time stamp format that combines the system DATE and TIME fields. If your site prefers a different system field or a different format, see "Customizing the date/time stamp field name in CUST source code" on page 18.

Installing the date/time stamp feature

Installation of the date/time stamp (DTS) feature does not require a decryption key. However, to link in CUST, you must select the DTS feature as you set up for installation.

The DTSR and CUST object decks must be linked into BATCH204 and ONLINE modules that are to support the DTS feature.

The new CUST source member is located in the Model 204 MACLIB, where it can be edited to make changes such as those described in "Customizing the date/time stamp field name in CUST source code".

If you choose to install the date/time stamp feature by specifying DTS=Y in the INSPARMS member in the INS204.JCLLIB, then the GENJCL member will generate a CUSTASM job to assemble this source member, and an INCLUDE statement will be generated to include the CUST and DTSR object decks into the ONLINE and BATCH204 load modules via the M204LINK job.

Customizing the date/time stamp field name in CUST source code

The DTSFN value is established by the DTSINIT routine in the CUST object code. As shipped, this routine does not provide a default field name. You may customize the CUST source code to establish a date/time stamp field name. Edit DTSINIT to change the following line:

```
CUSTFN DC 0C
```

to the desired field name, for example,

```
CUSTFN DC C'MY DATE TIME STAMP FIELD NAME CONTAINING SPACES'
```

The maximum length for a field name is 255 characters.

Default instructions in the routine move the system DATE and TIME into the field in the format:

```
CCYYMMDDHHMMSSMMM
```

Table 2-4. Date/time stamp format

Where	Specifies	For example: 20110915163510345
CC	Century	20 for 21st century
YY	Year	11 for 2011
MM	Month	09 for September
DD	Date	15 for the fifteenth day of the month
HH	Hour on a 24-hour clock	16:00 hours or 4:00 PM
MM	Minutes past the hour	35
SS	Second past the minutes	10
MMM	Milliseconds	345 past the seconds

Making modifications to the default date/time stamp value

If the default data that is supplied in the DTSUB routine in CUST is not what you want or require, the source code for the DTS field value is available for modification. This field area of up to 255 bytes may be completely formatted as your site desires.

Assembler statements to build the data in Table 2-4 that comprise the date/time stamp field values are placed in the DTSUB entry point in the CUST module. This entry point contains instructions that build a field value in the area pointed to by T3 (Rocket register notation) upon input. Register T1 contains packed decimal date in form of 0CYDDDF and register T2 contains the time of day in milliseconds since midnight.

- You are not required to use the *ccyymmddhhmmssmmm* format for your DTS file date. You may change the format of the date and time data to suit your site requirements.
- You may customize the date/time stamp field to include flags or other system data you deem necessary for your site.
- You could add a suffix to the default data, such as USERID or ACCOUNT.
- The default format and data content is DISPLAY; however, you could use Binary or Float instead—up to 255 bytes of data.
- There is no requirement for any position to have a special meaning to Model 204 internal routines.

Notes:

- Each site is responsible for whatever changes they make to the DTSUB entry point. Rocket does not support changes beyond those documented in “Installing the date/time stamp feature” on page 17.
- For instructions on enabling your custom field, see “Customizing source” on page 55.

3

Generating Model 204 Installation JCL

In this chapter

- Overview
- Installation steps for JCL
- Step 1: Determine high-level qualifiers for data sets
- Step 2: Download zip files from the FTP server
- Step 3: Unzip downloaded files
- Step 4: Upload xmit JCL files
- Step 5: Submit xmit-alloc JCL
- Step 6: Upload files into allocated data sets
- Step 7: Submit RECEIVE job
- Step 8: Modify and run INSUNLD
- Step 9: Edit the INSPARMS file
 - Operation prompts
 - General parameters
 - Mask parameters
 - Installation-specific parameters
 - Feature-specific parameters

- File-specific parameters
- Installation task parameters
- Step 10: Process INSPARMS using GENJCL
- Installation checklist

Overview

This chapter lists the steps required to install Model 204, including Dictionary/204, using INS204. This chapter also explains how to install a new release or an initial version of a Rocket product on an existing Model 204 system.

Introducing INS204

INS204 provides an integrated approach to installing Model 204 and Model 204 products. After allocating and unloading the JCL library, you need to modify only two members.

- You use a parameter data set INSPARMS to enter user-defined values, such as site-dependent job parameters and products to be installed.
- You then modify and run the GENJCL job to generate all JCL jobs required to install the Model 204 features you specified in INSPARMS.

Modifications to INS204

The Model 204 LOADLIB includes versions of the B204XA and B204XF modules used during the installation.

See also “Installation considerations for Freeway/204” on page 3.

The following INSPARMS task parameters have a different default setting, some changes beginning in Version 5.1, or they have been removed from the INSPARMS task parameters, because they are automatically included in the ONLINE module or are no longer generally available.

Advantage/SQL components, including the mainframe version of the SQL catalog update utility, DDLUTIL, are no longer supported and have been removed.

INSTALL-ACCESS=I

The product Access/204 is no longer generally available and the INSPARMS parameters and options relating to it have been removed.

INSTALL-DICT=I

Use this default to create the Dictionary/204 subsystems and allow subsystem definitions in general through the creation of a CCASYS Model 204 file. This is

a requirement for the creation of the SQL support subsystems, CCACATREPT and CCATSF. These are not required but can provide report and generation aids when administering SQL accessed Model 204 databases.

For existing Dictionary/204 users, change the default I (Install) to R (Reinstall). If you do not wish to use subsystems or Dictionary/204, change this to N for No.

TSFPROC: File organization changed

TSFPROC, the procedure file for the CCATSF application subsystem, has occasionally filled due to its use as both the procedure file and as a temporary work file. To avoid this problem TSFPROC has been redefined with FILEORG bit X'24', meaning Unordered, Reuse Record Number; also BSIZE has been increased.

It is recommended that you restore the new version of TSFPROC from the V7R4.0 distribution files at installation, although you may do this update at a later time.

During an install or reinstall process, ensure that the SQLINST job will be generated by specifying INSTALL-SQL=I or R in the INSPARMS member of the INS204.JCLLIB partitioned data set. This action will generate jobs needed for a new allocation, creation, and population of the improved TSFPROC file.

INSTALL-SQL=I

Causes job SQLINST to be generated, which builds a new SQL system catalog, CCACAT, and restores procedure files for the SQL subsystems.

If you have already installed previous versions of these features, change this default to R for the reinstall job, SQLRINST. Otherwise, set this parameter to the previous default N for No.

HRZN=Y

You no longer need a decryption key to install and use Horizon. By default, one Horizon thread, IODEV 27, may be defined in your ONLINE module. If you purchase Horizon, the number of threads you can use is unlimited.

Horizon allows the VTAM/SNA/TCPIP necessary for Connect★ and customer written distributed application programs.

M204XSVC=N

The M204XSVC parameter replaces the IOS-BRANCH parameter to more accurately reflect the purpose of the parameter.

PQO=Y

PQO no longer requires a decryption key; by default it is part of your ONLINE module generation. If you have not yet purchased the Parallel Query Option, the IODEV 51 thread definition is limited to one. Existing customers will have no limit for definition of this thread type.

SQL-CONNECT*=Y

Setting SQL-CONNECT*=Y is for two free threads for each of the following:

- Remote SQL threads (IODEV 19)
- Remote User Language threads (IODEV 49)

The Y setting generates a note indicating Connect★ Suite software must be installed on Client PCs. Remote SQL is required in the Online. If no Connect★ capability is desired, set this parameter to the value N.

If you purchase Connect★ Suite, your contract determines the number of seats or threads you may define. The contract number is enforced. If you define more Connect★ threads than you have contracted for, an error at Online start-up time is generated indicating your valid limit. If you wish to increase this limit, or if you think the message is incorrect, please contact Rocket Sales or Rocket M204 Support. A new CPU ID zap will be provided to adjust your level of service.

TCP

TCP is no longer a selectable option and is automatically included in the Online generation with Horizon. The TCP INSPARMS parameter was removed.

TCP/IP support (Horizon) is not a separately selected feature. Accept the default installation Horizon for this functionality.

SNA Communications Server

SNA Communications Server is no longer a selectable option and is automatically included in the Online generation. The SNA Communications Server INSPARMS parameter was removed.

Installation steps for JCL

The Model 204 FTP directory contains four zip files that contain a total of 16 files.

With these zip files are two OS jobs to allocate and restore the unzipped data sets (xmit-alloc.jcl and xmit-receive.jcl).

To electronically receive the Model 204 release, follow the instructions in this section.

The steps in Table 3-1 are intended for new Model 204 sites and for sites that are upgrading Model 204 or adding other Rocket Model 204 products.

Table 3-1. Installation steps

Step	Task	Job	First time	Upgrade	See...
1.	Determine data set high-level qualifiers.		Yes	Yes	page 24
2.	Download zip files from the FTP server.		Yes	Yes	page 24
3.	Unzip files.		Yes	Yes	page 24
4.	Upload JCL files.		Yes	Yes	page 25
5.	Submit ALLOC job.	ALLOC	Yes	Yes	page 25
6.	Using FTP, upload files to allocated data sets.		Yes	Yes	page 25
7.	Submit RECEIVE job.	RECEIVE	Yes	Yes	page 25
8.	Modify and run the JCL member INSUNLD in JCLLIB.	INSUNLD	Yes	Yes	page 25
9.	Edit INSPARMS (INS204 JCL library).	INSPARMS	Yes	Yes	page 26
10.	Process INSPARMS.	GENJCL	Yes	Yes	page 45

Step 1: Determine high-level qualifiers for data sets

You will specify your high-level qualifiers in the INSUNLD job. You must use the same qualifiers when you specify them in INPARMS parameters QUAL-DBDS and QUAL-SYDS.

- The value entered for SYSINDEX, in INSUNLD, must match QUAL-SYDS in INSPARMS.
- The value entered for DBAINDX, in INSUNLD, must match QUAL-DBDS in INSPARMS.

Step 2: Download 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 Rocket.
3. Open the zOS folder and download the zip files to your PC, in BINARY format.

Step 3: Unzip downloaded files

Using WinZip or a similar program, unzip the files that you downloaded to your PC in the previous step.

The unzip process will result in 16 files requiring approximately 38MB of storage.

Step 4: Upload xmit JCL files

Upload the xmit-*.jcl job files from the FTP server to the mainframe:

- xmit-alloc.jcl
- xmit-receive.jcl

These files must be transferred in ASCII format.

Step 5: Submit xmit-alloc JCL

Modify and submit the xmit-alloc.jcl job file. The ALLOC job allocates the target data sets for uploading the xmit-formatted files.

Step 6: Upload files into allocated data sets

Using FTP, change the remote location to 'sysindx. XMIT', created in the previous step, and upload in BINARY format the xmit-formatted files into these data sets.

Step 7: Submit RECEIVE job

Modify and submit the xmit-receive.jcl job file. The RECEIVE job receives the 16 data sets packaged in xmit format and converts them to OS standard format.

Output data set names must conform to data set names expected for the normal installation processing.

Note: The data set allocated for the LOADLIB data set must be APF authorized.

Step 8: Modify and run INSUNLD

In this step, modify and run the INSUNLD job.

INSUNLD is located in the JCL library JCLLIB, which was unloaded when you downloaded and unzipped the files from the FTP server.

1. Follow the comments in the INSUNLD job file to adapt the procedure to your installation.

Enter all inputs in uppercase.

Make sure that the values that you enter match as follows:

The value you enter for...	Must match...
DBAINDX	QUAL-DBDS in INSPARMS
SYSINDEX	QUAL-SYDS in INSPARMS

2. Run INSUNLD.

INSLOAD library

Once you run INSUNLD, the INSLOAD load library contains the modified BATCH204 module, which must run from an authorized library.

INSLOAD is also used for this job:

- GENJCL (see “Step 10: Process INSPARMS using GENJCL”)

Step 9: Edit the INSPARMS file

The INSPARMS file in INS204.JCLLIB consists of groups of parameter prompt lists and related comments. Parameter prompts start at column 1. Comments begin with a double asterisk (**).

Caution: Do not add, change, or delete any prompts or comments.

When you modify the INSPARMS file, you:

- Set site-dependent job parameters.
- Specify the products or options being installed or updated.

The INSPARMS file displays the parameter values stored in the INSCUSTM file. When INSPARMS is unloaded from the FTP files, the parameter values are defaults established by Rocket.

You need to modify some INSPARMS values, such as high-level file qualifiers, to conform to your local standards. *Some values reflect the actual value found on the distribution file and should not be modified.*

You can modify other Rocket default values, such as the number of pages for Dictionary/204 files, although you might prefer to use most of the supplied defaults if you are using INS204 for an initial installation.

After modifying INSPARMS and running the GENJCL job, new values are reflected in INSPARMS and in the data file INSCUSTM.

See “Reinitializing installation files” on page 27 for a description of the prompts and valid inputs for each INSPARMS line.

Editing conventions for INSPARMS

The following rules apply to editing INSPARMS:

- Modify only the value portion of the parameter prompt line: the field following the equal sign.
- Enter the parameter value immediately after the equal sign. A blank before the value is invalid.

- Add or delete lines only on the JOBCARD and DSNMASK lines.
- Enter values without embedded blanks. Values are delimited by blanks, except for JOBCARD.
- Enter an 8-digit numeric key value for KEY= prompt. The KEY= prompt indicates that a decryption key is required for installation of the product or feature.
- Make sure that your input is converted to uppercase before it is processed by GENJCL.

Entering parameter values

The parameter prompts on the INSPARMS file are grouped by function. The following pages show each group of parameters with instructions for entering individual parameter values. Parameter groups are discussed in the order encountered in the INSPARMS screens:

- “Operation prompts” on page 28
- “General parameters” on page 30
- “Mask parameters” on page 31
- “Installation-specific parameters” on page 35
- “Feature-specific parameters” on page 36
- “File-specific parameters” on page 38
- “Installation task parameters” on page 42

Reinitializing installation files

If the installation files should become damaged in any way, they can be restored in the following ways:

- Regenerate INSPARMS by replacing “I INS204” with “I GEN.PARMS” in the CCAIN stream of GENJCL and then run GENJCL. The regenerated INSPARMS contains the values found in your INSCUSTM file.
- Restore INSPROC or INSCONFG from the FTP files.
- Dump INSCUSTM to a user-allocated dump data set whenever the file is updated. You can then restore INSCUSTM containing your site values, if it becomes unusable.
- If you decided during the preinstallation tasks to install with SVCs, get the CRAM-SVC-NUM and XMEM-SVC-NUM values from the systems programmer.

- You can enter file sizes in INSPARMS, but the default values are sufficient to bring up Model 204 and other selected products. You can then do site-specific sizing after the initial installation procedure.

The INSPARMS file in INS204.JCLLIB consists of groups of parameter prompt lists and related comments. Parameter prompts start at column 1. Comments begin with a double asterisk (**).

Caution: Do not add, change, or delete any prompts or comments.

Operation prompts

```
*****
* Rocket Product Installation Parameter File
*****
*****
* Enter desired operations with commas (e.g., UPD,GEN):
*   Valid: VALIDATE,UPDATE,GENERATE,SIMULATE and abbreviations
*   OPERATION=UPD,GEN
*****
*****
* Define as many job/jes cards as needed, in correct order
* To force substitution of actual name, enter &JOBNAME
* Please omit the TIME parameter on your jobcard - appropriate
* defaults are supplied for each individual step
*   example: JOBCARD=//&JOBNAME JOB,,CLASS=A,MSGCLASS=A
*           JOBCARD=/*ROUTE PRINT RSCS.SYSMGR
JOBCARD=
```

Parameter description

OPERATION tasks

Specifies the task to perform. Valid values are Validate (V or VAL) or Update (U or UPD), and Simulate (S or SIM) or Generate (G or GEN). It is not necessary to specify a value from both of these pairs; you can assign a single value to this parameter.

Note: The most frequently used combinations are *Update/Generate*, for actually generating executable JCL, and *Validate/Simulate*, for testing.

The specific effects of each of these four values are listed below; they are also summarized in Table 3-2 on page 29:

V or VAL (validate) results in:

- Validation of parameter values in INSPARMS
- Printed output containing:
Parameter name

Current value from INSCUSTM
 Proposed value from INSPARMS
 Error messages, for invalid input

U or UPD (update) results in:

- All functions of Validate
- Updates of INSCUSTM with valid data

S or SIM (simulate) results in:

- All functions of Validate
- Verification of nonconflicting choices
- INSTLIST written to SYSOUT
- JCL written to SYSOUT

G or GEN (generate) results in:

- All functions of Validate
- Verification of nonconflicting choices
- INSTLIST written to INS204.JCLLIB
- JCL written to INS204.JCLLIB

Table 3-2 summarizes the effects of the INSPARMS operation parameter values. If the values in INSPARMS and INSCUSTM differ, the value in INSPARMS overrides the value in INSCUSTM.

Table 3-2. Operation parameters for INSPARMS

Operation	Validate?	Update INSCUSTM?	Output to:	Values from:
U or UPD	Y	Y	NA	NA
V or VAL	Y	N	NA	NA
S or SIM	Y	N	SYSOUT	INSPARMS & INSCUSTM
G or GEN	Y	N	INS204.JCL	INSCUSTM
U,S	Y	Y	SYSOUT	INSPARMS & INSCUSTM
U,G	Y	Y	INS204.JCLLIB	INSCUSTM
V,S	Y	N	SYSOUT	INSPARMS & INSCUSTM
V,G	Y	N	INS204.JCLLIB	INSCUSTM

JOB CARD lines

Produces jobcard lines for all jobs generated. Use as many lines as you need. Each line must start with JOBCARD= and be followed by the JOBCARD value (JOB or JES statements). The JOBCARD line terminates at the end of the 72-character line. You can use a continuation character, if necessary.

General parameters

The general parameters are listed below and described in the next section. You can override some general parameter values with file-specific parameters (see page 38).

```
*****
* Update parameter values by modifying value between = and **.
* Blank after "=" is invalid
*****
ASMBLR=ASMA90          ** assembler (ASMA90 for z/OS)
DISK=3390              ** storage device (3380,3390)
ONLINE-NAME=ONLINE    ** MODEL 204 ONLINE loadmodule
PERM-VOLSER=          ** volser of perm unit
QUAL-DBDS=SYSM.M204   ** hi-lvl qual : Rocket db files
QUAL-SYDS=SYSM.M204   ** hi-lvl qual : Rocket non-db files
SUPERPSWD=PIGFLOUR    ** superuser password
SUPERUSER=UPERKLUGE   ** user with superuser privileges
SYSOUT=A              ** output class
TAPEVOL=TAPVOL        ** volser for tape backups
UNIT-PERM=PERMDA      ** unit for permanent data sets
UNIT-TAPE=CART        ** unit for tape data sets
UNIT-WORK=SYSDA       ** unit for work data sets
WORK-VOLSER=          ** volser of work unit
```

Parameter description

Table 3-3 lists the general parameters and what they specify.

Table 3-3. General parameters

Parameter	Specifies
ASMBLR	Assembler module name
DISK	DASD disk device type, such as 3380 or 3390, used in file allocation. Required.
ONLINE-NAME	Link-edit NAME value in M204LINK. Defaults to ONLINE.
PERM-VOLSER	Volume serial number for permanent data sets, such as Dictionary/204 files. If PERM-VOLSER is specified, it becomes the default for all permanent data sets unless overridden for a specific data set, such as DICT-DATALINK-VOLSER. If PERM-VOLSER is left blank, VOLSER= does not appear in DD statements unless specified for a specific data set.

Table 3-3. General parameters (continued)

Parameter	Specifies
QUAL-DBDS	High-level qualifier for Model 204 database files, such as DATALINK. QUAL-DBDS must match DBAINDX in INSUNLD. Required.
QUAL-SYDS	High-level qualifier for Model 204 nondatabase files, such as LOADLIB or CCASTAT. QUAL-SYDS must match SYSINDEX in INSUNLD. Required.
SUPERPSWD	Password of SUPERUSER. When the password data set CCASTAT is created, PIGFLOUR is the superpswd. If left blank, the value must be entered in the CCAIN streams of generated jobs.
SUPERUSER	Model 204 user ID of a user with superuser, file manager, and system manager privileges and is required for Dictionary/204. When the password data set CCASTAT is created, SUPERKLUGE is the superuser. If left blank, the value must be entered in the CCAIN streams of generated jobs.
SYSOUT	Print data set class. A–Z, 0–9, or * are valid values. Required.
TAPEVOL	Volume name for data sets backed up to tape. Used in backup jobs such as DDBKP. Maximum of six alphanumeric characters.
UNIT-PERM	I/O unit for permanent data sets. The value can be a 3-digit hardware address (for example, 131), a type (for example, 3380), a group (for example, SYSDA), or other valid unit. Required.
UNIT-TAPE	I/O unit for tape data sets, such as 5C0 or CART that might be used for file backups. Required.
UNIT-WORK	I/O unit for temporary data sets. Valid input is the same as UNIT-PERM. Required.
WORK-VOLSER	Volume serial number for temporary data sets. Functions as PERM-VOLSER.

Mask parameters

```

*****
* Modify MASKS which must be a combination of literals
* and symbols (e.g., @QUAL-SYDS,@QUAL-DBDS.¢FILENAME.¢PROD)
* Similar mask may be indicated using ~
*   DSNMASK-SYS=@QUAL-SYDS.@RLSE-M204.¢FILENAME
*   DSNMASK-DICT=YOURSITE.@RLSE-M204.¢PROD.¢FILENAME
*   DSNMASK-WKSH=~DSNMASK-DICT
*****
DSNMASK-M204FILE=@QUAL-DBDS.¢FILENAME.M204
DSNMASK-M204DUMP=@QUAL-DBDS.¢FILENAME.DUMP
DSNMASK-SYS=@QUAL-SYDS.@RLSE-M204.¢FILENAME
*****

```

Use masks to customize data set names for your site. Masks are a combination of symbols (prefixed by '@' or '¢') and literals. You can establish default masks

as well as specify an alternate mask for files associated with a particular product or category.

Default masks

The default masks for live and dump Model 204 database files and for system files are:

```
DSNMASK-M204FILE=@QUAL-DBDS.@RLSE-M204.¢FILENAME.M204
DSNMASK-M204DUMP=@QUAL-DBDS.@RLSE-M204.¢FILENAME.DUMP
DSNMASK-SYS=@QUAL-SYDS.@RLSE-M204.¢FILENAME
```

The qualifiers QUAL-SYDS and QUAL-DBDS (see “General parameters” on page 30) both have the default value SYSM.M204. The qualifier RLSE-M204 has the default value *Vnnn*, where *nnn* indicates the version you are installing. If you do not modify these qualifiers, you generate data set names such as:

```
SYSM.M204.Vnnn.METADATA.M204
SYSM.M204.Vnnn.METADATA.DUMP
SYSM.M204.Vnnn.LOADLIB
```

By modifying the masks and the qualifiers, you can tailor the names for your site as well as for a particular product.

Valid mask identifiers

The valid mask identifiers are listed in Table 3-4.

Table 3-4. Valid mask identifiers

Identifier	Description of mask for...
DSNMASK-M204FILE	Model 204 live database files, for example, METADATA.
DSNMASK-M204DUMP	Model 204 dump database files. This mask is used for files to which (re)install jobs DUMP existing customer files. The IEBGENER job from distribution file data sets is used for Rocket dump files, for example, DEMODB.DUMP.
DSNMASK-M204INST	M204INST. If not specified, default is @QUAL-DBDS.@RLSE-M204.M204INST.M204.
DSNMASK-SYS	Model 204 system files, for example, LOADLIB, CCASTAT, CCASYS, CCAGRP.
DSNMASK-prod	Model 204 live database product files. For valid products, refer to “File-specific parameters” on page 38. The product is the first piece of these parameters, for example, DEMO, DICT. Note: SYS is not a valid product name.

Modifying or creating masks

To modify or create masks, use a combination of literals and symbols. Each mask identifier must be unique.

Valid symbols

The valid symbols and their meanings are shown in Table 3-5.

Table 3-5. Valid symbols

Symbol	Substitute...
<i>¢PROD</i>	Name of product associated with the file. For valid products, refer to “File-specific parameters” on page 38; the product is the first piece of these parameters, for example, DEMO, DICT.
<i>¢FILENAME</i>	Filename.
<i>@QUAL-DBDS</i>	Value that exists in INSPARMS.
<i>@QUAL-SYDS</i>	Value that exists in INSPARMS.
<i>@RLSE-nnnn</i>	Value that exists in INSPARMS. Valid <i>nnnn</i> values are: DICT, WKSH, INST.

Sample use of DSNMASKS

Assume that you want:

- All files to begin with your company abbreviation, ABZ
- All files to contain M204
- All system files to contain M204 release level
- All files to contain a qualifier corresponding to the file name
- All live database files to specify LIVE
- All dump database files to specify DUMP

To generate these masks, all files must:

1. Have mask identifiers:

```
DSNMASK-M204FILE  
DSNMASK-M204DUMP  
DSNMASK-SYS
```

2. Begin with your company abbreviation:

```
DSNMASK-M204FILE=ABZ.  
DSNMASK-M204DUMP=ABZ.  
DSNMASK-SYS=ABZ.
```

Note: Alternatively, set QUAL-SYDS and QUAL-DBDS to ABZ and use the symbol in the mask (DSNMASK-M204FILE=@QUAL-DBDS).

3. Contain M204:

```
DSNMASK-M204FILE=ABZ.M204
DSNMASK-M204DUMP=ABZ.M204
DSNMASK-SYS=ABZ.M204
```

4. Contain M204 release level in system files:

```
DSNMASK-M204FILE=ABZ.M204
DSNMASK-M204DUMP=ABZ.M204
DSNMASK-SYS=ABZ.M204.@RLSE-M204
```

5. Contain a qualifier corresponding to the file name:

```
DSNMASK-M204FILE=ABZ.M204.ϕFILENAME
DSNMASK-M204DUMP=ABZ.M204.ϕFILENAME
DSNMASK-SYS=ABZ.M204.@RLSE-M204.ϕFILENAME
```

6. Specify LIVE in database files:

```
DSNMASK-M204FILE=ABZ.M204.ϕFILENAME.LIVE
DSNMASK-M204DUMP=ABZ.M204.ϕFILENAME
DSNMASK-SYS=ABZ.M204.@RLSE-M204.ϕFILENAME
```

7. Specify DUMP in database files:

```
DSNMASK-M204FILE=ABZ.M204.ϕFILENAME.LIVE
DSNMASK-M204DUMP=ABZ.M204.ϕFILENAME.DUMP
DSNMASK-SYS=ABZ.M204.@RLSE-M204.ϕFILENAME
```

Some resulting file names are:

```
ABZ.M204.V740.LOADLIB
ABZ.M204.METADATA.LIVE
ABZ.M204.DATALINK.DUMP
```

Generating similar masks

Use the tilde (~) to generate a mask similar to a mask previously defined on a line of INSPARMS.

Example for company ABZ:

```
DSNMASK-DICT=ABZ.ϕPROD.ϕFILENAME.LIVE
DSNMASK-WKSH=~DSNMASK-DICT
```

Resulting file names are:

```
ABZ.DICT.METADATA.LIVE
ABZ.WKSH.SCGPROC.LIVE
```

Installation-specific parameters

```

*****
M204-DEMODB-VOLSER=          ** Volser for M204 DEMODB
M204-EMACLIB-VOLSER=        ** Volser for M204 EMACLIB
M204-EOBJLIB-VOLSER=        ** Volser for M204 EOBJLIB
M204-LINKLIB-VOLSER=         ** Volser for SAS C LINKLIB
M204-LOADLIB-VOLSER=        ** Volser for M204 LOADLIB
M204-MACLIB-VOLSER=         ** Volser for M204 MACLIB
M204-OBJLIB-VOLSER=         ** Volser for M204 OBJLIB
RLSE-DICT=V740n              ** Release of DICTIONARY
RLSE-INST=V740n              ** Release of M204INST
RLSE-M204=V740n              ** Release of MODEL 204
RLSE-WKSH=V410               ** Release of WORKSHOP

```

The parameter list might also include entries for additional products that can be installed with INS204 such as Workshop/204.

Parameter description

Table 3-6 lists the installation-specific parameters and what they specify.

Table 3-6. Installation-specific parameters

Parameter	Specifies
M204-DEMODB-VOLSER	Volume serial number for the Model 204 demo database dump data set. If blank, defaults to the value of PERM-VOLSER.
M204-EMACLIB-VOLSER	Volume serial number for the Model 204 encrypted macro library data set. If blank, defaults to the value of PERM-VOLSER.
M204-EOBJLIB-VOLSER	Volume serial number for the Model 204 encrypted object library data set. If blank, defaults to the value of PERM-VOLSER.
M204-LINKLIB-VOLSER	Volume serial number for the SAS C link library data set. If blank, defaults to the value of PERM-VOLSER.
M204-LOADLIB-VOLSER	Volume serial number for the Model 204 load library data set. If blank, defaults to the value of PERM-VOLSER.
M204-MACLIB-VOLSER	Volume serial number for the Model 204 macro library data set. If blank, defaults to the value of PERM-VOLSER.
M204-OBJLIB-VOLSER	Volume serial number for the Model 204 object library data set. If blank, defaults to the value of PERM-VOLSER.
RLSE-DICT	Release of Dictionary/204 to install. The default is the latest release. Required.
RLSE-INST	Installation release. The correct value is the INSPARMS default. The default is the latest release. Required.
RLSE-M204	Release of Model 204. The default is the latest release. Required.

Table 3-6. Installation-specific parameters (continued)

Parameter	Specifies
RLSE-WKSH	Release of Workshop/204. Required to use Workshop/204.

Feature-specific parameters

```

*****
ACF2-MACLIB=CAI.CAIMAC          ** dsn of system ACF2 macro library
ACF2-OBJLIB=SYS1.ACFMOD         ** dsn of system ACF2 object library
CICS-LOADLIB=CICTS41.SDFHLOAD  ** dsn of system CICS load library
CICS-MACLIB=CICTS41.SDFHMAC    ** dsn of system CICS macro library
CICS-USERLIB=CICS.USERLIB      ** dsn for user CICS load library
CRAM-SUBSYS=M204               ** CRAM subsystem name
CRAM-SVC-NUM=XXX               ** SVC # (200-250) for CRAM
                                ** obtain from sys programmer
                                ** or NUM=NOSVC for SVC-less
                                ** XDM/CRAM installation
                                ** Requires feature CRM=Y
EXCPVR-LIBRARY=SYS1.SVCLIB     ** dsn in which to linkedit APDG
EXCPVR-MODNAME=IGG019W2       ** EXCPVR module name
FORTRAN-LIBRARY=SYS1.VSF2FORT  ** dsn of system FORTRAN library
ICOM-ICULCRT-NUM=nnn          ** INTERCOMM 3270 normal output
ICOM-ICULHC-NUM=nnn           ** INTERCOMM hard copy report number
ICOM-ICULPAS-NUM=nnn         ** INTERCOMM 3270 password input
ICOM-MACLIB=INTCOM.MACLIB     ** dsn of system INTERCOMM macro lib
LE-LIBRARY=CEE.SCEELKED       ** dsn of system LE library
MQSERIES-LIBRARY=MQSERIES.SCSQLOAD ** dsn of system WebSphere MQ libr
SYS-MACLIB=SYS1.MACLIB        ** dsn for system macro library
TCPIP-LIB=TCPIP.SEZACMTX      ** dsn of system TCPIP library
XMEM-SVC-NUM=XXX              ** SVC num for XMEMSVC/IOS-BRANCH
                                ** obtain from sys programmer
                                ** NUM=NOSVC gens INCLUDE(M204XSVC)
                                ** in M204LINK steps. No XSVCINS job
                                ** Requires feature M204XSVC=Y

```

Parameter description

If you have installed a non-Model 204 feature, such as CA-ACF2, specify values for its associated required parameters from this section. Table 3-7 lists the feature-specific parameters.

It is recommended that you reinstall all interfaces. See the *Model 204 Release Notes* for exceptions.

Table 3-7. Feature-specific parameters

Parameter	Specifies
ACF2-MACLIB	Macro library containing CA-ACF2 macros. Required.
ACF2-OBJLIB	CA-ACF2 library containing CA-ACF2 object modules. Required.
CICS-LOADLIB	CICS library containing CICS modules. Required.
CICS-MACLIB	CICS library containing CICS macros. Required.
CICS-USERLIB	Data set name for Model 204 CICS load modules. Required.
CRAM-SUBSYS	A z/OS Secondary Subsystem Name, 1 to 4 characters. Required. For multi-CRAM installation, specify a value other than M204, the default name, because each version of CRAM must have its own subsystem name that cannot be the same as a started task name.
CRAM-SVC-NUM	SVC number required for CRAM communications, unless an SVC-less install is being generated. A decimal number between 200 and 255. Obtain the correct number to use from your z/OS systems programmer. The number specified is used in the CRAMSVC= parameter of the CRAMGEN macro, which is assembled and linked by the CRAMINS job. Make the value equal NOSVC for an SVC-less installation, as follows: CRAM-SVC-NUM=NOSVC
EXCPVR-LIBRARY	Library in which the EXCPVR appendage (APDG) is link-edited.
EXCPVR-MODNAME	Module name for the EXCPVR appendage (if EXCPVR is used for EXCPVR and page-fixing support). The name must be IGG019nn, where nn is in the range of characters W2 through Z9.
FORTRAN-LIBRARY	FORTRAN library containing FORTRAN object modules, if used (MATH-FORTRAN=Y)
ICOM-ICULCRT-NUM	INTERCOMM 3270 normal output.
ICOM-ICULHC-NUM	INTERCOMM hard copy report number.
ICOM-ICULPAS-NUM	INTERCOMM 3270 password input.
ICOM-MACLIB	Name of the system INTERCOMM macro library.
LE-LIBRARY	LE library for mathematical functions, if used (MATH-LE=Y)
MQSERIES-LIBRARY	Name of the system MQ/204 library.
SYS-MACLIB	Name of the system macro library. Required.
TCPIP-LIB	Name of the system TCP/IP library.

Table 3-7. Feature-specific parameters (continued)

Parameter	Specifies
XMEM-SVC-NUM	Parameter for the TIMER PC feature and/or the IOS BRANCH ENTRY feature that specifies the required SVC number used for the M204XSVC module. The SVC number must be a decimal number between 200 and 255. Obtain the correct number to use from your z/OS systems programmer. For an SVC-less installation, this parameter is set to NOSVC.

File-specific parameters

```

*****
DEMO-CLAIMS02-VOLSER=          ** CLAIMS02 volser
DEMO-CLAIMS03-VOLSER=          ** CLAIMS03 volser
DEMO-CLIENTS-VOLSER=          ** CLIENTS volser
DEMO-DAILY-PAGES=200           ** DAILY pages
DEMO-DAILY-VOLSER=             ** DAILY volser
DEMO-VEHICLES-VOLSER=          ** VEHICLES volser
DICT-COMMAND-PROCFILE=DAILY    ** procfile for generated commands
DICT-DATALINK-DUMP-VOLSER=      ** DATALINK dump volser
DICT-DATALINK-PAGES=406        ** DATALINK pages
DICT-DATALINK-VOLSER=          ** DATALINK volser
DICT-DBA=SUPERKLUGE           ** DICTIONARY administrator
DICT-D204RPT-DUMP-VOLSER=       ** D204RPT dump volser
DICT-D204RPT-PAGES=110         ** D204RPT pages
DICT-D204RPT-VOLSER=           ** D204RPT volser
DICT-D204SYS-PAGES=406         ** D204SYS pages
DICT-D204SYS-VOLSER=           ** D204SYS volser
DICT-METADATA-DUMP-VOLSER=      ** METADATA dump volser
DICT-METADATA-PAGES=406        ** METADATA pages
DICT-METADATA-VOLSER=          ** METADATA volser
DICT-M204DCTL-DUMP-VOLSER=      ** M204DCTL dump volser
DICT-M204DCTL-PAGES=100        ** M204DCTL pages
DICT-M204DCTL-VOLSER=          ** M204DCTL volser
DICT-M204PROC-DUMP-VOLSER=      ** M204PROC dump volser
DICT-M204PROC-PAGES=2100       ** M204PROC pages
DICT-M204PROC-VOLSER=          ** M204PROC volser
DICT-M204TEMP-PAGES=151        ** M204TEMP pages
DICT-M204TEMP-VOLSER=          ** M204TEMP volser
DICT-OUTFILE=OUTFILE           ** DICTIONARY output file
INST-M204INST-DUMP-VOLSER=      ** M204INST dump volser
INST-M204INST-VOLSER=          ** M204INST volser
SQL-CATPROC-VOLSER=            ** CATPROC volser
SQL-CCACAT-PAGES=700           ** CCACAT pages
SQL-CCACAT-VOLSER=             ** CCACAT volser
SQL-TSFDATA-PAGES=200          ** TSFDATA pages
SQL-TSFDATA-VOLSER=            ** TSFDATA volser
SQL-TSFPROC-VOLSER=            ** TSFPROC volser
SYS-CCAGRP-DUMP-VOLSER=        ** CCAGRP dump volser

```

```

SYS-CCAGRP-PAGES=50          ** CCAGRP pages
SYS-CCAGRP-VOLSER=          ** CCAGRP volser
SYS-CCASTAT-BLOCKS=40      ** CCASTAT 6286 blocks
SYS-CCASTAT-DUMP-VOLSER=   ** CCASTAT dump volser
SYS-CCASTAT-VOLSER=       ** CCASTAT volser
SYS-CCASYS-DUMP-VOLSER=   ** CCASYS dump volser
SYS-CCASYS-PAGES=100      ** CCASYS pages
SYS-CCASYS-VOLSER=       ** CCASYS volser
WKSH-DBA=SUPERKLUGE       ** WORKSHOP administrator
WKSH-DEVDATA-DUMP-VOLSER= ** DEVDATA dump volser
WKSH-DEVDATA-PAGES=300    ** DEVDATA pages
WKSH-DEVDATA-VOLSER=     ** DEVDATA volser
WKSH-DEVTEMP-DUMP-VOLSER= ** DEVTEMP dump volser
WKSH-DEVTEMP-PAGES=300   ** DEVTEMP pages
WKSH-DEVTEMP-VOLSER=     ** DEVTEMP volser
WKSH-OUTFILE=OUTFILE      ** WORKSHOP output file
WKSH-PAINTER-DUMP-VOLSER= ** PAINTER dump volser
WKSH-PAINTER-PAGES=200   ** PAINTER pages
WKSH-PAINTER-VOLSER=     ** PAINTER volser
WKSH-SCGPROC-DUMP-VOLSER= ** SCGPROC dump volser
WKSH-SCGPROC-PAGES=195   ** SCGPROC pages
WKSH-SCGPROC-VOLSER=     ** SCGPROC volser
WKSH-SCGVIEW-DUMP-VOLSER= ** SCGVIEW dump volser
WKSH-SCGVIEW-PAGES=87    ** SCGVIEW pages
WKSH-SCGVIEW-VOLSER=     ** SCGVIEW volser
WKSH-TPAINT-DUMP-VOLSER=  ** TPAINT dump volser
WKSH-TPAINT-PAGES=150    ** TPAINT pages
WKSH-TPAINT-VOLSER=      ** TPAINT volser

```

Parameter description

The file-specific parameters listed in Table 3-8 reflect Model 204, Dictionary/204, and SQL related parameters only. Examine the members at your site for other product parameters.

Table 3-8. File-specific parameters

Parameter	Specifies
DEMO-CLAIMS02-VOLSER	Volume serial number of the demonstration database file CLAIMS02. Defaults to the value of PERM-VOLSER.
DEMO-CLAIMS03-VOLSER	Volume serial number of the demonstration database file CLAIMS03. Defaults to the value of PERM-VOLSER.
DEMO-CLIENTS-VOLSER	Volume serial number of the demonstration database file CLIENTS. Defaults to the value of PERM-VOLSER.
DEMO-DAILY-PAGES	Number of Model 204 pages in the demonstration database file DAILY. Defaults to value in the INSPARMS file.

Table 3-8. File-specific parameters (continued)

Parameter	Specifies
DEMO-DAILY-VOLSER	Volume serial number of the demonstration database file DAILY. Defaults to the value of PERM-VOLSER.
DEMO-VEHICLES-VOLSER	Volume serial number of the demonstration database file VEHICLES. Defaults to the value of PERM-VOLSER.
DICT-COMMAND-PROCFILE	Procedure file for generated commands. Defaults to DAILY.
DICT-DATALINK-DUMP-VOLSER	Volume serial number of the Dictionary/204 dump file used to back up the DATALINK file. Defaults to the value of PERM-VOLSER.
DICT-DATALINK-PAGES	Parameter for Dictionary/204 that specifies the number of Model 204 pages in the Dictionary/204 DATALINK file. Required. Defaults to the value in the INSPARMS file.
DICT-DATALINK-VOLSER	Volume serial number of the Dictionary/204 DATALINK file. Defaults to the value of PERM-VOLSER.
DICT-DBA	Parameter for Dictionary/204 that identifies the Dictionary/204 system administrator. Required.
DICT-D204RPT-DUMP-VOLSER	Volume serial number of the Dictionary/204 dump file used to back up the D204RPT file. Defaults to the value of PERM-VOLSER.
DICT-D204RPT-PAGES	Parameter for Dictionary/204 that specifies the number of Model 204 pages in the Dictionary/204 D204RPT file. Required. Defaults to the value in the INSPARMS file.
DICT-D204RPT-VOLSER	Volume serial number of the Dictionary/204 D204RPT file. Defaults to the value of PERM-VOLSER.
DICT-D204SYS-PAGES	Parameter for Dictionary/204 that specifies the number of Model 204 pages in the Dictionary/204 D204SYS file. Required. Defaults to the value in the INSPARMS file.
DICT-D204SYS-VOLSER	Volume serial number of the Dictionary/204 METADATA file. Defaults to the value of PERM-VOLSER.
DICT-METADATA-DUMP-VOLSER	Volume serial number of the Dictionary/204 dump file used to back up the METADATA file. Defaults to the value of PERM-VOLSER.
DICT-METADATA-PAGES	Parameter for Dictionary/204 that specifies the number of Model 204 pages in the Dictionary/204 METADATA file. Required. Defaults to the value in the INSPARMS file.
DICT-METADATA-VOLSER	Volume serial number of the Dictionary METADATA file. Defaults to the value of PERM-VOLSER.
DICT-M204DCTL-DUMP-VOLSER	Volume serial number of the Dictionary/204 dump file used to back up the M204DCTL file. Defaults to the value of PERM-VOLSER.

Table 3-8. File-specific parameters (continued)

Parameter	Specifies
DICT-M204DCTL-PAGES	Parameter for Dictionary/204 that specifies the number of Model 204 pages in the Dictionary/204 file M204DCTL. Defaults to the value in the INSPARMS file.
DICT-M204DCTL-VOLSER	Volume serial number of the Dictionary/204 M204DCTL file. Defaults to the value of PERM-VOLSER.
DICT-M204PROC-DUMP-VOLSER	Volume serial number of the Dictionary/204 dump file used to back up the M204PROC file. Defaults to the value of PERM-VOLSER.
DICT-M204PROC-PAGES	Parameter for Dictionary/204 that specifies the number of Model 204 pages in the Dictionary/204 M204PROC file. Defaults to the value in the INSPARMS file.
DICT-M204PROC-VOLSER	Volume serial number of the multiproduct file M204PROC. Defaults to the value of PERM-VOLSER.
DICT-M204TEMP-PAGES	Parameter for Dictionary/204 that specifies the number of Model 204 pages in the Dictionary/204 M204TEMP file. Required. Defaults to the value in the INSPARMS file.
DICT-M204TEMP-VOLSER	Volume serial number of the multiproduct M204TEMP file. Defaults to the value of PERM-VOLSER.
DICT-OUTFILE	Parameter for Dictionary/204 that specifies the default output file for Dictionary/204. Required.
INST-M204INST-DUMP-VOLSER	Volume serial number of the installation dump file M204INST. Defaults to the value of PERM-VOLSER.
INST-M204INST-VOLSER	Volume serial number of the installation file M204INST. Defaults to the value of PERM-VOLSER.
SQL-CATPROC-VOLSER	Volume serial number of the SQL CATPROC file. Defaults to the value of PERM-VOLSER.
SQL-CCACAT-PAGES	Parameter for SQL that specifies the number of Model 204 pages in the SQL catalog (file CCACAT). Required. Defaults to the value in the INSPARMS file.
SQL-CCACAT-VOLSER	Volume serial number of the SQL CCACAT file. Defaults to the value of PERM-VOLSER.
SQL-TSFDATA-PAGES	Parameter for SQL that specifies the number of Model 204 pages in the SQL Table Specification Facility file TSFDATA. Required. Defaults to the value in the INSPARMS file.
SQL-TSFDATA-VOLSER	Volume serial number of the SQL TSFDATA file. Defaults to the value of PERM-VOLSER.
SQL-TSFPROC-VOLSER	Volume serial number of the SQL TSFPROC file. Defaults to the value of PERM-VOLSER.

Table 3-8. File-specific parameters (continued)

Parameter	Specifies
SYS-CCAGRP-DUMP-VOLSER	Volume serial number of the group dump data set (CCAGRP). Defaults to the value of PERM-VOLSER.
SYS-CCAGRP-PAGES	Parameter for using file groups that specifies the number of Model 204 pages in the group data set (CCAGRP). Required. Defaults to the value in the INSPARMS file.
SYS-CCAGRP-VOLSER	Volume serial number of the group data set (CCAGRP). Defaults to the value of PERM-VOLSER.
SYS-CCASTAT-BLOCKS	Parameter for Model 204 security that specifies the number of blocks in the password data set (CCASTAT). Required. Defaults to the value in the INSPARMS file.
SYS-CCASTAT-DUMP-VOLSER	Volume serial number of the password dump data set (CCASTAT). Defaults to the value of PERM-VOLSER.
SYS-CCASTAT-VOLSER	Volume serial number of the password data set (CCASTAT). Defaults to the value of PERM-VOLSER.
SYS-CCASYS-DUMP-VOLSER	Volume serial number of the subsystem definition dump data set (CCASYS). Defaults to the value of PERM-VOLSER.
SYS-CCASYS-PAGES	Parameter for Application Subsystems that specifies the number of Model 204 pages in the subsystem definition data set (CCASYS). Required. Defaults to the value in the INSPARMS file.
SYS-CCASYS-VOLSER	Volume serial number of the subsystem definition data set (CCASYS). Defaults to the value of PERM-VOLSER.

Installation task parameters

```

*****
* Enter 'I' to install a new release of MODEL 204 or a product
* Enter 'R' to add/upgrade M204 object code or reinstall product
* Enter 'N' for neither
*****
INSTALL-M204=I
INSTALL-DICT=I
INSTALL-SQL=I
INSTALL-WKSH=N
*****
* Enter 'Y' to install FEATURE, or 'N'
* Enter KEY for purchased PRODUCT/FEATURE
*****
ACF2= (N, LINK)      KEY=          ** See Security Interfaces Manual
CICS=N              KEY=          ** Install CICS support
CRAM=N              ** Install CRAM feature
DBCS=N              KEY=          ** Enable Double Byte Char Set
DEMO=Y              ** Unload the Demo DB from FTP files

```

DTS=N	KEY=	** Enable Journal Date/time Stamp
ECF=N		** Enable External Call Facility
EXCPVR=N		** Install EXCPVR Appendage
FUNC-CODE=Y		** Enable \$CODE/\$DECODE functions
FUNC-USER=N		** Enable USER-WRITTEN functions
HRZN=Y		** Install Horizon/TCP feature
INTERCOMM=N	KEY=	** SEE z/OS INSTALLATION GUIDE
MATH-FORTRAN=N		** Enable Dictionary/Math functions
MATH-LE=Y		** Enable Dict/LE Math functions
MQSERIES=N	KEY=	** Install MQSERIES Feature
MSG-USER=N		** Enable USER-WRITTEN messages
M204XSVC=N		** Install XMEMSVC/IOS-Branch Entry
PQO=Y		** Enable Parallel Query Option
RACF=(N, LINK)	KEY=	** See Security Interfaces Manual
SQL-CONNECT*=Y		** Install SQL Workstation Client
TOPSECRET=(N, LINK)	KEY=	** See Security Interfaces Manual
TSO=N	KEY=	** See z/OS Installation Guide
ULDB2=N	KEY=	** Install ULDB2 Feature
VTAMPS=N	KEY=	** Install Vtam Printer Support

Parameter description

The installation task parameters listed in Table 3-9 reflect Model 204, Dictionary/204, and SQL related tasks as well as tasks for products your site might not have purchased. Examine the INSPARMS member at your site for other products. Where noted, some products require an 8-digit numeric key to install.

Table 3-9. Installation task parameters

Parameter	Specifies whether to install or enable...
INSTALL-M204	<p>Installation task. Valid values are:</p> <ul style="list-style-type: none"> I installs a new release of Model 204. R relinks Model 204 with a new feature or replacement object. Use the I value to change your configuration. Or, R reinstalls a separate end-user product being upgraded to a new release level. N neither installs nor relinks. <p>Note: For each feature you install, make sure that you have entered valid values for the associated feature-specific parameters. See "Feature-specific parameters" on page 36.</p>
INSTALL-DICT	Dictionary/204.
INSTALL-SQL	SQL support. For Connect★, install Horizon also. Product dependencies for SQL-related products are also discussed in Chapter 8. Defaults to Install. See "Installation considerations for Freeway/204" on page 3. This includes the RSQL module in the ONLINE link step.
INSTALL-WKSH	Workshop/204.

Table 3-9. Installation task parameters (continued)

Parameter	Specifies whether to install or enable...
ACF2	CA-ACF2. Valid values are Y for Yes or N for No. If Y, specify LINK to statically link the security parameter into the load module or LOAD to dynamically load during initialization. LOAD is recommended. An 8-digit numeric key is required to install this product. More information is given in the <i>Model 204 Security Interfaces Manual</i> .
CICS	CICS interface. Valid values are Y for Yes or N for No. An 8-digit numeric key is required.
CRAM	Cross Region Access Method. Enter Y for Yes or N for No.
DBCS	Double-Byte Character Set feature. Enter Y for Yes or N for No. An 8-digit numeric key is required.
DEMO	Demonstration database. Enter Y for Yes or N for No. The default is Y. The demonstration database is used in Rocket-provided training. Refresh the database from the FTP files, because updates to the files might have occurred since last distributed.
DTS	Date/time stamp feature enabled. Valid values are Y for Yes, the default, or N for No.
ECF	External Call Facility. Valid values are Y for Yes or N for No, the default.
EXCPVR	EXCPVR feature. Valid values are Y for Yes or N for No.
FUNC-CODE	\$CODE/\$DECODE feature. Valid values are Y for Yes or N for No. This feature is required if INSTALL-SQL = 1 (you are installing SQL support with a new release of Model 204), and is recommended if the Horizon, MQ/204, and/or ECF features have been installed.
FUNC-USER	User functions. Valid values are Y for Yes or N for No. In addition to developing user written functions, this feature is recommended if you intend to use the User Language sockets interface.
HRZN	Horizon. Valid values are Y for Yes or N for No. The default is Y. See "Installation considerations for Freeway/204" on page 3.
INTERCOMM	Install INTERCOMM support. An 8-digit numeric key is required
MATH-FORTRAN	FORTRAN functions. Valid values are Y for Yes or N for No. You must specify Y to use the FORTRAN mathematical functions. You must install either MATH-FORTRAN or MATH-LE in order to use User Language math functions in applications.
MATH-LE	IBM mathematical functions. Valid values are Y for Yes or N for No. You must specify Y to use the LE mathematical functions. You must install either MATH-FORTRAN or MATH-LE in order to use User Language math functions in applications.
MQSERIES	MQ/204 feature. Enter Y for Yes or N for No. An 8-digit numeric key is required.
MSG-USER	User messages. Enter Y for Yes or N for No. User messages are used in conjunction with user functions. See FUNC-USER above.

Table 3-9. Installation task parameters (continued)

Parameter	Specifies whether to install or enable...
M204XSVC	XMEMSVC which supports the IOS BRANCH ENTRY feature. Valid values are Y for Yes or N for No. For more information on the IOS BRANCH ENTRY feature, see page 62.
PQO	Parallel Query Option/204. Valid values are Y for Yes or N for No. The default is Y for Yes. Horizon is required. See “Installation considerations for Freeway/204” on page 3.
RACF	Security Server (formerly RACF) interface. An 8-digit numeric key is required. Valid values are Y for Yes or N for No. If Y, specify: <ul style="list-style-type: none"> LINK to statically link the security parameter into the load module. A Security Server argument set should be named RACFPARM within the RACFGEN job. This avoids the following warning message: IEW245421 9203 SYMBOL RACFPARM UNRESOLVED. NO AUTOCALL (NCAL) SPECIFIED LOAD to dynamically load during initialization. LOAD is recommended. More information about the Security Server (formerly RACF) Interface is given in the <i>Model 204 Security Interfaces Manual</i> .
SQL-CONNECT*	SQL support from a client workstation. Valid values are Y for Yes or N for No. Horizon is required. The default is Y. See “Installation considerations for Freeway/204” on page 3.
TOPSECRET	Model 204 CA-Top Secret interface. Valid values are Y for Yes or N for No. If Y, specify LINK to statically link the security parameter into the load module or LOAD to dynamically load during initialization. LOAD is recommended. An 8-digit numeric key is required. More information about the Model 204 CA-Top Secret Interface is given in the <i>Model 204 Security Interfaces Manual</i> .
TSO	TSO interface. Valid values are Y for Yes or N for No. An 8-digit numeric key is required. If TSO/E, specify “ASMBLR=IEV90”.
ULDB2	UL/DB2 feature. Valid values are Y for Yes or N for No. An 8-digit numeric key is required.
VTAMPS	Install SNA Communications Server printer support for double-byte character sets. An 8-digit numeric key is required.

Step 10: Process INSPARMS using GENJCL

You must modify GENJCL according to details contained in the comments of the job. An accurate OPSYS parameter is critical. *Enter values in uppercase.*

If you want to keep multiple versions of INSPARMS files for use in generating multiple versions of JCL (tailored for multiple sites, perhaps), change the PARMIN parameter. GENJCL reads the specified parameter file that you created and edited.

To adapt the procedure to your installation, follow the comments in the job; see “Step 2: Download zip files from the FTP server” on page 24. To avoid a file enqueue, exit INS204.JCLLIB immediately after submitting this job.

It is important that you review the output of GENJCL. GENJCL provides the following information:

- List of (proposed) changes to the parameters.
- Data validation errors that result in the message:

```
NO JCL OUTPUT
```

- Errors that are not fatal, but generate unexpected results. For example, if you select ACF2 and Security Server, which are mutually exclusive, neither is installed.
- The GENJCL job should finish with a return code of zero. The following messages, which, when they appear in the Model 204 step of GENJCL, are acceptable:

```
M204.0339: CCASTAT DATASET MISSING
M204.0341: UNABLE TO OPEN CCASTAT
M204.1572: DATASET INSPARMS NOT OPEN
M204.1574: END OF FILE IN FILE INSPARMS
M204.1574:  END OF FILE IN FILE INSTLIST
```

After running the GENJCL job against your edited INSPARMS member, follow the INSTLIST member in INS204.JCLLIB to complete the installation.

Installation checklist

A dated installation checklist (*member=INSTLIST*) is written to INS204.JCLLIB each time GENJCL is run with the Generate option. If you select Simulate, the checklist goes to SYSOUT.

The following sample installation checklist is included only to familiarize you with the general form of the installation checklist. Your site's checklist will differ depending on the features and add-on products you are installing.

A comprehensive list of remaining installation tasks is given in Table 4-1 on page 51. Chapter 4 through Chapter 8 provide detailed information on the generated jobs and on the installation of Dictionary/204 and SQL support.

The following is a sample of generated INSTSLIST when selecting to install Model 204, Dictionary/204 and SQL.

INS204 Installation Checklist

Date and time of report: 15 JUN 2011 13:50:35

STEP 1: INSTALL-M204

** See "Authorizing MODEL 204" in Install Guide

** See "Deactivating Online System Swapping Activity" in Install Guide

** If installing VTAM, read section on setting APPLID in Install Guide

___1. M204ALOC allocates and catalogs MODEL 204 libraries & product files

- ___ 2. CDTBASM assembles CDTB module into MODEL 204 object library
- >>> add user tables as IEBUPDTE input
 - >>> or modify job to use SYSIN DD *
- ___ 3. CUSTASM Optionally define a default Date/Time Stamp field name
- >>> OPTIONAL JOB: If not run use User0 DTSFN to name field.
 - >>> Change the CUSTFN name in source CUST to the desired
 - >>> default DTS field to be used and ASM into M204 OBJLIB.
- ___ 4. CRAMINS assembles and link edits all CRAM modules
- >>> Read section on SYS1.PARMLIB in Install Guide
 - >>> STEP 1 - ASSEMBLE CUSTOMIZED CRAMGEN TEXT CONTAINING SVC
 - >>> NUMBER AND SUBSYSTEM NAME ASSOCIATED WITH CRAM SVC MODULES
 - >>> STEP 2 - CREATE LINK EDIT CONTROL RECORDS FOR LINKING
 - >>> 3 CRAM MODULES: IGCLM244, IGC00NNX, IGC01NNX
 - >>> STEP 3 - LINK EDIT MODULES NOTED IN STEP 2
 - >>> STEP 4 - CREATE LINK EDIT CONTROL RECORDS FOR LINKING SNAPCRAM
 - >>> STEP 5 - LINK EDIT SNAPCRAM
- ___ 5. M204LINK links MODEL 204 load modules into load library
- >>> 1. To use FLOD exits, user-written exit routines must be
 - >>> link-edited into BATCH204 configuration
 - >>> (See File Manager's Manual)
 - >>> 2. If you do not want IBM Block Letter Format, remove
 - >>> lines containing IBMLIB
 - >>> 3. To add your customized CCAJLOG Switch user exit,
 - >>> add INCLUDE M204JLOG to the ONLINE include list.
 - >>> 4. To add your customized Checkpoint user exit,
 - >>> add INCLUDE M204CKPX to the ONLINE include list.
 - >>> In all cases, ensure that a DD statement for your
 - >>> object library with your assembled code is present.
 - >>>
- ___ 6. CPUIDZAP applies CPU ID zap (ONLINE, BATCH204, IFAM1/4)
- >>> Insert zap distributed with your authorization form
- ___ 7. PDSELIB links 4 MODEL 204 load modules into PDSE load library
- >>> This is an OPTIONAL job required only to run the
 - >>> ONLINE, BATCH204, IFAM1, and/or IFAM4 modules

>>> above the 31-bit address line. The OS Install Guide
>>> contains further discussion about this option.
>>> The standard PDS library contains everything necessary
>>> for running below the line. All maintenance is applied
>>> to the PDS modules. This job is then run again to move
>>> the latest versions of all modules to the PDSE library.

___ 8. ZBLDTAB creates MODEL 204 password file using ZBLDTAB utility.

>>> This job CREATES and INITIALIZES CCASTAT

>>> If reinstalling, you may prefer to bypass this step

___ 9. ZCTLTAB OPTIONAL Job to create/update CCASTAT with expiration pass

>>> May be run to convert and maintain CCASTAT to support

>>> expiring passwords. Read Install Guide and job comments

___ 10. CREATEG creates MODEL 204 group file using CREATEG utility.

>>> This job CREATES and INITIALIZES CCAGRP

>>> If reinstalling, you may prefer to bypass this step

___ 11. RESTDEMO restores the demo database files

STEP 2: INSTALL-DICT

___ 12. DDPROCI allocates and restores installation procedure file

>>> Values for LOGON userid and password must be present

___ 13. DDPROCP allocates and creates M204PROC

>>> Values for LOGON userid and password must be present

___ 14. DDPRCLOD restore/transfers procedures from DICDIST to M204PROC

>>> This is a version of PRCLoad customized for DICTIONARY

>>> Replace M204PROC DSN if you are re-installing

>>> Values for LOGON userid and password must be present

>>> Add file passwords as necessary

___ 15. DDINST installs the initial DICTIONARY and CCASYS.

>>> Values for LOGON userid and password must be present

>>> Additional customization may be required.

>>> Refer to section detailing file sizing for M204DCTL.

___ 16. DDBKP backs up all DICTIONARY data files.

>>> Values for LOGON userid and password must be present

>>> Add file passwords as necessary

___17. DDBKPRC backs up file M204PROC

>>> Values for LOGON userid and password must be present

>>> Add file passwords as necessary

STEP 3: INSTALL-SQL

** HORIZON is required for SQL connection via PC Client

** After running jobs in this section, install the

SQL Catalog Facilities (refer to z/OS Install Guide)

** For information on installing CONNECT *, refer to the

"CONNECT * Installation and Administration Guide"

___18. SQLINST allocates/creates SQL subsystem procedure files

>>> Creates CCACAT (SQL catalog). Run DEMOTAB in DDLWIN

>>> or the PC equivalent to load DDL defs for Demo D/Bs

>>> See OS Install Guide to install SQL optional subsystems

>>> CCACATREPT and CCATSF using CATPROC and TSFPROC procfiles

4

Running Model 204 Installation Jobs

In this chapter

- Overview
- Decrypting encrypted modules
- Generating security parameters
- Customizing source
- Understanding CRAM
- Installing CRAM with an SVC
- Installing CRAM without an SVC
- Understanding M204XSVC
- Installing M204XSVC as an SVC
- Installing M204XSVC without an SVC
- Installing the EXCPVR appendage
- Installing the CICS Interface
- Installing the TSO Interface
- Installing the INTERCOMM Interface—INTASM / INTUPD
- Installing the UL/DB2 Interface

- Installing exit utilities
- Linking load modules
- CPUIDZAP job
- Linking security modules
- Using the PDSELIB job
- Creating the password data set CCASTAT (initial install only)
- Creating the file group data set CCAGRP
- Restoring demonstration database files
- Postinstallation tasks

Overview

In Chapter 3, you learned how to generate the necessary JCL to start your Model 204 installation and you generated the installation checklist. You can complete the installation by running the generated jobs and performing several system-related and postinstallation tasks.

Tasks for the Model 204 installer

A comprehensive list of all possible installation tasks and jobs is presented in Table 4-1. Only those JCL jobs that you need to run based on your INSPARMS selections, described in “Step 9: Edit the INSPARMS file” on page 26, appear on your installation checklist.

Reminder:For jobs listed with an asterisk (*), review “Before you begin” on page 8.

The last entry in Table 4-1 concerns several postinstallation tasks that you must perform even though they do not appear on your installation checklist.

The column labeled “To run see...” contains page and chapter references to detailed information about the tasks. An entry of “Run as is” in this column means that you can run the job without modification or additional information. Review comments in all jobs before running them.

Table 4-1. Installation tasks for the Model 204 installer

Task	Job(s)	To run see...
Allocate libraries and product files	M204ALOC	Run as is
Decrypt encrypted modules	M204DECR	page 53
Generate security parameters	ACF2GEN RACFGEN TOPSGEN	page 54

Table 4-1. Installation tasks for the Model 204 installer (continued)

Task	Job(s)	To run see...
Assemble SBA20S	SBA2ASM	Run as is
Customize source	CDTBASM CUSTASM FUNUASM MSGUASM	page 55
Install CRAM	CRAMINS*	page 58 and Appendix B
Install M204XSVC	XSVCINS*	page 62
Install the EXCPVR appendage	EXCPVR	page 64
Install the CICS Interface	CICSASM CICSLINK	page 64
Install the TSO Interface	TSOASM	page 72
Install the UL/DB2 Interface	USQLASM	page 75
Install exits		page 75
Link load modules	M204LINK M204RLNK	page 76
Apply CPU ID zap	CPUIDZAP	Use zap provided by Rocket
Link security modules	SECRLINK	page 78
Create the password data set CCASTAT	ZBLDTAB	page 80
Convert CCASTAT for the Password Expiration feature	ZCTLTAB	page 80
Create file group data set CCAGRP	CREATEG	page 80
Restore demonstration database files	RESTDEMO	page 80
Allocate and restore Dictionary/204 procedure file	DDPROCI	Chapter 5, Chapter 6, and Chapter 7
Allocate and restore M204PROC	DDPROCP	
Restore and transfer procedures from DICDIST to M204PROC	DDPRCLOD	
Install Dictionary/204 facilities and define internal CCASYS procedures	DDINST	
Back up all Dictionary/204 files	DDBKP	
Back up M204PROC	DDBKPRC	
Install Model 204 SQL catalog facilities	SQLINST	Chapter 8
Install Connect★	See the <i>Connect★ Suite Installation and Programming Guide</i>	
Install Workshop/204	See the <i>Workshop/204 Installation Guide</i>	

Table 4-1. Installation tasks for the Model 204 installer (continued)

Task	Job(s)	To run see...
Perform postinstallation tasks		page 82

Decrypting encrypted modules

The Model 204 nucleus distribution files include the following items:

- In an encrypted format, object and source materials to install all separately purchased features and interfaces
- Decryption keys for the purchased features and interfaces

Using the M204DECR job and the decryption keys, you must decrypt the encrypted modules for each feature before you can use utilities such as the linkage editor and assembler.

Run M204DECR to decrypt all features selected in INSPARMS.

Table 4-2 lists the return codes and messages that appear in the report produced by the M204DECR job. The table also suggests appropriate diagnostic action.

Table 4-2. Return codes in the decryption utility report

Return code	Message	Comment or action
0	—	Decryption was successful.
8	No control or parameter provided	PARM= on the EXEC card is invalid or missing. Check the JCL for accuracy and verify that instructions (comments) have been followed.
12	Invalid command specified	DECODE was not specified on the specified EXEC card PARM= field. Check the JCL for accuracy and verify that instructions (comments) have been followed.
16	Insufficient virtual storage for job	Increase the virtual storage available to the job to at least 380K using the Region parameter on the job card.
20	Wrong decryption key specified	The decryption key does not match the encryption key. Check your Rocket Model 204 distribution package to verify the accuracy of the key specified.

Table 4-2. Return codes in the decryption utility report (continued)

Return code	Message	Comment or action
24	Internal decryption <i>nnnn</i> error detected	<p><i>nnnn</i> can be:</p> <ul style="list-style-type: none"> • Clear text length • Cipher text length • Clear checksum • Cipher checksum <p>The decryption key specified does not match the encryption key. Modules being installed or the material to be decrypted has been modified or tampered with. Check your Rocket Model 204 distribution package to verify the accuracy of the key specified.</p>

Generating security parameters

CA-ACF2, Security Server (formerly RACF), and CA-Top Secret are external security interfaces available to Model 204. The Model 204 interface for each of these products includes code that lets you use the external interface facilities and make site-specific modifications to the security product itself. For more information, see the *Model 204 Security Interfaces Manual*.

Security interface	Requires assembly job	To assemble module
CA-ACF2	ACF2GEN	ACF2PARAM
Security Server	RACFGEN	RACFPARAM
CA-Top Secret	TOPSGEN	TOPSPARAM

If the assembled module, *nnnn*PARAM, is not included at Model 204 link time, then use the SECRLINK job to create a load module that Model 204 loads at interface startup time.

ACF2GEN job

The ACF2GEN job assembles the ACF2PARAM module with the ACF2GEN macro. This module contains Model 204 CA-ACF2 Interface control parameters. The resulting object module can be included in any appropriate Model 204 configuration link-edit to provide a permanent set of interface parameters.

RACFGEN job

The RACFGEN job assembles the RACFPARAM module with the RACFGEN macro. This module contains Model 204 Security Server Interface control parameters. The resulting object module can be included in any appropriate Model 204 configuration link-edit to provide a permanent set of interface parameters.

TOPSGEN job

The TOPSGEN job assembles the TOPSPARM module with the TOPSGEN macro. This module contains Model 204 CA-Top Secret Interface control parameters. The resulting object module can be included in any appropriate Model 204 configuration link-edit to provide a permanent set of interface parameters.

Customizing source

If you use translation tables, user-written functions, the TCP/IP Sockets Interface, or a customized DTS (date-time stamp) field, you must change the source code in the macro library modules CDTB, FUNU, MSGU, or CUST to accommodate the requirements of your site, as in Table 4-3.

Table 4-3. Source customizations

If you use...	Then...	Using...
\$CODE and \$DECODE functions to encode and decode	Edit your own translation tables into the CDTB module character strings	CDTBASM
User-written User Language functions and/or the \$ASCII and \$EBCDIC functions	Add them to the FUNU module	FUNUASM
Error messages with user-written User Language functions	Modify the MSGU module	MSGUASM
A customized Date/Time Stamp field	Edit the CUSTFN name in the CUST module. (See "Customizing the date/time stamp field name in CUST source code" on page 18.)	CUSTASM

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

Also the new MSGCTL implementation requires a reassembly of user message modules (MSGU). This may also include third party software messages that you install.

Follow these steps to customize source for CDTB, FUNU, MSGU, or CUST:

1. Run LISTnnnn to obtain a listing of CDTB, FUNU, MSGU, or CUST:

```
//LISTnnnn EXEC PGM=IEBGENER,REGION=64K
//SYSRINT DD SYSOUT=A
//SYSIN DD DUMMY
//SYSUT2 DD SYSOUT=A,DCB=(RECFM=FB,LRECL=80)
//SYSUT1 DD DSN=SYSM.M204.rlse.MACLIB(nnnn),DISP=SHR
```

2. Modify the EDIT $nnnn$ step, or use 'SYSIN *' in the INS204 generated job:

```
//EDIT $nnnn$  EXEC PGM=IEBUPDTE,REGION=64K
//SYS $PRINT$  DD SYSOUT=A
//SYSUT1 DD DSN=SYSM.M204.rlse.MACLIB,DISP=OLD
//SYSUT2 DD DSN=SYSM.M204.rlse.MACLIB,DISP=OLD
/*Insert updates to CDTB after the ./ CHANGE statement
//SYSIN DD *
./ CHANGE NAME=CDTB */ Update or replace CDTB /*
./ ENDUP
/*
```

3. Run the CDTBASM, FUNUASM, MSGUASM or CUSTASM job to assemble the CDTB module, FUNU module, MSGU module, or CUST module, respectively, in Model 204 object library.
4. Invoke the linkage editor to include the new changes in the modules you are running. If you have not yet run your initial link jobs, run M204LINK; otherwise, relink using M204RLINK. For more information, see "Linking load modules" on page 76.

Understanding CRAM

The Cross-Region Access Method (CRAM) allows a program running in one mainframe region to communicate with a version of Model 204 running in a different region on the same CPU. If you are accessing Model 204 from TSO, CICS, or from a Host Language Interface program that operates in a separate region, CRAM is required.

If your site uses CRAM, you must reinstall CRAM and, if you use the CRAM XDM option, M204XSVC.

In the following sections are installation instructions that let you install these options with or without SVCs. Before choosing your installation options, carefully review the benefits and limitations of each to assure your site's functionality requirements are met.

Running multiple releases of CRAM

The Secondary Subsystem facility lets z/OS sites run multiple releases of CRAM. If you use different releases of CRAM, corresponding releases of the CRAM load module (IGCLM244) control access to the appropriate Model 204 onlines using secondary subsystem names. See Table 4-4 on page 58 for a description of the CRAM load modules.

To make the new CRAM the default version, place the new IGCLM244 in the LPA. Installing a new release of CRAM, while retaining the existing version as the default, requires a secondary subsystem name and possibly a new SVC.

When installing a new release of CRAM, the load library containing the new IGCLM244 module must then be included as a STEPLIB in:

- Model 204 ONLINE JCL
- CICS Region JCL
- TSO Region JCL
- HLI Applications JCL (including BATCH2)

Understanding IGCLM244

All CRAM installations require generating the IGCLM244 load module using the CRAMINS job. This non-SVC load module has the CRAM secondary subsystem name assembled as a constant and is used to locate the correct secondary subsystem name at run time.

- For a CRAM installation with an SVC, the IGCLM244 is also used to locate the SVC, which is also assembled as a constant.
- For a CRAM installation without an SVC, the IGCLM244 load module has the z/OS secondary subsystem name assembled as a constant, which is used to locate the correct z/OS secondary subsystem name at run time. The SVC number is set to zero in the IGCLM244 assembly.

A CRAM installation without an SVC is applicable for only the CRAM XDM option. This option requires M204XSVC, which must be linked directly into the Online to avoid an SVC installation. See “Installing CRAM without an SVC” on page 61.

Note: If your Model 204 LOADLIB requires APF authorization, your load library containing IGCLM244 must also be an APF-authorized load library.

For best performance, it is recommended that you put all CRAM modules in the FLPA. Alternatively, place IGC00 nnx in the FLPA and place the remaining modules in the PLPA.

Updating CRAM

Rocket requires that CRAM be installed at the comparable release level of Model 204. You cannot run a new release of Model 204 with prior versions of this component. When you migrate to a new version of Model 204, you must also migrate to the new version of this component. Rocket does not support or warrant running new Model 204 versions with earlier versions of CRAM.

Trying to use non-XDM CRAM without an SVC number

If you install CRAM without specifying an SVC number and then you try to use the non-XDM CRAM option, the job that relies on CRAM will abend.

Installing CRAM with an SVC

Advantages of installing CRAM with an SVC

You maintain the capability of running CRAM with either the non-XDM option or the XDM option. However, you cannot use both options in the same Online at the same time.

There is security in isolating Model 204 from the rest of your IBM system by running Model 204 using SVCs as needed, which may require a system IPL.

CRAM load modules

Table 4-4 lists the CRAM load modules and type with the purpose of each module and where the modules are stored when you install CRAM without modifying the installation.

Table 4-4. CRAM load modules

Name and type	Discussion
IGCLM244 Non-SVC load module	<ul style="list-style-type: none">• The actual SVC number and the secondary subsystem name, which was assigned to CRAM in the INSPARMS member, are provided as parameters to the assembly and linkedit (the CRAMINS job) of IGCLM244. All Model 204 host language programs and BATCH2 jobs that include, in their STEPLIB or STEPLIB concatenation, the load library containing IGCLM244 will use the version of CRAM indicated in that copy of IGCLM244.• Loaded by Model 204 and the communication address space.• Initially loaded into CRAMLIB, you can store this module in the Model 204 LOADLIB, Fixed Link Pack Area, Pageable Link Pack Area, or an APF-authorized user load library.• If you install multiple versions of CRAM you must store this module in an APF-authorized user load library.
IGC00nnx SVC load module (Type 4, enabled)	<ul style="list-style-type: none">• Contains CRAM read/write logic, flow of control, and open/close code. Coordinates interregion waiting and data transfer.• IGC00nnx must be in the Fixed Link Pack Area, because the cross-memory post routine XMPOST must be page fixed.• Initially loaded into CRAMLIB; you must move this module before the system IPL.• The IGC00nnx SVC (Type4) CRAM load module is <i>not</i> the same as the SVC (Type 3) that you use for M204XSVC.
IGC01nnx Non-SVC load module	<ul style="list-style-type: none">• Contains a copy of IGCLM244 and facilitates the use of multiple releases of CRAM SVC. Used only on z/OS or compatible systems using the Secondary Subsystem facility.• Initially loaded into CRAMLIB; you must store this module in the Fixed Link Pack Area or Pageable Link Pack Area before the system IPL.
SNAPCRAM Non-SVC load module	<ul style="list-style-type: none">• Creates a formatted dump of the CRAM load modules and control blocks. Used to aid in problem determination.• Runs in a separate address space from Model 204 and the communication address space (that is, a third address space).• Stores this module in the Model 204 LOADLIB.

CRAM with SVC installation steps

To install CRAM, the z/OS systems programmer and the Model 204 installer must complete the steps in Table 4-5, before you proceed with the CRAM installation.

Table 4-5. CRAM installation steps

Step	Task for...	Task	Discussion
1.	Model 204 installer	Run the CRAMINS job to allocate a new CRAMLIB data set, create, and link the CRAMGEN modules.	See Table 4-4 on page 58.
2.	z/OS systems programmer	All data sets in LPALST nn must be APF-authorized. To ensure this, add the LPALST nn data set names to the IEAAPF nn or PROG nn table.	The LPALST ww option lets you concatenate to LPALIB. The CRAM data set name can be specified in LPALST ww instead of placing the modules in LPALIB.
3.	z/OS systems programmer	Move the IGC00 nnx and IGC01 nnx members from the CRAMLIB into LPALIB.	This must be done prior to IPL.
4.	z/OS systems programmer	To enable multiple versions of CRAM, do <i>one</i> of the following: <ul style="list-style-type: none"> • Copy the IGCLM244 member into the Model 204 LOADLIB. • Leave IGCLM244 in the CRAMLIB. • Move the IGCLM244 member from the Model 204 LOADLIB into the loadlib defined in LPALSTnn. • Update the IEAFIXnn table in SYS1.PARMLIB with IGC00nnx and optionally with IGCLM244 and IGC01nnx. 	
5.	z/OS systems programmer	IPL the operating system with the CLPA option.	Do the IPL after all Model 204 installation steps requiring an IPL are complete.
6.	Model 204 installer	If you are using multiple versions of CRAM, and the desired version of CRAM is not the LPA version, concatenate the appropriate load library containing IGCLM244 as a STEPLIB in the appropriate jobs before any libraries containing the other version of IGCLM244.	

Additional description of the tasks for the systems programmer

1. Placing module names in SYS1.PARMLIB

Usually, the ISPF editor is used to update SYS1.PARMLIB. Optionally, the IBM utilities IEBTPCH and IEBUPDTE can be used.

2. Scan the SYS1.PARMLIB member IEASYS nn for FIX= nn parameter.

If FIX= nn is missing, add it to this table after the last parameter, substituting a numeric value for nn .

- Each parameter preceding FIX= nn must be followed by a comma.
- FIX= nn , the last parameter, must not be followed by a comma, as follows:

```
last_parameter,  
FIX= $nn$ 
```

3. Add CRAM module names to IEAFIX nn

IEAFIX nn is used in conjunction with IEASYS nn to place selected modules into the FLPA. IEAFIX nn begins with an INCLUDE LIBRARY command specifying a data set (SYS1.LINKLIB, SYS1.SVCLIB, SYS1.LPALIB, or a loadlib defined in LPALST nn) containing a group of modules that may be loaded into this area.

The INCLUDE LIBRARY command must be followed by the list of individual module names, which are to be loaded into the FLPA.

Insert the appropriate CRAM module names into the MODULES list for the specified data set (or, if there is no MODULES list for the specified data set, create one for the CRAM modules). Each module name must be followed immediately by a comma, except the last name, which must be followed by a right parenthesis, as the following shows:

```
INCLUDE LIBRARY(data_set_name)  
  MODULES( first_module,  
          .  
          .  
          .  
          last_module,  
          IGCLM244,  
          IGC00 $nnx$ ,  
          IGC01 $nnx$ )
```

Note: Depending on your site's preferences, you might not want to include IGCLM244 or IGC01 nnx in the MODULES list. See Table 4-4 on page 58 and "CRAM load modules" on page 58 for a discussion of the relevant considerations.

Installing CRAM without an SVC

You can install Model 204 without the concomitant SVC installation.

Advantages of installing CRAM without an SVC

The following items are not required:

- The SVC parameter in the CRAMINS job
- XSVCINS job to install an SVC
- System IPL to have the SVCs recognized by z/OS

In addition, you can benefit from the following savings:

- No SVC numbers are consumed.
- No SVC entries are required in SYS1.PARMLIB.
- No SVC load modules need to be linked into SYS1.LPALIB.

Limitations of installing CRAM without an SVC

You are limited to using the CRAM XDM option because the support for the non-XDM option is not installed. This means that you *must* set the XMEMOPT parameter to include X'80' in CCAIN. This setting enables CRAM XDM support in the job. It is recommended that z/OS sites set XMEMOPT=X'82' to optimize performance.

CRAMINS job modifications

Linkedit IGCLM244 into an APF-authorized load library by running the CRAMINS job.

If you set the CRAM-SVC-NUM parameter to NOSVC in INSPARMS, a CRAMINS job is generated that does not contain occurrences of the CRAMSVC parameter.

1. Confirm that this CRAMINS job does not contain the keyword CRAMSVC.
2. Confirm that the two occurrences of the secondary subsystem name with the value from INSPARMS appear in the CRAMINS job in STEP01 and STEP02.
3. Ensure that the new CRAMLIB library is APF-authorized or change the SYSLMOD data set name to one that is.

Understanding M204XSVC

You need to install M204XSVC, as an SVC, if you are *not* running Model 204 from an APF-authorized library and any of the following conditions is true for your site:

- You use the XDM option of CRAM.
- You use IOS BRANCH ENTRY.
- You use Timer PC.
- You use the UL/DB2 interface.

The above features are enabled by the XMEMOPT parameter values in CCAIN.

Using IOS Branch Entry

The IOS Branch Entry provides a fast path to the I/O Supervisor (IOS) by using a high-performance routine designed specifically for Model 204 database I/O. The Model 204 I/O driver translates a preformatted channel program, page fixes, required storage areas, and branches directly to IOS to initiate the I/O.

Reusing M204XSVC

Rocket requires that M204XSVC be installed at the comparable release level of Model 204. You cannot run a new release of Model 204 with prior versions of this SVC. When you migrate to a new version of Model 204, you must also migrate to the new version of this component. Rocket does not support or warrant running new Model 204 versions with earlier versions of M204XSVC.

Installing M204XSVC as an SVC

You need to run the XSVCINS job to install M204XSVC using an SVC.

Table 4-6 describes the M204XSVC load module.

Table 4-6. M204XSVC module

Name and type	Discussion
IGC00 <i>nnx</i>	<ul style="list-style-type: none">• Installed in the LPALIB. You can store in any LPALST library.
SVC module (Type 3, enabled)	<ul style="list-style-type: none">• Before the system IPL, a z/OS system programmer must make an entry in the IEASVC<i>nn</i> member in the PARMLIB.• The IGC00<i>nnx</i> SVC (Type 3) for M204XSVC is <i>not</i> the same as the IGC00<i>nnx</i> SVC (Type 4) for CRAM.

The following entry must be added to member IEASVC*nnn* in SYS1.PARMLIB:

```
SVCPARM svcnumber, REPLACE, TYPE(3)
```

where:

svcnumber is the SVC number used for the M204XSVC that the z/OS systems programmer assigned the Model 204 installer. (See Table 2-1 on page 9.) This number is the same number assigned to the XMEMSVC parameter in CCAIN.

Installing M204XSVC without an SVC

Advantages of installing M204XSVC without an SVC

- A simplified installation process.
- You do not run job XSVCINS to install M204XSVC. Instead, INCLUDE cards are generated for modules in the M204LINK job.
- Eliminates SVC usage requirements.
- XMEMSVC parameter is not required in CCAIN.
- Performance improvements of executing code inline.

Note: The load library containing ONLINE, BATCH204, and IFAM4 must be authorized under APF. The IFAM1 module may not have M204XSVC linked in, otherwise ABEND A78 at termination time may happen. Consequently, in order to run IFAM1 load modules either:

- Install M204XSVC as an SVC, or
- Make the load library where the IFAM1 application resides (and all run-time concatenated libraries) APF authorized.

Unless one of these requirements is met, IFAM1 applications will terminate with:

```
MODEL 204 IS NOT AUTHORIZED FOR THIS CPU ID:  
0000000000000000
```

Executing code inline

The cross-memory code that supports both IOS Branch Entry and the CRAM XDM option is executed inline rather than as an SVC. Executing code inline means executing one instruction after another without branching to the operating system. When you branch to the operating system, which is a supervisor call (an SVC), there is additional overhead.

M204LINK job

The following INCLUDE line is added in your M204LINK job for each module—ONLINE, BATCH204, and IFAM4.

```
INCLUDE OBJLIB (M204XSVC)
```

Installing the EXCPVR appendage

Notes:

- IOS BRANCH ENTRY (XMEMOPT=2), available only under z/OS, provides superior performance over EXCPVR. Thus, IOS BRANCH ENTRY is strongly recommended for z/OS sites. See the *Model 204 System Manager's Guide* for more information on when to install EXCPVR.
- EXCPVR is not supported for z/OS in 64-bit mode.

The EXCPVR (Page Fix/SIO) appendage is used by Model 204 to provide significant reduction in CPU time and page faulting associated with processing I/O requests. EXCPVR is a highly specialized VS extension of the EXCP access method that allows programmer control over the page fixing of data areas and the translation of channel program addresses from virtual to real.

When the EXCPVR access method is used, a combination page fix and start I/O appendage is specified in the DCB. Although physically one load module, the appendage has distinct entry points.

- The *page fix entry* returns a list of all the areas of virtual storage that must be fixed in real storage before the channel program can be executed. Data areas and the channel program itself are included.
- The *IOS entry point* produces an executable channel program by translating the data addresses in all the Channel Command Words (CCW) from virtual to real.

The EXCPVR appendage is distributed in the OBJLIB and the MACLIB in the member APDG. Generally, APDG does not need to be assembled. If you need to assemble APDG, contact Rocket M204 Support beforehand.

If you plan to continue using the EXCPVR appendage, you must reinstall it.

EXCPVR links APDG into the library specified in the EXCPVR-LIBRARY statement. The load module name is specified in the EXCPVR-MODNAME statement.

Installing the CICS Interface

CICS Transaction Server support

Rocket M204 supports the CICS Transaction Server versions 3.1, 3.2, and 4.1.

Supporting TPROCESS COBOL applications

You must relink any CICS TPROCESS applications using AMODE=31, as AMODE=24 is not supported.

Overview of the CICS Interface

Teleprocessing monitor interfaces to Model 204 allow CICS complete access to Model 204 facilities and support for CICS pseudo conversational programs.

The Model 204 CICS Interface provides CICS users (Release 3.3 and later and Transaction Server releases) with a pseudo conversational version of the full-screen and IFAM2 (Host Language and Remote User Language) interfaces of Model 204. The Model 204 CICS Interface allows no resources to be held by a task during a conversational iteration with the terminal operator.

Figure 4-1 illustrates the module configuration for the CICS Interface.

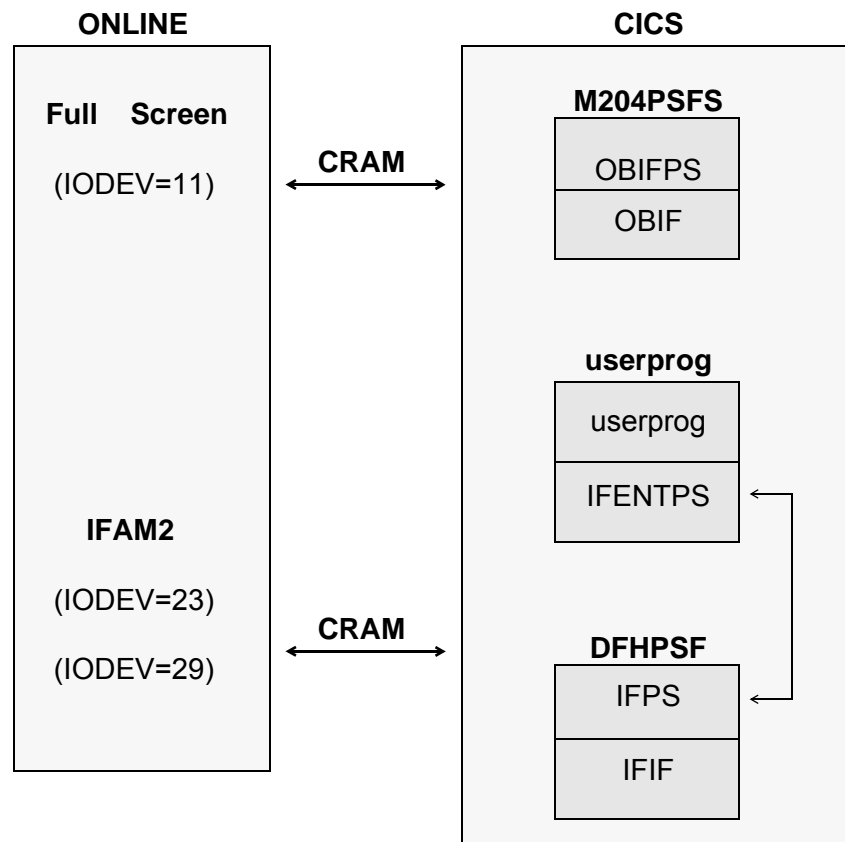


Figure 4-1. CICS Interface module configuration

Storage requirements

Storage requirements for the CICS Interface are shown in Table 4-7.

Table 4-7. 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 to the storage requirements:

- *BIND area* is used only during initial invocation; it is then released via a FREEMAIN command.
- *Buffers* are used only during a task via a GETMAIN command from the task (isolated) storage subpool.
- *Control blocks* are from the shared storage subpool and exist until the user logs off CICS.
- *Screen* and *CRAM buffer* sizes are dependent on the model type and LOU TPB 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 Interface components

Table 4-8 lists the subset of Model 204 CICS Interface components that you may need to identify during the installation process.

Table 4-8. CICS Interface components

Component	Purpose	Usage comments
CICFG	COPY file	Specify installation-specific parameters.

Table 4-8. CICS Interface components (continued)

Component	Purpose	Usage comments
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.
IFIF	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	
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.

Installation steps for the CICS Interface

To install the CICS Interface, complete the steps in Table 4-9. Details for the first three steps follow the table.

Table 4-9. CICS Interface installation steps

Step	Task	Job
1.	Customize Interface	
2.	Update CICS System Definition (CSD) using one of the following methods: <ul style="list-style-type: none"> • Resource Definition Online (CEDA) • DFHCSDUP offline utility 	CEDAM204
3.	Assemble CICS modules	CICSASM
4.	Link CICS modules	CICSLINK

Customizing the CICS Interface

Although some of the following tasks can be performed after assembly and linkage, edits to CICFG must precede assembly and linkage. If you edit CICFG, replace it in the distribution MACLIB. Then proceed with the CICSASM and CICSLINK jobs.

Use the CICS Standard Mapping Service

Running with storage protection on

If you are running CICS 3.3 or later with storage protection on, you must do the following to avoid ABENDs:

- If you are using the IFAM interface, define the program DFHPSF with EXECKEY set to CICS.
- If you are using the full-screen interface, define the program M204PSFS with EXECKEY set to CICS.
- Define the program OBPLTSD with EXECKEY set to CICS.
- Define *all* process-to-process programs (those linked to IFPPCI) with EXECKEY set to the same value as the EXECKEY for M204PSFS—either both CICS or both USER.

Preventing A03 abends

To prevent A03 abends during CICS shutdown, or 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, set the &CLRTMCH option in CICFG to 'YES'.

The following temporary storage queues are built in main storage:

- *term_id*||PSFS, which contains the address of the CRAM ICB. The CRAM ICB is used in the next invocation of the interface program to close the CRAM channel left hanging by a terminal failure.
- CRAMM204, which contains the address for the CRAM manager storage area. The storage area contains the addresses to both full-screen and IFAM CRAM ICB chains.
- Add program OBPLTSD to the CICS PLT 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.

Using direct printer support

Setting the Model 204 user parameter WAITTIME equal to zero causes the printing to be spooled by CICS, regardless of the printer's availability.

A WAITTIME greater than zero causes M204PSFS to make sure that the printer task acquires the printer before continuing.

The &PRTWAIT parameter in CICFG causes M204PSFS to wait until the printing is physically completed on the printer. &PRTWAIT is ignored if WAITTIME equals zero.

Not running IFAM2 at command level

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

Using the DEBUG option

To use the DEBUG option, set &TRACE SETC to 'YES'. DEBUG turns on CICS TRACE entries.

Specify the number of bytes to displace the Model 204 area using &IFTWADP SETC 'n'.

- The IFAM2 interface requires 87 bytes of CICS TWA area. The Model 204 TWA area may 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 full-word boundary.
- Make sure that you assemble both IFENTPS and IFPS with the same CICFG copy member values. The TWA area is used to pass parameters between the two and, thus, must reference the same area.

Your site might have several compatible versions of IFENTPS and IFPS for applications that use different TWA areas/sizes. To make sure that IFENTPS and IFPS are generated in compatible sets, specify in the CICFGT copy member (&IFAM2LM) the CICS load module name and the IFENTPS name for the IFENTPS/IFPS pair.

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.

Running COBOL II applications

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

If you do this, you may want to include an ABEND handler routine in your COBOL II applications to prevent hanging threads after an ABEND. If you do, the ABEND handler routine must issue an IFFNSH call.

Making M204PSFS resident

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 you use it frequently and you have sufficient storage space.

Using a dynamic storage area optimizer

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.

Not using PRINT=PA1

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.

Choosing BMS paging commands

BMS paging commands, which are defined in the SIT, should be chosen with care.

For example, if a line command is entered anywhere other than the first position when using the Model 204 full-screen 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.

Setting the LOU TPB parameter

The LOU TPB parameter for IODEV=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 using either CEDA or the DFHCSDUP utility and the CEDAM204 member of the standard M204 JCLLIB data set. Use the values in Table 4-10, where appropriate, for the method you choose. Information about using CEDA follows Table 4-10.

Table 4-10. CICS System Definition values

User program	Program name	Transaction ID	Modifiable CICFG symbol	TWA size
IFAM2 pseudo conversational	DFHPSF	DFHPSF is accessed by using a CICS LINK. It is never invoked with a transaction ID from a terminal.		
Full-screen interface	M204PSFS	M204	&TRN	88
Screen copy transaction	M204CRPS	U204		
Screen print transaction	M204PRNT	P204	&COP	88

CEDA (the Resource Definition Online transaction) or the DFHCSDUP utility defines the transactions and programs to the CSD file. If you are not using

CEDAM204 member, then define the transactions and programs using CEDA and the values in Table 4-10, as in the following example:

```

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

CEDA DEFine TRANsaction(trans_ID)
  GRoup(group_name)
  PROgram(program_name)
  TWASIZE(twa_size_value)
  .
  .
  RSL(PUBLIC)
  .
  .

CEDA CHeck GRoup(group_name)

```

You can use a transaction ID for a user program that is different from the value shown in Table 4-10; however, if you do so, you must change the associated CICFG symbol shown in Table 4-10.

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

Note: Remember to add the groups to the GRPLIST for the particular CICS region. If the groups are not added, they are not installed during each CICS initialization.

Installing the TSO Interface

The Model 204 TSO Interface enables the TSO Interface to communicate with a Model 204 Online, using the Cross-Region Access Method (CRAM), which must be installed. The TSO Interface consists of two assembly language source modules located in the macro library. The modules are completely reentrant, reusable, and refreshable. Installation requires assembly and link-editing of the TSO source modules.

To install TSO, complete the steps listed in Table 4-11.

Table 4-11. TSO installation steps

Step	Task	Job
1.	Modify TSFS, if using TSO extensions.	
2.	Assemble TSO modules.	TSOASM

Modifying TSFS

Changing the &TSOV SETC 'TSO' code in TSFS, as shown below, causes assembly of the NOEDIT form of the TPUT macro in the TSFS module. The NOEDIT form, required for 3270 extended data streams, allows proper handling of colors or highlighting in TSO extensions. NOEDIT is recommended for all TSO extensions.

If you are using TSO extensions, change:

```
&TSOV SETC 'TSO'
```

to:

```
&TSOV SETC 'TSOE'
```

Assembling TSO Interface modules

TSOASM assembles and link-edits the TSO modules into Model 204. Linking to Model 204 or to a private library is appropriate if TSO is executed infrequently as a called program. If using a private library, modify the SYSLMOD DD to point to a library using TSO naming conventions.

If TSO is frequently executed, link the TSO modules to the TSO Link Pack Area as a reentrant, reusable, refreshable module. The module is run as a command processor. For more information, refer to the appropriate IBM manual.

Installing the INTERCOMM Interface—INTASM / INTUPD

The Model 204 INTERCOMM Interface consists of two assembly language source modules located in the macro library. Use the JCL library members INTUPD and INTASM to edit the Output Format Table (OFT) report numbers and assemble the source modules.

To use INTERCOMM, CRAM must be installed.

To install INTERCOMM, complete these steps.

Table 4-12. INTERCOMM subsystem installation steps

Step	Task	Job
1.	Using a unique report number, add three report descriptions to the OFT CSECT PMIRCNTB.	
2.	Edit the OFT report numbers into ICUL.	INTUPD
3.	Assemble ICUL and IFIC.	INTASM

Table 4-12. INTERCOMM subsystem installation steps

Step	Task	Job
4.	Add the ICUL subsystem to the System Control Table and M204 to the front end verb table, specifying ICUL as the processing subsystem: SYCTBNBL TYPE- INT.LANG=RBAL.SPSP=ICUL.OVLY=0,X SPAC=50000,TCTV=300,RESTART=NO	
5.	Include a corresponding BTVARB macro listing M204 as a transaction ID. Specify only transaction ID and processing queue information.	

Creating report descriptions

The INTERCOMM subsystem, which provides online access to Model 204 User Language, uses the INTERCOMM OUTPUT utility. The OUTPUT utility is table driven by report format specifications contained in the OFT CSECT PMIRCNTB.

The Output Format Table entries are as follows:

```

ICULHC   REPORT  NUM=nnn, LINES=1
          LINE    NUM=1, ITEMS=1, REPET=1
          ITEM    FROM=1, TO=250, CODE=1

ICULCRT  REPORT  NUM=nnn, LINES=2
          LINE    NUM=1, ITEMS=1
          ITEM    FROM=1, TO=85, CODE=255,
                  DATA=(XL1'13'), WWC=RESTORE, ATT=YES
          LINE    NUM=2, ITEMS=1, REPET=1
          ITEM    FROM=1, TO=250, CODE=1, ATT=(PRO, SKIP)

ICULPAS  REPORT  NUM=nnn, LINES=2
          LINE    NUM=1, ITEMS=1
          ITEM    FROM=1, TO=85, CODE=255,
                  DATA=(XL1'13'), WCC=RESTORE,
                  ATT=(NON)
          LINE    NUM=2, ITEMS=1, REPET=1
          ITEM    FROM=1, TO=250, CODE=1, ATT=(PRO, SKIP)

```

where *nnn* represents your assigned report numbers.

Installing the UL/DB2 Interface

USQL is delivered in source for customization on site. Follow the steps listed in Table 4-13 to install UL/DB2.

Table 4-13. UL/DB2 installation steps

Step	Task	Job
1.	Run USQL (contained in MACLIB) through the DB2 preprocessor to process the EXEC SQL statements. Outputs are two data sets—the DBRM and the expanded USQL source.	
2.	Copy the expanded USQL source into USQLASM.	
3.	Assemble the USQL source using USQLASM. (M204LINK links UL/DB2 modules to the ONLINE load module.)	USQLASM
4.	Bind the DBRM as the plan with a site-specific plan name.	

Installing exit utilities

FLOD Exit utility

The FLOD Exit feature lets you modify the record image upon which FLOD or FILELOAD commands act. For additional information, see the *Model 204 File Manager's Guide*.

Linking FLOD exits

The user written FLOD routines (for example, FLODXT0, FLODXT1,... FLODXT19) must be link-edited into the BATCH204 load module. In M204LINK, add an INCLUDE statement to the list of INCLUDEs appearing below these lines:

```
//LINKB204 EXEC M204LINK
//STEP01.SYSLIN DD *
    PAGE KOMM$, SBNU$
```

If, for example, you want to link-edit FLODXT0 and FLODXT1 into your BATCH204 load module, add the following line:

```
INCLUDE OBJLIB (FLODXT0 , FLODXT1)
```

M204JLOG switch user exit

The M204JLOG switch user exit gains control when a SWITCH command is issued against a CCAJLOG GDG stream. The exit can be coded in any AMODE and need not be reentrant. See the *Model 204 System Manager's Guide* for additional information.

Linking M204JLOG switch user exit

The user written M204JLOG switch user exit must be link-edited into the ONLINE load module in the M204LINK job. Add an INCLUDE statement to the list of INCLUDEs appearing below these lines:

```
//LINKONLN EXEC M204LINK
//STEP01.SYSLIN DD *
  PAGE KOMM$,SBNU$
```

If, for example, you want to link-edit M204 JLOG into your ONLINE load module, add the following line:

```
INCLUDE OBJLIB (M204JLOG)
```

A template for this exit is included in the standard installation JCLLIB as PDS member M204JLOG.

M204CKPX user exit

The M204CKPX user exit allows the insert of customer coded processing to occur after the completion of a transaction checkpoint.

Linking M204CKPX user exit

An INCLUDE M204CKPX must be inserted in the ONLINE link step of generated job M204LINK. It may go in any order with the other INCLUDE statements.

A template for a M204CKPX user exit may be found in the standard installation JCLLIB.

Sort exit utility

The Sort Exit utility programs (HA15OS and HA35OS for hash file indexes, OI15OS and OI35OS for variable-length deferred updates for Ordered Index fields) are loaded along with the other Model 204 utility programs by the M204LINK and M204RLNK members of the JCL library. See Appendix A for more information.

Linking load modules

The M204LINK member of the JCL library is used to link load modules of Model 204 configurations and utilities that are modified to your specifications. M204RLNK, the relink job, is used to link or relink a feature or variable object into an existing load module.

Note:Pre-V7R4.0 jobs do not contain the correct link edit parameters required for a valid V7R4.0 link edit. You must *not* use a M204LINK or M204RLNK job generated for a pre-V7R4.0 installation for any V7R4.0 link editing.

For either the M204LINK or M204RLNK job, the Model 204 installer must verify the ddnames of the libraries used for FORTLIB, LELIB, MQOLIB, and TCPLIB to make sure they are at the correct release.

Model 204 object modules and utilities are listed in Appendix A. Model 204 configurations are described in the *Model 204 System Manager's Guide*.

Using the M204LINK job

M204LINK invokes the linkage editor once for each Model 204 configuration (ONLINE, BATCH204, BATCH2, IFAM1, and IFAM4) and once to link all the Model 204 utilities. The resultant load modules are stored in your Model 204 load library.

Note:M204LINK links the load modules with an authorization code of 1 (AC=1). Authorization codes are discussed in “Authorizing Model 204” on page 13.

Importance of M204LINK job version

Pre-V7R4.0 jobs do not contain the correct link edit parameters required for a valid V7R4.0 link edit. You must *not* use a M204LINK job generated for a pre-V7R4.0 installation for any V7R4.0 link editing.

IBM block character format

The IBM-supplied routine IEFSD095 prints separator pages in block character format. This routine is linked into ONLINE and BATCH204 by default. See the M204LINK or M204RLNK job comments if you do *not* want the routine linked in.

FORTTRAN release level

If you set MATH-FORTRAN=Y in INSPARMS, you must link or relink with routines from the specified FORTRAN library. The M204LINK and M204RLNK jobs contain INCLUDE statements for FORTRAN release level 2.4. If your FORTRAN release is less than 2.4, you might want to remove statements for FORTRAN object members not found.

If you set the parameter to Y, you must include a value for the FORTRAN-LIB INS204 parameter.

Including the LE library

If you set MATH-LE=Y in INSPARMS, then the LELIB data set will be added to the Model 204 link and relink jobs. The M204LINK and M204RLNK jobs contain INCLUDE statements for the CEE modules. The default mathematical functions are now provided to Model 204 by using those found in the LE libraries provided by IBM.

You must include a value for the LE-LIB INS204 parameter if you set this parameter to Y.

Using the M204RLNK job

Use the M204RLNK job to add the object for a new feature or to replace an existing object. The M204RLNK job is created by running GENJCL with the INSPARMS parameter INSTALL-M204 set to R. For example, M204RLNK links in replacement RSQL modules, which are distributed via Autofix.

Edit the M204RLNK job to link-edit from your existing (old) loadlib into a new loadlib. When the M204RLNK job has completed successfully, rename the new loadlib with the name of the old loadlib.

Importance of M204RLNK job version

Pre-V7R4.0 jobs do not contain the correct link edit parameters required for a valid V7R4.0 link edit. You must *not* use a M204RLNK job generated for a pre-V7R4.0 installation for any V7R4.0 link editing.

CPUIDZAP job

The CPUIDZAP job must be modified with the authorization zap provided to you. It confirms the CPU ID of your mainframe computer and allows major Model 204 components to run without authorization warnings or errors.

Freeway/204

The CPUIDZAP job provided to your site authorizes the number of communication threads you may define. If you install using the default Y value for INSPARMS parameters for INSTALL-SQL=Y and HRZN=Y, the following is provided:

- The ability to define and use two SQL threads (IODEV=19) and two RCL threads (IODEV=49);
- One Horizon IODEV=27 in each Online and TCP/IP functionality for use with the Connect★ software. Connect★ client software is available for FTP download with the Model 204 installation files.

For installation, follow the instructions that come with the zap.

If you are licensed to run Connect★ or Horizon, you are entitled to use the number of threads specified in your license agreement. If you would like to obtain a license for more threads, please contact Rocket M204 Support.

Linking security modules

Run the SECRLINK job to link-edit the security parameter module (ACF2PARAM/RACFPARM/TOPSPARM) that is loaded dynamically during Model 204 ACF2/RACF/TOPSECRET interface initialization. This approach permits modification of the security parameters without having to relink Model 204, which would be required if the parameter module is linked into Model 204 directly.

Using the PDSELIB job

Running Model 204 in 31-bit storage

In Model 204 V7R4.0, z/OS customers have the option to run most of their ONLINE, BATCH204, IFAM1, and IFAM4 above the 24-bit addressable virtual storage area (also called: above the line). You can run above the line by submitting the PDSELIB job after the usual Model 204 INS204 install jobs have completed.

The PDSELIB job creates a second loadlib data set in the IBM PDS-Extended format, copies all members from the basic PDS loadlib, and relinks the ONLINE, BATCH204, IFAM1, and IFAM4 modules into it. The SPLIT modules containing a mixture of above and below the line code must be linked into a PDSE to realize the memory saving advantages now available.

The PDS loadlib that is created by INS204 installation procedures provides the full V7R4.0 functionality of Model 204. You can create a PDSE loadlib at any time after the PDS loadlib has been populated.

Job PDSELIB is created in the INS204.JCLLIB for all customers and is referenced as an optional step after job CPUIDZAP. Another template of this job may also be found in the standard JCLLIB unloaded from the OS install files.

Handling zap maintenance with PDSE

Because you cannot apply zaps to executable members of a PDSE, you must apply the CPUIDZAP and all zap maintenance to the original PDS members. Therefore, you must continue to make the current-maintenance-applied PDS loadlib available for maintenance no matter which loadlib you decide to use in your daily operations.

Updates and bug fixes are available to jobs using the PDSE loadlib after you apply the maintenance to the PDS loadlib and rerun the PDSELIB job. Rerunning the PDSELIB job deletes the earlier PDSE data set, allocates a new iteration, copies all members of the upgraded PDS loadlib, and relinks the four SPLIT modules into the PDSE loadlib.

PDSE requirements

Typically, if you already run with an authorized PDS loadlib, the PDSE data set name must be authorized. To allow a PDSE to manage its own space, the PDSE data set requires more space than the basic Model 204 PDS loadlib. You need not specify directory space for a PDSE.

Creating the password data set CCASTAT (initial install only)

All Model 204 security features depend upon the existence of a password data set (CCASTAT) that is created by the JCL library member ZBLDTAB. After the password table is created, runs that use security options must use the same data set as the one specified in ZBLDTAB. For example, use the following entry if M204.CCASTAT is the data set name in ZBLDTAB:

```
//CCASTAT DD DSN=M204.CCASTAT,DISP=SHR
```

Support for expiring passwords

Optionally, you can create an alternate CCASTAT file to support expiring passwords. You may choose to run job ZCTLTAB to create a second CCASTAT data set, which would be used if this support is desired. A standard CCASTAT data set is used as input to create this second file.

Parameters exist to set the number of days till expiration, start of warning messages, length of grace period before the password is purged, minimum password length, maximum password length, number of previous passwords to check and whether users are required to enter previous passwords.

Creating the file group data set CCAGRP

Access to permanent file groups requires a group data set (CCAGRP). CCAGRP is a special Model 204 file created by the JCL library member CREATEG. After the group data set is created, runs that use group files require the following CCAGRP DD statement:

```
//CCAGRP DD DSN=M204.CCAGRP,DISP=SHR
```

Restoring demonstration database files

The RESTDEMO job restores the demonstration database files to data sets allocated by M204ALOC.

The demonstration database files are listed in the following table.

Table 4-14. Demonstration database files

File	Description
DAILY	Updateable VEHICLES and CLIENTS
VEHICLES	Record for each insured auto
CLAIMS02	Accident claims for 2002
CLAIMS03	Accident claims for 2003
CLIENTS	Policyholder and driver records
DUMMY1	Dummy string table

Table 4-14. Demonstration database files

File	Description
MEMBERIN	Member information
MONTHIN	Month number and abbreviation
PRODUCTN	Product information
SALESDAT	Sales data
SCATTER	Scatter chart data
STAFF	Employee information
STATES	States and mapping data
STOCKDAT	Stock data
STOCKDET	Stock details
STOCKIN	Stock information
STOCKMON	Stock monthly information
TEAMINFO	Sales team information

Setting file UPDATE access

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
```

Recreating the DAILY file online

The DAILY file is distributed as a work file that can be used for such activities as updating sample VEHICLES and CLIENTS records and storing procedures. If DAILY is damaged, it can be restored from the dump copy.

Postinstallation tasks

After Model 204 is installed, perform the tasks listed in Table 4-15.

Table 4-15. Postinstallation tasks

Step	Task
1.	Delete the encrypted libraries, EOBJLIB and EMACLIB, if modules for purchased features have been successfully decrypted.
2.	Keep the distribution FTP files in a safe location. If additional features are purchased after the initial installation, you can unload the modules by installing them from the distribution FTP files.

Activate the date/time stamp feature

Submit the Model 204 job when DTSR and CUST have been linked into your modules and DTS=1, which activates automated date/time stamps as the default.

If the new modules are not linked into the Online, then any attempt to reset the DTSMN, DTS, or FOPT=X'10' parameters will result in the following message:

```
M204.2740: INVALID PARAMETER parameter: DATE TIME STAMP  
SUPPORT NOT LINKED IN
```

5

Preparing to Install Dictionary/204

In this chapter

- Overview
- Dictionary/204
- Installation jobs
- Required privileges
- Dictionary/204 files
- Setting file sizes and parameters

Overview

This chapter describes the jobs, user privileges, files, and preparatory steps required to install or reinstall the Model 204 Dictionary/204 facility.

Chapter 6 describes the actual tasks that you perform to install or reinstall Dictionary/204. It also describes an additional job required for installing and reinstalling the optional Access/204 View Management facility.

See the *Model 204 Dictionary/204 and Data Administration Guide* for detailed information about the Dictionary/204 facility.

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:

- Files, fields, field groups, user accounts, records, and subsystems
- Site-specified applications, reports, and facilities
- Internal system definitions

The standard Dictionary/204 facilities are:

- Dictionary/204
- Dictionary/204 Administration
- Dictionary/204 Report
- Documentation
- File Management
- Subsystem Management
- User Language Cross-Reference
- Dictionary Migration Facility
- DDGEN

The optional Dictionary/204 facility is:

- Access/204 View Management

The installation files contain the JCL required to install, reinstall, and support both standard and optional Dictionary/204 facilities.

For more information about Dictionary/204

After completing the installation, consult the *Model 204 Dictionary/204 and Data Administration Guide* for instructions on how to:

- Start, stop, and test Dictionary/204 subsystems
- Set Dictionary/204 facility parameters
- Define Dictionary/204 users
- Customize the Dictionary/204 structure
- Use the Dictionary/204 facilities

Installation jobs

The jobs created by INS204 that are required to install, upgrade, and support Dictionary/204 are described below.

All jobs required to install and reinstall Dictionary/204, as well as DDBKP and DDBKPRC, are generated to INS204.JCLLIB. The other jobs are distributed in the standard JCL library.

Jobs to prepare for installation and reinstallation

DDPRCLOD	Allocates, restores, and copies the distribution procedure files (DICDIST) into the M204PROC file.
DDPROCI	Allocates, creates, and restores the M204INST procedure file that contains procedures used in installing or reinstalling products.
DDPROCP	Allocates and creates the M204PROC procedure file.

Jobs to install standard Dictionary/204 facilities

DDINST	Installs the standard Dictionary/204 facilities, allocates other Dictionary/204 files, and creates subsystem definitions.
--------	---

Jobs to reinstall standard Dictionary/204 facilities

DDRINST	Backs up Dictionary/204 files, reinstalls the standard Dictionary/204 facilities, reallocates some Dictionary/204 files, recreates subsystem definitions, and converts system stored 2-digit years to 4-digit years.
---------	--

Jobs for operation and file maintenance

DDFIMCMD	Performs Dictionary/204 file management and delayed processing of Model 204 files.
DDBKP	Backs up Dictionary/204 files.
DDBKPRC	Backs up M204PROC.
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.
DDMIG	Migrates dictionary data for files from one Online to another.
DDROG	Reorganizes Dictionary/204 files.
DDRSPROC	Restores M204PROC from a backed-up file.

DDRST	Restores Dictionary/204 files from backed-up files.
DDTINIT	Reinitializes the M204TEMP file.

Required privileges

Superuser login privileges are required for jobs that create files. File manager privileges are required for jobs that issue certain Model 204 commands, such as INITIALIZE or DUMP. System manager login privileges are required for jobs that open CCASYS to read or update subsystem definitions.

During file creation, files can be secured 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.

Table 5-1 lists the Dictionary/204 jobs along with the login privileges required for each job.

Table 5-1. Login privileges required for Dictionary/204 jobs

Dictionary/204 job	Ordinary user	Superuser	File manager	System manager
DDPROCI		X	X	
DDPROCP		X	X	
DDPRCLOD	X	X	X	
RESPROC		X	X	
TRANSFR	X			
DDINST		X	X	X
DDRINST		X	X	X
DDFIMCMD				X
DDBKP			X	X ¹
DDBKPRC			X	
DDRST			X	X ¹
DDRSPROC			X	
DDROG		X	X	X ¹
DDGEN	X			
DDGENSET	X			
DDTINIT		X	X	
WKINCP	X	X	X	

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

Dictionary/204 files

During installation, the JCL job steps allocate and use the following files.

M204PROC	Procedure file for Dictionary/204 and Workshop/204. M204PROC is built by restoring and copying the procedure files supplied on the distribution files for the products you have ordered. Also contains data records indicating which fixes have been applied to procedures.
M204INST	Procedure file for installation of Dictionary/204 and Workshop/204. M204INST is supplied with the distribution FTP files in dump format.
CCASYS	Data file containing an installation's subsystem definitions. CCASYS is created by the DDINST job. For an explanation of how to use this file when you are running subsystems, see the <i>Model 204 System Manager's Guide</i> .
METADATA	Data file containing an installation's dictionary entries. METADATA is created by the DDINST job.
DATALINK	Data file containing cross-references between an installation's dictionary entries. DATALINK is created by the DDINST job.
D204RPT	Procedure file containing user-written procedures for dictionary reports. D204RPT is created by the DDINST job.
D204SYS	Intermediate file used by Dictionary/204 to import or export dictionary data from one Model 204 environment to another. Therefore, this file needs to be created only once; subsequent Model 204 environments can then use the same file for import or export. D204SYS is created by the DDINST or DDRINST job.
M204TEMP	Temporary data file used for storage of Dictionary/204 and Workshop/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.
DICDIST	Procedure file in dump format containing procedures for standard Dictionary/204 facilities. DICDIST procedures are copied into your installation's M204PROC procedure file.
M204DCTL	Control file for the User Language Cross-Reference facility. M204DCTL contains user profile information, Help and error messages, and system EXECs. M204DCTL is created by the DDINST job and recreated in DDRINST.
OUTDDGN	File used to run DDGEN online.
OUTFILE	Default file for reports from Dictionary/204.

Table 5-2 shows file usage by the standard Dictionary/204 subsystems. The subsystems are:

- **DIA**—Dictionary/204 Administration
- **DIC**—Dictionary/204

- **DIR**—Dictionary/204 Report
- **DOC**—Documentation
- **FIM**—File Management
- **MIG**—Dictionary/204 Migration Facility
- **SUM**—Subsystem Management
- **XRF**—User Language Cross-Reference

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

Table 5-2. File use by subsystem

Subsystem	DOC	FIM	SUM	DIR	DIA	DIC	XRF	MIG
File name								
M204PROC	P/D	P/D	P/D	P/D	P/D	P/D	P/D	P/D
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
D204SYS		D	D					D
Number of files	4	5	7	5	5	4	5	6

P=Procedure file, D=Data file

Setting file sizes and parameters

INS204 sets default file sizes and parameter settings (in the INSPARMS file) sufficient to install Dictionary/204, Workshop/204, and the optional Access/204 View Management facility.

The remainder of this chapter provides information you need if you want to change these settings. If you want to customize these settings, you can:

- Increase or decrease the number of pages allocated by INSPARMS.
- Modify parameter settings by editing the CCAIN streams of jobs generated by INS204. This might be required if you decrease the number of pages. In that case, make sure that the sum of the tables (A, B, C, D) plus eight does not exceed the number of pages allocated.

Calculating file sizes

This section describes how to calculate the file size for the files listed below. See the page indicated for information about a specific file:

File	Discussed on...
CCASYS	page 89
D204RPT	page 91
D204SYS	page 92
DATALINK	page 90
M204DCTL	page 91
M204PROC	page 89
M204TEMP	page 91
METADATA	page 90

Calculating M204PROC file size

A procedure file for each product and optional Dictionary/204 facility purchased is included in the distribution files. Your M204PROC file must be large enough to accommodate the standard Dictionary/204 facilities, the optional Access/204 View Management, and add-on products.

If you do not want to use the INS204-supplied defaults for M204PROC pages, you must calculate the appropriate size for the M204PROC file:

1. Determine the number of Table D pages required by adding the values of all the products that are being installed.
2. Note that DICDIST, the Dictionary/204 distribution file, contains 881 Table D pages.
3. Add 13 more pages for Tables A, B, C, and FCT combined to get the total number of pages for M204PROC.

The name of the distribution file and number of Table D pages for the Access/204 View Management facility are given in Chapter 6. See the *Workshop/204 for IBM z/OS Installation Guide* and *Workshop/204 Application Development Guide* for information about Workshop/204.

CCASYS file

The CCASYS file, which contains the installation's subsystem definitions and internal procedures, has a minimum size of 40 pages. To determine the appropriate size for your installation, perform the following steps:

1. Estimate:

- The number of subsystems—Count all the subsystems that you are installing, including Dictionary/204 subsystems, Workshop/204 subsystems, and other Rocket and user-defined subsystems. Call this number *NS*.
- There are nine standard Dictionary/204 subsystems, plus one optional subsystem. To obtain the number of subsystems for other products being installed, refer to the specific product's installation guide for your operating system.
- The average number of files per subsystem. Call this number *NFS*. The number used for Rocket subsystems is six.
- The average number of users who are not in a default subsystem class. Call this number *NUS*.
- The average number of sclasses 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=25 + NS
ESIZE=0

```

METADATA file

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

```

ATRPG=2
FVFPG=1
MVFPG=1
BRESERVE=average record length (225 is suggested)
BRECPPG=page size/BRESERVE
BSIZE=number of expected entries/BRECPPG
CSIZE=BSIZE * .1
DSIZE=BSIZE * .4
ESIZE=0

```

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

DATALINK file

The DATALINK file contains the relationships between dictionary entries. Use the following formula to calculate the size of the DATALINK file:

```

ATRPG=1
FVFPG=1
MVFPFG=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 * .2

```

BRESERVE is based on an average name length of 30 characters. If your average name length is more or less than 30 characters, increase or decrease BRESERVE by twice the difference between 30 and your average name length.

See the *Model 20 Dictionary/204 and Data Administration Guide* for information about dictionary entries and relationships.

D204RPT file

The D204RPT file contains procedures for all user-defined dictionary reports. Use the following formula to calculate the size of the D204RPT file:

```

ATRPG=1, FVFPG=1, MVFPFG=1
BSIZE=5
CSIZE=1
DSIZE=(number of procedures * average pages per procedure)+6

```

M204TEMP file

The M204TEMP file is a temporary data file used for the storage of Dictionary/204 data and Workshop/204 data. Use the following values for an approximate calculation of the size of the M204TEMP 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. See Appendix C for a more exact calculation.

M204DCTL file

The M204DCTL file is the control file for the User Language Cross-Reference facility.

This file also stores error messages and help information for other Dictionary/204 facilities. As a result of this additional information, Table B requires 25 pages and Table D requires 12 pages. These values can be set during the job that recreates M204DCTL in order to redefine fields and reset BRECPPG and BRESERVE parameters. The data set space might need to be increased if there is not enough free space available in the file for the increased table sizes.

Use the following values for an approximate calculation of the size of M204DCTL:

FPL=8

Table A=3

Table B=25 pages for installation records (leaves a cushion for some growth) + (number of XREF users having profile records / 5)

Table C=5 (should be ample for most situations)

Table D=12 pages for installation data + (1 * number of XREF users).

BRESERVE = 130

BRECPPG = 52

Note: The values for BRESERVE and BRECPPG are set in procedure DICN.DCTL.PARMS (in M204INST) and can be modified if large numbers of users have profile records.

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. Therefore, this file needs to be created only once; subsequent Model 204 environments might then use the same file for importing and exporting. The size of this file depends on the expected number of files and subsystems to be exported. To estimate the size of D204SYS, perform the following steps:

1. Estimate:

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

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

2. Use these 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
```

6

Installing or Reinstalling Dictionary/204

In this chapter

- Overview
- Backing up Dictionary/204 files
- Backing up M204PROC
- Allocating, creating, and restoring M204INST
- Allocating and creating M204PROC
- Restoring or transferring the Dictionary/204 procedure file
- Installing or reinstalling Dictionary/204 facilities
- Backing up files again
- Setting up the Online environment (initial install only)
- Authorizing Dictionary/204 access for all users

Overview

This chapter describes the tasks necessary to install or reinstall Dictionary/204.

To install or reinstall Dictionary/204, complete the steps listed in Table 6-1.

Table 6-1. Dictionary/204 installation steps

Step	Task	Job	Page
1.	Back up files (reinstall only).	DDBKP DDBKPRC	page 94 and page 96
2.	Allocate, create, and restore M204INST.	DDPROCI	page 96
3.	Allocate and create M204PROC.	DDPROCP	page 96
4.	Restore or transfer a Dictionary/204 procedure file.	DDPRCLOD	page 97
5.	Install or reinstall Dictionary/204 facilities.	DDINST/DDRINST	page 97
6.	Back up files again.	DDBKP DDBKPRC	page 94 and page 96
7.	Set up the Online environment (initial install only).		page 98
8.	Authorize Dictionary/204 access for all users.		page 100

These tasks are described in the following sections.

Keeping Dictionary/204 compatible

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

Backing up Dictionary/204 files

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

METADATA
DATALINK
D204RPT
CCASYS
M204DCTL

The following guidelines apply when backing up Dictionary/204 files:

- You can modify DDBKP to back up one or any combination of the Dictionary/204 files.
- You must back up Dictionary/204 files, except M204TEMP, D204SYS, and M204PROC on a regular basis. The frequency of backup depends on the amount of Dictionary/204 updating.
- You do not have to back up M204TEMP, because the file can be reinitialized at any time with DDTINIT.

- M204PROC is backed up in a separate job, because it must be backed up after installing a new product, upgrading to a new release, or applying maintenance to M204PROC. See “Backing up M204PROC” on page 96.

Backing up M204PROC

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
- Workshop/204

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

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

Allocating, creating, and restoring M204INST

DDPROCI allocates and restores the installation procedure file.

Allocating and creating M204PROC

If you are creating M204PROC for the first time, use DDPROCP to:

- Allocate space for the M204PROC procedure file
- Create M204PROC

If adding facilities or upgrading to a release that requires more space, you can increase M204PROC in one of the following ways:

- If enough FREESIZE pages are available, use the INCREASE TABLED command to move the pages to Table D.
- Allocate a separate data set with the additional pages and use the INCREASE DATASETS command to make the multiple data sets available as one Model 204 file.

- Dump M204PROC to a temporary dump file, create and allocate a larger file, and restore M204PROC from the temporary dump file. Then use the INCREASE TABLED command.

Restoring or transferring the Dictionary/204 procedure file

Run DDPRCLOD to copy the Dictionary/204 procedures from DICDIST to M204PROC.

INS204 generates unique jobs to load the procedure files from various files. For example:

- DDPRCLOD loads Dictionary/204 procedures from DICDIST.
- WKPRCLOD loads Workshop/204 procedures from WORDIST.

Installing or reinstalling Dictionary/204 facilities

DDINST The following, initial Dictionary/204 entries are defined by running the DDINST job:

- Dictionary/204 administrator account
Authorizes use of all Dictionary/204 facilities, including the Dictionary/204 Administration facility, which is used to authorize access to Dictionary/204 for other users.

The Dictionary/204 administrator must also have system manager privileges to use the Application Subsystem (Subsystem Management) facility.

- Standard Dictionary/204 entities
- File Management facility defaults

The FACILITY entry in METADATA is automatically updated with all available options of command processing. The default is ACTIVE IMMEDIATE. Command processing options are described in the following table.

Option	File Management facility will...
ACTIVE IMMEDIATE	make the updates online (default)
ACTIVE DELAYED	make the updates in batch
INACTIVE	store the updates (in either a "use" data set or as a procedure in a procfile) to be applied in the future

The default USE file is updated as OUTFILE. The procedure file used for generating inactive commands is updated as the procedure file whose name you have supplied for the PROCFILE value (the default is DAILY). To alter these options, the Dictionary/204 administrator must enter File

Management Facility Administration under Dictionary/204 Administration before using the File Management facility.

- Entries for Rocket subsystems

The login account of the system manager running the DDINST job is added to the ADMIN class of each Dictionary/204 subsystem. Privileges include starting, stopping, and testing each subsystem, and authorization to use the Subsystem Management facility, which can start, stop, and test each Dictionary/204 subsystem.

- Internal CCASYS procedures
- Initial M204TEMP field definitions

DDRINST

DDRINST updates the entities created by a previous installation of Dictionary/204. 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.

Following the successful reinstallation of Dictionary/204, it is recommended that you run the DDBKP job to back up the newly updated files.

Securing Dictionary/204 files (optional)

To secure Dictionary/204 files, see the OPENCTL and PRIVDEF parameters in the *Model 204 Parameter and Command Reference*.

Backing up files again

After installing or reinstalling Dictionary/204, back up Dictionary/204 files and M204PROC again.

To back up Dictionary/204, see “Backing up Dictionary/204 files” on page 95.

To back up M204PROC, see “Backing up M204PROC” on page 96.

Setting up the Online environment (initial install only)

To set up your Online environment for standard Dictionary/204 facilities, modify the ONLINE JCL as described below.

1. Include DD statements for all Dictionary/204 files:

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

OUTDDGN
OUTFILE

OUTFILE is the default file for reports from Dictionary/204. Add DD statements for other Dictionary/204 report files that you have defined. OUTFILE should be a sequential file. If it is a disk file, set the DISP parameters to (MOD,PASS) so that output from multiple requests is concatenated rather than overwritten.

OUTDDGN is required to run DDGEN online. OUTDDGN should be a sequential file.

2. Allocate 800 pages in CCATEMP for Dictionary/204 procedures.
3. Change the CCAIN input stream as follows:

Table 6-2.Changes to the CCAIN input stream

Parameter	Change to make
LENQTBL	Include 250 entries for Dictionary/204.
LOUTPB	Set to at least 3000.
LPDLST	Set to at least 1500; the default value is 2600.
NFILES NDCBS NDIR	Include 7 for Dictionary/204 files (METADATA, D204SYS, DATALINK, D204RPT, M204PROC, M204DCTL and M204TEMP). These parameters are automatically incremented by 1 for CCASYS when SYSOPT is an odd number.
NORQS	Set to at least 10.
SERVSZ	Set to at least 250,000 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 1500 + (7*NFILES) for Dictionary/204 system control blocks.
SYSOPT	SYSOPT parameter must be an odd number to support subsystem operation. Option 4 restricts the use of Model 204 data definition commands within a particular run. If SYSOPT includes this option, 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>Model 204 Parameter and Command Reference</i> .

Make sure that Dictionary/204 files participate in the installation's recovery scheme. If any Dictionary/204 file is defined as a transaction backout file (the default), all files must be defined as transaction backout files.

Authorizing Dictionary/204 access for all users

User account names must be added to the Dictionary/204 security function before users of Dictionary/204 can log in to any of the Dictionary/204 facilities. The Dictionary/204 administrator adds user account names through the Dictionary/204 Administration facility Security Administration function.

The *Model 204 Dictionary/204 and Data Administration Guide* describes the Dictionary/204 Administration facility.

7

Dictionary/204 Operation and File Maintenance

In this chapter

- Overview
- Backing up Dictionary/204 files
- Backing up M204PROC
- Restoring Dictionary/204 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

Overview

This chapter describes Dictionary/204 operation and maintenance of files.

The distribution files include the standard JCL for jobs required for the daily operation of Dictionary/204 and Dictionary/204 file maintenance. Jobs not generated by INS204 (denoted by an *) exist in the standard JCL library and are not run during installation. However, you must modify these files during installation to assure consistent values.

For Dictionary/204 operation and file maintenance, complete the steps listed in Table 7-1.

Table 7-1. Dictionary/204 operation and file maintenance tasks

Step	Task	Job	Page
1.	Back up Dictionary/204 files.	DDBKP	page 102
2.	Back up M204PROC.	DDBKPRC	page 102
3.	Restore Dictionary/204 files from the dump version created by DDBKP.	DDRST*	page 102
4.	Restore M204PROC.	DDRSPROC*	N/A
5.	Reorganize Dictionary/204 files.	DDROG*	page 102
6.	Populate Dictionary/204 from a Model 204 file.	DDGEN*	page 104
7.	Set up DDGEN based on Dictionary/204 files.	DDGENSET*	page 104
8.	Update files using the Dictionary/204 File Management delayed processing batch job.	DDFIMCMD*	page 105

These tasks are described in the following sections.

Backing up Dictionary/204 files

Use DDBKP to back up the Dictionary/204 files.

See the section “Backing up Dictionary/204 files” on page 95 for details.

Backing up M204PROC

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

See the section “Backing up M204PROC” on page 96 for details.

Restoring Dictionary/204 files

The DDRST JCL assumes that the backup files are generation data groups. If you are going to use DDRST as given, use the appropriate IBM utility to create the generation data group files.

Because D204SYS is an intermediate file that holds data on a temporary basis, it is not included in the backup options. If desired, you can modify DDBKP and DDRST to include D204SYS for backup and restore.

Reorganizing Dictionary/204 files

DDROG uses the Model 204 File Load utility. Use the DDROG job to reorganize one or all of the following Dictionary/204 files:

METADATA

DATALINK
D204RPT
CCASYS
M204DCTL

1. Make a current backup before attempting to reorganize the file.
2. If you have any of the optional end-user products or if your Dictionary/204 has been extended by adding new entity types or new attributes to existing entity types, then fields have been added to METADATA that are not defined again with the standard procedure for defining standard fields. In this case, 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 *Model 204 Parameter and Command Reference* for a complete explanation.
 - Run DDGEN for the METADATA file.

In Dictionary/204 File Management, use the RECREATE command to execute the commands with the inactive option. Using the inactive option puts the DEFINE commands into a procedure or a sequential OUTFILE.

Use this procedure or sequential OUTFILE as the input to the reorganization.
3. Run DDROG when the file to be reorganized is not in use.

You can reinitialize M204TEMP instead of reorganizing it.

Adding new fields to METADATA

When new fields are added to METADATA by adding new entity types or new attributes to existing entity types, use one of the techniques listed above to define METADATA fields.

Reorganizing the D204RPT file

To reorganize D204RPT, use the following process:

1. Run the TRANSFR job to temporarily transfer procedures from D204RPT (replace FILENAME with D204RPT) to another Model 204 procedure file.
2. Run DDROG for D204RPT to reorganize the data and change file parameters.
3. Run the TRANSFR job again to transfer procedures from the temporary file (replace FILENAME with TEMPRPT) to the D204RPT file (replace M204PROC with D204RPT).

Populating Dictionary/204 from a Model 204 file

The DDGEN job populates Dictionary/204 from existing Model 204 files. You can specify up to 100 Model 204 files. Run DDGEN when creating Dictionary/204 for the first time or to update Dictionary/204 to include definitions of new files. DDGENSET, described in the next section, can be used as a front end to DDGEN.

To run DDGEN in ONLINE mode, see the *Model 204 Dictionary/204 and Data Administration Guide*.

Setting up DDGEN based on Dictionary/204 files

Use DDGENSET to select a set of defined Dictionary/204 files to run through DDGEN. DDGENSET reads the dictionary and automatically creates CCAIN and step override statements. The override statements are appended to the DDGEN JCL and used to update the files, including corresponding fields and procedures within the files, in the dictionary.

DDGENSET requires a dictionary entry for each file used to populate your dictionary. File entries must have a valid DDname. No other attribute is required.

A valid step override statement is generated if the dictionary entry contains correct data set information. If valid data set information is not present, you must edit the step override statement to specify the data set name or add it later through the Dictionary/204 File Management facility.

Using DDGENSET with more than 100 files

If you have more than 100 files (the limit for DDGEN), DDGENSET generates multiple sets of CCAIN and step override statements. DDGENSET generates step override statements and CCAIN into the OUTDDG1 data set. Split DDGENSET and use each set of CCAIN and step override statements to run DDGENSET once for each set of 100 files.

Editing DDGENSET

Edit DDGENSET as follows:

1. Enter missing data set information and delete files that do not actually exist as Model 204 files.
2. Add step override statements for data sets in excess of six. (If you have any Model 204 files with more than six data sets, only the first six data sets have step override statements.)
3. Add passwords in CCAIN for secured files.
4. Make additional changes as described in the comments section of the JCL.

DDGENSET is useful to synchronize Model 204 files with Dictionary/204.

Updating files using delayed processing

DDFIMCMD is a batch job that selectively updates Model 204 files having pending commands specified by the Dictionary/204 File Management facility.

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

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

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

For more information about the File Management facility, see the *Model 204 Dictionary/204 and Data Administration Guide*.

8

Installing Connect★ Support

In this chapter

- Overview
- Installing SQL
- Installing the SQL catalog files and optional subsystems
- Reinstalling SQL catalog files and optional subsystems
- Loading the demonstration database DDL
- Verifying SQL installation

Overview

This chapter describes the tasks required for installing the host component of Connect★ as part of a Model 204 installation or reinstallation.

For Connect★ installation, some of the information required is contained in this manual; some additional information is in the *Model 204 SQL Connectivity Guide* and the *Model 204 SQL Server User's Guide*; and most of the additional information is in the appropriate Model 204 Connect★ client installation and administration manual.

“Installing SQL” on page 107 contains the main installation steps for Connect★. From there you are referred to other sections or other manuals.

Installing SQL

You install Connect★ as part of Model 204 installation or reinstallation using INS204. Along with the INS204 options and jobs you use for Model 204 at your site, you need to use the INS204 options and jobs described in this section.

Product and feature dependencies

Connect★ itself requires the installation of 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...
Connect★	Horizon SQL catalog
SQL catalog subsystems	CCACATREPT, CCATSF, and Dictionary/204

SQL installation steps

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

Table 8-2. SQL installation steps

Step	Action
1	Follow the INS204 directions in this manual and generate installation JCL and INSTLIST instruction for a new or upgrade Model 204 SQL installation. See “Installation steps for JCL” on page 23.
2	Review the INS204 file-specific parameters for the SQL catalog and optional catalog subsystem support (see “File-specific parameters” on page 38). You may want to specify values other than the defaults.
3	Initiate support preparation by using INS204 installation task parameters (see “Installation task parameters” on page 42). <ul style="list-style-type: none">• Specify I or R for INSTALL-SQL.• Specify I or R for INSTALL-DICT, if you are installing the optional SQL catalog subsystems.• Specify Y for HRZN to install Horizon.• Specify Y for SQL-CONNECT*.
4	After running the GENJCL job, install Dictionary/204 if you are installing the optional SQL catalog subsystems. See the installation checklist in the INSTLIST member, and follow the Dictionary/204 installation information in Chapter 5, Chapter 6, and Chapter .

Table 8-2. SQL installation steps (continued)

Step	Action
5	Install or reinstall the SQL catalog and, optionally, the SQL catalog subsystems. See “Installing the SQL catalog files and optional subsystems” on page 108 for further information.
6	Install the client portion of Connect★ using the <i>Connect★ Suite Installation and Programming Guide</i> .
7	Verify your installation. See “Verifying SQL installation” on page 113.

Installing the SQL catalog files and optional subsystems

If you have previously installed Connect★ for Model 204, you can skip this section and resume with “Reinstalling SQL catalog files and optional subsystems” on page 111.

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 must define the file and its field descriptions to the catalog using the Connect★ Visual Interface (CVI) PC application or the ODBC DDLWIN PC application distributed with the Connect★ Suite software, or any other convenient DDL processing software.

The Model 204 SQL Table Specification Facility (CCATSF subsystem) is a tool for translating Model 204 File definitions to SQL DDL for use by the DDLWIN utility in defining SQL Tables. 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.

Using the CCACAT file

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

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.

SQL catalog and subsystem installation steps

The SQL catalog and subsystem support described in the following sections assumes that you have completed the installation steps in Table 8-2 up to the instruction to install the SQL catalog.

Follow the steps in Table 8-4 to install the SQL catalog and catalog subsystems. Some steps apply only to the catalog subsystems; skip these if you are not installing the subsystems.

Table 8-3. SQL catalog and subsystem installation steps

Step	Applies to...	Action
1	SQL catalog and subsystems	Run the SQLINST job (generated by GENJCL) after modifying it as described in the job comments. SQLINST allocates and creates CCACAT, the SQL catalog file, and it allocates and populates the SQL catalog subsystem procedure files.
2	SQL catalog	Bring up your SQL-configured Model 204 Online. The ONLINE job configuration requirements for SQL (described in the <i>Model 204 SQL Connectivity Guide</i>) include the following: <ul style="list-style-type: none"> • DD statement for the SQL catalog (CCACAT file) • Additional or modified CCAIN parameters for SQL processing • Thread definition statements for IODEV 19, 49, or both • DEFINE LINK, DEFINE PROCESSGROUP, and DEFINE PROCESS commands for a Horizon link • OPEN LINK command for the Horizon link If you are installing the catalog subsystems, include the items from Step 3.
3	Subsystems	Make sure that the Model 204 SQL ONLINE job includes: <ul style="list-style-type: none"> • A DD statement for a sequential output data set to which generated DDL is written. You might want to define a data set for each subsystem to avoid mixing reports from CCACATREPT and DDL statements from CCATSF. The DD name must begin with <i>OUT</i> . The DCB information must contain LRECL=80 and either RECFM=FM or RECFM=FS. Using RECFM=FS (fixed standard) prevents the printing to the data set of carriage control characters. This DDL can then be downloaded or copied for use by a PC application such as the CVI. The DISP parameter must be MOD to permit multiple writes to the file before processing: <ul style="list-style-type: none"> • DD statements for TSFDATA, TSFPROC, and CATPROC. • DD statements for the DICTIONARY subsystem management files: METADATA, DATALINK, and CCASYS. Back up these files before installing the SQL subsystems. • An odd integer SYSOPT parameter setting (that is, the X '01' bit is on) to support Model 204 subsystem operation.
4	Subsystems	Install the SQL subsystems. See page 110.

Table 8-3. SQL catalog and subsystem installation steps (continued)

Step	Applies to...	Action
5	SQL catalog	<p>Populate the SQL catalog to prepare it for SQL processing. Use the DDLWIN utility to populate the catalog with SQL data definition language (DDL) that defines your file data.</p> <p>For information about loading the catalog with the distribution files sample DDL that defines the Model 204 demonstration database, see page 113. For information about using the DDLWIN utility, see the <i>Connect* Suite Installation and Programming Guide</i>.</p>

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 *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 *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 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 110.

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 they did before.

Rebuilding the SQL catalog

Rebuilding your catalog includes the following tasks:

- Recreate the CCACAT file using the new ONLINE. On the PC run ODBC DDLWIN or CVI applications that are distributed with the Connect★ Suite software to reprocess all user DDL.
- Use the new CATPROC file, which contains procedures to create the CCACAT file and store in it the definitions of catalogs you can query.

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 updateable tables for ODBC. Make any desired changes (for example, you might want to assign primary keys).

Use this DDL as input to the CVI or DDLWIN utility, which you can run from the PC.

Note: If you are defining large schemas, you might want to break the schema definition into multiple transactions. You can do this by adding SET SCHEMA statements:

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 above, 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 above.

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. Edit SQLRINST EXEC to modify the FILEDEFS and SQLRINST CCAIN to modify the userid and password.
3. Run SQLRINST by entering:

ONLINE NODCSS BYPASS 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 111.

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
SERVSZ	350000
SQLBUFSZ	100000
SQLIQBSZ	32752

Loading the demonstration database DDL

If SQL clients want to use the Model 204 demonstration database, you must first define, or map, it to the SQL catalog. Rocket provides a sample SQL DDL stream that maps the demonstration database to SQL views and tables.

For information about loading the catalog from a Connect★ Workstation, see the *Connect★ Suite Installation and Administration Guide*.

Renaming your schema

Most of the examples for 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 use a different schema name, be sure to edit the DEMODDL text and any example files you use to replace DEMO with your own schema name.

See the *Connect★ Suite Installation and Administration Guide* for information about renaming the schema.

Verifying SQL installation

Connect★ Suite clients can immediately test their SQL installation.

Verifying Connect★ installation

For Connect★ Suite V7R1.0 or later, you can test your Connect★ installation using the connectivity tools provided with JDBC and .NET. With Connect★ for ODBC, you can test your connection to Model 204 from the Connect★ ODBC driver within the Microsoft ODBC Manager.

Also, you can test your Connect★ ODBC installation using the CATALOG2 program that issues an SQL query of the SQL catalog table (the Model 204 CCACAT file).

A

Installation Modules and Utility Programs

In this appendix

- Overview
- Basic Model 204 load modules
- Model 204 object modules
- Model 204 utility programs

Overview

The Model 204 installation package includes a JCL library, an object library, and utility programs. The basic load modules, the object modules used to create these modules, and the utility programs supplied with Model 204 are listed in this appendix.

Basic Model 204 load modules

BATCH2	Enables batch users to access a Model 204 Online that is running in a separate region. BATCH2 establishes a remote connection and emulates a line-by-line terminal. It reads a user-specified input data stream, transmits this data to the Online region, and writes the resulting output to a user-specified output data stream.
BATCH204	Provides a single-user version of the ONLINE module without the TP access methods and Host Language Interface. BATCH204 supports single-threaded Host Language Interface programs using IFDIAL, File Load utility logic, and DUMP/RESTORE utility logic.
IFAM1	Supports calls to the Host Language Interface (except IFDIAL calls, which use BATCH204). IFAM1 is a single-threaded version of Model 204 designed to be linked into an application program.
IFAM4	<p>Supports calls to the Host Language Interface. IFAM4 is a multiple-threaded version of Model 204 designed to provide efficient processing of debugged multithread host language programs.</p> <p>IFAM4 and the user program are both loaded into the same address space under the control of a special monitor program. CRAM is not required. IFAM4 is link-edited with the REUS option and named IFAM4.</p> <p>Application programs are link-edited with the object module IFIF4 in a load module library that is used later by the actual IFAM4 run. IFIF4 acts as an interface between the host language program and Model 204.</p>
ONLINE	Supports any number of online and BATCH2 users. Support for Host Language Interface threads and interfaces to terminal access methods and external TP monitors can be included.

Model 204 object modules

The object modules listed below are link-edited into the ONLINE, BATCH204, IFAM1, IFAM4, or BATCH2 configurations of Model 204. If a feature is not being installed, the INCLUDE statements for the object modules required for that feature in the M204LINK job must be removed.

M O D U L E	O N L I N E	B A T C H 2 0 4	I F A M 1	I F A M 4	B A T C H 2	Description
ACF2	X	X	X	X		CA-ACF2 security interface module
ANXV	X	X				ANALYZE command processor
APSY	X	X				Application subsystem support
APSZ	X	X				Application subsystem support
ARTH	X	X	X	X		Arithmetic compiler
ATIO	X	X	X	X		Audit trail formatting routines
AUTH	X	X	X	X		Security authorization services and features
BEGN	X	X	X	X		Model 204 initialization
BKUP	X	X				File DUMP/RESTORE commands
BOUT	X	X	X	X		Transaction backout feature
BXCI	X	X	X	X		Ordered Index support
CDTB	X	X				\$CODE and \$DECODE functions
CHKP	X	X	X	X		Checkpoint/restart
CMEC	X	X				ECF compiler routines
CMIS	X	X	X	X		Server communication interface
CMPB	X	X	X	X		Boolean compiler
CMPD	X	X				Support for UL/DB2 interface
CMPF	X	X	X	X		File maintenance compiler
CMPI	X	X	X	X		Compiler sequential I/O
CMPJ	X	X	X	X		Miscellaneous routines compiler
CMPL	X	X	X	X		Compiler control routine
CMPQ	X	X				MQ/204 compiler routines

M O D U L E	O N L I N E	B A T C H 2 0 4	I F A M 1	I F A M 4	B A T C H 2	Description
CMPR	X	X	X	X		Retrieval compiler
CMPS	X	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
CNST	X	X	X	X		Support for RMODE 31 processing
CRFS	X					Full screen remote User Language routine
CRIO	X					Line-by-line remote User Language routine
CRPT	X					Remote printer support
CRSQ	X					CRAM remote SQL thread management
CTCK	X	X	X	X		Password Expiration feature
CTTC	X	X	X	X		Account file security routines
CUST	X		X			Date/time stamp field data
DBCS	X	X	X	X		Double-byte character set subroutines
DEBUG	X	X	X	X		Debugging facilities
DDL M	X	X	X	X		Extended field definition, displays
DEFN	X	X	X	X		Support for DEFINE and ALLOCATE commands
DFIL	X	X				(D204 only) file handling
DKBM	X	X	X	X		Disk buffering monitor
DKIO	X	X	X	X		Disk I/O routines (Model 204 files)
DSPS	X	X	X	X		Model 204 dataspace support
DTME	X	X	X	X		Date and time routines
DTSR	X	X				Date time stamp support routine
ECFI	X	X				ECF subtask management routines
EDFS	X					Full-screen editor routine
EDIT	X	X				Line editor

M O D U L E	O N L I N E	B A T C H 2 0 4	I F A M 1	I F A M 4	B A T C H 2	Description
EVAR	X	X	X	X		Arithmetic evaluator
EVBT	X	X	X	X		Ordered Index
EVEC	X	X				ECF evaluator routines
EVFM	X	X	X	X		File maintenance evaluator
EVIO	X	X	X	X		Sequential I/O evaluator
EVLU	X	X				Evaluator subroutine for interprocess communication
EVM I	X	X				External record I/O evaluator
EVMQ	X	X				MQ/204 evaluator routines
EVND	X	X				Support for UL/DB2 interface
EVNM	X	X	X	X		Numeric range evaluator
EVNU	X	X	X	X		Evaluator control and Booleans
EVNV	X	X	X	X		Evaluator control and Booleans
EVSO	X	X	X	X		Sorted and hash key files evaluator
EWDP	X	X	X	X		Early Warning recording and display module
FENQ	X	X	X	X		File enqueueing routines
FILE	X	X	X	X		File OPEN/CLOSE routines
FLIO	X	X	X	X		FLOD and deferred update routines
FLL3		X	X			Z command processor
FLOD		X				Fast file load utility
FLXT		X				FLOD exit controller
FUNB	X	X				PQO functions
FUNC	X	X	X	X		Basic functions
FUND	X	X				Model 204 FORTRAN mathematical functions and subroutines
FUNDLE	X	X				Model 204 LE mathematical functions and subroutines (with LENV module)
FUNE	X	X				Editing functions

M O D U L E	O N L I N E	B A T C H 2 0 4	I F A M 1	I F A M 4	B A T C H 2	Description
FUNF	X	X	X	X		Functions
FUNR	X					Sockets module
FUNU	X	X				User functions
FUNV	X	X	X	X		User functions used by Dictionary/204
FUTL	X	X	X	X		File utility routines
GLOB	X	X	X	X		Globals
GRUP	X	X	X	X		File groups features
GTRC	X					Trace node switch frequency
IFAM	X	X	X	X		IFAM function routines
IFAS	X		X	X		IFAM function routines
IFCF	X	X	X	X		Interface to call C functions
IFDM	X		X	X		IFAM interface routines
IFET	X	X				PQO support
IFID	X	X				IFDIAL single-user support
IFIF					X	IFAM outboard interface subroutines
IFII	X					IFAM2 support
IFII1			X			IFAM1 dynamic loading
IFII4				X		IFAM4 support
IFSQ	X	X	X	X		Routines to call IFAM from SQL
IF6C	X	X				Client side of LU6.2
IF6S	X					Server side of LU6.2
IOFS	X	X	X	X		I/O interface - full-screen device
IOIF	X	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	X		Journal I/O routines

M O D U L E	O N L I N E	B A T C H 2 0 4	I F A M 1	I F A M 4	B A T C H 2	Description
KOMM	X	X	X	X		Common storage and parameter values
LARB	X	X	X	X		Logical I/O arbitration routines
LBUF	X	X	X	X		Logical I/O buffer handling
LCCTOS	X	X	X	X		Concatenation for logical I/O-OS
LCIO	X	X	X	X		Logical I/O module for streams
LCMD	X	X	X	X		COPY and OFFLOAD command processor
LGIO	X	X	X	X		GDG processing module
LENV	X	X				Initialize LE environment to allow mathematical functions to use LE mathematical service (with FUNDLE)
LIOS	X	X	X	X		Logical I/O subsystem
LPIO	X	X	X	X		Parallel I/O streams
LRIO	X	X	X	X		Ring I/O streams
LSUB	X	X	X	X		Logical I/O common routines
LUCO	X	X				Control operator programs for Horizon CNOS
LU62	X					Distributed Application Facility controller
MAIN	X	X	X	X		Command loop, error routines
MLNK	X	X	X	X		Rocket debugging features
MQMI	X	X				MQ/204 MQSeries API interface
MSGP	X	X	X	X		Error message routines
MSGS	X	X	X	X		Model 204 error message table
MSGU	X	X				User error message table
NLANG	X	X	X	X		Language support tables
ONLM	X					Online monitor package
PARM	X	X	X	X		Parameter VIEW and RESET routines
PARS	X	X	X	X		CCAIN and command parsing
PROC	X	X				Procedures subroutines

M O D U L E	O N L I N E	B A T C H 2 0 4	I F A M 1	I F A M 4	B A T C H 2	Description
PROD	X	X	X	X		Procedures subroutines
PRPR	X					Process-to-process communications
PRTQ	X					SNA Communications Server (formerly VTAM) printer support
PSEC	X	X				Procedure security
PTCH	X	X	X	X		Early Warning code fix area
PTCN	X	X	X	X		Patch Number table
RACFOS	X	X	X	X		Security Server (formerly RACF) Interface
RCLK	X	X	X	X		Record Locking manager
RCVY	X	X		X		Recovery RESTART command
REMQ	X	X	X	X		Record and resource enqueueing routines
RM24	X	X	X	X		Implementation of support for RMODE 31 processing
RSQL	X	X	X	X		Remote SQL and Pattern Matcher
RUTL	X	X				Media recovery
SBA2OS	X	X	X	X		CA-ACF2 Interface
SBD2	X	X	X	X		D204 compiler/evaluator utility routines
SBDS	X	X				PQO support
SBFM	X	X	X	X		File maintenance subroutines
SBIO	X	X	X	X		Sequential I/O subroutines
SBMP	X	X	X	X		Subroutines for MultiProcessor functions and zIIP support
SBNU	X	X	X	X		Miscellaneous subroutines
SBNV	X	X	X	X		Conversion subroutines
SBPT	X	X	X	X		Subroutines for pattern matcher
SBSQ	X	X	X	X		BAL routine calls from C
SBXM	X	X	X	X		Ordered Index maintenance subroutines
SCHD	X	X	X	X		Priority scheduler

M O D U L E	O N L I N E	B A T C H 2 0 4	I F A M 1	I F A M 4	B A T C H 2	Description
SDIO	X	X	X	X		Sequential data sets I/O routines
SESM	X	X				Session Management for interprocess communication
SM62	X					Horizon implementation of LU session management
SORT	X	X	X	X		SORT function
SORU	X	X	X	X		User Language sort compiler
SORX	X	X	X	X		Sort user exits
SPCL	X	X	X	X		Support for specials
SQIO	X	X	X	X		BSAM, QSAM sequential I/O
STAT	X	X	X	X		Statistics and accounting routines
SUPF	X	X	X	X		System independent supervisor functions
SUSE	X	X				Directed output (USE) features
SVIO	X			X		Server swapping (CCASERVR)
SWDB	X			X		Server Swapping Debug Facility
SYIOOS	X	X	X	X		System dependent I/O functions
SYSFXA	X	X	X	X		XA system dependent supervisor functions
SYSXF		X				SYSFXA extension (Fujitsu)
SYSXI	X	X	X	X		SYSFXA extension (IBM)
TCIU	X					TCP/IP socket programming interface (only z/OS and z/VM)
TCSE	X					TCP/IP sockets extended programming interface
TC62	X					Logical driver for TCP/IP communication
TFRM	X	X				TRANSFORM command
TOPSOS	X	X	X	X		CA-Top Secret Interface
ULDB	X	X				User Language to DB2 Interface (XA)
ULIFOS					X	BATCH2 utility module
USQL	X	X				SQL statements for UL/DB2 (creates DBRM)

M O D U L E	O N L I N E	B A T C H 2 0 4	I F A M 1	I F A M 4	B A T C H 2	Description
UTIOOS					X	I/O subroutines for utilities
VPS2	X					SNA Communications Server printer support
VSIOOS	X	X				VSAM I/O functions
VTNT	X					SNA Communications Server 3767 and NTO support
VTPR	X					SNA Communications Server printer support
VT62	X					Interprocess communication w/LU 6.2
VT75	X					SNA Communications Server 3270 support (full screen)

Model 204 utility programs

AUDIT204	CCAJRNL/CCAJLOG data set processing to assist recovery
AUDTOS	AUDIT204 accounting utility
HA15OS	Sort exit for hash file index
HA35OS	Sort exit for hash file index
MERGEJ	Media recovery journal merge utility
OI15OS	Sort exit for variable length deferred updates (Ordered Index)
OI35OS	Sort exit for variable length deferred updates (Ordered Index)
UTILC	UTILC routine to print checkpoint
UTILJ	Journal/Audit trail debug utility
ZBLDTAB	Build prototype password table
ZCTLTAB	Convert CCASTAT for the Password Expiration feature

B

Using the Link Pack Area

In this appendix

- Overview
- Modified Link Pack Area
- Fixed Link Pack Area
- SVC load module names

Overview

Type 4 SVC load modules such as CRAM must reside in the Link Pack Area (LPA). The LPA is divided into three sections:

- Pageable Link Pack Area (PLPA)
- Modified Link Pack Area (MLPA)
- Fixed Link Pack Area (FLPA)

Pageable Link Pack Area

The Pageable Link Pack Area is an area of virtual storage that contains a copy of every module from the LPALST, and a directory listing each module. During an IPL with the Create Link Pack Area (CLPA) option, the control program copies all the modules from LPALST into a special paging data set. Subsequent IPLs without the CLPA option do not reinitialize this special paging data set, thus reducing the time required for IPL.

Additional considerations that apply to performance are:

- Locating a Type 4 SVC load module

Type 4 SVC load modules are most frequently located in the PLPA. A module in the PLPA can be located by a hashed search of the PLPA directory.

 - When a PLPA module is found with a hashed search, a Contents Directory Entry (CDE) is created in fixed storage. The CDE contains the module name, virtual storage address, link editor attributes, and use count. Page faulting is likely to occur in systems having high paging loads.
- Minimizing page faults
 - A program fetch operation that brings in an entire module may be more efficient than allowing page fault processing routines to read the requested module from the PLPA paging data set into real storage.
 - Page faults occur when a PLPA module is referenced while it is not in real storage. Two page faults can be generated if a module crosses a page boundary.
 - Placing all the modules for a specific Type 4 SVC on the same page of virtual storage can reduce page faulting. In this case, a reference to one module automatically brings other modules into real storage.
 - System paging rates can be reduced by controlling the allocation of virtual storage in the PLPA through the SYS1.PARMLIB member IEAPAK00. IEAPAK00 lists one or more groups of modules. Each group is started on a virtual storage page boundary with the modules loaded contiguously in the listed order.
 - Using the z/OS Subsystem facility or placing the IGCLM244 module in the Fixed Link Pack Area avoids page faults that can occur when the PLPA page is needed by another module.

When a PLPA page is needed by another module, the old page is not saved. If the old page is needed again, it is reloaded. In instances where the Common Service Area (CSA) address is stored in IGCLM244 and IGCLM244 is stored in the PLPA, the address is lost if that page of the PLPA is taken for another purpose. Using the z/OS Subsystem facility, where the CSA address is kept with the Subsystem entry, avoids this problem.

Modified Link Pack Area

The Modified Link Pack Area is an area of virtual storage that contains copies of LPA modules for testing without reference to the PLPA. A module in the MLPA temporarily replaces the version of the module contained in the PLPA.

The MLPA is constructed on a page boundary at every IPL, with or without the CLPA option. Modules placed in the MLPA for the duration of a current IPL are listed in the SYS1.PARMLIB member IEALPAnnn, where *nnn* corresponds to the specified MLPA = *nnn* parameter. The control program loads each module, in the order listed in IEALPAnnn, from its library into the MLPA and creates a CDE. CDEs for MLPA modules are chained *after* the CDEs created for PLPA.

The following consideration applies:

- Page faults can occur when MLPA modules are referenced. Unlike PLPA modules, IEAPAK00 cannot be used to minimize page faults.

Fixed Link Pack Area

The Fixed Link Pack Area is an area of real storage that contains copies of selected modules. During an IPL the control program loads the modules listed in the SYS1.PARMLIB member IEAFI*nnn*, where *nnn* corresponds to the specified FIX = *nnn* parameter, into the FLPA and creates a CDE. CDEs for FLPA modules are chained *after* the CDEs created for PLPA and *before* those created by IEALPA*nnn* (MLPA).

The following considerations apply:

- Because the FLPA is an area of real storage, page faults do not occur when FLPA modules are referenced.
- Performance is best when IGCLM244 and the SVC modules are placed in the FLPA.
- IGC00*nnx* must be placed in the FLPA, because the XMPOST routine must be page fixed.

SVC load module names

When using a Type 3 or Type 4 SVC and linking an SVC into the Link Pack Area, the SVC load module name is derived from the SVC number.

In some cases, SVC name conversion is performed automatically, as with the CRAMGEN macro and jobs used by INS204. In other cases, you must convert the number and substitute it in jobs such as TSMFLPA or M204XSVC.

The format for the SVC load module name is:

IGC0*Nnnx*

where:

- *N* is a number, 0 or 1, that identifies the load module.
- *nn* are the first two digits of the site-determined SVC number.
- *x* is derived from the last digit of the SVC number, as follows:

SVC number	last digit	0	1	2	3	4	5	6	7	8	9
SVC module name	<i>x</i>	{	A	B	C	D	E	F	G	H	I

The SVC load module name is derived from the SVC number as shown in the following examples. Note that the left bracket representing 0 ({) might print as a blank.

SVC number	SVC load module name
SVC244	IGC0024D
SVC240	IGC0024{

C

M204TEMP Space Calculation

In this appendix

- Overview
- Calculating M204TEMP size

Overview

M204TEMP is an unordered file.

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

Calculating M204TEMP size

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

u equal the number of concurrent users.

x equal the average number of nested facilities being invoked per user.

t equal the average number of temporary records stored per user (use the average number of lines being scrolled).

k equal the average number of entities being used per user.

To calculate the values, follow these steps:

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:

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

Since $B = 0$ 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:

$$\mathbf{M204TEMP} = \text{ATRP} + \text{FVFP} + \text{MVFP} + \text{BSIZE} + \text{CSIZE} + \text{DSIZE} + 8,$$

where the variables are the table parameters listed below.

Table A parameters

$$\text{ASTRPPG} = 6144 / \text{average string length} \\ = 6144 / ((20 * 4) + 155) / 20$$

$$= 6144/12$$

$$= 512$$

$$\text{ATRPG} = 1.1 * 28 + (4+6) / 512$$

$$= 0.82$$

$$= 1$$

$$\text{FVFPG} = 1$$

$$\text{MVFPG} = 1$$

**Table B
parameters**

$$\text{BRECPPG} = 1.1 * (6140 / R)$$

$$\text{BSIZE} = 1.2 * (\text{Nr} / \text{BRECPPG})$$

$$\text{BRESERVE} = R$$

**Table C
parameters**

$$\text{CSIZE} = 1.2 * ((7 * N + 7) * (62 + 6 * \text{Nr})) / 6144$$

**Table D
parameters**

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

$$\text{PDSIZE} = 1$$

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

(default)

where:

$$\text{DEST} = I + F + P + (K * \text{PDSIZE}) + Q + \text{OI}$$

$$= I + 0 + 0 + 1 + 0 + 0$$

$$= I + 1$$

$$\text{DSIZE} = I + F + P + (K * \text{PDSIZE}) + Q + \text{OI} + \text{DPGSRES}$$

$$= \text{DEST} + \text{DPGSRES}$$

$$= I + 1 + \text{DPGSRES}$$

D

JCL Installed Members

In this appendix

- JCL member descriptions

JCL member descriptions

Table 0-1 lists the JCL members that are installed when you install Model 204.

Table 0-1. JCL member descriptions

Member	Description
AFIXUPDT	Update Autofix files
ASSEMBLE	Provided for the assembly of miscellaneous modules
AUDIT204	Utility for generating audit trail reports from CCAJRNL
BACKUP	Generalized Model 204 file backup job
BATCH2	BATCH2 job template
CEDAM204	CICS CEDA table definition input
CRAMCLR	Clear CRAM storage
CSYSCONV	Obsolete CCASYS upgrade job
DDBKP	Backup Dictionary/204 data files
DDBKPROC	Backup Dictionary/204 M204PROC file
DDFIMCMD	Job to execute pending File Management commands
DDGEN	DDGEN template job
DDGENSET	DDGENSET template job
DDMIG	Dictionary/204 IMPORT template used after EXPORT
DDROG	Dictionary reorganization job
DDRSPROC	Restore of M204PROC
DDRST	Restore of Dictionary files other than M204PROC
DDTINIT	Re-initializes the M204TEMP file
DECRVCOM	Decrypt for Model 204 VCOMP feature
DEMOSAGE	Sample SAGE/204 procedure
FIXTTOVP	Template of job to apply Early Warnings to Model 204
FLODFIVE	Sample 5 step FLOD job
FLODSEVN	Sample 7 step FLOD job
HEX256	Sample User Language procedure to print all possible hex values
INSUNLD	INS204 initial install job
JCLPRINT	Job to print JCLLIB members
JCLUNLD	Initial Model 204 install job unloading this data set from files
LINKXCRM	Relink M204XCRM

Table 0-1. JCL member descriptions (continued)

Member	Description
LINKXCSA	Relink M204XCSA
LINKXDM	Relink M204XDM
LINKXMON	Relink M204XMON
LINKXSVC	Relink M204XSVC
LNKCRCLR	Relink CRAMCLR
LNKSNPCR	Relink SNAPCRAM
MVSLKNUC	Job to link the timer SVC as a type 1 or type 6 SVC
M204CKPX	Sample assembler code to test Model 204 checkpoint user exit
M204JLOG	Sample assembler code to text Model 204 CCAJLOG switch user exit
M204FIX	Template like FIXTTOVP to apply Early Warning zaps to Model 204
M204RLNK	Links replacement Model 204 object modules into existing Model 204 code
M204XDM	Job to use the Cram Cross Region Data Mover
M204XMON	Job to monitor the Cram Cross Region Data Mover
ONLINE	Sample Recovery followed by ONLINE job
ONLINE2	Obsolete Recovery/ONLINE job using remote BTAM - no longer supported
ONLINE3	Obsolete Recovery/ONLINE job using local BTAM - no longer supported
ONLNV TAM	Basic ONLINE with VTAM support job
PDSELIB	Generic job to link Model 204 modules into a PDSE library
PPTNTRY	Old style CICS table entries for M204/CICS support
PRCLOAD	General job to restore and transfer procedures to M204PROC
REORG	General job to reorganize any Model 204 file
RESPROC	Allocates and restores and Model 204 procedure file
RESTORE	Generic Model 204 Restore job for any Model 204 file
SOCKSMPC	Example of the client side of a sockets interface
SOCKSMPS	Example of the server side of a sockets interface
VMIFUPD	Updates the text of source module VMIF and assembles it
WKROG	Reorganizes a WORKSHOP file or any Model 204 data file

Table 0-1. JCL member descriptions (continued)

Member	Description
WKRST	Restores all Workshop files from dumped backups from WKBKP job
ZCTLTAB	Updates password expiration parameters in CCASTAT
ZFIELD	Procedure FMPS.ZFIELD

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