IBM

Program Directory for

IBM DATABASE 2 SERVER FOR VM

Version 6 Release 1 Modification Level 0

Program Number 5648-A70

for Use with
VM/ESA Version 2.2.0 or higher

Document Date: April 1999

> **Note!**
>
> Before using this information and the product it supports, be sure to read the general information under "Notices" on page viii.

This program directory, dated April 1999, applies to DB2 Server for VM Version 6 Release 1 Modification Level 0 (DB2 Server for VM V6R1.0), Program Number 5648-A70.

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Notices

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IBM	DATABASE 2
DB2	DB2 Server for VM
DB2 Server for VSE	DB2 Server for VSE & VM
SQL/DS	DataPropagator
SystemPac	FunctionPac
DRDA	Distributed Relational Database Architecture
VM/ESA	Virtual Machine/Enterprise Systems Architecture
VSE/ESA	ESA/390
DFSMS	DFSMS/VM
ES/9000	IBMLink

1.0 Introduction

This program directory is intended for the system programmer responsible for program installation and maintenance. It contains information concerning the material and procedures associated with the installation and migration of DB2 for VM. You should read all of this program directory before installing the program and then keep it for future reference.

This manual assumes that you have decided on certain parameters and values to be used in installing and generating the database and have read the following manuals:

- *DB2 Server for VM System Administration*
- *DB2 Server for VM Database Administration*.

It also assumes that you are familiar with CMS commands, EXECs, and Virtual Machine/Enterprise Systems Architecture® (VM/ESA®) systems.

The program directory contains the following sections:

- 2.0, "Program Materials" on page 3 identifies the basic and optional program materials and documentation for DB2 for VM.

- 3.0, "Program Support" on page 9 describes the IBM support available for DB2 for VM.

- 4.0, "Program and Service Level Information" on page 10 lists the APARs (program level) and PTFs (service level) incorporated into DB2 for VM.

- 5.0, "Installation Requirements and Considerations" on page 11 identifies the resources and considerations for installing and using DB2 for VM.

- 6.0, "Installing DB2 for VM" on page 19 provides detailed installation instructions for DB2 for VM.

- 7.0, "Service Instructions" on page 57 provides detailed servicing instructions for DB2 for VM.

- 8.0, "Migrating to DB2 for VM" on page 84 provides detailed instructions on migrating to DB2 for VM Version 6 Release 1.

- 9.0, "Installing DB2 for VM as a Service Machine" on page 116 provides detailed instructions on installing and activating DB2 for VM as a service machine.

- 10.0, "NLS Installation Instructions" on page 143 provides detailed instructions on installing NLS Languages.

- Appendix A, "How to Build (or Link-Edit) the ARISQLLD LOADLIB Member" on page 156 provides detailed instructions for rebuilding the ARISQLLD LOADLIB of DB2 for VM.

- Appendix B, "Local Modifications for DB2 for VM" on page 165 provides information on replacing TEXT files.

- Appendix C, "DB2 for VM ARISINST Install EXEC" on page 173 provides detailed information on the ARISINST EXEC of DB2 for VM.

- Appendix D, "IBM-Supplied Files for the DB2 for VM System" on page 177 lists the EXECs, MACROs, CMS Help files, load library, sample profiles, selected TEXT files, and other miscellaneous files supplied with the DB2 for VM product.

Before installing DB2 for VM, read 3.1, "Preventive Service Planning" on page 9. This section tells you how to find any updates to the information and procedures in this program directory.

1.1 Program Description

DATABASE 2 Server for VM (DB2 for VM) is the IBM Relational Database Management system for the VM environment that manages, stores, and retrieves data. It consists of a relational database system, a query language, and a utility for transferring data and other objects. It also offers powerful facilities for data integrity, security, and recovery.

DB2 for VM offers your company improved continuous operations and distributed database solutions in the VM environment. The enhancements in Version 6 Release 1 allow you to take advantage of the strengths of both host and distributed database solutions while leveraging your existing application investments.

2.0 Program Materials

An IBM program is identified by a program number. The program number for DB2 Server for VM Version 6 Release 1 Modification Level 0 for 5648-A70.

The program announcement material describes the features supported by DB2 for VM. Ask your IBM marketing representative for this information if you have not already received a copy.

The following sections identify:

- basic and optional program materials available with this program

- publications useful during installation.

2.1 Basic Machine-Readable Material

The distribution medium for this program is 9-track magnetic tape (written 6250 BPI), 3480 tape cartridge, 1/4-inch tape cartridge or 4mm tape cartridge. The tape or cartridge contains all the programs and data needed for installation. See section 6.0, "Installing DB2 for VM" on page 19 for more information about how to install the program. Figure 1 describes the tape or cartridge. Figure 2 on page 4 describes the file content of the program tape or cartridge for all medium except 6250 tape. Figure 3 on page 4 and Figure 4 on page 5 describe the file content of the program tape for 6250 media.

Figure 1 (Page 1 of 2). Basic Material: Program Tape

Feature Number	Medium	Physical Volume	Tape Content	External Tape Label
5801	6250 tape	1	DB2 Server for VM V6R1.0 (Volume 1)	DB2 SERVER VM V6R1
		2	DB2 Server for VM V6R1.0 (Volume 2)	DB2 SERVER VM V6R1
5801		3	Data Propagator Capture for VM V6R1.0	DPROPR CAPTURE
5801		4	DB2 VM Help Tape	
5801		5	SQL/DS Version 3.5.0	
5802	3480 cart.	1	DB2 Server for VM V6R1.0	DB2 SERVER VM V6R1
5802		2	Data Propagator Capture for VM V6R1.0	DPROPR CAPTURE
5802		3	DB2 VM Help Tape	
5802		4	SQL/DS Version 3.5.0	
5804	1/4 inch cart.	1	DB2 Server for VM V6R1.0	DB2 SERVER VM V6R1
5804		2	Data Propagator Capture for VM V6R1.0	DPROPR CAPTURE
5804		3	DB2 VM Help Tape	
5804		4	SQL/DS Version 3.5.0	

Figure 1 (Page 2 of 2). Basic Material: Program Tape

Feature Number	Medium	Physical Volume	Tape Content	External Tape Label
6879	4mm	1	DB2 Server for VM V6R1.0	DB2 SERVER VM V6R1
6879	DAT	2	Data Propagator Capture for VM V6R1.0	DPROPR CAPTURE
6879		3	DB2 VM Help Tape	
6879		4	SQL/DS Version 3.5.0	

Figure 2. Program Tape: File Content all medium except 6250 tape

Tape File	Content
1	Tape Header
2	Tape Header
3	Product Header
4	Product Memo
5	Service Apply Lists
6	PTFPARTs
7	DB2 for VM Service
8	DB2 for VM Service
9	DB2 for VM Base Code
10	DB2 for VM Service Executable Code
11	DB2 for VM Production Executable Code

Figure 3. Program Tape: File Content for 6250 tape Volume 1

Tape File	Content
1	Tape Header
2	Tape Header
3	Product Header
4	Product Memo
5	Service Apply Lists
6	PTFPARTs
7	DB2 for VM Service
8	DB2 for VM Service
9	DB2 for VM Base Code

Figure 4. Program Tape: File Content for 6250 tape Volume 2

Tape File	Content
1	Tape Header
2	Tape Header
3	Product Header
4	Product Memo
5	DB2 for VM Service Executable Code
6	DB2 for VM Production Executable Code

Figure 5. Program Tape: File Content for DB2 VM Help Tape

Tape File	Content
1	Upper Case English Help Material
2	French Help Material
3	German Help Material
4	Japanese Help Material
5	Simplified Chinese Help Material

2.2 Optional Machine-Readable Material

The distribution medium for optional machine-readable material is 9-track magnetic tape (written at 6250 BPI), 3480 tape cartridge, 1/4-inch tape cartridge, or 4mm tape cartridge. Figure 6, Figure 7 on page 6 and Figure 8 on page 6 describe the tapes or cartridges for each deliverable.

Figure 6. Optional Material: RXSQL

Feature Number	Medium	Physical Volume	Tape Content	External Tape Label
6799	6250 tape	1	RXSQL VM V6R1.0	RXSQL VM
6800	3480 cart.	1	RXSQL VM V6R1.0	RXSQL VM
6875	1/4 inch cart.	1	RXSQL VM V6R1.0	RXSQL VM
6876	4mm DAT	1	RXSQL VM V6R1.0	RXSQL VM

Figure 7. Optional Material: Data Restore VM

Feature Number	Medium	Physical Volume	Tape Content	External Tape Label
5841	6250 tape	1	Data Restore for VM V6R1.0	DATA RESTORE VM
5842	3480 cart.	1	Data Restore for VM V6R1.0	DATA RESTORE VM
5844	1/4 inch cart.	1	Data Restore for VM V6R1.0	DATA RESTORE VM
6688	4mm cart.	1	Data Restore for VM V6R1.0	DATA RESTORE VM

Figure 8. Optional Material: Control Center VM

Feature Number	Medium	Physical Volume	Tape Content	External Tape Label
5821	6250 tape	1	Control Center for VM V6.R1.0	CONTROL CENTER VM
5822	3480 cart.	1	Control Center for VM V6.R1.0	CONTROL CENTER VM
5824	1/4 inch cart.	1	Control Center for VM V6.R1.0	CONTROL CENTER VM
6689	4mm DAT	1	Control Center for VM V6.R1.0	CONTROL CENTER VM

2.3 Program Publications

The following sections identify the basic and optional publications for DB2 for VM.

2.3.1 Basic Program Publications

Figure 9 identifies the basic program publications for DB2 for VM. One copy of the following publication is included when you order the basic materials for DB2 for VM. For additional copies, contact your IBM representative.

An asterisk(*) beside the Form Number indicates it contains "Restricted materials of IBM."

Figure 9 (Page 1 of 2). Basic Material: Unlicensed Publications

Publication Title	Form Number
DB2 Server for VM Messages and Codes	GC09-2664
DB2 Server for VSE & VM SQL Reference	SC09-2671

Figure 9 (Page 2 of 2). Basic Material: Unlicensed Publications

Publication Title	Form Number
DB2 Server for VM System Administration	SC09-2657
DB2 Server for VM Database Administration	SC09-2654
DB2 Server for VM Operation	SC09-2668
DB2 Server for VM Interactive SQL Guide and Reference	SC09-2674
DB2 Server Data Spaces Support for VM/ESA	SC09-2675
DB2 Server for VM Database Services Utility	SC09-2663
DB2 Server for VSE & VM Overview	GC09-2806
DB2 Server for VM Application Programming	SC09-2661
DB2 Server for VSE & VM Quick Reference	SC09-2670
DB2 Server for VSE & VM Performance Tuning Handbook	GC09-2669
DB2 Server for VM Master Index and Glossary	SC09-2666
DB2 Server for VSE & VM Licensed Program Specifications	GC09-2659

Figure 10. Basic Material: Licensed Publications

Publication Title	Form Number
DB2 Server for VM Diagnosis Guide and Reference	LC09-2672(*)

2.4 Microfiche Support

There is no microfiche for DB2 for VM.

2.5 Publications Useful During Installation

The publications listed in Figure 11 may be useful during the installation of DB2 for VM. To order copies, contact your IBM representative.

Figure 11 (Page 1 of 2). Publications Useful During Installation / Service on VM/ESA Version 2.2.0

Publication Title	Form Number
VM/ESA: VMSES/E Introduction and Reference	SC24-5747
VM/ESA: Service Guide	SC24-5749
VM/ESA: Planning and Administration	SC24-5750
VM/ESA: CMS Command Reference	SC24-5776
VM/ESA: CMS File Pool Planning, Administration, and Operation	SC24-5751
VM/ESA: System Messages and Codes	SC26-4707

Figure 11 (Page 2 of 2). Publications Useful During Installation / Service on VM/ESA Version 2.2.0

Publication Title	Form Number
DB2 Server for VM System Administration	SC09-2657
DB2 Server for VM Database Administration	SC09-2654

3.0 Program Support

This section describes the IBM support available for DB2 for VM.

3.1 Preventive Service Planning

Before installing DB2 for VM, check with your IBM Support Center or use IBMLink (Service Link) to see whether there is additional Preventive Service Planning (PSP) information. To obtain this information, specify the following UPGRADE and SUBSET values:

Figure 12. PSP Upgrade and Subset ID

COMPID	Retain Release	Upgrade	Subset
5648A7001	610	DB2VSEVM610	DB2/610

3.2 Statement of Support Procedures

Report any difficulties you have using this program to your IBM Support Center. If an APAR is required, the Support Center will provide the address to which any needed documentation can be sent.

Figure 13 identifies the component ID (COMPID), Retain Release and Field Engineering Service Number (FESN) for DB2 for VM.

Figure 13. Component IDs

COMPID	Retain Release	Component Name	FESN
5648A7001	610	DB2 Server for VM V6R1.0	0403422

4.0 Program and Service Level Information

This section identifies the program and any relevant service levels of DB2 for VM. The program level refers to the APAR fixes incorporated into the program. The service level refers to the PTFs integrated. Information about the cumulative service tape is also provided.

4.1 Program Level Information

All closed APARs from previous versions/releases have been incorporated at the time of the product GA.

4.2 Service Level Information

Check the DB2VSEVM610 PSP bucket for any additional PTFs that should be installed or any additional install information.

In order to perform DBSU RELOAD with VM/ESA 2.4 and CMS 15, APAR PQ27957 must be applied.

4.3 Cumulative Service Tape

Cumulative service for DB2 for VM Version 6 Release 1 Modification Level 0 is available through a monthly corrective service tape, Expanded Service Option, ESO.

5.0 Installation Requirements and Considerations

The following sections identify the system requirements for installing and activating DB2 for VM. You should also read the planning information in the *DB2 Server for VM System Administration* manual.

If you plan to use VM DB2 Data Spaces Support (VMDSS), review Chapter 1 in the *DB2 Server Data Spaces Support for VM/ESA* manual.

5.1 Hardware Requirements

There are no special hardware requirements for DB2 for VM.

To support all of VMDSS's functions, you must enable it in a ESA/390 processor within the ES/9000 family that supports VM/ESA in XC mode. If you enable it in a processor that does not support XC mode, you will only be able to use a subset of its capabilities. Refer to page 31 for a list of functions that you cannot use in non-XC mode.

5.2 Program Considerations

The following sections list the programming considerations for installing DB2 for VM and activating its functions.

5.2.1 Operating System Requirements

DB2 for VM supports the following VM operating systems:

- VM/ESA Version 2.2.0 or higher

    Note: The DB2 for VM product does not support mixed levels of CP and CMS.

- **RSU9704 service level** or above must be applied to VMSES/E on VM/ESA 2.2.0 prior to installing DB2 for VM. The RSU contains the required VMSES/E service provided in APAR VM60949. (APARs VM60773 and VM60759 are part of the base code in VMSES/E 2.2.0.)

5.2.2 Prerequisite Product Requirements

No other products are required for the installation of DB2 for VM.

For special functions of DB2 for VM, see the software requirement information in the *DB2 Server for VM System Administration* manual.

5.2.3 Cross Product Service Requirements

Some functions in DB2 for VM need additional product service. For the following products, the corresponding APARS should be applied:

- VM/ESA

    VM60922   CRR Support for DRDA AR

    >   **Note:**   For VM/ESA V2R2.0, service is on RSU9703 or higher.

    VM61072   CRR Support for DRDA AR

    VM61194   When a DB2 for MVS application uses DRDA2 to connect to DB2 for VM, DB2 for MVS issues a protocol violation on a COMMIT.

- DB2 for MVS

    PQ03643   To use DRDA2 from DB2 for MVS Application Requester (AR) to DB2 for VSE & VM Application Server (AS)

- DB2 Universal Database

    12/98 fixpack   DB2 UDB Version 5.0 needs to have the December 1998 fixpack applied to it before attempting to use TCP/IP connection to VM and the new UNICODE support.

- C/VM

    PQ11165   C Language for VM V3R1M0 should have this APAR applied so that proper abend handling is done when TCP/IP is in use.

- TCP/IP VM

    PQ20805   TCP/IP for VM needs this APAR applied to it to avoid possible problems with GETHOSTBYNAME() when CEEPIPI terminates.

- LE for VM

    PQ00525   LE V1.5-V1.6 needs this APAR applied to use the TCP/IP feature.

    PQ20124   LE V1.8 needs this APAR applied to use the TCP/IP feature.

    Also, you will need to customize the LE for VM User Exit, if you plan to use TCP/IP communications between your end users and the Database Server. See Appendix E, "IBM Language Environment for VM User Exit Customization for use with TCP/IP" on page 182 for details.

5.2.4 DB2 for VM Program Database Installation/Migration Considerations

5.2.4.1 Database General

The following is general information about the installation and migration of DB2 for VM in regards to the database.

- Migration to DB2 for VM Version 6 Release 1.0 is only supported from DB2 for VM Version 5 Release 1.0, SQL/DS Version 3 Release 1, 2, 3, 4, and 5. If you plan to migrate a pre-Version 3 database, see the migration section of this PD for more details.

- If you are installing a new database then follow the initial installation instructions. If you are migrating an existing database to DB2 for VM, then follow the migration installation instructions.

- If you are migrating from SQL/DS Version 3.3, 3.4, 3.5 and have the SQL/DS VM Data Spaces Support for VM/ESA (VMDSS) feature installed, or DB2 for VM Version 5.1 and have VMDSS installed, you must enable VMDSS Version 6 Release 1 (the VMDSS code has been shipped as part of the base from V5.1.0 DB2 for VM) **BEFORE** database migration.

5.2.4.2 Starter Database

We strongly recommend that you perform the installation steps that generate the starter database, and the steps that verify the installation. They provide you with a test database and sample tables that help you ensure that DB2 for VM is correctly installed.

Aids are provided for generating a *starter database* during DB2 for VM installation. The installation instructions assumes that the starter database is owned by virtual machine SQLMACH. When you generate the starter database it has an 8-byte server-name. If you want to use a server-name of more than 8 bytes, refer to the *DB2 Server for VM System Administration* manual.

5.2.4.3 Distributed Relational Database Architecture

The database management system you will install, following the instructions in this manual, does not support the distributed relational database architecture™ (DRDA®). You need this support if you want to:

- Access data in application servers other than DB2 for VM servers.

- Enable application requesters other than DB2 for VM requesters to access to your DB2 for VM server.

- Enable the recognition of default coded character set identifiers (CCSIDs) on an application requester. These defaults may be different than the CCSIDs on the application server.

- Enable Logical unit of work identifier (LUWID) support.

You can install the additional DRDA code required for these facilities after installation by following the instructions in the *DB2 Server for VM System Administration* manual. The *DB2 Server for VM System Administration* manual also includes a discussion of using the DRDA environment and customizing your system for distributed processing.

5.2.4.4 Access a Database in VM with VSE

DB2 for VM has built-in guest sharing capabilities with VSE systems, meaning that a DB2 for VSE user can access a database in a VM/ESA system. To enable guest sharing, the VSE APPLID must be granted SCHEDULE authority on the VM database and some set-up must be done on the VSE database. Refer to the *DB2 Server for VM System Administration* manual for details.

If you are moving from a SQL/DS product on Virtual Storage Extended (VSE) to DB2 for VM, first use this manual to install DB2 for VM. Then refer to the *DB2 Server for VM System Administration* manual for instructions on how to move your VSE databases to VM.

5.2.5 VMSES/E Program Installation/Service Considerations

This section describes items that should be considered before you install or service DB2 for VM.

- VMSES/E is required to install and service this product.

- If multiple users install and maintain licensed products on your system, there may be a problem getting the necessary access to MAINT's 51D disk. If you find that there is contention for write access to the 51D disk, you can eliminate it by converting the Software Inventory from minidisk to Shared File System (SFS). See the *VM/ESA: VMSES/E Introduction and Reference* manual, section 'Changing the Software Inventory to an SFS Directory', for information on how to make this change.

- Customers will no longer install and service DB2 for VM strictly using the MAINT user ID, but will use a new user ID--5648A70S. This is the IBM suggested user ID name. You are free to change this to any user ID name you wish, however, a PPF override must be created.

  Note: It may be easier to make the above change during the planning installation procedure, substep 6 on page 24, rather than after you have installed this product.

- If you will be using only one National Language Support (NLS) feature, you can install it on to the same minidisk or SFS directory as the production files. If you install more than one language you can still use the same minidisk or SFS directory but you should use a different production minidisk or SFS directory for the DB2 for VM NLS CMS help files.

- The database management system you will install, following the instructions in this manual, does not make use of the saved segments support for DB2 for VM components. You can improve your performance and use less real storage by storing the following DB2 for VM components in saved segments:

  - Resource Adapter
  - National Language Message Repositories
  - ISQL
  - DBSS
  - RDS.

  Refer to the *DB2 Server for VM System Administration* manual for directions on how to install in saved segments as part of your system post installation customization activities.

5.3 DASD Storage and User ID Requirements

Figure 14 on page 16 lists the user IDs and minidisks that are used to install and service DB2 for VM.

Important Installation Notes:

- User ID(s) and minidisks are defined in 6.3, "Installation Step 1: Plan Your Installation For DB2 for VM" on page 23 and are listed here to let you know the resources you will need prior to allocating them.

- 5648A70S is the default installation and service user ID and can be changed. If you choose to change the name of the installation user ID you need to create a Product Parameter Override (PPF) to reflect this change. This can be done in 6.3, "Installation Step 1: Plan Your Installation For DB2 for VM" substep 6 on page 24.

- DB2 for VM needs the following virtual machines in order to run:

  - **A DB2 for VM database machine**. This machine owns the DB2 for VM service, production, and database minidisks or SFS directories. (*Own* in this context describes the association of a user ID with particular minidisks or SFS directory.) It is referred to in this manual as the SQLMACH machine, but you can define it with any valid machine identifier (user ID). Individuals who wish to access SFS directories owned by another user must be authorized by that user to do so.

  - **A DB2 for VM user machine**. One or more of these machines is required. The default user machine is SQLUSER.

- The service minidisk is referred to as the SQLMACH 193 minidisk, but you can define it with any valid user ID and virtual address. Define it with the same user ID as that used by the database machine during the DB2 for VM installation process. Both the DB2 for VM service and production minidisks must be defined for the same machine (user ID).

- The production minidisk is referred to as the SQLMACH 195 minidisk. Define it with the same user ID as used by the DB2 for VM service minidisk during the DB2 for VM installation process. Any valid virtual address can be used to define it.

- Migration consideration: If you are moving from a previous SQL/DS release to DB2 for VM, you can define a new service minidisk (for example, SQLMACH 393) or SFS directory, or you can use an existing minidisk or SFS directory. If you define a new service minidisk make sure that all files from the existing disk are copied to the new minidisk before starting the migration. The DDR facility could be used to make this copy.

- Migration consideration: If you are moving from a previous SQL/DS release to DB2 for VM, you can define a new production minidisk (for example, SQLMACH 395) or SFS directory, or you can use an existing minidisk or SFS directory. If you define a new production minidisk make sure that all files from the existing disk are copied to the new minidisk before starting the migration. The DDR facility could be used to make this copy.

- If DFSMS/VM is implemented at your site, all files in the production directory should be exempt from DFSMS coverage. This will prevent database server availability problems that could occur if

a query were to cause an open attempt on a production file which would have to be recalled from storage media that might not be accessible for recall at that time.

- If you choose to change any user ID, minidisk address, or SFS directory names, you need to create a Product Parameter Override (PPF) to reflect this change. This can be done in 6.3, "Installation Step 1: Plan Your Installation For DB2 for VM" substep 6 on page 24.

- If you choose to install DB2 for VM on a common user ID, the default minidisk addresses for DB2 for VM may already be defined. If any of the default minidisks required by DB2 for VM are already in use, you must create an override to change the default minidisks for DB2 for VM so they are unique.

- You **cannot** install your dbextent, log, and directory disks under CMS SFS.

Minidisk owner (user ID)	Default Address	Storage in Cylinders		FB-512 Blocks	SFS 4K Blocks	Usage
		DASD	CYLS			Default SFS Directory Name
5648A70S	2B2	9345 3390 3380 3375	75 62 75 112	94592	11824	Contains all the base code shipped with DB2 for VM. **VMSYS:5648A70S.SQL.OBJECT**
5648A70S	2C2	9345 3390 3380 3375	10 9 10 15	12000	1500	Contains customization files. This disk may also be used for local modifications. **VMSYS:5648A70S.SQL.LOCAL**
5648A70S	2D2	9345 3390 3380 3375	65 55 65 98	78000	9750	Contains serviced files. **VMSYS:5648A70S.SQL.DELTA**
5648A70S	2A6	9345 3390 3380 3375	15 13 15 23	18000	2250	Contains AUX files and software inventory tables that represent the test service level of DB2 for VM. **VMSYS:5648A70S.SQL.APPLYALT**
5648A70S	2A2	9345 3390 3380 3375	15 13 15 23	18000	2250	Contains AUX files and software inventory tables that represent the service level of DB2 for VM that is currently in production. **VMSYS:5648A70S.SQL.APPLYPROD**
5648A70S	193	9345 3390 3380 3375	84 70 84 125	99392	12424	Test service build disk for DB2 for VM service executable code. **VMSYS:5648A70S.SQL.SERVICE**
See the **important** notes following this DASD table.						

Figure 14 (Page 1 of 2). DASD Storage Requirements for Target Minidisks

Minidisk owner (user ID)	Default Address	Storage in Cylinders		FB-512 Blocks	SFS 4K Blocks	Usage
		DASD	CYLS			Default SFS Directory Name
5648A70S	195	9345 3390 3380 3375	40 33 40 60	48160	5912	Test production build disk for DB2 for VM production executable code. **VMSYS:5648A70S.SQL.PRODUCTION**
5648A70S	191	9345 3390 3380 3375	36 30 36 54	43200	5400	5648A70S user ID's 191 minidisk. **VMSYS:5648A70S.**
SQLMACH	193	9345 3390 3380 3375	84 70 84 125	99392	12424	Service build disk for DB2 for VM service executable code. **VMSYS:SQLMACH.SQL.SERVICE**
SQLMACH	195	9345 3390 3380 3375	40 33 40 60	48160	5912	Production build disk for DB2 for VM executible code. **VMSYS:SQLMACH.SQL.PRODUCTION**
SQLMACH	191	9345 3390 3380 3375	13 11 12 19	14400	1800	Database machine user ID's 191 minidisk. **VMSYS:SQLMACH.**
SQLMACH	200	9345 3390 3380 3375	38 29 34 53	31620	N/A	Starter database directory disk for DB2 for VM. **See figure notes 1, 8, and 9.**
SQLMACH	201	9345 3390 3380 3375	9 7 8 13	9600	N/A	Starter database log disk for DB2 for VM. **See figure note 9.**
SQLMACH	202	9345 3390 3380 3375	85 65 77 121	92400	N/A	Starter database data extent for DB2 for VM. **See figure note 9.**
SQLUSER	191	9345 3390 3380 3375	6 5 5 8	6000	750	DB2 for VM administrator user machine ID's 191 minidisk. **VMSYS:SQLUSER.**
See the **important** notes following this DASD table.						

Figure 14 (Page 2 of 2). DASD Storage Requirements for Target Minidisks

Notes:

1. Cylinder values defined in this table are based on a 4KB block size. The **EXCEPTION** to this is the starter database directory disk (SQLMACH 200) which is based on 1/2KB block size.

2. FB-512 block and SFS values are derived from the 3380 cylinder values in this table.

3. The FBA blocks are listed as 1/2KB but should be CMS formatted at 1KB size.

4. FB-512 blocks refer to the DASD devices 0671, 3370, 9332, 9335 and 9336.

5. 69,946 4KB blocks are needed for SFS install.

6. The starter database directory, log and extent **CANNOT** be installed into SFS.

7. The DASD space allocations listed in this figure for the starter database DATA EXTENT (default disk 202) are the recommended sizes. Minimum sizes would be:

```
38 cyls for 3375
24 cyls for 3380
21 cyls for 3390
27 cyls for 9345
28800 FB-512 blocks
```

8. If you are going to use VMDSS, review Chapter 1 in the *DB2 Server Data Spaces Support for VM/ESA* manual for DASD storage requirements for the database directory disk.

9. When installing DB2 for VM as a service machine, you do not need to define the 200, 201, and 202 database disks.

10. You will need a production minidisk or SFS directory for CMS HELP Text for each national language supported.

6.0 Installing DB2 for VM

This chapter describes the installation methods and the step-by-step procedures to install and activate DB2 for VM.

```
┌─ Procedural Note ──────────────────────────────────────────────────────────────────┐
│                                                                                      │
│  If you are doing a DB2 for VM initial database machine installation, continue with this chapter. │
│                                                                                      │
│  If you are doing a DB2 for VM service machine installation, continue with chapter 9.0, "Installing DB2 │
│  for VM as a Service Machine" on page 116.                                           │
│                                                                                      │
│  If you are migrating, go to chapter 8.0, "Migrating to DB2 for VM" on page 84.     │
│                                                                                      │
└──────────────────────────────────────────────────────────────────────────────────┘
```

The step-by-step procedures are in two column format. The steps to be performed are in bold large numbers. Commands for these steps are on the left hand side of the page in bold print. Additional information for a command may exist to the right of the command.

Each step of the installation instructions must be followed. Do not skip any step unless directed to do so.

Throughout these instructions, the use of IBM-supplied default minidisk addresses and user IDs is assumed. If you use different user IDs, minidisk addresses, or SFS directories to install DB2 for VM, adapt these instructions as needed for your environment.

```
┌─ Note! ───────────────────────────────────────────────────────────────────────────┐
│                                                                                      │
│  The sample console output presented throughout these instructions was produced on a VM/ESA V2R3 │
│  system. If you're installing DB2 for VM on a different VM/ESA system, the results obtained for some │
│  commands may differ from those depicted here.                                       │
│                                                                                      │
└──────────────────────────────────────────────────────────────────────────────────┘
```

6.1 VMSES/E Installation Process Overview

The following is a brief description of the main steps in installing DB2 for VM using VMSES/E.

- Plan Your Installation

  Use the VMFINS command to load several VMSES/E files from the product tape and to obtain DB2 for VM resource requirements.

- Allocate Resources

  The information obtained from the previous step is used to allocate the appropriate minidisks (or SFS directories) and user IDs needed to install and use DB2 for VM.

- Install the DB2 for VM Product

Use the VMFINS command to load the DB2 for VM product files from tape to the test BUILD and BASE minidisks/directories. VMFINS is then used to update the VM SYSBLDS file used by VMSES/E for software inventory management.

- Place DB2 for VM Files into Production

  Once the product files have been tailored and the operation of DB2 for VM is satisfactory, the product files are copied from the test BUILD disk(s) to production BUILD disk(s).

- Perform Post-installation Tasks

  Information about file tailoring and initial activation of the program is presented in 6.10, "Installation Step 8. Post Installation Customization Steps for DB2 for VM" on page 54.

For a complete description of all VMSES/E installation options refer to the *VM/ESA: VMSES/E Introduction and Reference* manual.

6.2 Checklist for Installation

Notes:

- *Perform the steps in order.*
- *Mandatory steps are preceded by squares (■).*
- *Optional steps are preceded by circles (○).*
- *Page references appear in parentheses.*

___ ■ **6.3, Installation Step 1: Plan Your Installation For DB2 for VM** (23)

   ___ ■ Log on as DB2 for VM installation planner (23)

   ___ ■ Mount the installation tape (23)

   ___ ■ Access VMSES/E code (23)

   ___ ■ Access the Software Inventory disk (23)

   ___ ■ Load the product control files (23)

   ___ ■ Obtain resource planning information (24)

   ___ ■ Review message log (26)

___ ■ **6.4, Installation Step 2. Allocate Resources for Installing DB2 for VM** (26)

   ___ ■ Obtain the user directory (26 or 32)

   ___ ■ Add MDISK statements (26 or 32)

   ___ ■ Add directories to system directory (32 or 36)

   ___ ■ Place new directories online (32 or 36)

   ___ ■ Additional SFS step (36)

___ ■ **6.5, Installation Step 3. Install DB2 for VM** (39)

   ___ ■ Log on to the installation user ID (39)

   ___ ■ Create PROFILE EXEC to contain ACCESS commands (39)

   ___ ■ Execute the PROFILE EXEC (39)

   ___ ■ Access Software Inventory disk R/W (39)

   ___ ■ Mount installation tape (40)

   ___ ■ Install DB2 for VM (40)

   ___ ■ Review the message log (41)

   ___ ■ Update Software Inventory file (42)

   ___ ■ Review the message log (42)

___ ■ **6.6, Installation Step 4. Create Default Bootstrap Files and Enable Messages** (42)

   ___ ■ Create bootstrap modules (42)

   ___ ■ Log off the installation user ID (43)

___ ■ **6.7, Installation Step 5. Database Creation** (43)

   ___ ■ Log on SQLMACH machine (43)

   ___ ■ Link and access test disks or directories (43)

   ___ ■ Copy the sample PROFILE EXEC (43)

   ___ ■ Make message repository available (43)

   ___ ■ Generate a new database (44)

   ___ ■ Start the application server (47)

   ___ ■ Disconnect from SQLMACH machine (47)

Note

Throughout these instructions, the use of IBM-supplied default minidisk addresses and user IDs is assumed. If you use different user IDs, minidisk addresses, or SFS directories to install DB2 for VM, adapt these instructions as needed for your environment.

6.3 Installation Step 1: Plan Your Installation For DB2 for VM

The VMFINS command will be used to plan the installation. This section has two main steps:

- Load the first tape file, containing installation files
- Generate a PLANINFO file listing
  - All user ID/mdisks requirements
  - Required products

To obtain planning information for your environment:

1 Log on as DB2 for VM installation planner.

This user ID can be any ID that has read access to MAINT's 5E5 minidisk and write access to the MAINT 51D minidisk.

2 Mount the DB2 for VM installation tape and attach it to the user ID at virtual address 181. The VMFINS EXEC requires the tape drive to be at virtual address 181.

3 Establish read access to the VMSES/E code.

link MAINT 5e5 5e5 rr
access 5e5 b

The 5E5 disk contains the VMSES/E code.

4 Establish write access to the Software Inventory disk.

link MAINT 51d 51d mr
access 51d d

The MAINT 51D disk is where the VMSES/E system-level Software Inventory and other dependent files reside.

Note: If another user already has the MAINT 51D minidisk linked in write mode (R/W), you will only obtain read access (R/O) to this minidisk. If this occurs, you will need to have that user re-link the 51D in read-only mode (RR), and then reissue the above LINK and ACCESS commands. Do not continue with these procedures until a R/W link is established to the 51D minidisk.

5 Load the DB2 for VM product control files to the 51D minidisk.

vmfins install info (nomemo

The NOMEMO option will load the memos from the tape but will not issue a prompt to send them to the system printer. Specify the MEMO option if you want to be prompted for printing the memo.

This command will perform the following:

- Load Memo-to-Users

- Load various product control files, including the Product Parameter File (PPF) and the PRODPART files

- Create VMFINS PRODLIST on your A-disk. The VMFINS PRODLIST contains a list of products on the installation tape.

```
VMFINS2760I VMFINS processing started
VMFINS1909I VMFINS PRODLIST created on your A-disk
VMFINS2760I VMFINS processing completed successfully
Ready;
```

6 Obtain resource planning information for DB2 for VM.

Notes:

a. The product will **not** be loaded by the VMFINS command at this time.

b. If you are not going to use the default user ID's, minidisk addresses or SFS directory names, you must create a PPF override. The defaults are listed in Figure 14 on page 16.

vmfins install ppf 5648A70S {DB2VM | DB2VMSFS} (plan nomemo

Use **DB2VM** for installing on minidisks or **DB2VMSFS** for installing in Shared File System directories.

The PLAN option indicates that VMFINS will perform requisite checking, plan system resources, and provide an opportunity to override the defaults in the product parameter file.

You can override any of the following:

- The name of the product parameter file
- The default user IDs
- Minidisk/directory definitions

To create an override you need to reply **1** to the VMFINS2601R message.

Notes:

a. If you change the PPF name, a default user ID, or other parameters via a PPF override, you will need to use your changed values instead of those indicated (when appropriate), throughout the rest of the installation instructions, as well as the instructions for servicing DB2 for VM. For example, you will need to specify your PPF override file name instead of 5648A70S for certain VMSES/E commands.

b. If you're not familiar with creating PPF overrides using VMFINS, you should review the 'Using the Make Override Panel' section in the *VM/ESA: VMSES/E Introduction and Reference* manual before you continue.

```
VMFINS2767I Reading VMFINS DEFAULTS B for additional options
VMFINS2760I VMFINS processing started
VMFINS2601R Do you want to create an override for :PPF 5648A70S DB2VM
            :PRODID. 5648A70S%DB2VM?
            Enter 0 (No), 1 (Yes) or 2 (Exit)
0
VMFINS2603I Processing product :PPF 5648A70S DB2VM :PRODID
            5648A70S%DB2VM
VMFREQ1909I 5648A70S PLANINFO created on your A-disk
VMFREQ2805I Product :PPF 5648A70S DB2VM :PRODID 5648A70S%DB2VM
            has passed requisite checking
VMFINT2603I Planning for the installation of product :PPF 5648A70S DB2VM
            :PRODID 5648A70S%DB2VM
VMFRMT2760I VMFRMT processing started
VMFRMT2760I VMFRMT processing completed successfully
VMFINS2760I VMFINS processing completed successfully
```

7 Review the install message log ($VMFINS $MSGLOG). If necessary, correct any problems before going on. For information about handling specific error messages, see the *VM/ESA: System Messages and Codes* manual or use online HELP.

vmfview install

6.4 Installation Step 2. Allocate Resources for Installing DB2 for VM

Use the planning information in the 5648A70S PLANINFO file, created in 6.3, "Installation Step 1: Plan Your Installation For DB2 for VM" on page 23, to:

- Create the 5648A70S, SQLMACH and SQLUSER user directories for minidisk install

   OR

- Create the 5648A70S, SQLMACH and SQLUSER user directories for SFS install.

Procedural Note

If you are installing on a minidisk, continue to 6.4.1, "Install DB2 for VM on Minidisk."

If you are installing in an SFS directory, go to 6.4.2, " Install DB2 for VM in SFS Directories" on page 32.

6.4.1 Install DB2 for VM on Minidisk

1 Obtain the user directory from the 5648A70S PLANINFO file.

Note: The user directory entries are located in the resource section of the PLANINFO file, at the bottom; these entries will contain all of the links and privilege classes necessary for the 5648A70S, SQLMACH, and SQLUSER user IDs. Use the directory entries found in the PLANINFO file as a model as input to your system directory.

2 Add the MDISK statements to the directory entry for 5648A70S, SQLMACH and SQLUSER. Use Figure 14 on page 16 to obtain the minidisk requirements.

In general for any MDISK:

- You can supply your own volume identifier that follows your installation's naming conventions. The DB2 for VM system places no restrictions on volume identifiers.

- For SQLMACH and SQLUSER, you must load the Callable Services Library (CSL) routines into this machine before you can successfully use DB2 for VM (specifically the Resource Adapter). For information on CSL routines refer to the *VM/ESA: CMS Application Development Reference* manual.

a When adding the directory entry for the installation user ID (default 5648A70S) you need to supply READ, WRITE and MULTIPLE-ACCESS passwords for the test production (195) and test service (193) minidisks.

b When adding the directory entry for the database machine (default SQLMACH), keep in mind the following about the sample directory statements in the PLANINFO file and about the MDISK statements that you will be adding.

USER SQLMACH password 8M 8M G

Defines the database machine as a 8-megabyte virtual machine with the VM/ESA privilege class G. The recommended virtual size for SQLMACH database machine is at least 8 megabytes. Refer to the *DB2 Server for VM System Administration* manual for a complete description of how to calculate the required virtual storage.

Privilege class B is optional. In order to perform tape and DASD file load and unload operations, a database machine usually needs to have real devices attached to it with the CP ATTACH command. If you plan to have the database machine itself issue the CP ATTACH command, then privilege class B is needed.

OPTION MAXCONN 26

The MAXCONN value determines the maximum number of concurrent connections to the database. The MAXCONN value must be equal to or greater than the number of accessed database minidisks plus the number of virtual machine connections plus one for the IUCV connection to *IDENT. The minidisks include the dbextents, directory, and the log(s); minidisks 200, 201, and 202 respectively. However,the production and service minidisks should not be counted because DB2 for VM does not use IUCV for these minidisks. Refer to the *VM/ESA: Planning and Administration* manual for a further description of the MAXCONN value.

Note: If you plan to use the accounting facility with this database machine, specify the ACCT operand also. Refer to the *DB2 Server for VM System Administration* manual for more information on the accounting facility.

IUCV ALLOW

Allows any virtual machine to use IUCV to communicate with the database machine, meaning that any DB2 for VM user machine can initiate communications with this database machine and access data. During database installation, CONNECT authority is granted to ALLUSERS. This means that any user machine can exercise all privileges granted to PUBLIC in the database.

Note: If you do **not** want general access to a database machine, omit the IUCV ALLOW statement. Instead, use IUCV control statements in the VM/ESA directory entries for DB2 for VM user machines to restrict communications with the database machine. A user who is not allowed to use IUCV to communicate with the database machine cannot access the database. For a further description of these methods, refer to the *DB2 Server for VM System Administration* manual.

IUCV *IDENT SQLDBA GLOBAL

In VM/ESA, the database machine is the resource owner. The name of the database (specified in the **DBNAME** parameter of the SQLDBINS EXEC) is used as the resource name. Refer to step 5 on page 44 for more information on the SQLDBINS EXEC. The database machine, as a resource owner, must be authorized in its directory to connect to the system service ***IDENT**. Authorization is granted by the IUCV entry in the database machine directory.

SQLDBA Refers to the name of the database.

GLOBAL Identifies the database as a resource that all users in a collection can access. If you only want users who are on the same processor as the database machine to use this database, use LOCAL instead of GLOBAL.

IPL CMS

Uses the CMS saved segment name (for example, CMS) applicable to your VM/ESA environment.

CONSOLE 009 3215 T OPERATOR
If the database machine will be run in disconnect mode, you should specify an alternate console. In this example, the OPERATOR virtual machine is identified as the alternate.

LINK MAINT 19D 19D RR
This is a LINK statement for the CMS Help facility, which you need to access the DB2 for VM Help panels. (If you omit it, you can still use DB2 for VM HELP text stored in a database, which is accessed through ISQL, not CMS.)

MDISK 191 3380 cylr 010 volser W
MDISK entry for read/write work disk (A-disk), with virtual device address 191 and link access mode W (write).

MDISK 193 3380 cylr 060 volser R readpw writepw multipw
MDISK entry for the DB2 for VM service minidisk, with virtual device address 193 and link access mode R (read). Read (readpw), write (writepw) and multiple-access (multipw) passwords must be specified. You and the owner of the SQLMACH machine must keep track of these passwords; you will need them later in the installation process.

The DB2 for VM service minidisk is not required for normal database processing, so the physical volume on which it resides can be removed from the system and mounted when database installation, generation, or maintenance activities must be performed. Therefore, it is recommended that you do not allocate this minidisk to the same physical DASD volume that is used for the DB2 for VM production minidisk.

MDISK 195 3380 cylr 024 volser RR readpw writepw multipw
MDISK entry for the DB2 for VM production minidisk, with virtual device address 195 and link access mode RR (readonly). Read (readpw) and write (writepw) passwords must be specified. You and the owner of the SQLMACH machine must keep track of these passwords; you will need them later in the installation process.

The DB2 for VM production minidisk must be online and available for all DB2 for VM operations. IBM-supplied database generation and maintenance EXECs relink it with access mode M or W when updates to it are required.

A multiple-access (multipw) password should be specified for the DB2 for VM production minidisk if:

- You eventually define multiple database machines to access the database machine's (SQLMACH's) production minidisk.

- You want an database machine to perform database generation and maintenance activities while the other database machines are accessing the DB2 for VM production minidisk in read-mode.

When multiple database machines share a production minidisk, you must specify a multiple-access (multipw) password in the VM/ESA directory MDISK control statement for the machine that owns the DB2 for VM production minidisk. Not specifying a multipw password means that if one machine is performing database maintenance that requires write access, others cannot be performing normal DB2 for VM processing using read-access to the DB2 for VM production minidisk.

MDISK 200 3380 cylr 034 volxxx R readpw writepw

MDISK 201 3380 cylr 008 volxxx R readpw writepw

MDISK 202 3380 cylr 077 volxxx R readpw writepw

The above three statements are the VM/ESA directory MDISK statements for each minidisk of a starter database. The MDISK statements must have a link access mode R, a read password (readpw), and a write password (writepw). You should assign the same readpw and writepw to all minidisks defined for a database.

The actual space supported for public and private dbspaces is limited by both the size of the dbextent and the directory. Given the internal dbspace definitions for a starter database and the size of the directory, the maximum size of the database supported is about 4.6 gigabytes. For information on how the size of the database is limited by the size of the directory, and for information on how to enlarge the directory refer to the *DB2 Server for VM System Administration* manual.

C When adding the directory entry for the DB2 for VM user machine (default SQLUSER) keep in mind the following about the sample directory statements in the PLANINFO file and about the MDISK statements that you will be adding.

USER SQLUSER password 4M 4M G

Defines the DB2 for VM user machine as a 4-megabyte (4M) virtual machine named SQLUSER, with the VM privilege class G. The recommended virtual size for SQLUSER user machine is at least 4 megabytes.

IUCV SQLDBA

This statement is optional.

It is not required when the VM directory for the database machine contains the IUCV ALLOW control statement, and since IUCV ALLOW is the default, it is often omitted. If you do want to use it however, be aware that in a VM/ESA environment you provide the name of the database (SQLDBA).

If you want more control over access to the database machine, you can change the IUCV control statements at any time. Instructions are outlined in the chapter on security in the *DB2 Server for VM System Administration* manual.

IPL CMS

Uses the CMS saved segment name (for example, CMS) applicable to your VM environment.

LINK MAINT 19D 19D RR

This is a LINK statement for the CMS Help facility, which you need to access the DB2 for VM Help panels. If you omit it, you can still use DB2 for VM HELP text stored in a database, which is accessed through ISQL, not CMS.

LINK SQLMACH 195 195 rr

Links the DB2 for VM production minidisk with the virtual device address of 195 and access mode of READ ONLY.

To establish a virtual machine as a DB2 for VM user machine, you must have a link to a database machine's production minidisk.

MDISK 191 3380 cylr 003 volser W

Defines a read/write work disk (A-disk) with virtual device address 191 and link access mode WRITE.

3 If you are going to use VMDSS, review the storage requirements described in Chapter 1 in the *DB2 Server Data Spaces Support for VM/ESA* manual.

You can enable VMDSS if you are operating in XC mode or non-XC mode.

a If you are not operating in non-XC mode, you cannot use the following capabilities of VMDSS:

- Data Spaces Support for storage pools and the directory
- Unmapped internal dbspaces
- Working storage residency priorities
- Data space performance counters
- The target working storage size parameter

You will be able to use striping, and the storage pool performance counters for the standard DASD I/O system.

b If you are operating in XC mode, you must first add the following statements to the CP directory entry for the database machine:

MACHINE XC
XCONFIG ACCESSLIST ALSIZE 1022
XCONFIG ADDRSPACE MAXNUMBER 1022 TOTSIZE 2044G

4 Add the 5648A70S, SQLMACH, and SQLUSER directories to the system directory. Change the passwords for 5648A70S, SQLMACH, and SQLUSER from xxxxx to a valid password, in accordance with your security guidelines.

5 Place the new directories online using VM/Directory Maintenance (DIRMAINT) or an equivalent CP directory maintenance method.

Important Note

All minidisks for the 5648A70S, SQLMACH, and SQLUSER user IDs must be formatted before installing DB2 for VM, with the exception of the starter database minidisks, 200, 201 and 202, as they will be formatted by SQLDBINS later on in the installation.

Procedural Note

6.4.2 Install DB2 for VM in SFS Directories

1 Obtain the user directory from the 5648A70S PLANINFO file.

Note: The user directory entries are located in the resource section of the PLANINFO file, at the bottom; these entries will contain all of the links and privilege classes necessary for the 5648A70S, SQLMACH, and SQLUSER user IDs. Use the directory entries found in the PLANINFO file as a model as input to your system directory.

2 Add the MDISK statements for the starter database disks (default 200, 201 and 202) to the directory entry for SQLMACH. Use Figure 14 on page 16 to obtain the starter database minidisk requirements.

a When adding the directory entry for the database machine (default SQLMACH), keep in mind the following about the sample directory statements in the PLANINFO file and about the MDISK statements that you will be adding.

USER SQLMACH password 8M 8M G

Defines the database machine as a 8-megabyte virtual machine with the VM/ESA privilege class G. The recommended virtual size for SQLMACH database machine is at least 8 megabytes. Refer to the *DB2 Server for VM System Administration* manual for a complete description of how to calculate the required virtual storage.

Privilege class B is optional. In order to perform tape and DASD file load and unload operations, a database machine usually needs to have real devices attached to it with the CP ATTACH command. If you plan to have the database machine itself issue the CP ATTACH command, then privilege class B is needed.

OPTION MAXCONN 26

The MAXCONN value determines the maximum number of concurrent connections to the database. The MAXCONN value must be equal to or greater than the number of accessed database minidisks plus the number of virtual machine connections plus one for the IUCV connection to *IDENT. The minidisks include the dbextents, directory, and the log(s); minidisks 200, 201, and 202 respectively. However the production, and service minidisks should not be counted because DB2 for VM does not use IUCV for these minidisks. Refer to the *VM/ESA: Planning and Administration* manual for a further description of the MAXCONN value.

Note: If you plan to use the accounting facility with this database machine, specify the ACCT operand also. Refer to the *DB2 Server for VM System Administration* manual for more information on the accounting facility.

IUCV ALLOW

Allows any virtual machine to use IUCV to communicate with the database machine, meaning that any DB2 for VM user machine can initiate communications with this database machine and access data. During database installation, CONNECT authority is granted to ALLUSERS. This means that any user machine can exercise all privileges granted to PUBLIC in the database.

Note: If you do **not** want general access to a database machine, omit the IUCV ALLOW statement. Instead, use IUCV control statements in the VM/ESA directory entries for DB2 for VM user machines to restrict communications with the database machine. A user who is not allowed to use

IUCV to communicate with the database machine cannot access the database. For a further description of these methods, refer to the *DB2 Server for VM System Administration* manual.

IUCV *IDENT SQLDBA GLOBAL

In VM/ESA, the database machine is the resource owner. The name of the database (specified in the **DBNAME** parameter of the SQLDBINS EXEC) is used as the resource name. Refer to step 5 on page 44 for more information on the SQLDBINS EXEC. The database machine, as a resource owner, must be authorized in its directory to connect to the system service ***IDENT**. Authorization is granted by the IUCV entry in the database machine directory.

SQLDBA Refers to the name of the database.

GLOBAL Identifies the database as a resource that all users in a collection can access. If you only want users who are on the same processor as the database machine to use this database, use LOCAL instead of GLOBAL.

IPL CMS

Uses the CMS saved segment name (for example, CMS) applicable to your VM/ESA environment.

CONSOLE 009 3215 T OPERATOR

If the database machine will be run in disconnect mode, you should specify an alternate console. In this example, the OPERATOR virtual machine is identified as the alternate.

LINK MAINT 19D 19D RR

This is a LINK statement for the CMS Help facility, which you need to access the DB2 for VM Help panels. (If you omit it, you can still use DB2 for VM HELP text stored in a database, which is accessed through ISQL, not CMS.)

MDISK 200 3380 cylr 034 volxxx R readpw writepw

MDISK 201 3380 cylr 008 volxxx R readpw writepw

MDISK 202 3380 cylr 077 volxxx R readpw writepw

The above three statements are the VM/ESA directory MDISK statements for each minidisk of an starter database. The MDISK statements **MUST** have a link access mode R, a read password (readpw), and a write password (writepw). You should assign the same readpw and writepw to all minidisks defined for a database.

The actual space supported for public and private dbspaces is limited by both the size of the dbextent and the directory. Given the internal dbspace definitions for a starter database and the size of the directory, the maximum size of the database supported is about 4.6 gigabytes. For information on how the size of the database is limited by the size of the directory, and for information on how to enlarge the directory refer to the *DB2 Server for VM System Administration* manual.

b When adding the directory entry for the DB2 for VM user machine (default SQLUSER) keep in mind the following about the sample directory statements in the PLANINFO file and about the MDISK statements that you will be adding.

USER SQLUSER password 4M 4M G
> Defines the DB2 for VM user machine as a 4-megabyte (4M) virtual machine named SQLUSER, with the VM privilege class G. The recommended virtual size for SQLUSER user machine is at least 4 megabytes.

IUCV SQLDBA
> This statement is optional.
>
> It is not required when the VM directory for the database machine contains the IUCV ALLOW control statement, and since IUCV ALLOW is the default, it is often omitted. If you do want to use it however, be aware that in a VM/ESA environment you provide the name of the database (SQLDBA).
>
> If you want more control over access to the database machine, you can change the IUCV control statements at any time. Instructions are outlined in the chapter on security in the *DB2 Server for VM System Administration* manual.

IPL CMS
> Uses the CMS saved segment name (for example, CMS) applicable to your VM environment.

LINK MAINT 19D 19D RR
> This is a LINK statement for the CMS Help facility, which you need to access the DB2 for VM Help panels. If you omit it, you can still use DB2 for VM HELP text stored in a database, which is accessed through ISQL, not CMS.

> **Note**
>
> The database minidisks for the SQLMACH (defaults 200, 201 and 202) user ID do not need to be formatted as they will be formatted by SQLDBINS later on in the install.

3 If you are going to use VMDSS, review the storage requirements described in Chapter 1 in the *DB2 Server Data Spaces Support for VM/ESA* manual.

You can enable VMDSS if you are operating in XC mode or non-XC mode.

a If you are not operating in non-XC mode, you cannot use the following capabilities of VMDSS:

- Data Spaces Support for storage pools and the directory
- Unmapped internal dbspaces
- Working storage residency priorities
- Data space performance counters
- The target working storage size parameter

You will be able to use striping, and the storage pool performance counters for the standard DASD I/O system.

b If you are operating in XC mode, you must first add the following statements to the CP directory entry for the database machine:

MACHINE XC
XCONFIG ACCESSLIST ALSIZE 1022
XCONFIG ADDRSPACE MAXNUMBER 1022 TOTSIZE 2044G

4 Add the 5648A70S, SQLMACH, and SQLUSER directories to the system directory. Change the passwords for 5648A70S, SQLMACH, and SQLUSER from xxxxx to a valid password, in accordance with your security guidelines.

5 Place the new directories online using VM/Directory Maintenance (DIRMAINT) or an equivalent CP directory maintenance method.

6 An SFS install will also require the following steps:

a Determine the number of 4K blocks that are required for SFS directories by adding up the 4K blocks required for each SFS directory you plan to use.

If you intend to use all of the default DB2 for VM SFS directories, the 4K block requirements for each are summarized in Figure 14 on page 16.

This information will be used when enrolling 5648A70S, SQLMACH, and SQLUSER to the VMSYS filepool (or chosen filepool).

b Enroll user 5648A70S, SQLMACH, and SQLUSER in the VMSYS filepool using the ENROLL USER command:

```
ENROLL USER 5648A70S VMSYS: (BLOCKS blocks
ENROLL USER SQLMACH VMSYS: (BLOCKS blocks
ENROLL USER SQLUSER VMSYS: (BLOCKS blocks
```

blocks is the number of 4K blocks that you calculated in the previous step.

Note: This must be done from a user ID that is an administrator for VMSYS: filepool.

c Determine if there are enough blocks available in the filepool to install DB2 for VM. This information can be obtained from the QUERY FILEPOOL STATUS command. Near the end of the output from this command is a list of minidisks in the filepool and the number of blocks free. If the number of blocks free is smaller than the total 4K blocks needed to install DB2 for VM you will need to add space to the filepool. See the *VM/ESA: CMS File Pool Planning, Administration, and Operation* manual for information on adding space to a filepool.

d Create the necessary subdirectories listed in the 5648A70S PLANINFO file using the CREATE DIRECTORY command.

set filepool vmsys:
create directory vmsys:5648A70S.sql.object
create directory vmsys:5648A70S.sql.local
create directory vmsys:5648A70S.sql.delta
create directory vmsys:5648A70S.sql.applyalt
create directory vmsys:5648A70S.sql.applyprod
create directory vmsys:5648A70S.sql.service
create directory vmsys:5648A70S.sql.production
create directory vmsys:sqlmach.sql.service
create directory vmsys:sqlmach.sql.production

A complete list of default DB2 for VM SFS directories is provided in Figure 14 on page 16.

If necessary, see the *VM/ESA: CMS Command Reference* manual for more information about the CREATE DIRECTORY command.

e Give the installation user ID (5648A70S) READ and WRITE authority to the database machine (SQLMACH) production and service directories, using the GRANT AUTHORITY command.

grant auth vmsys:sqlmach.sql.service to 5648A70S (write newwrite
grant auth vmsys:sqlmach.sql.production to 5648A70S (write newwrite

If necessary, see the *VM/ESA: CMS Command Reference* manual for more information about the GRANT AUTHORITY command.

f Give the database machine user ID (SQLMACH) READ and WRITE
authority to the installation user ID's (5648A70S) production and service
directories, using the GRANT AUTHORITY command.

grant auth vmsys:5648A70S.sql.service to sqlmach (write newwrite
grant auth vmsys:5648A70S.sql.production to sqlmach (write newwrite

If necessary, see the *VM/ESA: CMS Command
Reference* manual for more information about the
GRANT AUTHORITY command.

g Give the user machine user ID (SQLUSER) READ authority to the
installation user ID's (5648A70S) and database machine user ID's
(SQLMACH) production directories, using the GRANT AUTHORITY
command.

Note: If you are going to allow many user machines or virtual
machines access to the database machine's (SQLMACH) production
directory, you may want to grant PUBLIC access, instead of individual
machine access. To do this you would replace *SQLUSER* with *PUBLIC*
in the GRANT AUTH command for the "vmsys:sqlmach.sql.production"
directory.

grant auth vmsys:5648A70S.sql.production to SQLUSER (read newread
grant auth vmsys:sqlmach.sql.production to SQLUSER (read newread

h If you did not grant PUBLIC READ access to the database machine's
(SQLMACH) production disk, in the previous step, then you need to
give all the user machines or virtual machines, that will be allowed to
access the database machine (SQLMACH) production directory, READ
authority to the database machine's production directory, using the
GRANT AUTHORITY command.

grant auth vmsys:sqlmach.sql.production to *virtual_machine_user_ID* **(read newread**

i (Optional) If you are going to place the DB2 for VM CMS help files on
the VM system MAINT user ID's help disk then you need to give MAINT
READ authority to the database machine (SQLMACH) production and
service directories, using the GRANT AUTHORITY command.

grant auth vmsys:sqlmach.sql.service to MAINT (read newread
grant auth vmsys:sqlmach.sql.production to MAINT (read newread

j If you intend to use an SFS directory as the work space for the user IDs 5648A70S, SQLMACH, or SQLUSER, include the following IPL control statement in its directory entry:

```
IPL CMS PARM FILEPOOL VMSYS
```

This causes CMS to automatically access 5648A70S, SQLMACH, or SQLUSER's, top directory as file mode A.

6.5 Installation Step 3. Install DB2 for VM

The *ppfname* used throughout these installation instructions is **5648A70S**, which assumes you are using the PPF supplied by IBM for DB2 for VM. If you have your own PPF override file for DB2 for VM, you should use your file's *ppfname* instead of **5648A70S**. The *ppfname* you use should be used **throughout** the rest of this procedure.

1 Log on to the installation user ID **5648A70S**.

2 Create a PROFILE EXEC that will contain the ACCESS commands for MAINT 5E5 and 51D minidisks.

xedit profile exec a
===> input /**/
===> input 'access 5e5 b'
===> input 'access 51d d'
===> file

If either 5E5 or 51D is in a shared file system (SFS) then substitute your SFS directory name in the access command.

3 Execute the profile to access MAINT's minidisks.

profile

4 If the Software Inventory disk (51D) was accessed R/O (read only) then establish write access to the Software Inventory disk.

Note: If the MAINT 51D minidisk was accessed R/O, you will need to have the user who has it linked R/W link it as R/O. You then can issue the following commands to obtain R/W access to it.

link maint 51d 51d mr
access 51d d

5 Have the DB2 for VM installation tape mounted and attached to 5648A70S at virtual address 181. The VMFINS EXEC requires the tape drive to be at virtual address 181.

6 Install DB2 for VM.

Notes:

a. Make sure the SQLMACH and SQLUSER user IDs are logged off before you continue with the install.

b. If you've already created a PPF override file, you should specify your override file name, in place of the default PPF name (5648A70S), after the **PPF** keyword for the following VMFINS command.

c. You may be prompted for additional information during VMFINS INSTALL processing depending on your installation environment. If you're unsure how to respond to a prompt, refer to the "Installing Products with VMFINS" and "Install Scenarios" chapters in the *VM/ESA: VMSES/E Introduction and Reference* manual to decide how to proceed.

vmfins install ppf 5648A70S {DB2VM | DB2VMSFS} (nomemo nolink

Use **DB2VM** for installing on minidisks or **DB2VMSFS** for installing in Shared File System directories.

The NOLINK option indicates that you don't want VMFINS to link to the appropriate minidisks, only access them if not accessed.

```
VMFINS2767I Reading VMFINS DEFAULTS B for additional options
VMFINS2760I VMFINS processing started
VMFINS2601R Do you want to create an override for :PPF 5648A70S DB2VM
            :PRODID. 5648A70S%DB2VM?
            Enter 0 (No), 1 (Yes) or 2 (Exit)
0
VMFINS2603I Processing product :PPF 5648A70S DB2VM :PRODID
            5648A70S%DB2VM
VMFREQ2805I Product :PPF 5648A70S DB2VM :PRODID 5648A70S%DB2VM
            has passed requisite checking
VMFINT2603I Installing product :PPF 5648A70S DB2VM :PRODID
            5648A70S%DB2VM
VMFSET2760I VMFSETUP processing started
VMFUTL2205I Minidisk|Directory Assignments:
            String    Mode Stat Vdev  Label/Directory
VMFUTL2205I LOCALSAM  E    R/W  2C2   DBI2C2
VMFUTL2205I APPLY     F    R/W  2A6   DBI2A6
VMFUTL2205I           G    R/W  2A2   DBI2A2
VMFUTL2205I DELTA     H    R/W  2D2   DBI2D2
VMFUTL2205I BUILD2    I    R/W  195   DBI195
VMFUTL2205I BUILD0    J    R/W  193   DBI193
VMFUTL2205I BASE      K    R/W  2B2   DBI2B2
VMFUTL2205I SYSTEM    L    R/W  295   SQL295
VMFUTL2205I           M    R/W  293   SQL293
VMFUTL2205I --------  A    R/W  191   SQL191
VMFUTL2205I --------  B    R/O  5E5   MNT5E5
VMFUTL2205I --------  D    R/W  51D   MNT51D
VMFUTL2205I --------  S    R/O  190   CMS210
VMFUTL2205I --------  Y/S  R/O  19E   YDISK
VMFSET2760I VMFSETUP processing completed successfully
VMFREC2760I VMFREC processing started
VMFREC1852I Volume 1 of 1 of INS TAPE 9800
VMFREC1851I (1 of 7) VMFRCAXL processing AXLIST
VMFRCX2159I Loading 0 part(s) to DELTA 2D2 (H)
VMFREC1851I (2 of 7) VMFRCPTF processing PARTLST
VMFRCP2159I Loading 0 part(s) to DELTA 2D2 (H)
VMFREC1851I (3 of 7) VMFRCCOM processing DELTA
VMFRCC2159I Loading 0 part(s) to DELTA 2D2 (H)
VMFREC1851I (4 of 7) VMFRCALL processing APPLY
VMFRCA2159I Loading part(s) to APPLY 2A6 (F)
VMFRCA2159I Loaded 1 part(s) to APPLY 2A6 (F)
VMFREC1851I (5 of 7) VMFRCALL processing BASE
VMFRCA2159I Loading part(s) to BASE 2B2 (K)
VMFRCA2159I Loaded .... part(s) to BASE 2B2 (K)
VMFREC1851I (6 of 7) VMFRCALL processing BUILDS
VMFRCA2159I Loading part(s) to BUILD0 193 (J)
VMFRCA2159I Loaded .... part(s) to BUILD0 193 (J)
VMFREC1851I (7 of 7) VMFRCALL processing BUILDP
VMFRCA2159I Loading part(s) to BUILD2 195 (I)
VMFRCA2159I Loaded .. part(s) to BUILD2 195 (I)
VMFREC2760I VMFREC processing completed successfully
VMFINT2603I Product installed
VMFINS2760I VMFINS processing completed successfully
```

7 Review the install message log ($VMFINS $MSGLOG). If necessary, correct
any problems before going on. For information about handling specific error
messages, see the *VM/ESA: System Messages and Codes* manual on use
online HELP.

vmfview install

6.5.1 Update Build Status Table for DB2 for VM

1 Update the VM SYSBLDS software inventory file for DB2 for VM.

vmfins build ppf 5648A70S {DB2VM | DB2VMSFS} (serviced nolink

Use **DB2VM** for installing on minidisks or **DB2VMSFS** for installing in Shared File System directories.

The SERVICED option will build any parts that were not built on the installation tape (if any) and update the Software Inventory build status table showing that the product 5648A70S has been built.

Note: If your software inventory disk (51D) is not owned by MAINT then make sure the VMSESE PROFILE reflects the correct owning user ID. See the *VM/ESA: VMSES/E Introduction and Reference* manual for information on modifying the VMSESE PROFILE.

2 Review the install message log ($VMFINS $MSGLOG). If necessary, correct any problems before going on. For information about handling specific error messages, see the *VM/ESA: System Messages and Codes* manual or use online HELP.

vmfview install

6.6 Installation Step 4. Create Default Bootstrap Files and Enable Messages

1 While still logged on to the 5648A70S user ID, run ARISINST to create default bootstrap modules and enable messages. (If you had logged off of 5648A70S then you will need to run VMFSETUP 5648A70S {DB2VM | DB2VMSFS} in order to get the correct minidisks or SFS directories accessed.)

arisinst i 5648A70S {DB2VM | DB2VMSFS}

Use **DB2VM** for installing on minidisks or **DB2VMSFS** for installing in Shared File System directories.

The 'i' option tells ARISINST that this is initial install.

2 Log off the installation user ID, 5648A70S.

6.7 Installation Step 5. Database Creation

You should install a DB2 for VM starter database as your initial database. If you prefer to install one of your own design, refer to the *DB2 Server for VM System Administration* manual for information that you need to gather in order to perform the SQLDBINS step.

1 Log on to the database machine (SQLMACH).

If you are using minidisks you need to make sure that the SQLMACH minidisks have been formatted.

2 Link and access the installation user ID test service and test production disks or SFS directories.

link 5648A70S 195 295 W
acc 295 e
link 5648A70S 193 293 W
acc 293 f

You will be prompted for the password to the disks.

Substitute in the appropriate SFS directory names. Also, substitute in your minidisk addresses, if they are different.

3 Copy the sample PROFILE EXEC for the database machine, SQLMACH.

copyfile sqlmach profile e profile exec a

Note that there is no ACCESS command for the DB2 for VM service disk (193 disk) in the PROFILE; this disk is only accessed when needed.

You may also need to add local environmental commands. Obtain this information from your system programming department.

If you have DB2 for VM in SFS, you must replace the production minidisk access with the appropriate SFS production directory access.

If you are not using the default production minidisk address, 195, replace the default with yours.

DO NOT run the PROFILE EXEC at this time.

4 Make DB2 for VM message repository available.

set language ameng (add ari user

5 Generate a new DB2 for VM Database

sqldbins dbname(sqldba) starter(yes)

You can expect the SQLDBINS command to take about 45 minutes to complete. Processing time varies depending on system capabilities and current load.

Attention: This EXEC uses 31-bit addressing. If you have user exits that cannot use 31-bit addressing or if you are not sure whether you should use 31-bit addressing, add the parameter `AMODE(24)` to the above command. This ensures that SQLDBINS will only use 24-bit addressing. For information on 31 or 24-bit addressing or for more information on the AMODE parameter, refer to the *DB2 Server for VM System Administration* manual.

The database is generated using the starter database specifications contained in the DB2 for VM service file ARISDBG MACRO V. See 5.2.4.2, "Starter Database" on page 13. For a description of the starter database and how to use configurations other than the starter database, see the *DB2 Server for VM System Administration* manual.

The SQLDBINS EXEC generates a database with the name specified in the DBNAME parameter. (DBNAME is a common parameter used on many execs to identify which database is to be used.) When referring to this database, use the name specified in the DBNAME parameter. Make sure you use the DBNAME used when the database machines's CP directory was set up in 6.4, "Installation Step 2. Allocate Resources for Installing DB2 for VM."

All processing performed by the SQLDBINS EXEC completes successfully with a return code of 0 through 6. You do not need to take any corrective action if you receive a return code of 6 or lower.

During database generation the SQLDBINS EXEC does the following:

a. The minidisks for the starter database are assigned to the following virtual device addresses (cuu):

Minidisk Vaddr (cuu)	Minidisk Description	CMS FILEDEF ddname assigned to Minidisk
200	Directory Disk	BDISK
201	Log Disk 1	LOGDSK1
202	Data Disk 1	DDSK1

Figure 15. Minidisk Addresses for the Starter Database

You are prompted to confirm that you wish to use the minidisks with virtual addresses 200, 201, and 202 for the starter database.

b. Asks if you want to install the English DB2 for VM HELP text into the database. (If after installation you want to install languages other than English, follow the instructions provided with the language tape.)

1) If you enter NO, SQLDBINS:

a) Creates HELP text tables SYSTEXT1 and SYSTEXT2
b) Creates indexes for all HELP text tables

but it does **not** physically load the tables.

2) If you enter YES, the EXEC:

a) Creates HELP text tables SYSTEXT1 and SYSTEXT2
b) Creates indexes for all HELP text tables
c) Loads data into all HELP text tables.

3) If you enter QUIT, SQLDBINS ends without completing installation. To restart the procedure, return to the beginning of substep 5 on page 44.

c. Creates the required default bootstrap modules on the DB2 for VM production minidisk or SFS directory. You will be prompted for the password for the 5648A70S user ID's test production disk.

The default bootstrap modules load the resource adapter, ISQL, and database machine components from the load library ARISQLLD LOADLIB Q into user free storage. These modules and the corresponding DB2 for VM components are shown in Figure 16.

File Name	File Type	DB2 for VM Components
SQLDBA	SQLRMBT	Default Resource Adapter/DRRM Bootstrap
SQLDBA	SQLDBBT	Default DBSS/RDS Bootstrap
SQLDBA	SQLISBT	Default ISQL Bootstrap

Figure 16. Bootstrap Modules and Components

Attention: Do not delete these modules from the DB2 for VM production minidisk or directory. If they are deleted, refer to 7.4.2, "Recreating the Default Bootstrap Modules" on page 68 to correct the problem.

d. Invokes another IBM-supplied EXEC called SQLDBGEN, which issues CMS FORMAT and RESERVE commands to format the database minidisks. You do not receive the usual prompts from the CMS FORMAT commands.

e. Invokes database generation and displays message ARI0919D. You can respond to this message with either:

- DBGEN (to continue database generation and SQLDBINS processing, which takes approximately 10 to 15 minutes); or,
- CANCEL (to end database generation and SQLDBINS processing).

After database generation has completed successfully, SQLDBINS does the following:

a. Creates the DBS utility package SQLDBA.ARIDSQL. This processing step completes successfully with a return code of 4.

b. Loads tables for CCSID support.

c. Creates the SYSTEXT1 and SYSTEXT2 HELP text tables.

d. Creates the SYSLANGUAGE table.

e. Loads the HELP text tables.

f. Loads the Sample Tables.

g. Loads the ISQL package SQLDBA.ARIISQL.

h. Loads the FIPS flagger package SQLDBA.ARIFCRD.

i. Completes ISQL and FIPS flagger support installation.

j. Creates CMS files for CCSID support.

When installing these components, SQLDBINS invokes DB2 for VM. Every time the system is invoked (and successfully initialized), you see the ARI0717I message (start SQLSTART EXEC).

The SQLDBINS EXEC also displays console messages that identify in-process activity. Before completion, SQLDBINS displays either message ARI0665E or ARI0666I. Message ARI0665E indicates that SQLDBINS did not complete successfully. ARI0666I indicates that the database was generated and installed correctly.

You should not proceed with the DB2 for VM install process unless message ARI0666I is displayed.

If problems occur while SQLDBINS is running, refer to the printer for errors. After correcting any problems, start again with step 5, "Generate a new DB2 for VM Database".

Note: If you receive message ARI2903E from SQLDBINS, you may need to load the CMS Callable Services Library (CSL) routines into your database machine. For information on CSL routines refer to the *VM/ESA: CMS Application Development Reference* manual.

You can also use SQLDBINS to generate a database with a different configuration than the starter database. Refer to the *DB2 Server for VM*

System Administration manual for information on using SQLDBINS to generate additional databases.

6 Start the application server in multiple user mode to access the database just generated by entering the command:

sqlstart dbname(sqldba) parm(tcpport=0)

7 After the message "ARI0045I Ready for operator communications" is displayed, disconnect from the SQLMACH machine by entering the command:

#cp disconn

6.8 Installation Step 6. Installation Verification

The application server is now running in multiple user mode in the SQLMACH database machine. This machine is accessing the database specified in the SQLSTART command.

In the next few steps, you perform some administrative tasks for the database. To do this, access the database in multiple user mode using ISQL. Figure 17 shows the current environment and the one you set up in the remaining steps.

```
                                    ┌─────────────┐
                                    │   SQLUSER    │
                                    │    User      │
                                    │   Machine    │
                                    └──────┬──────┘
                                           │
                                           ▼
         ┌─────────────┐            ┌─────────────┐
         │   SQLMACH    │            │   SQLMACH    │
         │  Database    │            │  Database    │
         │  Machine     │            │  Machine     │
         └──────┬──────┘            └──────┬──────┘
                │                           │
                ▼                           ▼
         ┌─────────────┐            ┌─────────────┐
         │  Database    │            │  Database    │
         │  Minidisks   │            │  Minidisks   │
         └─────────────┘            └─────────────┘

         Current situation:          Next you will:
         ─────────────────           ──────────────
         SQLMACH machine running     Initialize an SQL/DS
         DB2 for VM system in        user machine to access
         multiple user mode and      the database through the
         accessing the database.     SQLMACH machine.
```
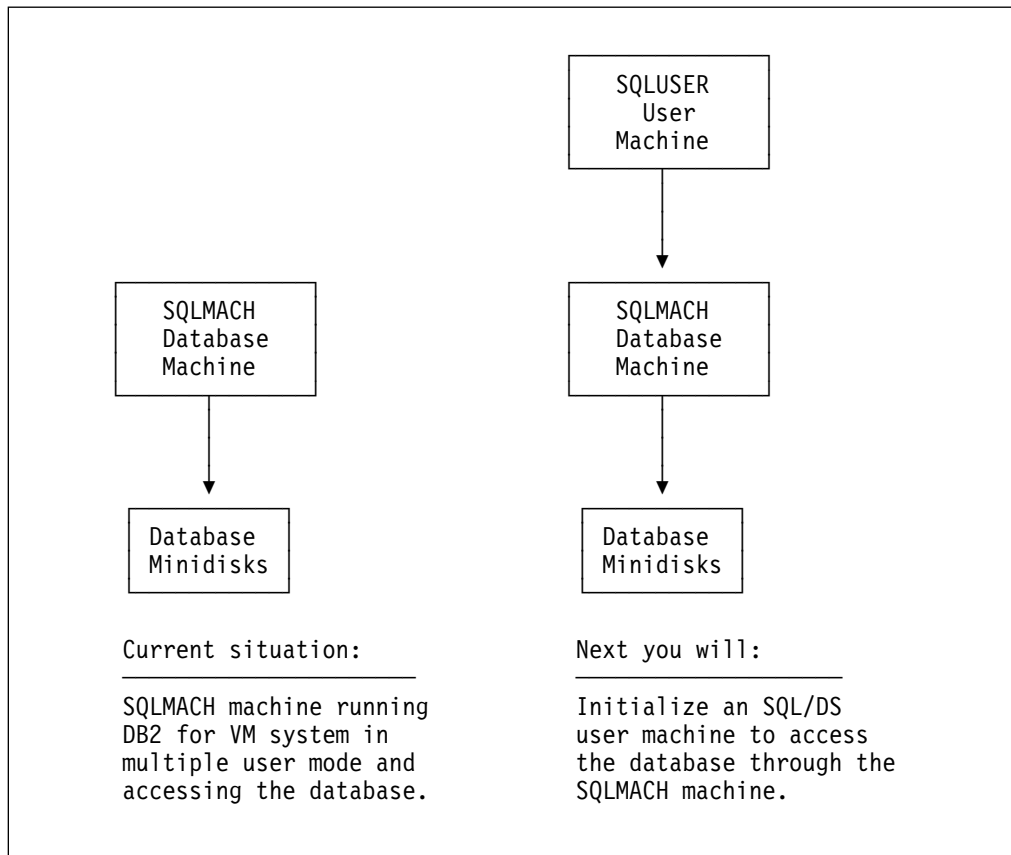
Figure 17. Installation Environment

1 Log on to the user machine, SQLUSER.

If you are using minidisks you need to make sure that the 191 A-disk has been formatted.

2 Link and access the installation user ID test production disk or SFS directories.

link 5648A70S 195 295 rr
acc 295 q

You will be prompted for the password to the disks.

Substitute in the appropriate SFS directory names. Also, substitute in your minidisk address, if it is different.

3 Copy the sample PROFILE EXEC for the user machine, SQLUSER.

copyfile sqluser profile q profile exec a　　　You may need to add local environmental commands. Obtain this information from your system programming department.

4 Make DB2 for VM message repository available.

set language ameng (add ari user

5 Initialize the SQLUSER machine.

A DB2 for VM user machine must be initialized before it can communicate with the database machine. This involves creating the required modules, ARISISBT MODULE and ARISRMBT MODULE, on the 191 minidisk (A-disk). These modules are used to load the ISQL and resource adapter code into the user virtual machine, and to identify the database you wish to use.

sqlinit dbname(sqldba)　　　The ARISISBT and ARISRMBT modules are built on the A-disk.

6 Start ISQL in the SQLUSER machine

isql

Notes:

1. ISQL is not supported at a VM system operator console.

2. For a complete description of how to use ISQL, see the *DB2 Server for VM Interactive SQL Guide and Reference* manual. This manual provides only enough information about ISQL to complete the installation process.

3. When the status area of the terminal display screen shows VM READ or RUNNING, you can enter ISQL commands as described in the following steps.

4. Commands to be processed by ISQL are entered by the terminal user input area.

5. Responses to ISQL commands that are processed by ISQL are displayed in the terminal output display area.

7 Change the database password.

The default user ID, SQLDBA, is automatically created during the database generation process, with the default password SQLDBAPW assigned to it. **This user ID has database administration (DBA) authority, and its use must be carefully controlled**. DBA authority is the highest level of authorization within a database.

The user who knows the current password of user ID SQLDBA in a database can perform administrative tasks for the database. Such administrative tasks include creating tables within the database for other users.

a Connect to the database as user SQLDBA.

connect sqldba identified by sqldbapw

b Next, you should change the password of SQLDBA in the database to one of your choosing. This is necessary because any user can learn the default password by reading this manual. To change the password, enter:

grant connect to sqldba identified by *newpw*

For *newpw* supply your own password. The password syntax conventions are the same as those for VM virtual machine passwords.

Note: The SQLUSER user ID has no authority in the database other than CONNECT authority, which is granted to all users during database generation. If you choose, you can grant it additional authority at this time. For example, to grant it DBA authority and change its password, enter:

GRANT DBA TO SQLUSER IDENTIFIED BY *newpw*

Refer to the *DB2 Server for VM Database Administration* manual for a complete list and description of the authorities that can be granted.

8 Verify the DB2 for VM database

a Complete the verification of the DB2 for VM database installation

select creator,tname from system.sysaccess where creator='sqldba'

If the command runs successfully, it displays information from the DB2 for VM catalog table SYSTEM.SYSACCESS. The sequence of rows

displayed may vary because DB2 for VM does not store rows in a given order. Figure 18 on page 51 shows possible rows that might be displayed.

```
CREATOR   TNAME
────────  ────────────────────────────────────────────
SQLDBA    ARIDSQL      ◄─── The DBS utility package
SQLDBA    ARIFCRD      ◄─── The FIPS Flagger package
SQLDBA    ARIISQL      ◄─── The ISQL package
SQLDBA    SYSUSERLIST  ◄─── SYSTEM.SYSUSERAUTH view
SQLDBA    VEMPLP       ◄─── View for the sample tables
SQLDBA    VPHONE       ◄─── View for the sample tables
```

Figure 18. SYSTEM.SYSACCESS Display that Verifies DB2 for VM Installation

b (Optional) To create a virtual printer file of the display and send it to your print spool, enter:

print

c To end the display, enter:

end

9 Shut down the application requester.

exit   This stops ISQL and control is returned to CMS.

10 Log off the user machine, SQLUSER.

logoff

11 Log on to the database machine (SQLMACH). (This should be a reconnect to it.)

12 To stop DB2 for VM processing in multiple user mode, enter the SQL operator command:

sqlend   When the application server ends, control is returned to CMS.

13 Log off the database machine, SQLMACH.

6.9 Installation Step 7. Copy DB2 for VM Files Into Production

1 Log on to the installation user ID (5648A70S) to put DB2 for VM production level of the code on database machine's (SQLMACH) disks or SFS directories.

2 Access the installation user ID test service and test production disks or SFS directories.

vmfsetup 5648A70S {DB2VM | DB2VMSFS}

5648A70S is the PPF that was shipped with the product. If you have your own PPF override you should substitute your PPF name for 5648A70S, in this command and any other commands that follow that use the PPF name.

3 Build the TCP/IP module. This module is needed to run any TCP/IP type code on both the server and requester side of DB2 for VM. NOTE: You need the TCP/IP client disk linked for this step to work. The default is TCPMAINT 592. Ask your system programmer for this information.

vmfbld ppf 5648A70S {DB2VM | DB2VMSFS} aribltcp arictcp.module(all

5648A70S is the PPF that was shipped with the product. If you have your own PPF override you should substitute your PPF name for 5648A70S, in this command and any other commands that follow that use the PPF name.

4 Run ARISINST to copy the installation user ID's (5648A70S) test service and test production build disks or directories to the database machine's (SQLMACH) service and production disks or directories.

arisinst ie 5648A70S {DB2VM | DB2VMSFS}   Use **DB2VM** for installing on minidisks or **DB2VMSFS** for installing in Shared File System directories.

The "ie" tells ARISINST to update the ARISPIDC MACRO and copy from the installation user ID's test service and production build disks or SFS directories to the database machine user ID's service and production build disks or SFS directories.

Note: ARISINST with the 'IE' operand will take several minutes. The VMFCOP2866I message is normal.

5 You can place the DB2 for VM CMS help files on MAINT's 19D disk or any other user ID disk you would like. The steps here will have you log on to MAINT but this can be any user ID that you want to have the DB2 for VM CMS help files on. (The other common choice is the database machine's production minidisk or SFS directory, if you are not going to install multiple DB2 for VM NLS languages.)

a Log on to MAINT to place the DB2 for VM CMS help files on MAINT's 19D (mixed case English).

b Link to the DB2 for VM's service and production minidisks or SFS directories.

1 If installing using minidisks

link sqlmach 195 995 rr
access 995 q
link sqlmach 193 993 rr
access 993 v

2 If installing using Shared File System

access sqlmach.sql.production q
access sqlmach.sql.service v

c Copy the DB2 for VM CMS help files using ARISDBMC.

set language ameng (add ari user **arisdbmc s001 v q c**	s001 is the language key used by DB2 for VM for language identifier AMENG. *v* is the file mode of the service minidisk or SFS directory. *q* is the file mode of the production minidisk or SFS directory. (The file modes of *v* and *q* must be used.) *c* is for the copy function.

d If you placed the DB2 for VM CMS help files on the system help disk (MAINT 19D),then you need to re-build the CMS HELPINST or HELPSEG shared segment, to include DB2 for VM's help files from the 19D disk. See the 'Placing (Serviced) Components into Production' section of the *VM/ESA: Service Guide* manual for detailed information about how these segments should be saved on your system. (Note that you will need to use "**(all**" instead of "**(serviced**" on the VMSES/E VMFBLD command when re-building any segments.)

6.10 Installation Step 8. Post Installation Customization Steps for DB2 for VM

You can proceed with normal database operations using the database and user machines already defined.

At this time, you can perform optional administration and customization tasks, such as:

- If you plan to use VMDSS, follow chapter 1 and chapter 2 of the *DB2 Server Data Spaces Support for VM/ESA* manual. Chapter 1 contains overview information describing VMDSS. Chapter 2 contains information on enabling VMDSS.

- Install the DRDA code on the production disk and customize your database for distributed processing.

- Change the setting of the CHARNAME parameter for the database and initial user machine since the default after installation is INTERNATIONAL. The CCSID defaults are determined when a CHARNAME is chosen.

- Set database options, such as double-byte character set (DBCS) support and character subtype.

- Define additional DB2 for VM user machines and secondary production minidisks

- Set DB2 for VM options (such as accounting support)

- Define a second log minidisk

- Use saved segments for DB2 for VM components

- Use saved segments for a DB2 for VM message repository.

- The table below gives the segment sizes for non-DRDA enabled code.

segname	Segment Size in Kilobytes	DEFSEG Number of Pages (Segment Size / 4 Kilobytes)
SQLRMGR	320	80
LANGS001	320	80
SQLISQL	384	96
SQLSQLDS	1536	384
SQLXRDS	2112	528

- The table below gives the segment sizes for DRDA enabled code.

segname	Segment Size in Kilobytes	DEFSEG Number of Pages (Segment Size / 4 Kilobytes)
SQLRMGR	2304	576
LANGS001	320	80
SQLISQL	384	96
SQLSQLDS	1536	384
SQLXRDS	3968	992

- If you plan to use TCP/IP communications between your end users and the Database Server, you will need to customize the LE for VM User Exit. See Appendix E, "IBM Language Environment for VM User Exit Customization for use with TCP/IP" on page 182 for details.

Refer to the *DB2 Server for VM System Administration* manual for information to help you define procedures for operating DB2 for VM and for the information you need to perform the above optional administrative procedures.

The *DB2 Server for VM Operation* manual provides reference information for DB2 for VM operations.

Refer to the *DB2 Server for VM Interactive SQL Guide and Reference* manual for a tutorial on using DB2 for VM through ISQL. Programmers who want to use SQL commands in application programs should refer to the *DB2 Server for VM Application Programming* manual. If you want to use DB2 for VM through the DBS utility, refer to the *DB2 Server for VM Database Services Utility* manual.

DB2 for VM is now installed and built on your system.

7.0 Service Instructions

This section of the Program Directory contains the procedure to install CORrective service to DB2 for VM. VMSES/E is used to install service for DB2 for VM.

To become more familiar with service using VMSES/E, you should read the introductory chapters in the *VM/ESA: VMSES/E Introduction and Reference* manual. This manual also contains the command syntax for the VMSES/E commands listed in the procedure.

Notes:

1. Each step of the servicing instructions must be followed. Do not skip any step unless directed to do so. All instructions showing accessing of disks assume the use of default minidisk addresses. If different minidisk addresses are used, or if using a shared file system, change the instructions appropriately.

2. Any references to a database machine in the following discussion also apply to the service machine.

3. **Attention:** When service is applied to a database machine, it must also be applied to each service machine whose users access the application server.

7.1 VMSES/E Service Process Overview

The following is a brief description of the main steps in servicing DB2 for VM using VMSES/E.

- Setup Environment

  Access the software inventory disk. Use VMFSETUP command to establish the correct minidisk access order.

- Merge Service

  Use the VMFMRDSK command to clear the alternate apply disk before receiving new service. This allows you to easily remove the new service if a serious problem is found.

- Receive Service

  The VMFREC command receives service from the delivery media and places it on the Delta disk.

- Apply Service

  The VMFAPPLY command updates the version vector table (VVT), which identifies the service level of all the serviced parts. In addition, AUX files are generated from the VVT for parts that require them.

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- Reapply Local Service (if applicable)

  All local service (mods) must be entered into the software inventory to allow VMSES/E to track the changes and build them into the system. Refer to Chapter 7 in the *VM/ESA: Service Guide* manual for this procedure.

- Build New Levels

  The build task generates the serviced level of an object and places the new object on a test BUILD disk.

- Place the New Service into Production

  Once the service is satisfactorily tested it should be put into production by copying the new service to the production disks.

- Additional DB2 for VM post service processing

  This includes resaving the saved segments and other database maintenance activities depending on what the service affected.

7.2 Servicing DB2 for VM

7.2.1 Prepare to Receive Service

The *ppfname* used throughout these servicing instructions is **5648A70S**, which assumes you are using the PPF supplied by IBM for DB2 for VM. If you have your own PPF override file for DB2 for VM, you should use your file's *ppfname* instead of **5648A70S**. The *ppfname* you use should be used **throughout** the rest of this procedure, unless otherwise stated differently.

1 Log on to DB2 for VM service user ID **5648A70S**.

  Note: You should spool the console to capture non-VMSES/E messages; **spool console start to ***

2 Establish read access to the VMSES/E code.

link maint 5e5 5e5 rr　　　　　　　　　　The 5E5 disk contains the VMSES/E code.
access 5e5 b

3 If the Software Inventory disk (51D) was accessed R/O (read only) then establish write access to the Software Inventory disk.

  Note: If the MAINT 51D minidisk was accessed R/O, you will need to have the user that has it accessed R/W link it R/O. You then can issue the following commands to obtain R/W access to it.

link maint 51d 51d mr
access 51d d

The 51D minidisk is where the VMSES/E Software Inventory files and other product dependent files reside.

4 Have the DB2 for VM CORrective service tape mounted and attached to **5648A70S**.

5 Establish the correct minidisk access order.

vmfsetup 5648A70S {DB2VM | DB2VMSFS}

5648A70S is the PPF that was shipped with the product. If you have your own PPF override you should substitute your PPF name for 5648A70S.

Use **DB2VM** for installing on minidisks or **DB2VMSFS** for installing in Shared File System directories.

6 Receive the documentation. VMFREC, with the INFO option, loads the documentation and displays a list of all the products on the tape.

> **─ Electronic Service ──────────────────────────────**
>
> If you are receiving service from Service Link (electronic service) see Appendix A, 'Receiving Service for VMSES Envelopes', section Receive Service Documentation, in the *VM/ESA: Service Guide* manual. Then continue with step 8.

vmfrec info

This command will load the service memo to the 191 disk.

7 Check the receive message log ($VMFREC $MSGLOG) for warning and error messages.

vmfview receive

Also make note of which products and components have service on the tape. To do this, use the PF5 key to show all status messages which identify the products on the tape.

8 Merge previously applied service to ensure that you have a clean alternate apply disk for new service.

vmfmrdsk 5648A70S {DB2VM | DB2VMSFS} apply

Use **DB2VM** for installing on minidisks or
DB2VMSFS for installing in Shared File System
directories.

This command clears the alternate APPLY disk.

9 Review the merge message log ($VMFMRD $MSGLOG). If necessary,
correct any problems before going on. For information about handling
specific error messages, see the *VM/ESA: System Messages and Codes*
manual or use online HELP.

vmfview mrd

7.2.2 Receive the Service

> ┌─ **Electronic Service** ──
> │
> │ If you are receiving service from Service Link (electronic service) see
> │ Appendix A, 'Receiving Service for VMSES Envelopes', section Receive
> │ the Service, in the *VM/ESA: Service Guide* manual. Then continue with
> │ 7.2.3, "Apply the Service" on page 61.
> │
> └───

1 Receive the service.

vmfrec ppf 5648A70S {DB2VM ∣ DB2VMSFS}   Use **DB2VM** for installing on minidisks or
DB2VMSFS for installing in Shared File System
directories.

This command receives service from your service
tape. All new service is loaded to the DELTA disk.

2 Review the receive message log ($VMFREC $MSGLOG). If necessary,
correct any problems before going on. For information about handling
specific error messages, see the *VM/ESA: System Messages and Codes*
manual or use online HELP.

vmfview receive

7.2.3 Apply the Service

1 Apply the new service.

vmfapply ppf 5648A70S {DB2VM I DB2VMSFS}   Use **DB2VM** for installing on minidisks or **DB2VMSFS** for installing in Shared File System directories.

This command applies the service that you just received. The version vector table (VVT) is updated with all serviced parts and all necessary AUX files are generated on the alternate apply disk.

You must review the VMFAPPLY message log if you receive a return code (RC) of a 4, as this may indicate that you have local modifications that need to be reworked.

2 Review the apply message log ($VMFAPP $MSGLOG). If necessary, correct any problems before going on. For information about handling specific error messages, see the *VM/ESA: System Messages and Codes* manual or use online HELP.

vmfview apply

7.2.4 Update the Build Status Table

1 Update the Build Status Table with serviced parts.

vmfbld ppf 5648A70S {DB2VM | DB2VMSFS} (status

Use **DB2VM** for installing on minidisks or **DB2VMSFS** for installing in Shared File System directories.

This command updates the Build Status Table.

> **Note**
>
> If the $PPF files have been serviced you will get the following prompt:
>
> ```
> VMFBLD2185R The following source product parameter files have been
>             serviced:
> VMFBLD2185R 5648A70S $PPF
> VMFBLD2185R When source product parameter files are serviced, all
>             product parameter files built from them must be recompiled
>             using VMFPPF before VMFBLD can be run.
> VMFBLD2185R Enter zero (0) to have the serviced source product
>             parameter files built to your A-disk and exit VMFBLD so
>             you can recompile your product parameter files with VMFPPF.
> VMFBLD2185R Enter one (1) to continue only if you have already
>             recompiled your product parameter files with VMFPPF.
> ```
>
> **0**   Enter a 0 and complete the following steps
>   before you continue.
>
> ```
> VMFBLD2188I Building 5648A70S $PPF
>             on 191 (A) from level $PFnnnnn
> ```
>
> **vmfppf 5648A70S ***   **Note:** If you've created your own PPF
>   override then use your PPF name instead of
>   5648A70S.
>
> **copyfile 5648A70S $PPF a = = d (olddate replace**
> **erase 5648A70S $PPF a**
>
>   **Note:** **Do not** use your own PPF name in
>   place of 5648A70S for the COPYFILE and
>   ERASE commands.
>
> **vmfbld ppf 5648A70S {DB2VM | DB2VMSFS} (status**
>
> **1**   Reissue VMFBLD to complete updating the
>   build status table.
>
>   Use **DB2VM** for installing on minidisks or
>   **DB2VMSFS** for installing in Shared File
>   System directories. When you receive the
>   prompt that was previously displayed, enter a
>   1 to continue.

2 Use VMFVIEW to review the build status messages, and see what objects
need to be built.

7.2.5 Build Serviced Objects

1 Rebuild DB2 for VM serviced parts.

vmfbld ppf 5648A70S {DB2VM | DB2VMSFS} (serviced

Use **DB2VM** for installing on minidisks or **DB2VMSFS** for installing in Shared File System directories.

Note: If your Software Inventory disk (51D) is not owned by the MAINT user ID then make sure the VMSESE PROFILE reflects the correct owning user ID.

2 Review the build message log ($VMFBLD $MSGLOG). If necessary, correct any problems before going on. For information about handling specific error messages, see the *VM/ESA: System Messages and Codes* manual or use online HELP.

vmfview build

7.3 Place the New DB2 for VM Service Into Production

7.3.1 Copy the New DB2 for VM Serviced Files Into Production

1 Log on to the database machine (SQLMACH) and end the application server.

sqlend

2 Make sure no other user ID has access to SQLMACH's production and service disks or SFS directories.

3 Log off the database machine, SQLMACH.

4 Log on to the service or installation user ID (5648A70S) to put DB2 for VM production level of the code on SQLMACH's disks or SFS directories.

5 Access the installation user ID test service and test production disks or SFS directories.

vmfsetup 5648A70S {DB2VM ⏐ DB2VMSFS}   5648A70S is the PPF that was shipped with the product. If you have your own PPF override you should substitute your PPF name for 5648A70S in this command and all others that follow.

Use **DB2VM** for installing on minidisks or **DB2VMSFS** for installing in Shared File System directories.

6 Run ARISINST to copy the installation or service user ID's, 5648A70S, test service and test production build disks or directories to the database machine's, SQLMACH, service and production disks or directories

arisinst c 5648A70S {DB2VM ⏐ DB2VMSFS}   Use **DB2VM** for installing on minidisks or **DB2VMSFS** for installing in Shared File System directories.

The 'c' tells ARISINST that this is a copy function. The 5648A70S's test service and test production disks or directories will be copied to the SQLMACH's service and production disks or directories. The VMSES PARTCAT file on SQLMACH's service and production disk or directories will be updated.

Note: ARISINST with the 'C' operand will take several minutes. The VMFCOP2866I message is normal.

7.4 Post Service Processing

During VMFBLD processing ARIBDUTL displays console messages describing what action you should take for the following situations:

- Whether the service affects any secondary production minidisks.

  For example, if anything on the SQLMACH machine's production minidisk is replaced, you must update all secondary production minidisks. See 7.4.1, "Servicing a Secondary Production Minidisk" on page 66.

- Whether a service update requires you to update a database component originally supplied by IBM.

For example, if the DBS utility is serviced, you may have to recreate the DBS utility package in every database. Instructions for database maintenance are in 7.5, "Post Service DB2 for VM Database Component Processing."

- Whether the service affects the FIPS flagger.

  If you have the FIPS flagger installed, refer to 7.5.2, "Reloading the FIPS Flagger in a Database" on page 75.

- Whether a component that was serviced may have been placed in a saved segment.

  If you are using saved segments, and the maintenance applied affects any of the components

  – Resource Adapter
  – National Language message repositories
  – ISQL
  – DBSS
  – RDS.

  that reside in them, you must refresh the saved segments. Refer to 7.4.3, "Rebuild the Saved Segments" on page 69 for the steps to rebuild the saved segments.

- Whether the service affects user-written programs.

  For example, modules are link-edited with user programs. If one of these "stub" modules is serviced, you have to link-edit any affected user program.

- Whether the service affects the cancel support macros.

  For example, if an DB2 for VM cancel support macro is serviced, you may have to change user-written programs that use those macros. DB2 for VM cancel support macros are described in the *DB2 Server for VM Diagnosis Guide and Reference* manual.

The following sections provides instructions for performing the above activities. Follow the instructions for the processing that the build step informed you about.

7.4.1 Servicing a Secondary Production Minidisk

The DB2 Server for VM production minidisk owned by the primary database machine, SQLMACH, is updated as required by the execs.

If other DB2 Server for VM production minidisks exist in your installation, you must update them after updating those belonging to the primary database machine, SQLMACH. The EXECs are not aware of these "secondary" production minidisks and do not update them.

To apply service to an DB2 Server for VM production minidisk that is not owned by the primary database machine SQLMACH:

1 Ensure that the database machine has been properly defined as described in the *DB2 Server for VM System Administration* manual.

2 Ensure that all virtual machines using the secondary DB2 Server for VM production minidisk to be updated are not active.

3 Ensure that the primary database, SQLMACH, machine's DB2 Server for VM production minidisk reflects the service update.

4 Log on to the database machine that owns the secondary DB2 Server for VM production minidisk to be updated.

logon *sqlmachx*

5 Link and access the DB2 Server for VM service minidisk with file mode V. If you have installed your DB2 for VM code in SFS, you must access the service directory with file mode V.

link sqlmach 193 193 rr
access 193 v

6 Link and reaccess the secondary DB2 Server for VM production minidisk (Q-disk) in write mode. If you have installed your DB2 for VM code in SFS, you must access the production directory with file mode Q.

link *sqlmachx* **195 195 w**   *sqlmachx* is the owning user ID of the secondary
access 195 q   production minidisk or SFS directory.

7 Copy the IBM-supplied production minidisk files from the DB2 Server for VM service minidisk to the secondary production minidisk (Q-disk).

arispdfc

Notes:

a. ARISPDFC is an IBM-supplied EXEC that resides on the DB2 for VM service disk.

b. The DB2 for VM secondary production minidisk or SFS directory (Q-disk) to be updated must be accessed in write mode before this command is issued.

c. When the ARISPDFC EXEC is completed successfully, you should reaccess your 195 minidisk (Q-disk) in read mode (RR).

d. The ARISPDFC EXEC is described in the *DB2 Server for VM System Administration* manual.

8 At this time, the secondary production minidisk or SFS directory has the serviced copy of the ARISQLLD LOADLIB on it. This is because the service minidisk or SFS directory had the serviced copy of the ARISQLLD LOADLIB on it and ARISPDFC copied it. If you run with a different version of the ARISQLLD LOADLIB on the secondary production minidisk or SFS directory you need to recreate the LOADLIB at this time.

7.4.2 Recreating the Default Bootstrap Modules

The default bootstrap files that must exist on an DB2 for VM production minidisk are:

SQLDBA SQLRMBT Q　　Resource Adapter Bootstrap
SQLDBA SQLDBBT Q　　DBSS/RDS Bootstrap
SQLDBA SQLISBT Q　　ISQL Bootstrap

These default bootstraps are initially created or recreated when a database is installed using the SQLDBINS EXEC, or when a secondary DB2 Server for VM production minidisk is updated by the ARISPDFC EXEC. If you inadvertently delete one or more of the default bootstrap files from an DB2 Server for VM production minidisk, or if you resave any saved segments referenced by this bootstrap package, or if the bootstrap files have been serviced then perform these steps.

Note: You should always run through this step to make sure the default bootstrap files are current on the production minidisk or SFS directory.

1 Ensure that all database machines using the DB2 Server for VM production minidisk to be updated are not active.

2 Log on to the database machine (SQLMACH) that owns the DB2 Server for VM production minidisk.

logon sqlmach

3 Access the DB2 Server for VM service minidisk with file mode V. If you have installed your DB2 for VM code in SFS, you must access the service directory with file mode V and the production directory with file mode Q.

access 193 v

4 Link and access the DB2 Server for VM production minidisk (Q-disk) in write mode.

link sqlmach 195 195 w
access 195 q

5 Create or recreate the default bootstrap files on the Q-disk by running the
IBM-supplied SQLBOOTS EXEC.

sqlboots

6 Link and access the DB2 Server for VM production minidisk in read mode.

link sqlmach 195 195 rr
access 195 q

7.4.3 Rebuild the Saved Segments

If you have placed DB2 for VM into saved segments then continue with this step.
Otherwise, continue with 7.5, "Post Service DB2 for VM Database Component
Processing" on page 72.

1 Log on to the installation/service user ID, 5648A70S.

2 Prepare to build the segments.

    a IPL CMS to clear the virtual storage

ipl cms parm clear nosprof instseg no   IPL CMS to clear your virtual machine. This
command bypasses the execution of the system
** DO NOT press <u>ENTER</u> at the VM READ!**   profile (SYSPROF EXEC) and without loading the
installation saved segment (CMSINST).

access (noprof   Bypass the execution of the PROFILE EXEC.

    b Access the VMSES/E code

access 5e5 b

    c Establish write access the Software Inventory disk.

link MAINT 51d 51d mr
access 51d d

    d Access the database machine, SQLMACH, production minidisk or SFS
directory by entering the following command:

access *vdev* **k**   *vdev* is the address the database machine
production minidisk is linked as by the installation
user ID, or *vdev* is the name of the database
machine production SFS directory. You need write
access to this minidisk or directory.

    e Activate the DB2 for VM user language file.

set language ameng (add ari user

    f Release the database machine, SQLMACH, production minidisk or SFS
directory by entering the following command:

rel k

3 Resave the DB2 for VM segments.

Note: There are 5 segments for DB2 for VM. You have to repeat the
VMFBLD command for each saved segment that was touched by service.
(You can refer to the $VMFBLD $MSGLOG, if you need to see which
segments need to be rebuilt.)

vmfbld ppf segbld esasegs segblist *segment-name* **(serviced**

                                 segment-name is SQLRMGR, SQLISQL,
SQLSQLDS, SQLXRDS, or LANGxxxx. If you
have different segment names then substitute your
names appropriately.

4 Review the build message log ($VMFBLD $MSGLOG). If necessary, correct
any problems before going on. For information about handling specific error
messages, see the *VM/ESA: System Messages and Codes* manual or use
online HELP.

vmfview build

7.4.4 Recreate User Defined Bootstrap Modules

If you have user defined bootstrap modules then you need to perform this step if the bootstrap files have been serviced (or if you inadvertently delete one or more of your user defined bootstrap files from an DB2 Server for VM production minidisk, or if you resave any saved segments referenced by this bootstrap package).

1 Ensure that all database machines using the DB2 Server for VM production minidisk to be updated are not active.

2 Log on to the database machine (SQLMACH) that owns the DB2 Server for VM production minidisk.

logon sqlmach

3 Access the DB2 Server for VM service minidisk with file mode V. If you have installed your DB2 for VM code in SFS, you must access the service directory with file mode V and the production directory with file mode Q.

access 193 v

4 Link and access the DB2 Server for VM production minidisk (Q-disk) in write mode.

link sqlmach 195 195 w
access 195 q

5 Create or recreate user defined bootstrap files on the Q-disk by running the IBM-supplied SQLGENLD EXEC.

sqlgenld
If you are running SQLGENLD from a database machine that does not own the production minidisk, SQLGENLD prompts you for the write password.

The SQLGENLD EXEC prompts you for the *dcssid*. This is the name of the new bootstrap package. If a bootstrap package with this name already exists, SQLGENLD replaces the existing bootstraps. The EXEC does not let you replace the initial SQLDBA bootstrap package.

When you supply *dcssid*, SQLGENLD prompts if you want to create a resource adapter, a DBSS/RDS, and an ISQL bootstrap. For each bootstrap that you choose to create, you are prompted for the saved segment name.

The database manager prompts if you want this bootstrap package to be the default DCSSID for the user machines that have link to this production disk.

For more information about SQLGENLD refer to the *DB2 Server for VM System Administration* manual.

6 Link and access the DB2 Server for VM production minidisk in read mode.

link sqlmach 195 195 rr
access 195 q

7.5 Post Service DB2 for VM Database Component Processing

Instructions supplied with an DB2 for VM service update indicate whether you must update an IBM-supplied DB2 for VM database component.

If an IBM-supplied DB2 for VM database package, sample table, or sample ISQL routine is included in the service, then you must apply the service to **each** DB2 for VM database in your installation.

Database maintenance consists of creating or replacing originally IBM-supplied database components. The maintenance activity may be prompted:

1. By DB2 for VM service for IBM-supplied DB2 for VM database packages, sample tables, or sample ISQL routines.

2. Because the database component was not originally installed in the database.

The ARISDBHD, ARISDBLD, and ARISDBMA execs are used for maintaining the IBM-supplied DB2 for VM SQL/DS database components. These execs are described in the *DB2 Server for VM Database Administration* manual.

ARISDBHD EXEC deletes the DB2 for VM HELP text.

ARISDBLD EXEC deletes an NLS language from DB2 for VM.

ARISDBMA EXEC updates the following database components:

- DBS utility package
- FIPS Flagger package
- DB2 for VM HELP text and message repositories
- ISQL package
- Sample tables
- ISQL sample routines
- CMS files for CCSID support.

You can also use this EXEC to install or remove the DRDA code. For a description of how to use it for this purpose, refer to the *DB2 Server for VM System Administration* manual.

Attention: Using the ARISDBHD EXEC or the ARISDBLD EXEC removes all HELP text for the selected languages, including your own topics.

Before invoking ARISDBHD, ARISDBLD, or ARISDBMA, you must be prepared as follows:

1. Database maintenance must be applied by the database machine that owns the database. The maintenance is done in single user mode.

2. You must know the current password for the user ID SQLDBA in the database being updated. The database maintenance exec (ARISDBMA) prompts you to enter this password.

   When prompted, enter the current password for the database user ID, SQLDBA. If the password you enter **is not** SQLDBAPW, it is temporarily changed to SQLDBAPW, and then it is reset to the password you supplied in response to the prompt. The DBS utility is used to change and restore the password for the user SQLDBA.

3. If the DBS utility package SQLDBA.ARIDSQL does not exist in the database to be updated, and the password for the user SQLDBA is not SQLDBAPW, use ISQL or a user program to change the password to SQLDBAPW to recreate the DBS utility package. The ARISDBMA EXEC should then be run before any other maintenance.

4. Files read during database maintenance reside on the service minidisk (SQLMACH 193) or directory and the production minidisk (SQLMACH 195) or directory. Therefore, the database machine must access the service minidisk or SFS directory with primary access mode R and file mode V, and the production minidisk or directory with primary access mode R and file mode Q.

5. The database maintenance processing described in this chapter runs DB2 for VM in single user mode with LOGMODE=N. If the database was last accessed with LOGMODE=A (archiving on) or L, you must archive and COLDLOG the database before proceeding. Refer to the *DB2 Server for VM System Administration* manual for a discussion of switching log modes.

6. If you are loading or reloading a language and/or HELP text with the ARISDBMA EXEC, you are prompted as to whether ISQL and CMS Help are required. If so, you must know the language key, owner ID, and the virtual address of the minidisk or SFS directories where the CMS Help is to be stored. Ensure that the minidisk or SFS directory to be used is not currently attached by any users, including the database machine. For example, to install the base American English HELP text, the language key you would use is "S001". Refer to the *DB2 Server for VM Database Administration* manual to find the language key for the HELP text you are loading.

7. If you are deleting HELP text using the ARISDBLD EXEC or the ARISDBHD EXEC, you need to know the language keys for the languages you are working with and the owner ID and virtual address of the minidisk or SFS directory where the CMS HELP text is stored. Ensure that the minidisk or directory to be used is not currently attached by any users, including the database machine.

7.5.1 Recreating the DBS Utility Package

Review 7.5, "Post Service DB2 for VM Database Component Processing" on page 72 before recreating the DBS utility package.

To create or recreate the DBS utility package after a database has been generated, follow these steps:

1 Log on to the database machine (SQLMACH) that owns the database.

logon sqlmach

2 Access the DB2 Server for VM service minidisk. If you are using SFS, access the service directory with file mode V.

access 193 v

3 Access the DB2 for VM production minidisk. If you are using SFS, access the production directory with file mode Q.

access 195 q

4 Create or recreate the DBS utility package.

arisdbma dbname(*dbname***) component(dbs)**   *dbname* is the name of the database to be updated.

When prompted, you must reply with the current password for the user ID SQLDBA in the database.

ARISDBMA invokes the SQL/DS assembler preprocessor in single user mode to preprocess the DBS utility. It uses the DB2 Server for VM service minidisk file ARIDSQLP MACRO V as input to create the DBS utility package SQLDBA.ARIDSQL.

7.5.2 Reloading the FIPS Flagger in a Database

You should review 7.5, "Post Service DB2 for VM Database Component Processing" on page 72, before reloading the FIPS flagger package.

To load or reload the FIPS flagger preprocessed package after a database has been generated, follow these steps:

1 Log on to the database machine (SQLMACH) that owns the database.

logon sqlmach

2 Access the DB2 Server for VM service minidisk. If you are using SFS, access the service directory with file mode V.

access 193 v

3 Access the production minidisk. If you are using SFS, access the production directory with file mode Q.

access 195 q

4 Create or reload the FIPS flagger package.

arisdbma dbname(*dbname***) component(flagger)**   *dbname* is the name of the database to be
updated.

When prompted, you must reply with the current password for the database
user ID, SQLDBA.

This exec uses the DBS Utility RELOAD PROGRAM in single user mode to
reload the preprocessed package SQLDBA.ARIFCRD.

7.5.3 Reloading the ISQL Package in a Database

Review 7.5, "Post Service DB2 for VM Database Component Processing" on
page 72 before reloading the ISQL package.

To load or reload the ISQL preprocessed package after a database has been
generated, follow these steps:

1 Log on to the database machine (SQLMACH) that owns the database.

logon sqlmach

2 Access the DB2 Server for VM service minidisk. If you are using SFS,
access the service directory with file mode V.

access 193 v

3 Access the production minidisk. If you are using SFS, access the production
directory with file mode Q.

access 195 q

4 Create or reload the ISQL package.

arisdbma dbname(*dbname***) component(isql)**   *dbname* is the name of the database to be
updated.

When prompted, reply with the current password for the database user ID,
SQLDBA.

This exec uses the DBS Utility RELOAD PROGRAM in single user mode to
reload the preprocessed module SQLDBA.ARIISQLM.

7.5.4 Reactivating a Language

There are three reasons for executing the ARISDBMA EXEC with the LANGUAGE component:

- Reactivating a language
- Reloading DB2 for VM HELP text into the database
- Reloading CMS HELP files

Review 7.5, "Post Service DB2 for VM Database Component Processing" on page 72 before reactivating a language and reloading the HELP text.

When reactivating a language, you can optionally reload the DB2 for VM HELP text and/or the CMS HELP files.

Also, before trying to load a language, ensure that the SQLDBA.SYSLANGUAGE table exists. Before trying to load the DB2 for VM HELP text, ensure that the following tables exist: SQLDBA.SYSTEXT1, SQLDBA.SYSTEXT2 and SQLDBA.SYSLANGUAGE. (The tables do not have to contain rows, however.)

For information about the messages and HELP text for other languages, review the considerations as explained in the *DB2 Server for VM Database Administration* manual and the *DB2 Server for VM System Administration* manual.

To reactivate a language and reload any HELP text you decide to use after a database has been initially generated, follow these steps:

1 Log on to the database machine (SQLMACH) that owns the database.

logon sqlmach

2 Access the DB2 Server for VM service minidisk. If you are using SFS, access the service directory with file mode V.

access 193 v

3 Access the production minidisk. If you are using SFS, access the production directory with file mode Q.

access 195 q

4 Reactivate a language and optionally reload the DB2 for VM HELP text into the database.

arisdbma dbname(*dbname***)** **component(lang***xxxx***)**	For LANGxxxx, *xxxx* is the language key for the language being reactivated and the HELP text being reloaded. Refer to the *DB2 Server for VM System Administration* manual for a list of language keys.
	dbname is the name of the database to be updated.

When prompted:

- Reply with the current password for the database user ID, SQLDBA.
- Specify whether this language is to be the default language.
- Specify whether DB2 for VM HELP text should be loaded into the database.
- Specify whether CMS HELP files should be loaded. If so, you are prompted for the owner ID and virtual address of where to load the files.

  Attention: This must not be the same minidisk or SFS directory as the CMS HELP files for any other language, or the CMS HELP files for that language will be destroyed.

ARISDBMA runs the DBS utility in single user mode to load the message repository. Optionally, it can load the DB2 for VM HELP text into the database for the language specified.

7.5.5 Removing a Language

Use ARISDBLD to remove the language from the database.

Attention: Using the ARISDBLD EXEC deletes all HELP text, as well as the messages for the selected languages, including your own topics.

Before trying to remove a language, ensure that the tables SQLDBA.SYSTEXT1, SQLDBA.SYSTEXT2, and SQLDBA.SYSLANGUAGE exist.

After database generation, these tables exist in the database. If you have dropped the tables, you must recreate them before invoking ARISDBLD. Refer to the *DB2 Server for VM Database Administration* manual and *DB2 Server for VM System Administration* manual for information about the message repositories and the HELP text tables.

To remove any SQL language that you no longer need after an database has been initially generated, follow these steps:

1 Log on to the database machine (SQLMACH) that owns the database.

logon sqlmach

> **2** Access the DB2 Server for VM service minidisk. If you are using SFS, access the service directory with file mode V.

access 193 v

> **3** Access the production minidisk. If you are using SFS, access the production directory with file mode Q.

access 195 q

> **4** Remove the language from the database.

arisdbld dbname(*dbname***)**   *dbname* is the name of the database to be
                                                                     updated.

> When prompted:
>
> - Reply with the current password for the database user ID, SQLDBA.
>
> - Select those languages you wish to delete by entering one or more language keys.
>
> - Enter the owner ID and virtual address of the minidisk or SFS directories where the CMS HELP text is stored. If there is no HELP Text for this language, enter SKIP to stop processing for this language.
>
> The DB2 for VM product is invoked in single user mode to remove the messages and HELP text. The system displays all the languages repositories currently installed, along with their language keys, regardless of whether their DB2 for VM HELP text is installed. When the ARI0666I message is displayed, the language has been successfully deleted.

7.5.6 Removing HELP Text

Use ARISDBHD to remove the HELP text from the database.

Attention: Using the ARISDBHD EXEC to remove HELP text for any given language deletes all HELP text for the selected languages, including your own topics.

Before trying to remove the HELP text, ensure that the HELP text tables SQLDBA.SYSTEXT1, SQLDBA.SYSTEXT2, and SQLDBA.SYSLANGUAGE exist.

To remove any DB2 for VM HELP text that you no longer need, follow these steps:

1 Log on to the database machine (SQLMACH) that owns the database.

logon sqlmach

2 Access the DB2 Server for VM service minidisk. If you are using SFS, access the service directory with file mode V.

access 193 v

3 Access the production minidisk. If you are using SFS, access the production directory with file mode Q.

access 195 q

4 Remove the HELP text from the database.

arisdbhd dbname(*dbname***)**   *dbname* is the name of the database to be updated.

When prompted:

- Reply with the current password for the database user ID, SQLDBA.

- Select those languages you wish to delete by entering one or more language keys.

- Enter the owner ID and virtual address of the minidisk or SFS directories where the CMS HELP text is stored. If there is no HELP Text for this language, enter SKIP to stop processing for this language.

DB2 for VM is invoked in single user mode to remove the HELP text. The system displays all the languages repositories currently installed, along with their language keys, regardless of whether their DB2 for VM HELP text is installed. When the ARI0666I message is displayed, the HELP text has been successfully deleted.

7.5.7 Recreating the CCSID Support CMS Files

To create or recreate the CCSID support CMS files, follow these steps:

1 Log on to the database machine (SQLMACH) that owns the database.

logon sqlmach

2 Access the DB2 Server for VM service minidisk. If you are using SFS, access the service directory with file mode V.

access 193 v

3 Access the production minidisk. If you are using SFS, access the production directory with file mode Q.

access 195 q

4 Unload CCSID-related catalog tables.

arisdbma dbname(*dbname***) component(ccsid)**   *dbname* is the name of the database to be updated.

When prompted, you must reply with the current password for the database user ID, SQLDBA.

This EXEC runs the DBS utility ARISFFG job in single user mode to unload the following CCSID catalog tables:

- SYSTEM.SYSCCSIDS
- SYSTEM.SYSSTRINGS
- SYSTEM.SYSCHARSETS

into their corresponding CMS files:

- ARISCCS FLATFILE A
- ARISSTR FLATFILE A
- ARISSCR FLATFILE A

Before the application server can use these CMS files, you must copy them to your production disk or directory and you must change their filetype to MACRO. For example, type:

```
COPYFILE ARISCCS FLATFILE A ARISCCS MACRO Q
COPYFILE ARISSTR FLATFILE A ARISSTR MACRO Q
COPYFILE ARISSCR FLATFILE A ARISSCR MACRO Q
```

7.5.8 Reloading the Sample Tables into a Database

Review 7.5, "Post Service DB2 for VM Database Component Processing" on page 72 before reloading the sample tables.

To load or reload the sample tables into a database, follow these steps:

1 Log on to the database machine (SQLMACH) that owns the database.

logon sqlmach

2 Access the DB2 Server for VM service minidisk. If you are using SFS, access the service directory with file mode V.

access 193 v

3 Access the production minidisk. If you are using SFS, access the production directory with file mode Q.

access 195 q

4 Reload the sample tables.

arisdbma dbname(*dbname***)**
COMPONENT(*samptabs***)**

dbname is the name of the database to be updated.

Replace *samptabs* with either SAMPTABS or MSAMPTABS.

If you are loading the sample tables, replace *samptabs* with SAMPTABS. The sample tables are the following:

- DEPARTMENT
- EMPLOYEE
- PROJECT
- ACTIVITY
- PROJ_ACT
- EMP_ACT
- CL_SCHED
- IN_TRAY.

If you are loading the manufacturing sample tables, replace *samptabs* with MSAMPTABS. The manufacturing sample tables are the following:

- INVENTORY
- SUPPLIERS
- QUOTATIONS
- PROJECTS
- OPERATIONS.

When prompted, reply with the current password for the database user ID, SQLDBA.

ARISDBMA runs the DBS utility in single user mode to load the sample tables into the database. It uses the commands and data in the DB2 Server for VM service minidisk file named ARISAMDB MACRO V.

7.5.9 Reloading the ISQL Sample Routines into a Database

Review 7.5, "Post Service DB2 for VM Database Component Processing" on page 72 before reloading the ISQL sample routines.

To load or reload the ISQL sample routines into a database, follow these steps:

1 Log on to the database machine (SQLMACH) that owns the database.

logon sqlmach

2 Access the DB2 Server for VM service minidisk. If you are using SFS, access the service directory with file mode V.

access 193 v

3 Access the production minidisk. If you are using SFS, access the production directory with file mode Q.

access 195 q

4 Creates or reloads the ISQL sample routines.

arisdbma dbname(dbname**)**   *dbname* is the name of the database to be
component(samprout)   updated.

When prompted, reply with the current password for the database user ID, SQLDBA.

ARISDBMA runs the DBS utility in single user mode to load the ISQL sample routines into the database. It uses the commands and data in the DB2 Server for VM service minidisk file ARISAMPI MACRO V.

You have finished servicing DB2 for VM.

8.0 Migrating to DB2 for VM

This section describes the migration installation methods and the step-by-step procedures to migrate to DB2 for VM.

The step-by-step procedures are in two column format. The steps to be performed are in bold large numbers. Commands for these steps are on the left hand side of the page in bold print. Additional information for a command may exist to the right of the command.

Each step of the migration instructions must be followed. Do not skip any step unless directed to do so.

Throughout these instructions, the use of IBM-supplied default minidisk addresses and user IDs is assumed. If you use different user IDs, minidisk addresses, or SFS directories to install DB2 for VM, adapt these instructions as needed for your environment.

Note!

The sample console output presented throughout these instructions was produced on a VM/ESA V2R3 system. If you are installing DB2 for VM on a different VM/ESA system, the results obtained for some commands may differ from those depicted here.

8.1 VMSES/E Migration Process Overview

The following is a brief description of the main steps in migrating DB2 for VM using VMSES/E.

- Preliminary Migration Step

  Prepare the existing database and database machine for the migration.

- Plan Your Installation

  Use the VMFINS command to load several VMSES/E files from the product tape and to obtain DB2 for VM resource requirements.

- Allocate Resources

  The information obtained from the previous step is used to allocate the appropriate minidisks (or SFS directories) and user IDs needed to install, migrate, and use DB2 for VM.

- Install DB2 for VM

Use the VMFINS command to load the DB2 for VM product files from tape to the test BUILD and BASE minidisks/directories. VMFINS is then used to update the VM SYSBLDS file used by VMSES/E for software inventory management.

- Migrate the DB2 for VM Database

  Run the DB2 for VM migration execs to update information in the current database.

- Place DB2 for VM Files into Production

  Once the product files have been tailored and the operation of DB2 for VM is satisfactory, the product files are copied from the test BUILD disk(s) to production BUILD disk(s).

- Perform Post-installation Tasks

  Information about file tailoring and initial activation of the program is presented in 8.12, "Post Migration" on page 114.

For a complete description of all VMSES/E installation options refer to *VM/ESA: VMSES/E Introduction and Reference* manual.

8.2 Checklist for Migration

Notes:

- *Perform the steps in order.*
- *Mandatory steps are preceded by squares (▪).*
- *Optional steps are preceded by circles (○).*
- *Page references appear in parentheses.*

> **Note**
>
> Throughout these instructions, the use of IBM-supplied default minidisk addresses and user IDs is assumed. If you use different user IDs, minidisk addresses, or SFS directories to install DB2 for VM, adapt these instructions as needed for your environment.

To migrate an existing SQL/DS database to Version 6 Release 1:

1. Direct migration of an SQL/DS or DB2 database to Version 6 Release 1 is possible only if that database is at a Version 3 Release 1 level or better.

   Note: If you wish to migrate a Version 1.3.5, Version 2.1.0 or Version 2.2.0 SQL/DS database, you must first migrate to SQL/DS Version 3.5.0.. You will then be able to migrate to DB2 for VM Version 6 Release 1. DB2 Server for VM includes the SQL/DS Version 3.5.0. code and installation manual for this reason. Once you have migrated to Version 3.5.0, you will be able to migrate the database as outlined in this PD. Users should also note that SQL/DS V3.5.0 is only provided as a step migration tool. This means that a DB2 for VM Version 6 Release 1 license does not entitle the user to run SQL/DS V3.5.0 indefinitely. Nor does it entitle the user to service for V3.5.0 outside a migration scenario.

2. Study the chapter on planning for database migration and the Appendix about the "SQL/DS Incompatibilities Between Releases" in the *DB2 Server for VM System Administration* manual.

3. In this program directory, review 4.0, "Program and Service Level Information" on page 10 and 5.0, "Installation Requirements and Considerations" on page 11. Pay special attention to section 5.2.4.1, "Database General" on page 13. Check for any prerequisite program temporary fixes (PTFs) that you may need to install. Check to see whether there is any additional preventive service planning (PSP) information that you should be aware of.

4. If you are migrating one database, do all the steps in the 8.2, "Checklist for Migration" on page 86.

5. If you are migrating more than one database, and each database has its own service (193) and production (195) minidisk, do all the steps in the 8.2, "Checklist for Migration" on page 86 for each set of a database and disks.

6. If you are migrating many databases, and each database uses the same service and production minidisk, do the following:

   a. Step 1 for each database
   b. Steps 2 through 6
   c. Steps 7 through 13 for each database
   d. Steps 14 through 16.

7. If you are migrating one or more databases that use a secondary production minidisk (same service minidisk but a copy of the primary production minidisk), do the following:

   a. Migrate the databases that are using the primary production minidisk following the usual steps in this chapter
   b. Step 1 for each database running off the secondary production minidisk
   c. Steps 3 and 15 for the secondary production minidisk

d. Step 7 (substep 4 and 5) and steps 8 through 13 for each database running off the secondary production minidisk

e. Step 16.

Note: For more information on primary and secondary production minidisks, please refer to the *DB2 Server for VM System Administration* manual.

Attention:

If you are migrating from SQL/DS Version 3.3, 3.4, 3.5 or DB2 Server for VM Version 5.1 and have the DB2 Server Data Spaces Support for VM/ESA (VMDSS) feature installed, you must enable DB2 for VM VMDSS Version 6 Release 1 **BEFORE** database migration. VMDSS must be at the same level as the DB2 for VM product.

8.3 Migration Step 1. Preliminary Migration

1 Log on to the SQLMACH machine to begin the DB2 for VM migration process.

2 Verify that the directory has at least 4 dbspace blocks available.

Start the SQL/DS system in multiple user mode. Then issue the SHOW command.

show dbconfig   Determines the number of dbspace blocks available. For more information on the SHOW DBCONFIG command, refer to the *DB2 Server for VM Operation* manual.

If the number of dbspace blocks left is:

- Four or more, proceed to substep 3.

- Less than four, increase the number of available dbspace blocks by reducing the number of internal dbspaces. Follow the instructions for adding dbspaces to a database in the *DB2 Server for VM System Administration* manual.

   If you are migrating from 3.1 or later, you can also increase the number of available dbspace blocks by expanding your directory. Refer to the section on expanding the page map tables in the SQL/DS directory in the *DB2 Server for VM System Administration* manual.

   Then reissue the SHOW DBCONFIG command, and make sure you have enough dbspace blocks available.

3 Verify storage pool space.

Before you migrate, we recommend that each storage pool in your database be less than 90% used, and if you are migrating from 3.1 or later, each pool must have at least 30 free pages. Start the application server in multiple user mode. Then issue the SHOW command.

show pool summary   Determines the state of your storage pools. For more information on the SHOW POOL command, refer to the *DB2 Server for VM Operation* manual.

If you find a pool above 90% used, you should add one or more dbextents to it. If this is inconvenient, you can avoid the problem until you have completed migration by specifying an SOSLEVEL other than the default when you run the ARISMEX EXEC. Refer to 8.9.3, "Migration Step 9: ARISMEX EXEC" on page 105 for information on this EXEC and to the *DB2 Server for VM System Administration* manual for instructions on adding dbextents.

4 Verify DATE/TIME Options

Check the values associated with DATE and TIME in SYSTEM.SYSOPTIONS by issuing the following command from ISQL:

select * from system.sysoptions

If VALUE is set to LOCAL and the local date/time exits do not recognize ISO format, VALUE should be set to ISO for the duration of the migration. When you use date/time exits that do not recognize ISO format, SQLCODE -180 is issued when reloading the English Help text when running the SQLDBMIG exec.

5 **ARCHIVE** your database.

sqlend archive   For more information on the SQLEND command, refer to the *DB2 Server for VM Operation* manual.

6 Log off the SQLMACH virtual machine to continue the migration steps.

8.4 Migration Step 2. Plan Your Installation for DB2 for VM

The VMFINS command will be used to plan the installation. This section has 2 main steps:

- Load the first tape file, containing installation files
- Generate a PLANINFO file listing
  - All user ID/mdisks requirements

– Required products

To obtain planning information for your environment:

1 Log on as DB2 for VM installation planner.

This user ID can be any ID that has read access to MAINT's 5E5 minidisk and write access to the MAINT 51D minidisk.

2 Mount the DB2 for VM installation tape and attach it to the user ID at virtual address 181. The VMFINS EXEC requires the tape drive to be at virtual address 181.

3 Establish read access to the VMSES/E code.

link MAINT 5e5 5e5 rr
access 5e5 b

The 5E5 disk contains the VMSES/E code.

4 Establish write access to the Software Inventory disk.

link MAINT 51d 51d mr
access 51d d

The MAINT 51D disk is where the VMSES/E system-level Software Inventory and other dependent files reside.

Note: If another user already has the MAINT 51D minidisk linked in write mode (R/W), you will only obtain read access (R/O) to this minidisk. If this occurs, you will need to have that user re-link the 51D in read-only mode (RR), and then re-issue the above LINK and ACCESS commands. Do not continue with these procedures until a R/W link is established to the 51D minidisk.

5 Load the DB2 for VM product control files to the 51D minidisk.

vmfins install info (nomemo

The NOMEMO option will load the memos from the tape but will not issue a prompt to send them to the system printer. Specify the MEMO option if you want to be prompted for printing the memo.

This command will perform the following:

- load Memo-to-Users

- load various product control files, including the Product Parameter File (PPF) and the PRODPART files

- create VMFINS PRODLIST on your A-disk. The VMFINS PRODLIST contains a list of products on the installation tape.

```
VMFINS2760I VMFINS processing started
VMFINS1909I VMFINS PRODLIST created on your A-disk
VMFINS2760I VMFINS processing completed successfully
Ready;
```

6 Obtain resource planning information for DB2 for VM.

Notes:

a. The product will **not** be loaded by the VMFINS command at this time.

vmfins install ppf 5648A70S {DB2VM | DB2VMSFS} (plan nomemo

Use **DB2VM** for installing on minidisks or **DB2VMSFS** for installing in Shared File System directories.

The PLAN option indicates that VMFINS will perform requisite checking, plan system resources, and provide an opportunity to override the defaults in the product parameter file.

You can override any of the following:

- The name of the product parameter file
- The default user IDs
- Minidisk/directory definitions

To create an override you need to reply **1** to the VMFINS2601R message.

Important Note!

You **MUST** create a PPF override if you are going to:

- Use different user ID's, minidisk addresses, or SFS directories than the DB2 for VM defaults. Refer to Figure 14 on page 16 to obtain the defaults. (Such as migrating to a different service or primary production disk or directory, or both, owned by SQLMACH.)

Notes:

a. If you change the PPF name, a default user ID, or other parameters via a PPF override, you will need to use your changed values instead of those indicated (when appropriate), throughout the rest of the installation instructions, as well as the instructions for servicing DB2 for VM. For example, you will need to specify your PPF override file name instead of 5648A70S for certain VMSES/E commands.

b. If you're not familiar with creating PPF overrides using VMFINS, you should review the 'Using the Make Override Panel' section in Chapter 3 of the *VM/ESA: VMSES/E Introduction and Reference* manual before you continue.

c. For more information about changing the VMSYS file pool name refer to Chapter 3 in the *VM/ESA: VMSES/E Introduction and Reference* manual.

```
VMFINS2767I Reading VMFINS DEFAULTS B for additional options
VMFINS2760I VMFINS processing started
VMFINS2601R Do you want to create an override for :PPF 5648A70S DB2VM
            :PRODID. 5648A70S%DB2VM?
            Enter 0 (No), 1 (Yes) or 2 (Exit)
0
VMFINS2603I Processing product :PPF 5648A70S DB2VM :PRODID
            5648A70S%DB2VM
VMFREQ1909I 5648A70S PLANINFO created on your A-disk
VMFREQ2805I Product :PPF 5648A70S DB2VM :PRODID 5648A70S%&COMP1U
            has passed requisite checking
VMFINT2603I Planning for the installation of product :PPF 5648A70S &COMP1U
            :PRODID 5648A70S%DB2VM
VMFRMT2760I VMFRMT processing started
VMFRMT2760I VMFRMT processing completed successfully
VMFINS2760I VMFINS processing completed successfully
```

7 Review the install message log ($VMFINS $MSGLOG). If necessary, correct any problems before going on. For information about handling specific error messages, see the *VM/ESA: System Messages and Codes* manual or use online HELP.

vmfview install

8.5 Migration Step 3: Allocate Resources for Installing DB2 for VM

Use the planning information in the 5648A70S PLANINFO file, created in 8.4, "Migration Step 2. Plan Your Installation for DB2 for VM" on page 90, to:

- Create or update the 5648A70S, SQLMACH, and SQLUSER user directories for minidisk install

  OR

- Create or update the 5648A70S, SQLMACH and SQLUSER user directories for SFS install.

8.5.1 Install DB2 for VM on Minidisk

1 Obtain the user directory from the 5648A70S PLANINFO file.

Note: The user directory entries are located in the resource section of the PLANINFO file, at the bottom; these entries will contain all of the links and privilege classes necessary for the 5648A70S, SQLMACH, and SQLUSER user IDs. Use the directory entries found in the PLANINFO file as a model as input to your system directory.

2 Add the MDISK statements to the directory entry for 5648A70S. Use Figure 14 on page 16 to obtain the minidisk requirements.

3 For the SQLMACH and SQLUSER user IDs, use Figure 14 on page 16 to obtain the DB2 for VM Version 6 Release 1 minidisk requirements. Then, update the current directory entries for these user IDs accordingly. (Meaning if you are using existing minidisks or new ones need to use the sizes in Figure 14 on page 16.)

4 Add the 5648A70S directory to the system directory. Change the password for 5648A70S from xxxxx to a valid password, in accordance with your security guidelines.

5 Use the user directory entries in the 5648A70S PLANINFO file (on the A-disk) to update the SQLMACH and SQLUSER user directories as needed. Refer to substep 2a on page 27 if you need specific information on the directory statements used in the PLANINFO file for SQLMACH and SQLUSER.

6 Place the new directories online using VM/Directory Maintenance (DIRMAINT) or an equivalent CP directory maintenance method.

> **Important Note**
>
> All minidisks for the 5648A70S user ID must be formatted before installing DB2 for VM.

```
┌─ Procedure Note ──────────────────────────────────────────────────┐
│                                                                    │
│   Continue to 8.5.3, "Update database user ID, SQLMACH." on page 97. │
│                                                                    │
└────────────────────────────────────────────────────────────────────┘
```

8.5.2 Install DB2 for VM in SFS Directories

1 Obtain the user directories from the 5648A70S PLANINFO file.

Note: The user directory entries are located in the resource section of the PLANINFO file, at the bottom; these entries will contain all of the links and privilege classes necessary for the 5648A70S, SQLMACH, and SQLUSER user IDs. Use the directory entries found in the PLANINFO file as a model as input to your system directory.

2 Add the 5648A70S directory to the system directory. Change the password for 5648A70S from xxxxx to a valid password, in accordance with your security guidelines.

3 Use the user directory entries in the 5648A70S PLANINFO file (on the A-disk) to update the SQLMACH and SQLUSER user directories as needed. Refer to substep 2a on page 27 if you need specific information on the directory statements used in the PLANINFO file for SQLMACH and SQLUSER.

4 Place the new directories online using VM/Directory Maintenance (DIRMAINT) or an equivalent CP directory maintenance method.

5 An SFS install will also require the following steps:

> **a** Determine the number of 4K blocks that are required for SFS directories by adding up the 4K blocks required for each SFS directory you plan to use.
>
> If you intend to use all of the default DB2 for VM SFS directories, the 4K block requirements for each are summarized in Figure 14 on page 16.
>
> This information will be used when enrolling 5648A70S to the VMSYS filepool (or the chosen filepool).
>
> **b** Enroll user 5648A70S in the VMSYS filepool using the ENROLL USER command:
>
> ENROLL USER 5648A70S VMSYS: (BLOCKS *blocks*
>
> where *blocks* is the number of 4K blocks that you calculated in the previous step.
>
> **Note:** This must be done from a user ID that is an administrator for VMSYS: filepool.

c Determine if there are enough blocks available in the filepool to install DB2 for VM. This information can be obtained from the QUERY FILEPOOL STATUS command. Near the end of the output from this command is a list of minidisks in the filepool and the number of blocks free. If the number of blocks free is smaller than the total 4K blocks needed to install DB2 for VM you will need to add space to the filepool. See the *VM/ESA: CMS File Pool Planning, Administration, and Operation* manual for information on adding space to a filepool.

d Create the necessary subdirectories for the installation user ID, 5648A70S, listed in the 5648A70S PLANINFO file using the CREATE DIRECTORY command.

set filepool vmsys: **create directory VMSYS:5648A70S.SQL.OBJECT** **create directory VMSYS:5648A70S.SQL.LOCAL** **create directory VMSYS:5648A70S.SQL.DELTA** **create directory VMSYS:5648A70S.SQL.APPLYALT** **create directory VMSYS:5648A70S.SQL.APPLYPROD** **create directory VMSYS:5648A70S.SQL.SERVICE** **create directory VMSYS:5648A70S.SQL.PRODUCTION**	If necessary, see the *VM/ESA: CMS Command Reference* manual for more information about the CREATE DIRECTORY command.

A complete list of default DB2 for VM SFS directories is provided in Figure 14 on page 16.

e If you are using new SFS directories for SQLMACH's production or service SFS directories, then create the new SQLMACH subdirectories.

f Give the installation user ID (5648A70S) READ and WRITE authority to the database machine (SQLMACH) production and service directories, using the GRANT AUTHORITY command.

grant auth vmsys:sqlmach.sql.service to 5648A70S (write newwrite
grant auth vmsys:sqlmach.sql.production to 5648A70S (write newwrite

If necessary, see the *VM/ESA: CMS Command Reference* manual for more information about the GRANT AUTHORITY command.

g Give the database machine user ID (SQLMACH) READ and WRITE authority to the installation user ID's (5648A70S) production and service directories, using the GRANT AUTHORITY command.

grant auth vmsys:5648A70S.sql.service to sqlmach (write newwrite
grant auth vmsys:5648A70S.sql.production to sqlmach (write newwrite

If necessary, see the *VM/ESA: CMS Command Reference* manual for more information about the GRANT AUTHORITY command.

h Give the user machine user ID (SQLUSER) READ authority to the installation user ID's (5648A70S) and database machine user ID's (SQLMACH) production directories, using the GRANT AUTHORITY command.

Note: If you are going to allow many user machines or virtual machines access to the database machine's (SQLMACH) production directory, you may want to grant PUBLIC access, instead of individual machine access. To do this you would replace *SQLUSER* with *PUBLIC* in the GRANT AUTH command for the "vmsys:sqlmach.sql.production" directory.

grant auth vmsys:5648A70S.sql.production to SQLUSER (read newread
grant auth vmsys:sqlmach.sql.production to SQLUSER (read newread

i If you did not grant PUBLIC READ access to the database machine's (SQLMACH) production disk, in a previous step, then you need to give all the user machines or virtual machines, that will be allowed to access the database machine (SQLMACH) production directory, READ authority to the database machine's production directory, using the GRANT AUTHORITY command.

grant auth vmsys:sqlmach.sql.production to *virtual_machine_user_ID* **(read newread**

j If you intend to use an SFS directory as the work space for the 5648A70S user ID, include the following IPL control statement in the 5648A70S directory entry:

```
IPL CMS PARM FILEPOOL VMSYS
```

This causes CMS to automatically access the 5648A70S's top directory as file mode A.

8.5.3 Update database user ID, SQLMACH.

You only have to do this step if you are using new production or service minidisks or directories.

1 Log on to SQLMACH.

2 If you define a new production or service minidisk or SFS directory, all files from the existing production or service minidisk or SFS directory must be copied to the new minidisks or SFS directories at this time (before you install code).

3 If you plan to use the new production minidisk or SFS directory, set up the PROFILE EXEC to access the new production minidisk or SFS directory.

4 Log off of the database machine; SQLMACH.

8.6 Migration Step 4: Install DB2 for VM

The *ppfname* used throughout these installation instructions is **5648A70S**, which assumes you are using the PPF supplied by IBM for DB2 for VM. If you have your own PPF override file for DB2 for VM, you should use your file's *ppfname* instead of **5648A70S**. The *ppfname* you use should be used **throughout** the rest of this procedure.

1 Log on to the installation user ID **5648A70S**.

2 Create a PROFILE EXEC that contains the ACCESS commands for MAINT 5E5 and 51D minidisks.

xedit profile exec a
===> input //**
===> input 'access 5e5 b'
===> input 'access 51d d'
===> file

If either 5E5 or 51D is in a shared file system (SFS) then substitute your SFS directory name in the access command.

3 Execute the profile to access MAINT's minidisks.

profile

4 If the Software Inventory disk (51D) was accessed R/O (read only), then establish write access to the Software Inventory disk.

Note: If the MAINT 51D minidisk was accessed R/O, you ned to have the user, who has it linked R/W, link it as R/O. You then can issue the following commands to obtain R/W access to it.

link maint 51d 51d mr
access 51d d

5 Have the DB2 for VM installation tape mounted and attached to 5648A70S at virtual address 181. The VMFINS EXEC requires the tape drive to be at virtual address 181.

6 Install DB2 for VM.

Notes:

a. Make sure the SQLMACH and SQLUSER user IDs are logged off of before you continue with the install.

b. If you've already created a PPF override file, you should specify your override file name, in place of the default PPF name (5648A70S), after the **PPF** keyword for the following VMFINS command.

Also you will get another chance to override the PPF file. If you are using new service or production minidisk or directories or new database user IDs and you did not already create a PPF override you need to at this time.

c. You may be prompted for additional information during VMFINS INSTALL processing depending on your installation environment. If you're unsure how to respond to a prompt, refer to the 'Installing Products with VMFINS' and "Install Scenarios' chapters in the *VM/ESA: VMSES/E Introduction and Reference* manual to decide how to proceed.

vmfins install ppf 5648A70S {DB2VM | DB2VMSFS} (nomemo nolink

Use **DB2VM** for installing on minidisks or **DB2VMSFS** for installing in Shared File System directories.

The NOLINK option indicates that you don't want VMFINS to link to the appropriate minidisks, only access them if not accessed.

```
VMFINS2767I Reading VMFINS DEFAULTS B for additional options
VMFINS2760I VMFINS processing started
VMFINS2601R Do you want to create an override for :PPF 5648A70S DB2VM
            :PRODID. 5648A70S%DB2VM?
            Enter 0 (No), 1 (Yes) or 2 (Exit)
0
VMFINS2603I Processing product :PPF 5648A70S DB2VM :PRODID
            5648A70S%DB2VM
VMFREQ2805I Product :PPF 5648A70S DB2VM :PRODID 5648A70S%DB2VM
            has passed requisite checking
VMFINT2603I Installing product :PPF 5648A70S DB2VM :PRODID
            5648A70S%DB2VM
VMFSET2760I VMFSETUP processing started
VMFUTL2205I Minidisk|Directory Assignments:
            String    Mode Stat  Vdev  Label/Directory
VMFUTL2205I LOCALSAM  E    R/W   2C2   DBI2C2
VMFUTL2205I APPLY     F    R/W   2A6   DBI2A6
VMFUTL2205I           G    R/W   2A2   DBI2A2
VMFUTL2205I DELTA     H    R/W   2D2   DBI2D2
VMFUTL2205I BUILD2    I    R/W   195   DBI195
VMFUTL2205I BUILD0    J    R/W   193   DBI193
VMFUTL2205I BASE      K    R/W   2B2   DBI2B2
VMFUTL2205I SYSTEM    L    R/W   295   SQL295
VMFUTL2205I           M    R/W   293   SQL293
VMFUTL2205I --------  A    R/W   191   SQL191
VMFUTL2205I --------  B    R/O   5E5   MNT5E5
VMFUTL2205I --------  D    R/W   51D   MNT51D
VMFUTL2205I --------  S    R/O   190   CMS210
VMFUTL2205I --------  Y/S  R/O   19E   YDISK
VMFSET2760I VMFSETUP processing completed successfully
VMFREC2760I VMFREC processing started
VMFREC1852I Volume 1 of 1 of INS TAPE 9800
VMFREC1851I (1 of 7) VMFRCAXL processing AXLIST
VMFRCX2159I Loading 0 part(s) to DELTA 2D2 (H)
VMFREC1851I (2 of 7) VMFRCPTF processing PARTLST
VMFRCP2159I Loading 0 part(s) to DELTA 2D2 (H)
VMFREC1851I (3 of 7) VMFRCCOM processing DELTA
VMFRCC2159I Loading 0 part(s) to DELTA 2D2 (H)
VMFREC1851I (4 of 7) VMFRCALL processing APPLY
VMFRCA2159I Loading part(s) to APPLY 2A6 (F)
VMFRCA2159I Loaded 1 part(s) to APPLY 2A6 (F)
VMFREC1851I (5 of 7) VMFRCALL processing BASE
VMFRCA2159I Loading part(s) to BASE 2B2 (K)
VMFRCA2159I Loaded .... part(s) to BASE 2B2 (K)
VMFREC1851I (6 of 7) VMFRCALL processing BUILDS
VMFRCA2159I Loading part(s) to BUILD0 193 (J)
VMFRCA2159I Loaded .... part(s) to BUILD0 193 (J)
VMFREC1851I (7 of 7) VMFRCALL processing BUILDP
VMFRCA2159I Loading part(s) to BUILD2 195 (I)
VMFRCA2159I Loaded .. part(s) to BUILD2 195 (I)
VMFREC2760I VMFREC processing completed successfully
VMFINT2603I Product installed
VMFINS2760I VMFINS processing completed successfully
```

7 Review the install message log ($VMFINS $MSGLOG). If necessary, correct
   any problems before going on. For information about handling specific error
   messages, see *VM/ESA: System Messages and Codes* manual or use online
   HELP.

vmfview install

8.6.1 Update Build Status Table for DB2 for VM

1 Update the VM SYSBLDS software inventory file for DB2 for VM.

vmfins build ppf 5648A70S {DB2VM | DB2VMSFS} (serviced nolink

Use **DB2VM** for installing on minidisks or **DB2VMSFS** for installing in Shared File System directories.

The SERVICED option will build any parts that were not built on the installation tape (if any) and update the Software Inventory build status table showing that the product 5648A70S has been built.

Note: If your software inventory disk (51D) is not owned by MAINT then make sure the VMSESE PROFILE reflects the correct owning user ID.

2 Review the install message log ($VMFINS $MSGLOG). If necessary, correct any problems before going on. For information about handling specific error messages, see the *hcpc0.* manual or use online HELP.

vmfview install

8.7 Migration Step 5: DB2 for VM Data Spaces Support for VM/ESA Install

> ┌─ **Important Note** ───┐
>
> If you were running with the VMDSS feature installed you **MUST** enable VMDSS Version 6 Release 1 now, before database migration.
>
> Otherwise, continue to 8.8, "Migration Step 6: Set Up to Run Migration from Database Machine or Application Server" on page 102.
>
> └──┘

1 The old copy of the SQLVMD MACRO file should still be on the database machine's production minidisk or SFS directory. Check to make sure it is still there.

2 Rebuild the member ARISQLDS in the ARISQLLD LOADLIB.

vmfbld ppf 5648A70S {DB2VM | DB2VMSFS} ARIBLLLD arisqlds (all
vmfview build

> Use **DB2VM** for installing on minidisks or **DB2VMSFS** for installing in Shared File System directories.
>
> Review the build message log ($VMFBLD $MSGLOG). If necessary, correct any problems before going on. For information about handling specific error messages, see the *VM/ESA: System Messages and Codes* manual or use online HELP.
>
> **Note:** You should NOT see the following message in the message log:
>
> ```
> VMFLLB2074I Part xxxxxxx TXT in object ARISQLDS in
>             build list ARIBLLLD EXEC will
>             be ignored
> ```
>
> If you do it means that the SQLVMD MACRO was not found.

3 Rebuild the related files.

vmfbld ppf 5648A70S {DB2VM | DB2VMSFS} (serviced
vmfview build

> Use **DB2VM** for installing on minidisks or **DB2VMSFS** for installing in Shared File System directories.
>
> At this time you can ignore the message about rebuilding the segment. You can build segments during post-installation.
>
> The bootstrap files will be recreated in 8.8, "Migration Step 6: Set Up to Run Migration from Database Machine or Application Server."

8.8 Migration Step 6: Set Up to Run Migration from Database Machine or Application Server

1 Run ARISINST with the MIGRATE option.

Part of the function of ARISINST is to save a copy of some files that exist on your current database machines production disk that may have been modified

and would get overwritten on the new database machine production disk. These files will be placed on the new local/sample disk (default 2C2) or SFS directory (default is VMSYS:5648A70S.SQL.LOCAL). The files will have an 'O' appended to the front of the filetype. You can later compare these old versions of the files with the new ones and then replace the new ones with the data you had in the old ones, if necessary.

arisinst m 5648A70S {DB2VM I DB2VMSFS}

Use **DB2VM** for installing on minidisks or **DB2VMSFS** for installing in Shared File System directories.

Note: The ARISPIDC MACRO will be updated by ARISINST with the correct information for the database machine's production and service minidisks or SFS directory names using the PPF specified. This eleviates any need to manually change the ARISPIDC MACRO.

2 Log off of the installation user ID, 5648A70S.

8.9 Database Migration

8.9.1 Migration Step 7: Prepare for Database Migration

1 Log on to the database machine, SQLMACH, to continue migration.

2 Link and access the installation user ID test production and test service disks or SFS directories.

link 5648A70S 195 295 W
acc 295 e
link 5648A70S 193 293 W
acc 293 f

You will be prompted for the password to the disks.

Substitute in your own minidisk addresses, if different.

Substitute in the appropriate SFS directory names if using SFS.

3 Make the new DB2 for VM message repository available.

set language ameng (add ari user

Note: You **MUST** issue this command. If you do not the new messages will not get used.

4 Before proceeding, you must determine:

a. The SQL/DS or DB2 Server for VM release you have been using prior to Version 6 Release 1.

b. The password now in use for user ID SQLDBA in the database to be accessed.

c. The name of the existing database you want to migrate.

d. That the previous release service and production minidisks are not linked, or SFS directories are not accessed, if you are running the ARISMEX and SQLDBMIG EXECs.

e. Whether the database you are migrating uses DBCS. If so, you must reset the application server to use single-byte character set by entering the following command.

```
SQLINIT DBCS(NO)
```

5 To migrate to Version 6 Release 1, run the EXECs listed in Figure 19. These EXECs are described in detail in the following sections.

	3.1-3.2	3.3-3.4	3.5	5.1
SQLLOG	√	√	√	√
ARISMEX	√	√	√	√
SQLDBMIG	√	√	√	√
ARISFPKY	√			

Note: Only run the EXECs marked under your current release level.

Figure 19. EXECs Used in migration to DB2 Server for VM Version 6 Release 1

8.9.2 Migration Step 8: SQLLOG EXEC

1 Run SQLLOG EXEC to reformat the log data for this product.

sqllog dbname(*dbname***) amode(***nn***)**	*dbname* is the name of the database to be updated.
	nn is either 31 or 24 to indicate the type of addressing you wish to use. The default during migration is 31. If you have user exits that cannot use 31-bit addressing or if you are not sure whether you should use 31-bit addressing, use `AMODE(24)`. This ensures that SQLLOG will only use 24-bit addressing. For information on 31- or 24-bit addressing or the AMODE parameter, refer to the *DB2 Server for VM System Administration* manual.
continue **coldlog** **0**	Respond `CONTINUE` to the first prompt and `COLDLOG` to the second prompt to confirm that you want to reformat the log. Respond `0` to message ARI0944D to erase the log data only. If the EXEC fails to complete, correct the errors identified and rerun it. If you receive warning message ARI2010I, you can ignore this message and continue.

8.9.3 Migration Step 9: ARISMEX EXEC

1 Run ARISMEX EXEC to migrate the SQL/DS system catalogs to level Version 6 Release 1. ARISMEX EXEC migrates the catalog and commits work after the SQL/DS product is successfully migrated.

arismex dbname(*dbname***)**

dbname is the name of the database to be updated.

If there is one or more storage pools in your database that is more than 90% used, those pools may become full during ARISMEX processing. You can avoid the problem by either adding dbextents to those pools, or you can specify a SOSLEVEL lower than the default of 10 when you run ARISMEX. You would specify SOSLEVEL as follows:

```
arismex dbname(dbname) parm(soslevel=n)
```

When the database manager detects that the percentage of free space in a pool equal to the SOSLEVEL, it forces a checkpoint. During the checkpoint, the space used to shadow changes made by ARISMEX is reclaimed. This may stop you from running out of storage pool space during migration. You must ensure that your SOSLEVEL is lower than or equal to the percentage free in the pool with the least space. If the percentage of free space is already lower than the SOSLEVEL, a checkpoint will not be triggered and shadow space will not be reclaimed (however, you will receive message ARI0202I).

For example, if you have two storage pools above 90%, pool 1 at 93% used and pool 2 at 91% used, set SOSLEVEL=7. This will trigger a checkpoint no matter which pool reaches the SOSLEVEL first. An SOSLEVEL=8 or higher will never trigger a checkpoint.

If ARISMEX fails, look up the resulting message in the *DB2 Server for VM Messages and Codes* manual to determine the problem. You may have to restore your archive and previous code to correct the problem.

8.9.4 Migration Step 10: SQLDBMIG EXEC

1 Run SQLDBMIG EXEC to complete the migration of your current database. It takes about 45 minutes to complete. Processing time varies depending on system capabilities and current load.

While running this EXEC, you may receive informational messages indicating that options are not set up correctly in SYSTEM.SYSOPTIONS. SQLDBMIG sets up the correct options, and these messages should no longer occur after it has successfully completed processing. See the *DB2 Server for VSE & VM SQL Reference* manual for a description of the valid SYSOPTIONS entries.

sqldbmig dbname(*dbname*)	*dbname* is the name of the database to be updated.

The SQLDBMIG EXEC does the following:

a. Prompts for the current password for the user ID SQLDBA.

b. Recreates the default bootstrap modules on the production minidisk (Q-disk). The default bootstrap modules are:

```
SQLDBA SQLRMBT Q
SQLDBA SQLDBBT Q
SQLDBA SQLISBT Q
```

c. Recreates the DBS utility package SQLDBA.ARIDSQL.

d. Ensures that a row exists in SYSTEM.SYSOPTIONS for each option. If no row exists for a specific option, a new row is inserted, and the default value is used. If a row does exist, the values for that row are not modified.

For every row that exists, you receive a -803 SQLCODE. You can ignore these messages. Refer to the *DB2 Server for VSE & VM SQL Reference* manual for more information on SYSTEM.SYSOPTIONS.

e. Loads tables for CCSID support. If you are migrating from SQL/DS 3.3.0, 3.4.0, or 3.5.0 you will receive a -803 SQLCODE for every row that already exists in the system catalog. You can ignore these messages.

f. Creates CMS files for CCSID support.

g. Loads or reloads the IBM-supplied ISQL routine ARINEWUS into the SQLDBA.ROUTINE table, using the contents of ARISI21 MACRO V.

h. Performs an UPDATE STATISTICS on SYSTEM.SYS0001 DBSPACE.

i. Drops and recreates the SQL/DS sample tables with IBM-supplied data if the DBSPACE PUBLIC.SAMPLE exists in the database. If this dbspace was previously dropped, a warning message is generated and the sample tables are not reloaded. If only the SQL/DS sample tables were

previously dropped, a warning message is generated (-204) but the sample tables are recreated and reloaded.

j. Reloads the ISQL package SQLDBA.ARIISQL.

k. Loads the FIPS flagger package SQLDBA.ARIFCRD.

l. Drops the SYSLANGUAGE table (if it exists) and recreates it in the SYS0001 DBSPACE. Any data added to it by users is lost. If the table did not exist, it is created in the SYS0001 DBSPACE.

This step also creates two indexes for the SYSLANGUAGE table, and inserts this row:

LANGUAGE	LANGKEY	REMARKS	LANGID
ENGLISH	S001	AMERICAN ENGLISH	AMENG

m. You will now see a prompt which asks if you want to install English DB2 for VM HELP text into the database:

- If you respond YES, the SQL/DS product performs these steps:

  1) Migrates the existing English HELP text tables
  2) Creates indexes for the HELP tables.

- If you respond NO, the SQL/DS product deletes any English HELP text you may have. However it keeps the tables and indexes.

- If you respond QUIT, you exit from the SQLDBMIG EXEC, and migration is incomplete; no further steps are done. If this happens, you can rerun the SQLDBMIG EXEC. A return code of 6 or less is acceptable.

n. The next prompt allows you to specify the dbspace where the HELP text tables reside. It assumes that they presently reside in a dbspace named PUBLIC.HELPTEXT. If they are, press ENTER. If they are in another dbspace, enter the name and owner of the dbspace in this format:

    owner.dbspacename

o. Finally, SQLDBMIG changes the password for the user ID SQLDBA to the password entered in response to the SQLDBMIG EXEC prompt.

If a warning message is generated while the SQLDBMIG EXEC is running, you should inspect the printer file messages.

Because the SQLDBMIG EXEC issues a GRANT CONNECT TO ALLUSERS, all users can implicitly connect to the database. You can revoke this authority at any time.

Before completion, the SQLDBMIG EXEC also displays console messages that identify in-process activity.

ARI0665E Identifies that SQLDBMIG did not complete successfully

ARI0666I Identifies that the database was generated and installed correctly. If you do not receive this message, review the printer output to ensure that errors that occurred are acceptable.

8.9.5 Migration Step 11: ARISFPKY EXEC

1 Run ARISFPKY EXEC to lists all the primary keys created in Versions 3.1 and 3.2, which should be dropped and recreated after migrating to Version 6 Release 1 and later versions. The keys that should be dropped are only those which satisfy all of the following criteria:

- The key is a primary key.
- A field procedure is defined on the key.
- The subtype of the column the key is defined on is "M".

The ARISFPKY EXEC is *not* invoked by the SQLDBMIG EXEC and must be run after migration if a report is desired.

To run the ARISFPKY EXEC, you must have:

- SELECT authority on the catalog tables
- RUN authority on ARIDSQL
- CONNECT authority.

arisfpky dbname(*dbname***)**   *dbname*) is the name of the database to be searched for primary keys that should be dropped and recreated.

SQL/DS version 3.3 and later versions support a column CCSID attribute. For primary keys created in version 3.1 and 3.2, the value of the CCSID attribute in SYSTEM.SYSKEYCOLS is null. In versions 3.3 and later, this null CCSID value will be assumed to the database default for SBCS data. If the column that the primary key is defined on has been defined as FOR MIXED DATA (that is, the subtype is "M"), then the CCSID assumed for the primary key will be incorrect. By dropping and recreating the primary key, the actual non-null CCSID value will be placed in SYSTEM.SYSKEYCOLS, so no CCSID value will have to be assumed. Note that the CCSID value in SYSTEM.SYSKEYCOLS is only used by the system when the primary key column has a field procedure defined on it.

The ARISFPKY EXEC:

a. Runs the DBS utility program ARISFPKY MACRO, which queries the system catalogs to list the primary keys which should be dropped and recreated.

b. Writes the output from the queries to the file ARISFPKY LIST.

c. Can run in single or multiple user mode.

The ARISFPKY MACRO DBS utility program consists of one SQL query. The output from the query is a list of all primary keys which satisfy the criteria listed above. The list is in order by the creator of the key and then the table the key is created on.

To make sure the correct CCSID is used for these primary keys:

- Drop and recreate the primary keys using the ALTER TABLE statement.

8.10 Database Verification

8.10.1 Migration Step 12: Start the Application Server

1 While still logged on to the database machine (SQLMACH) start the application server in multiple user mode to access the database just generated by entering:

sqlstart dbname(*server-name***) parm(charname=***charname***, tcpport=0)**

> *server-name.* is the name of the database to initialize.
>
> *charname* is the the character set name (CHARNAME) that corresponds to the code page that your communication controllers use (the default is ENGLISH). For example, if your controllers are currently using code page 37, set the CHARNAME parameter to `CHARNAME=ENGLISH`. Refer to the *DB2 Server for VM System Administration* manual for more information on CHARNAME.

2 Disconnect the SQLMACH Machine

After the message "ARI0045I Ready for operator communications" is displayed, disconnect from the SQLMACH machine by entering:

#cp disconn

> The application server is now running in multiple user mode in the SQLDBA database machine. The SQLMACH machine is accessing the database specified in the SQLSTART command.

8.10.2 Migration Step 13: Update DB2 for VM User Machine

1 Log on to the user machine, SQLUSER

2 Link and access the installation user ID test production disk or SFS directories.

det 195
link 5648A70S 195 195 rr
acc 195 q

The 'det' is to detach the database machine's (SQLMACH) production disk so the link to the new test production disk can take place. (If using SFS the detach is not necessary.)

You will be prompted for the password to the disks.

Substitute in the appropriate SFS directory names.

3 Make DB2 for VM message repository available.

set language ameng (add ari user

4 Initialize the SQLUSER machine.

A user machine must be initialized before it can use DB2 for VM facilities (such as ISQL) that communicate with the application server. This initialization involves creating the required modules, ARISISBT MODULE and ARISRMBT MODULE, on the 191 minidisk (A-disk). These modules are used to load the ISQL and resource adapter code into the user virtual machine, and to identify the application server you want to use. To create these modules on the A-disk, enter:

sqlinit dbname(_server-name_**)**

server-name is the name of the application server to initialize.

The ARISISBT and ARISRMBT modules are built on the A-disk.

5 Your database is now migrated and the user machine has been modified for Version 6 Release 1.

6 At this time you can start ISQL in this user machine and issue select and query commands against the database to verify that your tables were migrated successfully. Once that has been done issue the ISQL EXIT command to shut down the application requester.

isql
run your select and queries
exit

> **7** Log off the user machine.

logoff

> **8** Log on to the database machine (SQLMACH). (This should be a reconnect to it.)

> **9** To stop DB2 for VM processing in multiple user mode, enter the SQL operator command:

sqlend   When the application server ends, control is returned to CMS.

> **10** Log off the database machine (SQLMACH).

8.11 Migration Step 14: Copy DB2 for VM Files Into Production

> **1** Log on to the installation user ID, 5648A70S, to put DB2 for VM 'production' level of the code on SQLMACH's disks or SFS directories.

> **2** Access the installation user ID test service and test production disks or SFS directories.

vmfsetup 5648A70S {DB2VM | DB2VMSFS}   5648A70S is the PPF that was shipped with the product. If you have your own PPF override you should substitute your PPF name for 5648A70S in this command and any other commands that follow that use the PPF name.

> **3** Build the TCP/IP module. This module is needed to run any TCP/IP type code on both the server and requester side of DB2 for VM. NOTE: You need the TCP/IP client disk linked for this step to work. The default is TCPMAINT 592. Ask your system programmer for this information.

vmfbld ppf 5648A70S {DB2VM | DB2VMSFS} aribltcp arictcp.module(all

5648A70S is the PPF that was shipped with the product. If you have your own PPF override you should substitute your PPF name for 5648A70S, in this command and any other commands that follow that use the PPF name.

4 Run ARISINST to copy the installation user ID's, 5648A70S, test service and test production build disks or directories to the database machine's, SQLMACH, service and production disks or directories

arisinst me 5648A70S {DB2VM | DB2VMSFS}　　Use **DB2VM** for installing on minidisks or **DB2VMSFS** for installing in Shared File System directories.

The 'ME' tells ARISINST to update the ARISPIDC MACRO and copy from the installation user ID's test service and production build disks or SFS directories to the database machine user ID's service and production build disks or SFS directories.

Note: ARISINST with the 'ME' operand will take several minutes. The VMFCOP2866I message is normal.

5 You can place the DB2 for VM CMS help files on MAINT's 19D disk or any other user ID disk you would like. The steps here will have you log on to MAINT but this can be any user ID that you want to have the DB2 for VM CMS help files on. (The other common choice is the database machine's production minidisk or SFS directory, if you are not going to install multiple DB2 for VM NLS languages.)

　a Log on to MAINT to place the DB2 for VM CMS help files on MAINT's 19D (mixed case English). Make sure the 19D disk is linked R/W (read/write).

　b Link to the DB2 for VM's service and production minidisks or SFS directories.

　　1 If installing using minidisks

link sqlmach 195 995 rr
access 995 q
link sqlmach 193 993 rr
access 993 v

2 If installing using Shared File System

access sqlmach.sql.production q
access sqlmach.sql.service v

c Copy the DB2 for VM CMS help files using ARISDBMC.

set language ameng (add ari user	s001 is the language key used by DB2 for VM for
arisdbmc s001 v q c	language identifier AMENG. *v* is the file mode of
	the service minidisk or SFS directory. *q* is the file
	mode of the production minidisk or SFS directory.
	(The file modes of *v* and *q* must be used.) *c* is for
	the copy function.

d If you placed the DB2 for VM CMS help files on the system help disk (MAINT 19D), then you need to re-build the CMS HELPINST or HELPSEG shared segment, to include DB2 for VM's help files from the 19D disk. See the 'Placing (Serviced) Components into Production' section of the *VM/ESA: Service Guide* manual for detailed information about how these segments should be saved on your system. (Note that you will need to use "**(all**" instead of "**(serviced**" on the VMSES/E VMFBLD command when re-building any segments.)

8.12 Post Migration

8.12.1 Migration Step 15: Install the DB2 for VM System into the Secondary Production Minidisks

If you have secondary production minidisks defined in your environment, then you can install the newly migrated SQL/DS product on these minidisks using the ARISPDFC EXEC described under 7.4.1, "Servicing a Secondary Production Minidisk" on page 66.

8.12.2 Migration Step 16: System Customization Activities

At this time you can perform optional administration and customization tasks, such as:

- If you are migrating from a release prior to SQL/DS 3.3, rebind your application program packages using the REBIND PACKAGE DBS utility command. If you do not do this, all your application programs will be dynamically repreprocessed the first time they are run. This will affect performance if it is not done. For

more information on REBIND, refer to the *DB2 Server for VM Database Services Utility* manual.

- Install the DRDA code on the production disk and customize your system for distributed processing.

- Change the setting of the CHARNAME parameter for the database and initial user machine since the default after migration is ENGLISH. The CCSID defaults are determined when a CHARNAME is chosen.

- Set database CCSID support for user tables that existed prior to migration.

- Set database options, such as double-byte character set (DBCS) support and character subtype support.

- Re-install any user exits that you were using prior to migration. These exits will still exist on the production disk, but are not included in ARISQLLD LOADLIB. If you want to use these exits, you must link-edit the appropriate components.

- Use saved segments for SQL/DS components.

- Use saved segments for an SQL/DS message repository.

- Drop and recreate any EXPLAIN tables that were created in a previous release. You can use the ARISEXP MACRO to help you do this.

- Users of local date/time exits should reset the values for DATE and TIME in SYSTEM.SYSOPTIONS to LOCAL if they were changed in 8.3, "Migration Step 1. Preliminary Migration," substep 4 on page 90 .

- If you plan to use TCP/IP communications between your end users and the Database Server, you will need to customize the LE for VM User Exit. See Appendix E, "IBM Language Environment for VM User Exit Customization for use with TCP/IP" on page 182 for details.

- Refer to 10.0, "NLS Installation Instructions" on page 143 for more details on how to install and enable other NLS Languages for DB2 Server for VM.

Refer to the *DB2 Server for VM System Administration* manual for information to help you define procedures for operating the DB2 for VM product and for the information you need to perform the above optional administrative procedures.

9.0 Installing DB2 for VM as a Service Machine

This chapter describes the installation methods and the step-by-step procedures to install and activate DB2 for VM as a service machine. You can use a service machine if you only want to access data in a remote DB2 for VM database (in a TSAF collection, or in an SNA network), and you do not need a database in your own processor. (If you need a database on the processor then you should be doing a DB2 for VM initial database machine installation, go to 6.0, "Installing DB2 for VM" on page 19 for those instructions.)

The step-by-step procedures are in two column format. The steps to be performed are in bold large numbers. Commands for these steps are on the left hand side of the page in bold print. Additional information for a command may exist to the right of the command.

Each step of the installation instructions must be followed. Do not skip any step unless directed to do so.

Throughout these instructions, the use of IBM-supplied default minidisk addresses and user IDs is assumed. If you use different user IDs, minidisk addresses, or SFS directories to install DB2 for VM, adapt these instructions as needed for your environment.

Note!

The sample console output presented throughout these instructions was produced on a VM/ESA V2R3 system. If you're installing DB2 for VM on a different VM/ESA system, the results obtained for some commands may differ from those depicted here.

9.1 VMSES/E Installation Process Overview

The following is a brief description of the main steps in installing DB2 for VM using VMSES/E.

- Plan Your Installation

  Use the VMFINS command to load several VMSES/E files from the product tape and to obtain DB2 for VM resource requirements.

- Allocate Resources

  The information obtained from the previous step is used to allocate the appropriate minidisks (or SFS directories) and user IDs needed to install and use DB2 for VM.

- Install the DB2 for VM Product

  Use the VMFINS command to load the DB2 for VM product files from tape to the test BUILD and BASE minidisks/directories. VMFINS is then used to update the VM SYSBLDS file used by VMSES/E for software inventory management.

- Place DB2 for VM Files into Production

  Once the product files have been tailored and the operation of DB2 for VM is satisfactory, the product files are copied from the test BUILD disk(s) to production BUILD disk(s).

- Perform Post-installation Tasks

  Information about file tailoring and initial activation of the program is presented in 9.10, "Installation Step 8. Post Installation Customization Steps for DB2 for VM" on page 141.

For a complete description of all VMSES/E installation options refer to the *VM/ESA: VMSES/E Introduction and Reference* manual.

9.2 Checklist for Service Machine Installation

Notes:

- *Perform the steps in order.*
- *Mandatory steps are preceded by squares (■).*
- *Optional steps are preceded by circles (○).*
- *Page references appear in parentheses.*

___ ■ **9.3, Installation Step 1: Plan Your Installation For DB2 for VM** (120)

   ___ ■ Log on as DB2 for VM installation planner (120)

   ___ ■ Mount the installation tape (120)

   ___ ■ Access VMSES/E code (120)

   ___ ■ Access the Software Inventory disk (120)

   ___ ■ Load the product control files (120)

   ___ ■ Obtain resource planning information (121)

   ___ ■ Review message log (123)

___ ■ **9.4, Installation Step 2. Allocate Resources for Installing DB2 for VM** (123)

   ___ ■ Obtain the user directory (124 or 127)

   ___ ■ Update directory entries (124 or 127)

   ___ ■ Add directories to system directory (126 or 129)

   ___ ■ Place new directories online (127 or 129)

   ___ ■ Additional SFS step (129)

___ ■ **9.5, Installation Step 3. Install DB2 for VM** (131)

   ___ ■ Log on to the installation user ID (131)

   ___ ■ Create PROFILE EXEC to contain ACCESS commands (131)

   ___ ■ Execute the PROFILE EXEC (132)

   ___ ■ Access Software Inventory disk R/W (132)

   ___ ■ Mount installation tape (132)

   ___ ■ Install DB2 for VM (132)

   ___ ■ Review the message log (134)

   ___ ■ Update Software Inventory file (135)

   ___ ■ Review the message log (135)

___ ■ **9.6, Installation Step 4. Create Default Bootstrap Files and Enable** (135)

   ___ ■ Create bootstrap modules (135)

   ___ ■ Log off the installation user ID (136)

___ ■ **9.7, Installation Step 5. Copy PROFILE EXEC to Service Machine** (136)

   ___ ■ Log on to the service machine (136)

   ___ ■ Link and access test disks or directories (136)

   ___ ■ Copy the sample PROFILE EXEC (136)

   ___ ■ Log off of the service machine (136)

___ ■ **9.8, Installation Step 6. Installation Verification** (137)

   ___ ■ Log on to user machine, SQLUSER (137)

__	▪ Link and access test disk or directories (137)	__	▪ Log off the user machine, SQLUSER (139)
__	▪ Copy the sample PROFILE EXEC (137)	__	▪ **9.9, Installation Step 7. Copy DB2 for VM Files Into Production** (139)
__	▪ Make message repository available (137)	__	▪ Log on the installation user ID (139)
__	▪ Initialize the user machine, SQLUSER (137)	__	▪ Access the test disks or directories (139)
__	▪ Start ISQL (138)	__	▪ Run ARISINST (139)
__	▪ Verify the database (138)	__	▪ Place help files on disk (140)
__	▪ Shut down the application server (138)	__	▪ **9.10, Installation Step 8. Post Installation Customization Steps for DB2 for VM** (141)

Note

Throughout these instructions, the use of IBM-supplied default minidisk addresses and user IDs is assumed. If you use different user IDs, minidisk addresses, or SFS directories to install DB2 for VM, adapt these instructions as needed for your environment.

9.3 Installation Step 1: Plan Your Installation For DB2 for VM

The VMFINS command will be used to plan the installation. This section has two main steps:

- Load the first tape file, containing installation files
- Generate a PLANINFO file listing
  - All user ID/mdisks requirements
  - Required products

To obtain planning information for your environment:

1 Log on as DB2 for VM installation planner.

This user ID can be any ID that has read access to MAINT's 5E5 minidisk and write access to the MAINT 51D minidisk.

2 Mount the DB2 for VM installation tape and attach it to the user ID at virtual address 181. The VMFINS EXEC requires the tape drive to be at virtual address 181.

3 Establish read access to the VMSES/E code.

link MAINT 5e5 5e5 rr   The 5E5 disk contains the VMSES/E code.
access 5e5 b

4 Establish write access to the Software Inventory disk.

link MAINT 51d 51d mr   The MAINT 51D disk is where the VMSES/E
access 51d d   system-level Software Inventory and other
                                                             dependent files reside.

Note: If another user already has the MAINT 51D minidisk linked in write mode (R/W), you will only obtain read access (R/O) to this minidisk. If this occurs, you will need to have that user relink the 51D in read-only mode (RR), and then reissue the above LINK and ACCESS commands. Do not continue with these procedures until a R/W link is established to the 51D minidisk.

5 Load the DB2 for VM product control files to the 51D minidisk.

vmfins install info (nomemo

The NOMEMO option will load the memos from the tape but will not issue a prompt to send them to the system printer. Specify the MEMO option if you want to be prompted for printing the memo.

This command will perform the following:

- Load Memo-to-Users

- Load various product control files, including the Product Parameter File (PPF) and the PRODPART files

- Create VMFINS PRODLIST on your A-disk. The VMFINS PRODLIST contains a list of products on the installation tape.

```
VMFINS2760I VMFINS processing started
VMFINS1909I VMFINS PRODLIST created on your A-disk
VMFINS2760I VMFINS processing completed successfully
Ready;
```

6 Obtain resource planning information for DB2 for VM.

Notes:

a. The product will **not** be loaded by the VMFINS command at this time.

b. If you are not going to use the default user ID's, minidisk addresses or SFS directory names, you MUST create a PPF override. The defaults are listed in Figure 14 on page 16.

vmfins install ppf 5648A70S {DB2VM I DB2VMSFS} (plan nomemo

Use **DB2VM** for installing on minidisks or **DB2VMSFS** for installing in Shared File System directories.

The PLAN option indicates that VMFINS will perform requisite checking, plan system resources, and provide an opportunity to override the defaults in the product parameter file.

You can override any of the following:

- The name of the product parameter file
- The default user IDs
- Minidisk/directory definitions

To create an override you need to reply **1** to the VMFINS2601R message.

Notes:

a. If you change the PPF name, a default user ID, or other parameters via a PPF override, you will need to use your changed values instead of those indicated (when appropriate), throughout the rest of the installation instructions, as well as the instructions for servicing DB2 for VM. For example, you will need to specify your PPF override file name instead of 5648A70S for certain VMSES/E commands.

b. If you're not familiar with creating PPF overrides using VMFINS, you should review the 'Using the Make Override Panel' section in the *VM/ESA: VMSES/E Introduction and Reference* manual before you continue.

```
VMFINS2767I Reading VMFINS DEFAULTS B for additional options
VMFINS2760I VMFINS processing started
VMFINS2601R Do you want to create an override for :PPF 5648A70S DB2VM
            :PRODID. 5648A70S%DB2VM?
            Enter 0 (No), 1 (Yes) or 2 (Exit)
0
VMFINS2603I Processing product :PPF 5648A70S DB2VM :PRODID
            5648A70S%DB2VM
VMFREQ1909I 5648A70S PLANINFO created on your A-disk
VMFREQ2805I Product :PPF 5648A70S DB2VM :PRODID 5648A70S%DB2VM
            has passed requisite checking
VMFINT2603I Planning for the installation of product :PPF 5648A70S DB2VM
            :PRODID 5648A70S%DB2VM
VMFRMT2760I VMFRMT processing started
VMFRMT2760I VMFRMT processing completed successfully
VMFINS2760I VMFINS processing completed successfully
```

7 Review the install message log ($VMFINS $MSGLOG). If necessary, correct
any problems before going on. For information about handling specific error
messages, see the *VM/ESA: System Messages and Codes* manual or use
online HELP.

vmfview install

9.4 Installation Step 2. Allocate Resources for Installing DB2 for VM

Use the planning information in the 5648A70S PLANINFO file, created in 9.3,
"Installation Step 1: Plan Your Installation For DB2 for VM" on page 120, to:

- Create the 5648A70S, SQLMACH, and SQLUSER user directories for minidisk
  install

  OR

- Create the 5648A70S, SQLMACH, and SQLUSER user directories for SFS
  install.

Note

In previous releases of SQL/DS the service machine user ID was SQLSERV
and the remote user machine ID was SQLUSERR. In DB2 for VM they are now
SQLMACH and SQLUSER, respectively.

If you choose to use the old names or any other names, just substitute your
new names in for SQLMACH and SQLUSER where appropriate. If you do
change the names don't forget to do a PPF override, in the 6.5, "Installation
Step 3. Install DB2 for VM" on page 39, if you have not done so already.

Procedural Note

If you are installing on a minidisk, continue to 9.4.1, "Install DB2 for VM on
Minidisk" on page 124.

If you are installing in an SFS directory, go to 9.4.2, " Install DB2 for VM in SFS
Directories" on page 127.

9.4.1 Install DB2 for VM on Minidisk

1 Obtain the user directory from the 5648A70S PLANINFO file.

Note: The user directory entries are located in the resource section of the PLANINFO file, at the bottom; these entries will contain all of the links and privilege classes necessary for the 5648A70S, SQLMACH, and SQLUSER user IDs. Use the directory entries found in the PLANINFO file as a model as input to your system directory.

2 With the exception of minidisks 200, 201, and 202, add the MDISK statements to the directory entry for 5648A70S, SQLMACH, and SQLUSER. The service machine (SQLMACH) does not need the database minidisks, 200, 201, and 202. Use Figure 14 on page 16 to obtain the other minidisk requirements.

In the directory entry for SQLMACH, delete the following statements:

- OPTION MAXCONN 26
- IUCV ALLOW
- IUCV *IDENT SQLDBA GLOBAL

In general for any MDISK:

- You can supply your own volume identifier that follows your installation's naming conventions. The DB2 for VM system places no restrictions on volume identifiers.

- For SQLMACH and SQLUSER, you must load the Callable Services Library (CSL) routines into this machine before you can successfully use DB2 for VM (specifically the Resource Adapter). For information on CSL routines refer to the *VM/ESA: CMS Application Development Reference* manual.

  a When adding the directory entry for the installation user ID (default 5648A70S), you need to supply READ, WRITE and MULTIPLE-ACCESS passwords for the test production (195) and test service (193) minidisks.

  b When adding the directory entry for the service machine (default SQLMACH), keep in mind the following about the sample directory statements in the PLANINFO file and about the MDISK statements that you will be adding.

  USER SQLMACH password 8M 8M G
  >   Defines the service machine as a 8-megabyte virtual machine with the VM/ESA privilege class G.

IPL CMS
Uses the CMS saved segment name (for example, CMS) applicable to your VM/ESA environment.

CONSOLE 009 3215 T OPERATOR
If the service machine will be run in disconnect mode, you should specify an alternate console. In this example, the OPERATOR virtual machine is identified as the alternate.

LINK MAINT 19D 19D RR
This is a LINK statement for the CMS Help facility, which you need to access the DB2 for VM Help panels. (If you omit it, you can still use DB2 for VM HELP text stored in a database, which is accessed through ISQL, not CMS.)

MDISK 191 3380 cylr 010 volser W
MDISK entry for read/write work disk (A-disk), with virtual device address 191 and link access mode W (write).

MDISK 193 3380 cylr 060 volser R readpw writepw multipw
MDISK entry for the DB2 for VM service minidisk, with virtual device address 193 and link access mode R (read). Read (readpw), write (writepw) and multiple-access (multipw) passwords must be specified. You and the owner of the service machine must keep track of these passwords; you will need them later in the installation process.

The DB2 for VM service minidisk is not required for normal database processing, so the physical volume on which it resides can be removed from the system and mounted when database installation, generation, or maintenance activities must be performed. Therefore, it is recommended that you do not allocate this minidisk to the same physical DASD volume that is used for the DB2 for VM production minidisk.

MDISK 195 3380 cylr 024 volser RR readpw writepw multipw
MDISK entry for the DB2 for VM production minidisk, with virtual device address 195 and link access mode RR (readonly). Read (readpw), write (writepw) and multiple (multipw) passwords must be specified. You and the owner of the service machine must keep track of these passwords; you will need them later in the installation process.

The DB2 for VM production minidisk must be online and available for all DB2 for VM operations. IBM-supplied database generation and maintenance EXECs relink it with access mode M or W when updates to it are required.

c When adding the directory entry for the DB2 for VM user machine (default SQLUSER), keep in mind the following about the sample directory statements in the PLANINFO file and about the MDISK statements that you will be adding.

USER SQLUSER password 4M 4M G
> Defines the DB2 for VM user machine as a 4-megabyte (4MB) virtual machine.

IUCV SQLDBA
> This statement is optional.
>
> It is not required if the IUCV ALLOW control statement is supplied in the VM/ESA directory for the DB2 for VM database machine; because IUCV is the default, it is usually omitted. SQLDBA is the name of the default database.
>
> If, later, you want more control over the communication between user machines and the database machine, you can change the IUCV statements. Instructions are outlined in the chapter on security in the *DB2 Server for VM System Administration* manual.

IPL CMS
> Uses the CMS saved segment name (for example, CMS) applicable to your VM environment.

LINK MAINT 19D 19D RR
> This is a LINK statement for the CMS Help facility, which you need to access the DB2 for VM Help panels. If you omit it, you can still use DB2 for VM HELP text stored in a database, which is accessed through ISQL, not CMS.

LINK SQLMACH 195 195 rr
> Links the DB2 for VM production minidisk with the virtual device address of 195 and access mode of READ ONLY.
>
> To establish a virtual machine as a DB2 for VM user machine, you must have a link to a service machine's production minidisk.

MDISK 191 3380 cylr 003 volser W
> Defines a read/write work disk (A-disk) with virtual device address 191 and link access mode WRITE.

3 Add the 5648A70S, SQLMACH, and SQLUSER directories to the system directory. Change the passwords for 5648A70S, SQLMACH, and SQLUSER from xxxxx to a valid password, in accordance with your security guidelines.

4 Place the new directories online using VM/Directory Maintenance (DIRMAINT) or an equivalent CP directory maintenance method.

Important Note

All minidisks for the 5648A70S, SQLMACH, and SQLUSER user IDs must be formatted before installing DB2 for VM.

Procedural Note

Continue with 9.5, "Installation Step 3. Install DB2 for VM" on page 131.

9.4.2 Install DB2 for VM in SFS Directories

Note

In previous releases of SQL/DS the service machine user ID was SQLSERV and the remote user machine ID was SQLUSERR. In DB2 for VM they are now SQLMACH and SQLUSER, respectively.

If you choose to use the old names or any other names, just substitute your new names in for SQLMACH and SQLUSER where appropriate. If you do change the names don't forget to do a PPF override, in the 6.5, "Installation Step 3. Install DB2 for VM" on page 39, if you have not done so already.

---

1 Obtain the user directory from the 5648A70S PLANINFO file.

Note: The user directory entries are located in the resource section of the PLANINFO file, at the bottom; these entries will contain all of the links and privilege classes necessary for the 5648A70S, SQLMACH, and SQLUSER user IDs. Use the directory entries found in the PLANINFO file as a model as input to your system directory.

2 Delete the following statements in the directory entry for SQLMACH:

- OPTION MAXCONN 26
- IUCV ALLOW
- IUCV *IDENT SQLDBA GLOBAL

   a When adding the directory entry for the service machine (default SQLMACH), keep in mind the following about the sample directory statements in the PLANINFO file and about the MDISK statements that you will be adding.

USER SQLMACH password 8M 8M G

> Defines the service machine as a 8-megabyte virtual machine with the VM/ESA privilege class G.

IPL CMS

> Uses the CMS saved segment name (for example, CMS) applicable to your VM/ESA environment.

CONSOLE 009 3215 T OPERATOR

> If the service machine will be run in disconnect mode, you should specify an alternate console. In this example, the OPERATOR virtual machine is identified as the alternate.

LINK MAINT 19D 19D RR

> This is a LINK statement for the CMS Help facility, which you need to access the DB2 for VM Help panels. (If you omit it, you can still use DB2 for VM HELP text stored in a database, which is accessed through ISQL, not CMS.)

b When adding the directory entry for the DB2 for VM user machine (default SQLUSER) keep in mind the following about the sample directory statements in the PLANINFO file and about the MDISK statements that you will be adding.

USER SQLUSER password 4M 4M G

> Defines the DB2 for VM user machine as a 4-megabyte (4MB) virtual machine.

IUCV SQLDBA

> This statement is optional.

> It is not required if the IUCV ALLOW control statement is supplied in the VM/ESA directory for the DB2 for VM database machine; because IUCV is the default, it is usually omitted. SQLDBA is the name of the default database.

> If, later, you want more control over the communication between user machines and the database machine, you can change the IUCV statements. Instructions are outlined in the chapter on security in the *DB2 Server for VM System Administration* manual.

IPL CMS

> Uses the CMS saved segment name (for example, CMS) applicable to your VM environment.

LINK MAINT 19D 19D RR

> This is a LINK statement for the CMS Help facility, which you need to access the DB2 for VM Help panels. If you omit it, you can still use DB2 for VM HELP text stored in a database, which is accessed through ISQL, not CMS.

3 Add the 5648A70S, SQLMACH, and SQLUSER directories to the system directory. Change the passwords for 5648A70S, SQLMACH, and SQLUSER from xxxxx to a valid password, in accordance with your security guidelines.

4 Place the new directories online using VM/Directory Maintenance (DIRMAINT) or an equivalent CP directory maintenance method.

5 An SFS install will also require the following steps:

a Determine the number of 4KB blocks that are required for SFS directories by adding up the 4KB blocks required for each SFS directory you plan to use.

If you intend to use all of the default DB2 for VM SFS directories, the 4KB block requirements for each are summarized in Figure 14 on page 16.

This information will be used when enrolling 5648A70S, SQLMACH, and SQLUSER to the VMSYS filepool (or chosen filepool).

b Enroll user 5648A70S, SQLMACH, and SQLUSER in the VMSYS filepool using the ENROLL USER command:

```
ENROLL USER 5648A70S VMSYS: (BLOCKS blocks
ENROLL USER SQLMACH VMSYS: (BLOCKS blocks
ENROLL USER SQLUSER VMSYS: (BLOCKS blocks
```

blocks is the number of 4KB blocks that you calculated in the previous step.

Note: This must be done from a user ID that is an administrator for VMSYS: filepool.

c Determine if there are enough blocks available in the filepool to install DB2 for VM. This information can be obtained from the QUERY FILEPOOL STATUS command. Near the end of the output from this command is a list of minidisks in the filepool and the number of blocks free. If the number of blocks free is smaller than the total 4KB blocks needed to install DB2 for VM, you will need to add space to the filepool. See the *VM/ESA: CMS File Pool Planning, Administration, and Operation* manual for information on adding space to a filepool.

d Create the necessary subdirectories listed in the 5648A70S PLANINFO file using the CREATE DIRECTORY command.

```
set filepool vmsys:
create directory vmsys:5648A70S.sql.object
create directory vmsys:5648A70S.sql.local
create directory vmsys:5648A70S.sql.delta
create directory vmsys:5648A70S.sql.applyalt
create directory vmsys:5648A70S.sql.applyprod
create directory vmsys:5648A70S.sql.service
create directory vmsys:5648A70S.sql.production
create directory vmsys:sqlmach.sql.service
create directory vmsys:sqlmach.sql.production
```

A complete list of default DB2 for VM SFS directories is provided in Figure 14 on page 16.

If necessary, see the *VM/ESA: CMS Command Reference* manual for more information about the CREATE DIRECTORY command.

e Give the installation user ID (5648A70S) READ and WRITE authority to the service machine's (SQLMACH) production and service directories, using the GRANT AUTHORITY command.

```
grant auth vmsys:sqlmach.sql.service to 5648A70S (write newwrite
grant auth vmsys:sqlmach.sql.production to 5648A70S (write newwrite
```

If necessary, see the *VM/ESA: CMS Command Reference* manual for more information about the GRANT AUTHORITY command.

f Give the service machine user ID (SQLMACH) READ and WRITE authority to the installation user ID's (5648A70S) production and service directories, using the GRANT AUTHORITY command.

```
grant auth vmsys:5648A70S.sql.service to sqlmach (write newwrite
grant auth vmsys:5648A70S.sql.production to sqlmach (write newwrite
```

If necessary, see the *VM/ESA: CMS Command Reference* manual for more information about the GRANT AUTHORITY command.

g Give the user machine (SQLUSER) READ authority to the installation user ID's (5648A70S) and service machine's (SQLMACH) production directories, using the GRANT AUTHORITY command.

Note: If you are going to allow many user machines or virtual machines access to the service machine's (SQLMACH) production directory, you may want to grant PUBLIC access, instead of individual machine access. To do this you would replace *SQLUSER* with *PUBLIC* in the GRANT AUTH command for the "vmsys:sqlmach.sql.production" directory.

grant auth vmsys:5648A70S.sql.production to SQLUSER (read newread
grant auth vmsys:sqlmach.sql.production to SQLUSER (read newread

> **h** If you did not grant PUBLIC READ access to the service machine's (SQLMACH) production disk, in the previous step, then you need to give all the user machines or virtual machines, that will be allowed to access the service machine's (SQLMACH) production directory, READ authority to the service machine's production directory, using the GRANT AUTHORITY command.

grant auth vmsys:sqlmach.sql.production to *virtual_machine_user_ID* **(read newread**

> **i** (Optional) If you are going to place the DB2 for VM CMS Help files on the VM system MAINT user ID's help disk, then you need to give MAINT READ authority to the service machine's (SQLMACH) production and service directories using the GRANT AUTHORITY command.

grant auth vmsys:sqlmach.sql.service to MAINT (read newread
grant auth vmsys:sqlmach.sql.production to MAINT (read newread

> **j** If you intend to use an SFS directory as the work space for the user IDs 5648A70S, SQLMACH, or SQLUSER, include the following IPL control statement in its directory entry:

```
IPL CMS PARM FILEPOOL VMSYS
```

> This causes CMS to automatically access 5648A70S, SQLMACH, or SQLUSER's top directory as file mode A.

9.5 Installation Step 3. Install DB2 for VM

The *ppfname* used throughout these installation instructions is **5648A70S**, which assumes you are using the PPF supplied by IBM for DB2 for VM. If you have your own PPF override file for DB2 for VM, you should use your file's *ppfname* instead of **5648A70S**. The *ppfname* you use should be used **throughout** the rest of this procedure.

> **1** Log on to the installation user ID (5648A70S).

> **2** Create a PROFILE EXEC that will contain the ACCESS commands for MAINT 5E5 and 51D minidisks.

```
xedit profile exec a
===> input /**/
===> input 'access 5e5 b'
===> input 'access 51d d'
===> file
```

If either 5E5 or 51D is in a shared file system (SFS), then substitute your SFS directory name in the access command.

3 Execute the profile to access MAINT's minidisks.

```
profile
```

4 If the Software Inventory disk (51D) was accessed R/O (read only) then establish write access to the Software Inventory disk.

Note: If the MAINT 51D minidisk was accessed R/O, you will need to have the user who has it linked R/W link it as R/O. You then can issue the following commands to obtain R/W access to it.

```
link maint 51d 51d mr
access 51d d
```

5 Have the DB2 for VM installation tape mounted and attached to 5648A70S at virtual address 181. The VMFINS EXEC requires the tape drive to be at virtual address 181.

6 Install DB2 for VM.

Notes:

a. Make sure the service machine (SQLMACH) and user machine (SQLUSER) user IDs are logged off before you continue with the install.

b. If you've already created a PPF override file, you should specify your override file name, in place of the default PPF name (5648A70S), after the **PPF** keyword for the following VMFINS command.

c. You may be prompted for additional information during VMFINS INSTALL processing depending on your installation environment. If you're unsure how to respond to a prompt, refer to the "Installing Products with VMFINS" and "Install Scenarios" chapters in the *VM/ESA: VMSES/E Introduction and Reference* manual to decide how to proceed.

```
vmfins install ppf 5648A70S {DB2VM | DB2VMSFS} (nomemo nolink
```

Use **DB2VM** for installing on minidisks or **DB2VMSFS** for installing in Shared File System directories.

The NOLINK option indicates that you don't want VMFINS to link to the appropriate minidisks, only access them if not accessed.

```
VMFINS2767I Reading VMFINS DEFAULTS B for additional options
VMFINS2760I VMFINS processing started
VMFINS2601R Do you want to create an override for :PPF 5648A70S DB2VM
            :PRODID. 5648A70S%DB2VM?
            Enter 0 (No), 1 (Yes) or 2 (Exit)
0
VMFINS2603I Processing product :PPF 5648A70S DB2VM :PRODID
            5648A70S%DB2VM
VMFREQ2805I Product :PPF 5648A70S DB2VM :PRODID 5648A70S%DB2VM
            has passed requisite checking
VMFINT2603I Installing product :PPF 5648A70S DB2VM :PRODID
            5648A70S%DB2VM
VMFSET2760I VMFSETUP processing started
VMFUTL2205I Minidisk|Directory Assignments:
            String    Mode  Stat  Vdev  Label/Directory
VMFUTL2205I LOCALSAM  E     R/W   2C2   DBI2C2
VMFUTL2205I APPLY     F     R/W   2A6   DBI2A6
VMFUTL2205I           G     R/W   2A2   DBI2A2
VMFUTL2205I DELTA     H     R/W   2D2   DBI2D2
VMFUTL2205I BUILD2    I     R/W   195   DBI195
VMFUTL2205I BUILD0    J     R/W   193   DBI193
VMFUTL2205I BASE      K     R/W   2B2   DBI2B2
VMFUTL2205I SYSTEM    M     R/W   295   SQL295
VMFUTL2205I           N     R/W   293   SQL293
VMFUTL2205I --------  A     R/W   191   SQL191
VMFUTL2205I --------  B     R/O   5E5   MNT5E5
VMFUTL2205I --------  D     R/W   51D   MNT51D
VMFUTL2205I --------  S     R/O   190   CMS210
VMFUTL2205I --------  Y/S   R/O   19E   YDISK
VMFSET2760I VMFSETUP processing completed successfully
VMFREC2760I VMFREC processing started
VMFREC1852I Volume 1 of 1 of INS TAPE 9800
VMFREC1851I (1 of 7) VMFRCAXL processing AXLIST
VMFRCX2159I Loading 0 part(s) to DELTA 2D2 (H)
VMFREC1851I (2 of 7) VMFRCPTF processing PARTLST
VMFRCP2159I Loading 0 part(s) to DELTA 2D2 (H)
VMFREC1851I (3 of 7) VMFRCCOM processing DELTA
VMFRCC2159I Loading 0 part(s) to DELTA 2D2 (H)
VMFREC1851I (4 of 7) VMFRCALL processing APPLY
VMFRCA2159I Loading part(s) to APPLY 2A6 (F)
VMFRCA2159I Loaded 1 part(s) to APPLY 2A6 (F)
VMFREC1851I (5 of 7) VMFRCALL processing BASE
VMFRCA2159I Loading part(s) to BASE 2B2 (K)
VMFRCA2159I Loaded .... part(s) to BASE 2B2 (K)
VMFREC1851I (6 of 7) VMFRCALL processing BUILDS
VMFRCA2159I Loading part(s) to BUILD0 193 (J)
VMFRCA2159I Loaded .... part(s) to BUILD0 193 (J)
VMFREC1851I (7 of 7) VMFRCALL processing BUILDP
VMFRCA2159I Loading part(s) to BUILD2 195 (I)
VMFRCA2159I Loaded .. part(s) to BUILD2 195 (I)
VMFREC2760I VMFREC processing completed successfully
VMFINT2603I Product installed
VMFINS2760I VMFINS processing completed successfully
```

7 Review the install message log ($VMFINS $MSGLOG). If necessary, correct
any problems before going on. For information about handling specific error
messages, see the *VM/ESA: System Messages and Codes* manual or use
online HELP.

vmfview install

9.5.1 Update Build Status Table for DB2 for VM

1 Update the VM SYSBLDS software inventory file for DB2 for VM.

vmfins build ppf 5648A70S {DB2VM | DB2VMSFS} (serviced nolink

Use **DB2VM** for installing on minidisks or **DB2VMSFS** for installing in Shared File System directories.

The SERVICED option will build any parts that were not built on the installation tape (if any) and update the Software Inventory build status table showing that the product 5648A70S has been built.

Note: If your software inventory disk (51D) is not owned by MAINT then make sure the VMSESE PROFILE reflects the correct owning user ID. See the *VM/ESA: VMSES/E Introduction and Reference* manual for information on modifying the VMSESE PROFILE.

2 Review the install message log ($VMFINS $MSGLOG). If necessary, correct any problems before going on. For information about handling specific error messages, see the *VM/ESA: System Messages and Codes* manual or use online HELP.

vmfview install

9.6 Installation Step 4. Create Default Bootstrap Files and Enable

Messages

1 While still logged on to the installation user ID (5648A70S), run ARISINST to create default bootstrap modules and enable messages. (If you had logged off of 5648A70S, you will need to run VMFSETUP 5648A70S {DB2VM | DB2VMSFS} to get the correct minidisks or SFS directories accessed.)

arisinst i 5648A70S {DB2VM | DB2VMSFS}

Use **DB2VM** for installing on minidisks or **DB2VMSFS** for installing in Shared File System directories.

The 'i' option tells ARISINST that this is initial install.

2 Log off the installation user ID, 5648A70S.

9.7 Installation Step 5. Copy PROFILE EXEC to Service Machine

1 Log on to the service machine (SQLMACH).

If you are using minidisks you need to make sure that the SQLMACH minidisks have been formatted.

2 Link and access the installation user ID's test production disk or SFS directory.

link 5648A70S 195 295 W
acc 295 e

You will be prompted for the password to the disks.

Substitute in the appropriate SFS directory name. Also, substitute in your minidisk address, if they are different.

3 Copy the sample PROFILE EXEC to the service machine's (SQLMACH) A-disk.

copyfile sqlmach profile e profile exec a

Note that there is no ACCESS command for the DB2 for VM service disk (193 disk) in the PROFILE; this disk is only accessed when needed.

You may also need to add local environmental commands. Obtain this information from your system programming department.

If you have DB2 for VM in SFS, you must replace the production minidisk access with the appropriate SFS production directory access.

If you are not using the default production minidisk address, 195, replace the default with yours.

4 Log off the service machine, SQLMACH

logoff

9.8 Installation Step 6. Installation Verification

Because service machines in TSAF collections can be arranged and installed in a variety of ways, the verification procedure outlined here should be viewed as a guideline and should be tailored to your specific environment. This guideline assumes that the TSAF collection is operational. For more information about TSAF collection, see the *VM/ESA: Connectivity Planning, Administration, and Operation* manual.

To verify that the service machine code is functioning properly:

- Ensure that one of your DB2 for VM databases is a GLOBAL resource, and grant the remote user machine (SQLUSER on the service machine) authority to access it. Part of this task includes verifying that all directory entries for DB2 for VM database machines, service machines, and user machines are correct.

- Ensure that the DB2 for VM application server has been started on the GLOBAL database (the database that was defined as a GLOBAL resource). See the *DB2 Server for VM Operation* manual for instructions on how to do this.

1 Log on to the user machine, SQLUSER.

If you are using minidisks, you need to make sure that the 191 A-disk has been formatted.

2 Link and access the installation user ID's test production disk or SFS directory.

link 5648A70S 195 295 rr
acc 295 q

You will be prompted for the password to the disks.

Substitute in the appropriate SFS directory names. Also, substitute in your minidisk address, if it is different.

3 Copy the sample PROFILE EXEC for the user machine, SQLUSER.

copyfile sqluser profile q profile exec a

You may need to add local environmental commands. Obtain this information from your system programming department.

4 Make DB2 for VM message repository available.

set language ameng (add ari user

5 Initialize the user machine, SQLUSER.

A DB2 for VM user machine must be initialized before it can communicate with the service machine. This involves creating the required modules, ARISISBT MODULE and ARISRMBT MODULE, on the 191 minidisk (A-disk). These modules are used to load the ISQL and resource adapter code into the user virtual machine, and to identify the database you wish to use.

sqlinit dbname(_server_name_**)**   The ARISISBT and ARISRMBT modules are built on the A-disk.

Replace _server_name_ with the name of the database to access. The database is a global resource within a collection that was generated on another processor.

6 Start ISQL in the user machine, SQLUSER.

isql

7 Retrieve data from the DB2 for VM database.

a Complete the verification of the DB2 for VM service machine installation.

select * from system.sysoptions where sqloption='release'

If the command runs successfully, it displays information from the DB2 for VM catalog table SYSTEM.SYSOPTIONS, as shown in Figure 20.

```
   SQLOPTION                VALUE              REMARKS
   ----------------------   ----------------   ---------------------
   RELEASE                  5.1.0                 VERSION, RELEASE, MO<
   * END OF RESULT ***** 1 ROWS DISPLAYED **** COST ESTIMATE IS 1 **
```

Figure 20. SYSTEM.SYSOPTIONS Display that Verifies DB2 for VM Installation

b To end the display, enter:

end

8 Shut down the application requester.

exit   This stops ISQL and control is returned to CMS.

> **9** Log off the user machine, SQLUSER.

logoff

9.9 Installation Step 7. Copy DB2 for VM Files Into Production

> **1** Log on to the installation user ID (5648A70S) to put DB2 for VM production level of the code on the service machine's (SQLMACH) disks or SFS directories.

> **2** Access the installation user ID's test service and test production disks or SFS directories.

vmfsetup 5648A70S {DB2VM | DB2VMSFS}   5648A70S is the PPF that was shipped with the product. If you have your own PPF override you should substitute your PPF name for 5648A70S, in this command and any other commands that follow that use the PPF name.

> **3** Build the TCP/IP module. This module is needed to run any TCP/IP type code on both the server and requester side of DB2 for VM. NOTE: You need the TCP/IP client disk linked for this step to work. The default is TCPMAINT 592. Ask your system programmer for this information.

vmfbld ppf 5648A70S {DB2VM | DB2VMSFS} aribltcp arictcp.module(all

5648A70S is the PPF that was shipped with the product. If you have your own PPF override you should substitute your PPF name for 5648A70S, in this command and any other commands that follow that use the PPF name.

> **4** Run ARISINST to copy the installation user ID's (5648A70S) test service and test production build disks or directories to the service machine's (SQLMACH) service and production disks or directories.

arisinst ie 5648A70S {DB2VM | DB2VMSFS} Use **DB2VM** for installing on minidisks or **DB2VMSFS** for installing in Shared File System directories.

The "ie" tells ARISINST to update the ARISPIDC MACRO and copy from the installation user ID's test service and production build disks or SFS directories to the service machine's service and production build disks or SFS directories.

Note: ARISINST with the 'IE' operand will take several minutes. The VMFCOP2866I message is normal.

5 You can place the DB2 for VM CMS help files on MAINT's 19D disk or any other user ID disk you would like. The steps here will have you log on to MAINT but this can be any user ID that you want to have the DB2 for VM CMS help files on. (The other common choice is the database machine's production minidisk or SFS directory, if you are not going to install multiple DB2 for VM NLS languages.)

a Log on to MAINT to place the DB2 for VM CMS help files on MAINT's 19D (mixed case English).

b Link to the DB2 for VM's service and production minidisks or SFS directories.

1 If installing using minidisks

link sqlmach 195 995 rr
access 995 q
link sqlmach 193 993 rr
access 993 v

2 If installing using Shared File System

access sqlmach.sql.production q
access sqlmach.sql.service v

c Copy the DB2 for VM CMS help files using ARISDBMC. directories.

set language ameng (add ari user **arisdbmc s001 v q c**	s001 is the language key used by DB2 for VM for language identifier AMENG. *v* is the file mode of the service minidisk or SFS directory. *q* is the file mode of the production minidisk or SFS directory. (The file modes of *v* and *q* must be used.) *c* is for the copy function.

d If you placed the DB2 for VM CMS help files on the system help disk (MAINT 19D), then you need to re-build the CMS HELPINST or HELPSEG shared segment, to include DB2 for VM's help files from the 19D disk. See the 'Placing (Serviced) Components into Production' section of the *VM/ESA: Service Guide* manual for detailed information about how these segments should be saved on your system. (Note that you will need to use "**(all**" instead of "**(serviced**" on the VMSES/E VMFBLD command when re-building any segments.)

9.10 Installation Step 8. Post Installation Customization Steps for DB2 for VM

You can proceed with normal database operations using the remote DB2 for VM database and the service machine user machines already defined.

At this time, you can perform optional administration and customization tasks, such as:

- Install the DRDA code on the production disk and customize for distributed processing.

- Change the setting of the CHARNAME parameter for the service and initial user machine since the default after installation is INTERNATIONAL. The CCSID defaults are determined when a CHARNAME is chosen.

- Define additional DB2 for VM user machines.

- Use saved segments for DB2 for VM components.

- Use saved segments for a DB2 for VM message repository.

- If you plan to use TCP/IP communications between your end users and the Database Server, you will need to customize the LE for VM User Exit. See Appendix E, "IBM Language Environment for VM User Exit Customization for use with TCP/IP" on page 182 for details.

Refer to the *DB2 Server for VM System Administration* manual for information to help you define procedures for operating DB2 for VM and for the information you need to perform the above optional administrative procedures.

The *DB2 Server for VM Operation* manual provides reference information for DB2 for VM operations.

Refer to the *DB2 Server for VM Interactive SQL Guide and Reference* manual for a tutorial on using DB2 for VM through ISQL. Programmers who want to use SQL commands in application programs should refer to the *DB2 Server for VM Application Programming* manual. If you want to use DB2 for VM through the DBS utility, refer to the *DB2 Server for VM Database Services Utility* manual.

DB2 for VM, as a service machine, is now installed and built on your system.

10.0 NLS Installation Instructions

The following sections identify the system requirements for installing and activating an NLS Language for DB2 for VM.

10.1 Hardware Requirements

There are no special hardware requirements for installing an NLS Language for DB2 for VM.

10.2 Program Considerations

The following product is required to be installed before or concurrently with the installation of an NLS Language for DB2 for VM.

- DB2 for VM, Version 6.

A DB2 for VM V6R1M0 database must be installed according to the instructions contained in the *DB2 Server for VM Program Directory*.

10.2.1 Helptext Dbspace Requirements

To accommodate the installation of an NLS Language, a minimum of 2304 free pages is required in the PUBLIC.HELPTEXT dbspace. Refer to Chapter 2 of the *DB2 Server for VM Database Administration* manual for a further explanation. The DB2 for VM Starter database is assigned 8192 pages, which is sufficient for three languages. If the PUBLIC.HELPTEXT dbspace is not large enough, you must drop this dbspace and acquire a larger dbspace. Refer to the following manuals for instructions:

- *DB2 Server for VM Database Administration*
- *DB2 Server for VM System Administration*

10.2.2 NLS Installation Considerations

This section describes items that should be considered before you install an NLS Language.

- When installing an NLS Language
    - The DB2 for VM database machine must **NOT** be active.
    - No users can access the DB2 for VM service minidisk or SFS directory.
    - No DB2 for VM database machine may perform DB2 for VM database maintenance activities that require write access to the DB2 for VM service minidisk (SQLMACH 193) or service SFS directory.

10.3 DASD Storage and User ID Requirements

Figure 21 on page 144 lists the user IDs and minidisks that are used to install an NLS Language. This table reflects the **amount of additional space** that needs to be added to the user IDs specified. The user IDs shown in the table should have already been setup when DB2 for VM V6R1M0 was installed.

Important Installation Notes:

- User ID(s) and minidisks will have already been defined in the installation of DB2 for VM.

- 5648A70S is the default installation (and service) user ID. It can be changed but it **MUST** match the installation user ID used for the install of DB2 for VM V6R1M0.

Target Minidisks

Minidisk owner (user ID)	Default Address	Storage in Cylinders		FB-512 Blocks	SFS 4K Blocks	Usage
		DASD	CYLS			Default SFS Directory Name
5648A70S	193	9345 3390 3380 3375	12 10 12 18	14400	1800	Test Service build disk for NLS Language service executiable code. **VMSYS:5648A70S.SQL.SERVICE**
SQLMACH	193	9345 3390 3380 3375	12 10 12 18	14400	1800	Service build disk for NLS Language service executiable code. **VMSYS:SQLMACH.SQL.SERVICE**
MAINT	401	9345 3390 3380 3375	1 1 1 1	1200	N/A	Optional production build disk for NLS Japanese CMS Help files. **See note figure note 7**.
MAINT	402	9345 3390 3380 3375	1 1 1 1	1200	N/A	Optional production build disk for NLS Upper Case English CMS Help files. **See note figure note 7**.
MAINT	404	9345 3390 3380 3375	1 1 1 1	1200	N/A	Optional production build disk for NLS French CMS Help files. **See note figure note 7**.
MAINT	405	9345 3390 3380 3375	1 1 1 1	1200	N/A	Optional production build disk for NLS German CMS Help files. **See note figure note 7**.
See the **important notes** following this DASD table.						

Figure 21 (Page 1 of 2). Additional DASD Storage Requirements for NLS Language

| Minidisk owner (user ID) | Default Address | Storage in Cylinders | | FB-512 Blocks | SFS 4K Blocks | Usage |
		DASD	CYLS			Default SFS Directory Name
MAINT	407	9345	1	1200	N/A	Optional production build disk for NLS Simplified Chinese CMS Help files. **See note figure note 7**.
		3390	1			
		3380	1			
		3375	1			
See the **important notes** following this DASD table.						

Figure 21 (Page 2 of 2). Additional DASD Storage Requirements for NLS Language

Notes:

1. Cylinder and block values represent **additional space** required for existing DB2 for VM addresses or SFS.

2. Cylinder values defined in this table are based on a 4K block size.

3. FB-512 block and SFS values are derived from the 3380 cylinder values in this table.

4. The FBA blocks are listed as 1/2K but should be CMS formatted at 1K size.

5. FB-512 blocks refer to the DASD devices 0671, 3370, 9332, 9335 and 9336.

6. 5700 4K blocks are needed for SFS install.

7. If you are going to be using multiple language support you need to place the CMS help text for each language on separate disks or SFS directories. One such disk would be VM/ESA's recommended minidisks for national language help files. For Upper Case English this is MAINT 402. For French this is MAINT 404. For German this is MAINT 405. For Japanese this is MAINT 401. For Simplified Chinese this is MAINT 407.

10.4 Installation Instructions

This section describes the installation methods and the step-by-step procedures to install and activate an NLS Language for DB2 for VM.

The step-by-step procedures are in two column format. The steps to be performed are in bold large numbers. Commands for these steps are on the left hand side of the page in bold print. Additional information for a command may exist to the right of the command. For more information about the two column format see 'Understanding Dialogs with the System' in the *VM/ESA Installation Guide*.

Each step of the installation instructions must be followed. Do not skip any step unless directed to do so.

Throughout these instructions, the use of IBM-supplied default minidisk addresses and user IDs is assumed. If you use different user IDs, minidisk addresses, or SFS

directories to install DB2 for VM, adapt these instructions as needed for your environment.

Note!

The sample console output presented throughout these instructions was produced on a VM/ESA R2.3 system. If you're installing an NLS Language for DB2 for VM on a different VM/ESA system, the results obtained for some commands may differ from those depicted here.

10.4.1 Installation Step 1. Allocate Resources for Installing an NLS Language

Use the planning information on Figure 21 on page 144.

- Update the 5648A70S and SQLMACH user directories for minidisk install

  OR

- Update the 5648A70S and SQLMACH user directories for SFS install.

10.4.1.1 Installing DB2 for VM on Minidisk

1 Update the MDISK statements in the directory entry for 5648A70S and SQLMACH. Use Figure 21 on page 144 to obtain the additional minidisk requirements needed.

Note: The user directories for the installation user ID (5648A70S) and DB2 for VM database machine user ID (SQLMACH) should already exist as they were created during the install of DB2 for VM.

2 Place the new directories on-line using VM/Directory Maintenance (DIRMAINT) or an equivalent CP directory maintenance method.

10.4.1.2 Installing DB2 for VM in SFS Directories

1 Determine the number of 4K blocks that are required for SFS directories to install DB2 for VM. Add up the 4K blocks required for each SFS directory you plan to use, using Figure 21 on page 144 to obtain the additional 4K blocks needed.

Note: The CP user directories and the SFS directories for the installation user ID (5648A70S) and DB2 for VM database machine user ID (SQLMACH) should already exist as they were created during the install of DB2 for VM.

2 Determine if there are enough blocks available in the filepool to install an NLS Language. This information can be obtained from the QUERY FILEPOOL STATUS command. Near the end of the output from this command is a list of minidisks in the filepool and the number of blocks free. If the number of blocks free is smaller than the total 4K blocks needed to install a language you will need to add space to the filepool. See the *VM/ESA SFS and CRR Planning, Administration, and Operation* manual for information on adding space to a filepool.

10.4.2 Installation Step 2. Install an NLS Language for DB2 for VM .

The *ppfname* used throughout these installation instructions is **5648A70S**, which assumes you are using the PPF supplied by IBM for DB2 for VM. If you have your own PPF override file for DB2 for VM, you should use your file's *ppfname* instead of **5648A70S**. The *ppfname* you use should be used **throughout** the rest of this procedure.

1 Log on to the DB2 for VM installation user ID **5648A70S**. Make sure the VMSES/E code disk (MAINT 5E5) and the VMSES/E Software Inventory disk (MAINT 51D) are accessed.

2 If the Software Inventory disk (51D) was accessed R/O (read only) then establish write access to the Software Inventory disk.

Note: If the MAINT 51D minidisk was accessed R/O, you will need to have the user who has it linked R/W link it as R/O. You then can issue the following commands to obtain R/W access to it.

link MAINT 51d 51d mr
access 51d d

3 Have the DB2 for VM NLS installation tape mounted and attached to 5648A70S at virtual address 181. The ARILHELP EXEC requires the tape drive to be at virtual address 181.

4 Install DB2 for VM.

Notes:

a. If you've already created a PPF override file, you should specify your override file name, in place of the default PPF name (5648A70S), after the VMFSETUP keyword for the following VMFSETUP command.

vmfsetup 5648A70S {DB2VM | DB2VMSFS}

Use **DB2VM** for installing on minidisks or **DB2VMSFS** for installing in Shared File System directories.

Once you have the product disks linked you are ready to run the ARILHELP EXEC. This exec is supplied with the DB2 for VM product code and was installed with the base code installation.

ARILHELP is a simple exec that will copy all necessary files for the language you wish to install onto the test service disk.

```
*************************************************
** WHAT IS THE FILEMODE OF THE INSTALLATION ID
** 193 DISK OR VMSYS:5648A70S.SQL.SERVICE
** DIRECTORY?  THE DEFAULT FILEMODE IS J AFTER
** ISSUING THE VMFSETUP COMMAND.
**
** PLEASE TYPE FILEMODE AND HIT ENTER OR
** TYPE 111 FOLLOWED BY THE ENTER KEY TO EXIT
```

Enter the filemode of the test service disk when prompted, or enter 111 followed by ENTER to quit.

```
*************************************************
** WHICH NLS LANGUAGE FILES WOULD YOU LIKE TO COPY?
**
** ENTER 1 TO INSTALL UPPER CASE ENGLISH (S002)
** ENTER 2 TO INSTALL FRENCH (S003)
** ENTER 3 TO INSTALL GERMAN (S004)
** ENTER 4 TO INSTALL JAPANESE (D001)
** ENTER 5 TO INSTALL SIMPLIFIED CHINESE (D003)
** OR ENTER 111 to QUIT.
```

Enter the number associated with the language you wish to install, or 111 followed by ENTER to quit.

After running the exec, the necessary code is on your test service disk. You are now ready to proceed to the next step.

Log off the installation user ID, 5648A70S.

10.4.3 Installation Step 3. Install DB2 for VM Messages, ISQL Help Text and CMS Help

1 Log on to the database machine, SQLMACH.

2 Access the installation user ID's service minidisk or SFS directory.

a If installing on minidisks

link 5648A70S 193 293 rr You will be prompted for the password to the disk.
acc 293 v
link 5648A70S 195 295 rr
acc 293 v

b If installing on Shared File System

access 5648A70S.sql.service v
access 5648A70S.sql.production q

3 Install the messages, ISQL help text and CMS help.

Note: Part of this step will optionally ask where to install the CMS help text.

If you are going to install more than one NLS Language then you should install the CMS help text for each language onto a separate minidisk, so that they do not overwrite each other. You can install the CMS help text to the appropriate MAINT user ID language help disk. Follow the table below to find the appropriate language keys and language ids to use in the proceeding instructions.

LANGUAGE	LANGKEY	LANGID	MAINT MDISK	LANGLETTER
ENGLISH	S001	AMENG	19D	X
Upper Case English	S002	UCENG	402	U
French	S003	FRANC	404	F
German	S004	GER	405	G
Japanese	D001	KANJI	401	J
Simplified Chinese	D003	HANZI	407	C

If you want to wait to put the NLS CMS help text on the owning user ID later then answer "SKIP," if using minidisk, or answer "NO" then "SKIP," if using SFS, to the install CMS help text prompt in this step and then copy the CMS help text in step 10.4.6, "Installation Step 6. Place NLS Files Into Production" on page 152.

set lang ameng(add ari user   Set the language to AMENG for the execution of arisdbma.

arisdbma dbname(*dbname***) component(lang***langkey***)** Replace *dbname* with the name of your DB2 for VM database.

Replace *langkey* with the langkey of the NLS Language you are enabling.

When prompted, reply with the current database password for the DB2 for VM user ID SQLDBA.

The ARISDBMA EXEC performs the following functions:

a. Prompts for the SQLDBA password.

b. Obtains write access to the DB2 for VM production disk.

c. Copies the Message Repository files to the production disk.

d. Asks if you want &lang. to be the default language.

   Note: This will set the secondary language default. The primary default will be determined by the CMS language setting. See the *DB2 Server for VM System Administration* manual for details.

e. Asks if you want to install the NLS Language Help Text tables.

f. Loads ISQL Help Text into the database.

g. Updates SQLDBA.SYSLANGUAGE with the new language.

h. Prompts to ask where to install the CMS Help Text files.

   Answer "SKIP," if using minidisk, or "NO" then "SKIP," if using SFS, if you want to wait until step 10.4.6, "Installation Step 6. Place NLS Files Into Production" on page 152, to copy the CMS Help Text files.

   Answer with the user ID that will be used for the NLS CMS help text, if you want to place the help text on a minidisk at this time. The ARISDBMC EXEC will run, which will copy the CMS Help Text files from the service minidisk to the designated minidisk. You will then be prompted for the cuu address of the minidisk where you want to place the DB2 for VM CMS help text.

   Remember, if you are using multiple language support, enter the user ID and minidisk address that you will use for this language.

i. Message ARI0666I indicates successful completion.

10.4.4 Installation Step 4. Start DB2 for VM in Multiple User Mode

1 Log on to the database machine, SQLMACH.

2 Start DB2 for VM in multiple user mode,

sqlstart dbname(*dbname***) id(***dcssid***) parm(charname=***charname***, tcpport=0)**

> Replace *dbname* with the name of your DB2 for VM database.
>
> The *dcssid* and *charname* parameters are optional.
>
> **Note:** Refer to the manual *DB2 Server for VM System Administration*, chapter 13, *Choosing a National Language and Defining Character Sets*, for the **charname** value to specify.

10.4.5 Installation Step 5. Verify the Installation of DB2 for VM

1 Log on to a DB2 for VM user machine with DBA authority, to access the DB2 for VM database loaded with the NLS Language. (eg. SQLUSER).

2 Connect to the database machine.

sqlinit db(*dbname***)**   Replace *dbname* with the name of your database.

3 Start ISQL.

isql

4 When ISQL has initialized, connect as SQLDBA and enter the commands:

connect sqldba identified by *sqldbapw*
set language *langid*
help help

The *langid* SQL Help menu should be displayed.

For more information on how to run ISQL, refer to the *ISQL Guide and Reference* manual.

5 Shutdown the application requester and log off the user machine.

exit
logoff

6 Log on to the database machine; SQLMACH. Then stop DB2 for VM processing with the following command and log off the database machine.

sqlend
logoff

10.4.6 Installation Step 6. Place NLS Files Into Production

1 Log on to the DB2 for VM installation user ID, 5648A70S.

2 Access the database machine's (SQLMACH) disks or SFS directories.

a If installing using minidisks

link sqlmach 193 293
access 293 v
access 193 e

> **b** If installing using Shared File System

access 5648A70S.sql.service e
access sqlmach.sql.service v (forcerw

> **3** Copy the DB2 for VM 'production' level of the code on the database machine's disks or SFS directories.

vmfcopy arist*langletter*__* * e = = v (prodid 5648A70S%DB2VM olddate replace__
**vmfcopy ***langkey* __* e = = v (prodid 5648A70S%DB2VM olddat e replace__
**vmfcopy * ***langkey* __e = = v (prodid 5648A70S%DB2VM olddat e replace__
vmfcopy ariume txt*langid* __e = = v (prodid 5648A70S%DB2VM olddate replace__

> > The VMFCOPY command will update the VMSES PARTCAT file on the database machine's service SFS directory.
>
> > Use the table to fill in the necessary langkey, langid, and langletter values.

> **4** If you did not place the NLS CMS help files on any disk or directory in step 10.4.3, "Installation Step 3. Install DB2 for VM Messages, ISQL Help Text and CMS Help" on page 149 then you can do so at this time. If you did, then you can skip this step.
>
> You can place the NLS CMS help files on the appropriate MAINT help disk or any other user ID disk or SFS directory you would like to use. The steps here will have you log on to MAINT but this can be any user ID that you want to have the NLS CMS help files on. (The other common choice is the database machine's production minidisk or SFS directory, if you are not going to install multiple NLS languages, this includes mixed case English.)

> > **a** Log on to MAINT to place the NLS CMS help files on MAINT's HELP disk.

> > **b** Link to the DB2 for VM's service and production minidisks or SFS directories.

> > > **1** If installing using minidisks

```
link sqlmach 195 995 rr
access 995 q
link sqlmach 193 993 rr
access 993 v
```

2 If installing using Shared File System

```
access sqlmach.sql.production q
access sqlmach.sql.service v
```

c Make DB2 for VM messages available.

```
set language ameng (add ari user
```

d Copy the NLS CMS help files using ARISDBMC.

arisdbmc *langkey* **v q c**
                                                         langkey is the language key used by the NLS language you are installing. *v* is the file mode of the service minidisk or SFS directory. *q* is the file mode of the production minidisk or SFS directory. (The file modes of *v* and *q* must be used.) *c* is for the copy function.

10.4.7 Installation Step 7. Post-Installation Customization Steps for DB2 for VM.

10.4.8 Define Message Repository as Saved Segment (optional)

DB2 for VM messages for each installed National Language are stored in message repositories. For performance reasons, you should define frequently used languages as saved segments. Refer to *Using Saved Segments for NLS Components* and *Choosing a National Language* in the *DB2 Server for VM System Administration* manual for the procedures on "Defining Message Repositories as Saved Segments."

10.4.9 Activating NLS Languages

Detailed steps to get the program into operational status are defined in the *DB2 Server for VM Operation* manual and in the *DB2 Server for VM System Administration* manual.

The NLS Language is now installed and built on your system.

Appendix A. How to Build (or Link-Edit) the ARISQLLD LOADLIB Member

You may want to build or link-edit the whole ARISQLLD LOADLIB or a specific member in the ARISQLLD LOADLIB. To do this, you need to perform the instructions in this appendix.

To perform a build of a specific ARISQLLD LOADLIB member, you must know the name of the member that you want to build or link-edit. The relationships between the DB2 for VM components and DB2 for VM load library (ARISQLLD LOADLIB) members are shown in Figure 22. The member name in the figure is also the object name in the VMSES/E build list, ARIBLLLD.

DB2 for VM Component	ARISQLLD Member
Assembler Preprocessor	ARIPRPA
C Preprocessor	ARIPRPB
COBOL Preprocessor	ARIPRPC
DBSS	ARISQLDS
Trace Formatter	ARIMTRA
ISQL	ARIISQL
System & Accounting Interface	ARICMOD
24-Bit File I/O	ARIRFIO
PL/I Preprocessor	ARIPRPP
RDS	ARIXRDS
FORTRAN Preprocessor	ARIPRPF
DBS Utility	ARIDBS
Resource Adapter	ARIRVMRM
User Exit Router	ARIXSXR
Database Maintenance	ARISDBMS
Reset Resource Adapter	ARISRRM
Flagger Semantic Routines	ARIFFVL
Flagger View Analysis Routines	ARIFBVL

Figure 22. ARISQLLD LOADLIB

A.1 Setup Environment

1 Log on to DB2 for VM service or installation user ID; **5648A70S**

2 Establish read access to the VMSES/E code.

link MAINT 5e5 5e5 rr   The 5E5 disk contains the VMSES/E code.
access 5e5 b

3 If the Software Inventory disk (51D) was accessed R/O (read only), then establish write access to the Software Inventory disk.

> **Note:** If the MAINT 51D minidisk was accessed R/O, you must have the user that has it accessed R/W link it R/O. You then can issue the following commands to obtain R/W access to it.

link MAINT 51d 51d mr   The VMSES/E Software Inventory files and other
access 51d d   product dependent files reside on the 51D minidisk.

4 Establish the correct minidisk access order.

vmfsetup 5648A70S {DB2VM I DB2VMSFS}   5648A70S is the PPF that was shipped with the
                                               product. If you have your own PPF override you
                                               should substitute your PPF name for 5648A70S.
                                               Do the substitution in this command and all that
                                               follow.

                                               Use **DB2VM** for installing on minidisks or
                                               DB2VMSFS for installing in Shared File System
                                               directories.

A.2 Rebuild the Whole ARISQLLD LOADLIB

Procedural Note

Follow this step if you are

- Rebuilding the whole ARISQLLD LOADLIB

  - OR -
- Removing the DRDA AR, DRDA AS, or DB2 for VM Data Spaces Support (VMDSS) text files from the members of the ARISQLLD LOADLIB.

Otherwise, continue with A.3, "Build Specific ARISQLLD LOADLIB Objects or Members" on page 159.

---

1 Rebuild DB2 for VM ARISQLLD LOADLIB.

    a Rebuild the ARISQLLD LOADLIB

vmfbld ppf 5648A70S {DB2VM | DB2VMSFS} ARIBLLLD (all
vmfview build

> Use **DB2VM** for installing on minidisks or
> **DB2VMSFS** for installing in Shared File System
> directories.
>
> ARIBLLLD is the name of the VMSES/E build list
> used to build the ARISQLLD LOADLIB.
>
> Review the build message log ($VMFBLD
> $MSGLOG). If necessary, correct any problems
> before going on. Use the PF2 key, ALL, to review
> all of the messages.
>
> **Notes:**
>
> 1. The following message
>
> ```
> VMFLLB2074I Part xxxxxxx TXT in object ARIXRDS in
>             build list ARIBLLLD EXEC will
>             be ignored
> ```
>
> is normal if you are **NOT** running DB2 for VM
> with the DRDA AS support.
>
> 2. The following message
>
> ```
> VMFLLB2074I Part xxxxxxx TXT in object ARIRVMRM in
>             build list ARIBLLLD EXEC will
>             be ignored
> ```
>
> is normal if you are **NOT** running DB2 for VM
> with the DRDA AR support.
>
> 3. The following message
>
> ```
> VMFLLB2074I Part xxxxxxx TXT in object ARISQLDS in
>             build list ARIBLLLD EXEC will
>             be ignored
> ```
>
> is normal if you do **NOT** have Data Space
> Support (VMDSS) enabled.

    b Rebuild the related files.

vmfbld ppf 5648A70S {DB2VM | DB2VMSFS} (serviced
vmfview build

Use **DB2VM** for installing on minidisks or **DB2VMSFS** for installing in Shared File System directories.

Review the build message log ($VMFBLD $MSGLOG). If necessary, correct any problems before going on. For information about handling specific error messages, see *VM/ESA: System Messages and Codes* manual or use online HELP.

Procedural Note

A.3 Build Specific ARISQLLD LOADLIB Objects or Members

1 Rebuild DB2 for VM specific LOADLIB member.

    a Rebuild the ARISQLLD LOADLIB member.

vmfbld ppf 5648A70S {DB2VM | DB2VMSFS} ARIBLLLD *memname* **(all**
vmfview build

Use **DB2VM** for installing on minidisks or
DB2VMSFS for installing in Shared File System
directories.

memname is the specific name of the member that
you want to build. The names of the members in
the ARISSQLLD LOADLIB can be found in
Figure 22 on page 156.

Review the build message log ($VMFBLD
$MSGLOG). If necessary, correct any problems
before going on. Use the PF2 key, ALL, to review
all of the messages.

Notes:

1. The following message

   ```
   VMFLLB2074I Part xxxxxxx TXT in object ARIXRDS in
               build list ARIBLLLD EXEC will
               be ignored
   ```

   is normal if you are **NOT** running DB2 for VM
   with the DRDA AS support.

2. The following message

   ```
   VMFLLB2074I Part xxxxxxx TXT in object ARIRVMRM in
               build list ARIBLLLD EXEC will
               be ignored
   ```

   is normal if you are **NOT** running DB2 for VM
   with the DRDA AR support.

3. The following message

   ```
   VMFLLB2074I Part xxxxxxx TXT in object ARISQLDS in
               build list ARIBLLLD EXEC will
               be ignored
   ```

   is normal if you do **NOT** have Data Space
   Support (VMDSS) enabled.

b Rebuild the related files.

**vmfbld ppf 5648A70S {DB2VM | DB2VMSFS} (serviced
vmfview build**

Use **DB2VM** for installing on minidisks or **DB2VMSFS** for installing in Shared File System directories.

Review the build message log ($VMFBLD $MSGLOG). If necessary, correct any problems before going on. For information about handling specific error messages, see *VM/ESA: System Messages and Codes* manual or use online HELP.

A.4 Place the New DB2 for VM ARISQLLD LOADLIB Into Production

1 Log on to the database machine, SQLMACH, to put DB2 for VM production level of the code on SQLMACH's disks or SFS directories.

2 Stop the application server.

sqlend

3 Link and access the installation user ID test production and service disks or SFS directories.

    a If installing on minidisks

link 5648A70S 195 295 rr   You will be prompted for the password to the disks.
acc 295 e
link 5648A70S 193 293 rr
acc 293 f

    b If installing on Shared File System

access 5648A70S.sql.production e   You will be prompted for the password to the disks.
access 5648A70S.sql.service f

        Substitute in the appropriate SFS directory names.

4 Copy the new ARISQLLD LOADLIB to SQLMACH's production and service disk or directory.

    a If installing on minidisks

access 195 q
vmfcopy arisqlld L* e = = q (prodid 5648A70S%DB2VM olddate replace
access 193 v
vmfcopy arisqlld L*   e = = v (prodid 5648A70S%DB2VM olddate replace

The VMFCOPY command will update the VMSES
PARTCAT file on the production disk (195) and the
service disk (193).

    b If installing using Shared File System

access SQLMACH.sql.production q
vmfcopy arisqlld L*   e = = q (prodid 5648A70S%DB2VM olddate replace
access SQLMACH.sql.service v
vmfcopy arisqlld L*   e = = v (prodid 5648A70S%DB2VM olddate replace

The VMFCOPY command will update the VMSES
PARTCAT file on the production and service SFS
directories.

  5 Rebuild any affected saved segments.

> ┌─ **Procedural Note** ─────────────────────────────────────
>
> If you have placed DB2 for VM into saved segments the continue with this step. Otherwise,
> continue with the next step.

    a Log on to the installation/service user ID, 5648A70S.

    b Prepare to build the segments.

       1 IPL CMS to clear the virtual storage

ipl cms parm clear nosprof instseg no

** DO NOT press <u>ENTER</u> at the VM READ!**

access (noprof

IPL CMS to clear your virtual machine. This
command bypasses the execution of the system
profile (SYSPROF EXEC) and without loading the
installation saved segment (CMSINST).

Bypass the execution of the PROFILE EXEC.

       2 Access the VMSES/E code

access 5e5 b

       3 Establish write access the Software Inventory disk.

link MAINT 51d 51d mr
access 51d d

4 Access the database machine, SQLMACH, production minidisk or SFS directory by entering the following command:

access *vdev* **k**   *vdev* is the address the database machine production minidisk is linked as by the installation user ID, or *vdev* is the name of the database machine production SFS directory. You need write access to this minidisk or directory.

5 Activate the DB2 for VM user language file.

set language ameng (add ari user

6 Release the database machine, SQLMACH, production minidisk or SFS directory by entering the following command:

rel k

c Resave the DB2 for VM segments.

Note: There are 5 segments for DB2 for VM. You have to repeat the VMFBLD command for each saved segment that was hit by the LOADLIB rebuild. (You can refer to the $VMFBLD $MSGLOG, if you need to see which segments need to be rebuilt.)

vmfbld ppf segbld esasegs segblist *segment-name* **(serviced**

segment-name is SQLRMGR, SQLISQL, SQLSQLDS, SQLXRDS, or LANGxxxx. If you have different segment names then substitute your names appropriately.

Remember that you have to repeat the VMFBLD command for each saved segment that you have.

d Review the build message log ($VMFBLD $MSGLOG). If necessary, correct any problems before going on. For information about handling specific error messages, see *VM/ESA: System Messages and Codes* manual or use online HELP.

vmfview build

6 Log on to the database machine, SQLMACH, and start the application server.

sqlstart dbname(_server-name_**) parm(tcpport=0)**
#cp disconn

Appendix B. Local Modifications for DB2 for VM

B.1 Local Modification to Full Part Replacement Files

There may be times when you have received a new TEXT file, or any other full part replacement type file, to replace an existing version of the same file. For example, you may have received a patch or local fix or circumvention from the IBM support center in which they have sent you a replacement TEXT file, that you placed on the installation user IDs A-disk. In this case, you must do a VMSES/E local modification against the TEXT file.

To create and build the affected objects from the new part, following these steps:

1 Log on to the installation/service user ID, 5648A70S.

2 Establish the 5648A70S's minidisk order.

vmfsetup 5648A70S {DB2VM | DB2VMSFS}   Use **DB2VM** for installing on minidisks or **DB2VMSFS** for installing in Shared File System directories.

   If you have your own PPF override, then substitute that name for **564815A1** shown in this command and any following commands.

3 Copy the new replacement part to the local modification disk (2C2) or SFS directory, update the $SELECT file and local version vector table.

   Note: If you did not receive a new replacement part, but instead are placing a local modification on to an existing part, you still do the VMFREPL command but omit the *rfn rft rfm*. The current highest level of the part will be copied to the localsam (2C2) disk. You can then XEDIT the copy of the part on the localsam (2C2) disk, before performing the VMFBLD step. The VMFBLD will pick up the version of the part from the localsam (2C2) disk.

vmfrepl *fn ft* **5648A70S {DB2VM | DB2VMSFS}** *rfn rft rfm* **($select logmod** *modid* **outmode localsam**

Use **DB2VM** for installing on minidisks or **DB2VMSFS** for installing in Shared File System directories.

fn and *ft* are the real file name and file type of the part (for example, ARIXEFL TEXT).

rfn, *rft* and *rfm* are the file name, file type and file mode of the new replacement part (for example, ARIXEFL TEXTNEW A).

modid is the new local modification identifier for the part (for example, L0001).

localsam is the symbolic name for the local modification disk in the :MDA section of the PPF.

4 Build your new local modification on the test build disk by issuing the following commands.

vmfbld ppf 5648A70S {DB2VM | DB2VMSFS} (status
vmfbld ppf 5648A70S {DB2VM | DB2VMSFS} (serviced

Use **DB2VM** for installing on minidisks or **DB2VMSFS** for installing in Shared File System directories.

After the VMFBLD with the STATUS option, you can look at the $VMFBLD $MSGLOG with VMFVIEW BUILD command to see which objects will be built.

5 Stop the application server using your normal operating procedures. (Logon to the database machine, SQLMACH, do a SQLEND and LOGOFF.)

6 Log on to the installation user ID, 5648A70S.

7 Place the new local modification into production.

You must do this step while you are logged on to the installation/service user ID.

vmfsetup 5648A70S {DB2VM ⎮ DB2VMSFS} **arisinst c 5648A70S {DB2VM ⎮ DB2VMSFS}**	Use **DB2VM** for installing on minidisks or **DB2VMSFS** for installing in Shared File System directories.
	The 'c' function of ARISINST copies the test service and production build disks to the SQLMACH production service and production build disks.
	Note: ARISINST with the 'C' operand will take several minutes. The VMFCOP2866I message is normal.

8 Rebuild any affected saved segments.

```
┌─ Procedural Note ──────────────────────────────────────────────────────┐
│                                                                          │
│  If VMFBLD told you to rebuild a segment and you are using segments then continue with this │
│  step.  Otherwise, continue with the next step.                          │
│                                                                          │
└──────────────────────────────────────────────────────────────────────────┘
```

   a Log on to the installation/service user ID, 5648A70S.

   b Prepare to build the segments.

      1 IPL CMS to clear the virtual storage

ipl cms parm clear nosprof instseg no *** DO NOT press <u>ENTER</u> at the VM READ!***	IPL CMS to clear your virtual machine. This command bypasses the execution of the system profile (SYSPROF EXEC) and without loading the installation saved segment (CMSINST).
access (noprof	Bypass the execution of the PROFILE EXEC.

      2 Access the VMSES/E code

access 5e5 b

      3 Establish write access the Software Inventory disk.

link MAINT 51d 51d mr
access 51d d

      4 Access the database machine, SQLMACH, production minidisk or SFS directory by entering the following command:

access *vdev* **k**

vdev is the address the database machine production minidisk is linked as by the installation user ID, or *vdev* is the name of the database machine production SFS directory. You need write access to this minidisk or directory.

5 Activate the DB2 for VM user language file.

set language ameng (add ari user

6 Release the database machine, SQLMACH, production minidisk or SFS directory by entering the following command:

rel k

c Resave the DB2 for VM segments.

Note: There are 5 segments for DB2 for VM. You have to repeat the VMFBLD command for each saved segment that was hit by the local modification. (You can refer to the $VMFBLD $MSGLOG, if you need to see which segments need to be rebuilt.)

vmfbld ppf segbld esasegs segblist *segment-name* **(serviced**

segment-name is SQLRMGR, SQLISQL, SQLSQLDS, SQLXRDS, or LANGxxxx. If you have different segment names then substitute your names appropriately.

Remember that you have to repeat the VMFBLD command for each saved segment that you need to rebuild.

d Review the build message log ($VMFBLD $MSGLOG). If necessary, correct any problems before going on. For information about handling specific error messages, see *VM/ESA: System Messages and Codes* manual or use online HELP.

vmfview build

9 Restart the application server in multiple user mode with the required PROTOCOL parameter.

B.2 Remove Local Modification

Removing a local modification is a manual process. You must remove the local mod entry from the local version vector table and update the $SELECT file to force the rebuild of the objects that the part is in.

To remove a local modification to full part replacement parts and update the $SELECT file, follow these steps:

1 Log on to the installation/service user ID, 5648A70S.

2 Establish the 5648A70S's minidisk order.

vmfsetup 5648A70S {DB2VM I DB2VMSFS}

Use **DB2VM** for installing on minidisks or **DB2VMSFS** for installing in Shared File System directories. If you have your own PPF override then substitute that name for **564815A1** shown in this command and any following commands.

3 Update the local version vector table for the part by issuing the following VMFSIM command.

vmfsim modify 5648A70S vvtlcl e tdata :part *fn ftabbrev* **:mod lcl***nnnn* **(delete**

Note: The **564815A1** in the VMFSIM MODIFY command is the file type for the DB2 for VM version vector tables. This is **NOT** the PPF name.

fn is the real file name of the part (for example, ARIUXIT).

ftabbrev is the file type abbreviation associated with the part (for example, TXT).

nnnn is the local modification number identifier associated with the part to be removed (for example, 0001, which is found in the file type of the part on the local modification disk, 2C2, TXTL0001).

4 Update the $SELECT data file.

xedit 564815A1 $select *fm-2A6* **(noprof**
input :APPLYID. *mm/dd/yy hh:mm:ss*
input *fn ftabbrev*
file

All entries must be in uppercase. Time and date together must be unique within the $SELECT file.

fn and *ftabbrev* are the same as in the previous step.

5 Rebuild the objects affected by the removed part.

vmfbld ppf 5648A70S {DB2VM | DB2VMSFS} (serviced

Use **DB2VM** for installing on minidisks or **DB2VMSFS** for installing in Shared File System directories.

6 Stop the application server using your normal operating procedures. (Logon to the database machine, SQLMACH, do a SQLEND and LOGOFF.)

7 Log on to the installation user ID, 5648A70S.

8 Place the new objects into production

vmfsetup 5648A70S {DB2VM | DB2VMSFS}
arisinst c 5648A70S {DB2VM | DB2VMSFS}

Use **DB2VM** for installing on minidisks or **DB2VMSFS** for installing in Shared File System directories.

The C function of ARISINST copies the test service and production build disks or directories to the SQLMACH service and production disks or directories

Note: ARISINST with the 'C' operand will take several minutes. The VMFCOP2866I message is normal.

9 Rebuild any affected saved segments.

> **Procedural Note**
>
> If VMFBLD told you to rebuild a segment and you are using segments then continue with this step. Otherwise, continue with the next step.

a Log on to the installation/service user ID, 5648A70S.

b Prepare to build the segments.

1 IPL CMS to clear the virtual storage

ipl cms parm clear nosprof instseg no

*** DO NOT press <u>ENTER</u> at the VM READ!***

IPL CMS to clear your virtual machine. This command bypasses the execution of the system profile (SYSPROF EXEC) and without loading the installation saved segment (CMSINST).

access (noprof   Bypass the execution of the PROFILE EXEC.

2 Access the VMSES/E code

access 5e5 b

3 Establish write access the Software Inventory disk.

link MAINT 51d 51d mr
access 51d d

4 Access the database machine, SQLMACH, production minidisk or SFS directory by entering the following command:

access *vdev* **k**   *vdev* is the address the database machine production minidisk is linked as by the installation user ID, or *vdev* is the name of the database machine production SFS directory. You need write access to this minidisk or directory.

5 Activate the DB2 for VM user language file.

set language ameng (add ari user

6 Release the database machine, SQLMACH, production minidisk or SFS directory by entering the following command:

rel k

C Resave the DB2 for VM segments.

   Note: There are 5 segments for DB2 for VM. You have to repeat the VMFBLD command for each saved segment that was hit by the local modification. (You can refer to the $VMFBLD $MSGLOG, if you need to see which segments need to be rebuilt.)

vmfbld ppf segbld esasegs segblist *segment-name* **(serviced**

segment-name is SQLRMGR, SQLISQL, SQLSQLDS, SQLXRDS, or LANGxxxx. If you have different segment names then substitute your names appropriately.

Remember that you have to repeat the VMFBLD command for each saved segment that you need to rebuild.

d Review the build message log ($VMFBLD $MSGLOG). If necessary, correct any problems before going on. For information about handling specific error messages, see *VM/ESA: System Messages and Codes* manual or use online HELP.

vmfview build

10 Restart the application server in multiple user mode with the required PROTOCOL parameter.

Appendix C. DB2 for VM ARISINST Install EXEC

C.1 ARISINST EXEC

Use ARISINST EXEC to:

- Setup the environment to do the initial install or migration to DB2 for VM

- Update the ARISPIDC MACRO to match the PPF (product parameter file)

- Copy the installation or service user ID service and production minidisks or SFS directories to the database machine, SQLMACH, service and production minidisks or SFS directories.

C.1.1 Authorization

To run ARISINST EXEC, you must have write access to the following minidisks or directories:

- Write access to the database machine (SQLMACH) production minidisk or SFS directory

- Write access to the database machine (SQLMACH) service minidisk or SFS directory

- Write access to the DB2 for VM installation user ID (5648A70S) production minidisk or SFS directory

- Write access to the DB2 for VM installation user ID (5648A70S) service minidisk or SFS directory
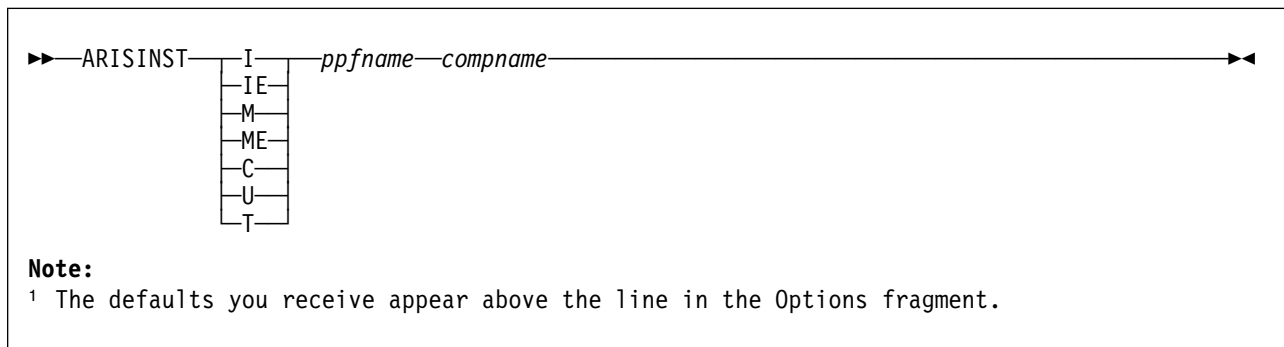
C.1.2 Syntax

```
►►──ARISINST──┬──I───┬──ppfname──compname─────────────────────────────────►◄
              ├─IE──┤
              ├──M──┤
              ├─ME──┤
              ├──C──┤
              ├──U──┤
              └──T──┘

Note:
¹ The defaults you receive appear above the line in the Options fragment.
```

Figure 23. ARISINST syntax

C.1.2.1 Operands

    I   is the mode to use when installing base product.

    IE   is the mode to use when copying files into production as part of initial install.

    M   is the mode to use when migrating to current release.

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ME
    is the mode to use when copying files into production as part of migration.

C is the mode to use to copy files from installation user ID test disks to database machine disks.

U is the mode to use to update the ARISPIDC macro.

T is the mode to use to setting up to test applied service before copying the serviced files into production.

ppfname
    is the file name of a usable form product parameter file. It must have a file type of PPF. The default DB2 for VM PPF name is 5648A70S.

compname
    is the name of the component (for example, DB2VM or DB2VMSFS) that is specified on the :COMPNAME tag in the product parameter file. *compname* is a 1-to-16 character alphanumeric identifier.

C.1.3 Description

To run ARISINST you have to be logged on to the installation user ID and you have to have run VMFSETUP.

ARISINST, when invoked with the 'I' option,

- Retrieves the installation user ID, database machine user ID, production and service disks or directory names, and product ID from the PPF.

- Call SQLBOOTS to create the bootstrap files.

- Updates the ARISPIDC MACRO on the installation user ID's test service and test production disk or directory and adds two lines to the top of file. First line has IPRODUCTION followed by the installation user ID and production minidisk address or SFS directory name. Second line has ISERVICE followed by the installation user ID and service minidisk address or SFS directory name.

ARISINST, when invoked with the 'IE' option,

- Retrieves the installation user ID, database machine user ID, production and service disks or directory names, and product ID from the PPF.

- Updates the ARISPIDC MACRO on the installation user ID's test service and test production disk or directory, with the database machine user ID, production disk address or SFS directory name, and service disk address or SFS directory name.

- Uses VMFCOPY to copy the files from the installation user ID's test service disk or directory to the database machine user ID's service disk or directory.

- Uses VMFCOPY to copy the files from the installation user ID's test production disk or directory to the database machine user ID's production disk or directory.

ARISINST, when invoked with the 'M' option,

- Retrieves the installation user ID, database machine user ID, production and service disks or directory names, and product ID from the PPF.

- Call SQLBOOTS to create the bootstrap files.

- Updates the ARISPIDC MACRO on the installation user ID's test service and test production disk or directory and adds two lines to the top of file. First line has IPRODUCTION followed by the installation user ID and production minidisk address or SFS directory name. Second line has ISERVICE followed by the installation user ID and service minidisk address or SFS directory name.

- Saves a copy of existing database type files on the installation user ID's test production disk. Saves a copy of designated user modifiable files on the installation user ID's local, sample disk (2C2) and adds an 'O' to the beginning of the file type.

ARISINST, when invoked with the 'ME' option,

- Retrieves the installation user ID, database machine user ID, production and service disks or directory names, and product ID from the PPF.

- Updates the ARISPIDC MACRO on the installation user ID's test service and test production disk or directory, with the database machine user ID, production disk address or SFS directory name, and service disk address or SFS directory name.

- Uses VMFCOPY to copy the files from the installation user ID's test service disk or directory to the database machine user ID's service disk or directory.

- Uses VMFCOPY to copy the files from the installation user ID's test production disk or directory to the database machine user ID's production disk or directory.

- Uses VMFCOPY to copy the files in the ARISPSRV MACRO file to the installation user ID's test service or production disks or SFS directories.

ARISINST, when invoked with the 'U' option,

- Retrieves the installation user ID, database machine user ID, production and service disks or directory names, and product ID from the PPF.

- Updates the ARISPIDC MACRO on the installation user ID's test service and test production disk or directory, with the database machine user ID, production disk address or SFS directory name, and service disk address or SFS directory name.

ARISINST, when invoked with the 'C' option,

- Retrieves the installation user ID, database machine user ID, production and service disks or directory names, and product ID from the PPF.

- Uses VMFCOPY to copy the files in the ARISPSRV MACRO file to the installation user ID's test service or production disks or SFS directories.

- Uses VMFCOPY to copy the files from the installation user ID's test service disk or directory to the database machine user ID's service disk or directory.

- Uses VMFCOPY to copy the files from the installation user ID's test production disk or directory to the database machine user ID's production disk or directory.

ARISINST, when invoked with the 'T' option,

- Retrieves the installation user ID, database machine user ID, production and service disks or directory names, and product ID from the PPF.

- Uses VMFCOPY to copy the files in the ARISPSRV MACRO file to the installation user ID's test service or production disks or SFS directories.

- Call SQLBOOTS to create the bootstrap files.

Appendix D. IBM-Supplied Files for the DB2 for VM System

This appendix lists the MACROs, CMS Help files, load library, sample profiles, selected EXEC files, selected TEXT files, and other miscellaneous files supplied with the DB2 for VM product.

Files with a file mode of Q are on the production disk or SFS directory, while those with a file mode of V are on the service disk or SFS directory. Files with a file mode of Q and V are on both disks.

Figure 24 (Page 1 of 2). EXECs

File name	File type	File mode	Description
ARIGTUID	EXEC	Q and V	Get Tcpip User ID from TCPIP DATA file.
ARILHELP	EXEC	V	Load NLS Help files from NLS tape.
ARISAVES	EXEC	V	Load and Save Saved Segments
ARISDBHD	EXEC	V	DB2 for VM HELP Text Deletion EXEC
ARISDBLD	EXEC	V	Deactivating a Language EXEC
ARISDBMA	EXEC	V	Database Maintenance EXEC
ARISDBMC	EXEC	V	Copies the CMS HELP Text to the specified minidisk
ARISEMSG	EXEC	V	Set/Reset CP EMSG Function Value
ARISESCP	EXEC	Q and V	Set/Reset CP Terminal Line-Edit Symbols
ARISFPKY	EXEC	V	Identify primary keys created using SQL/DS 3.1 or 3.2
ARISINST	EXEC	V	Installation and Migration EXEC
ARISMEX	EXEC	V	Forward Database Migration EXEC
ARISPDFC	EXEC	V	Production Minidisk File Copy EXEC
ARISPROD	EXEC	Q and V	Production Minidisk Access EXEC
ARISQLLD	EXEC	Q and V	Production Load Library Definition
ISQL	EXEC	Q and V	ISQL User Interface EXEC
SQLADBEX	EXEC	V	Add Dbextents EXEC
SQLADBSP	EXEC	V	Add Dbspaces EXEC
SQLASMC	EXEC	Q and V	Sample Assembler Program EXEC
SQLBOOTS	EXEC	V	Default Bootstrap Module Generation
SQLC	EXEC	Q and V	Sample C Program EXEC
SQLCBLC	EXEC	Q and V	Sample COBOL II Program EXEC
SQLCDBEX	EXEC	V	DBEXTENT EXEC
SQLCIREO	EXEC	V	Catalog Index Reorganization EXEC
SQLDBGEN	EXEC	V	Database Generation EXEC
SQLDBID	EXEC	Q and V	Display Database/Machine ID EXEC
SQLDBINS	EXEC	V	New Database Installation EXEC
SQLDBMIG	EXEC	V	Migrate Database Installation EXEC
SQLDBSU	EXEC	Q and V	DBS Utility EXEC
SQLFTN	EXEC	Q and V	Sample FORTRAN Program EXEC
SQLGENLD	EXEC	Q and V	Bootstrap Definition EXEC
SQLGLOB	EXEC	V	Sets SQL Global Initialization Defaults
SQLINIT	EXEC	Q and V	User Machine Initialization EXEC
SQLISTRT	EXEC	Q and V	ISQL Processor EXEC
SQLLEVEL	EXEC	Q and V	Release Level Identification EXEC
SQLLOG	EXEC	Q and V	Log Maintenance EXEC
SQLPLI	EXEC	Q and V	Sample PL/I Program EXEC

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Figure 24 (Page 2 of 2). EXECs

File name	File type	File mode	Description
SQLPREP	EXEC	Q and V	Preprocessor EXEC
SQLSTART	EXEC	Q and V	Invocation EXEC
SQLTRFMT	EXEC	Q and V	Trace Formatter EXEC

Figure 25. CMS HELP Files

File name	File type	File mode	Description
ISQL	HELPS001	V	DB2 for VM CMS HELP for ISQL
SQLDBID	HELPS001	V	DB2 for VM CMS HELP for SQLDBID
SQLDBSU	HELPS001	V	DB2 for VM CMS HELP for DBSU
SQLGLOB	HELPS001	V	DB2 for VM CMS HELP for SQLGLOB
SQLINIT	HELPS001	V	DB2 for VM CMS HELP for SQLINIT
SQLPREP	HELPS001	V	DB2 for VM CMS HELP for SQLPREP
SQLSTART	HELPS001	V	DB2 for VM CMS HELP for SQLSTART
SQLDS	MENUS001	V	DB2 for VM CMS HELP

Figure 26 (Page 1 of 3). MACROs

File name	File type	File mode	Description
ARIDSQLP	MACRO	V	DBS Utility Assembler Preprocessed Input
ARIFCRDM	MACRO	V	FIPS Flagger Preprocessed Input
ARIISQLM	MACRO	V	ISQL Facility Preprocessed Input
ARIPPIFM	MACRO	V	FORTRAN Assembler Preprocessed Input
ARIRCAN	MACRO	V	DB2 for VM Cancel Support Macro
ARIRMAR	MACRO	V	DB2 for VM Cancel Support Macro
ARIRMXCC	MACRO	V	DB2 for VM Cancel Support Macro
ARISAMDB	MACRO	V	Commands and Data for Sample Tables
ARISAMPI	MACRO	V	Commands to Load Sample ISQL Routines
ARISCAT	MACRO	V	Required Database Generation Commands
ARISCCS	MACRO	Q and V	SYSCCSIDS Catalog CMS File
ARISCTM	MACRO	V	Database Migration Catalog Authorization Updates
ARISCHAR	MACRO	V	Loads Alternate Character Sets
ARISDBG	MACRO	V	Starter Database Generation Control Statements
ARISDBU	MACRO	V	Commands to Complete the Database
ARISDTM	MACRO	V	Update Datetime Defaults
ARISEXP	MACRO	Q	DBS Utility Input to Create the New EXPLAIN Tables
ARISFFG	MACRO	V	Unload CCSID-related Catalog Tables into CMS Files
ARISFPKY	MACRO	V	Identify Primary Keys Created Using SQL/DS 3.1 or 3.2
ARISI20	MACRO	V	Commands to Support ISQL Installation
ARISI21	MACRO	V	Commands to Support ISQL Installation
ARISMMDB	MACRO	V	Commands and Data for Manufacturing Sample Tables
ARISNLSC	MACRO	Q and V	National Language Support Macro
ARISPDEC	MACRO	Q and V	Production Disk Entries
ARISPIDC	MACRO	Q and V	Production/Service Minidisk Identifiers
ARISPSRV	MACRO	Q and V	Non-serviced Parts Identifiers
ARISSCR	MACRO	Q and V	SYSCHARSETS Catalog CMS Files

Figure 26 (Page 2 of 3). MACROs

File name	File type	File mode	Description
ARISSEGC	MACRO	Q and V	Saved Segment Control File
ARISSTR	MACRO	Q and V	SYSSTRINGS Catalog CMS File
ARISSVCC	MACRO	V	Service Disk Identifier
ARISS001	MACRO	V	Language to SQLDBA.SYSLANGUAGE
ARISS002	MACRO	V	Language to SQLDBA.SYSLANGUAGE
ARISS003	MACRO	V	Language to SQLDBA.SYSLANGUAGE
ARISS004	MACRO	V	Language to SQLDBA.SYSLANGUAGE
ARISD001	MACRO	V	Language to SQLDBA.SYSLANGUAGE
ARISD003	MACRO	V	Language to SQLDBA.SYSLANGUAGE
ARISTXAC	MACRO	V	HELP Text Data (English)
ARISTXCC	MACRO	V	HELP Text Data (English)
ARISTXDC	MACRO	V	HELP Text Data (English)
ARISTXEC	MACRO	V	HELP Text Data (English)
ARISTXF	MACRO	V	Commands to Install English HELP Text
ARISTX1	MACRO	V	Commands to Install English HELP Text
ARISTX2C	MACRO	V	HELP Text Data (English)
ARISTX3	MACRO	V	Commands to Install English HELP Text
ARISTX4C	MACRO	V	HELP Text Data (English)
ARISTX5C	MACRO	V	HELP Text Data (English)
ARISTX6C	MACRO	V	HELP Text Data (English)
ARISTX7C	MACRO	V	HELP Text Data (English)
ARISTX8C	MACRO	V	HELP Text Data (English)
ARISTX9C	MACRO	V	HELP Text Data (English)
ARISTUF	MACRO	V	Commands to Install Upper Case English HELP Text
ARISTU1	MACRO	V	Commands to Install Upper Case English HELP Text
ARISTU3	MACRO	V	Commands to Install Upper Case English HELP Text
ARISTFF	MACRO	V	Commands to Install French HELP Text
ARISTF1	MACRO	V	Commands to Install French HELP Text
ARISTF3	MACRO	V	Commands to Install French HELP Text
ARISTGF	MACRO	V	Commands to Install German HELP Text
ARISTG1	MACRO	V	Commands to Install German HELP Text
ARISTG3	MACRO	V	Commands to Install German HELP Text
ARISTJF	MACRO	V	Commands to Install Japanese HELP Text
ARISTJ1	MACRO	V	Commands to Install Japanese HELP Text
ARISTJ3	MACRO	V	Commands to Install Japanese HELP Text
ARISTCF	MACRO	V	Commands to Install Simplified Chinese HELP Text
ARISTC1	MACRO	V	Commands to Install Simplified Chinese HELP Text
ARISTC3	MACRO	V	Commands to Install Simplified Chinese HELP Text
ARIS001	MACRO	V	List of HELP Text Files
ARIS002	MACRO	V	List of HELP Text Files for UCENG
ARIS003	MACRO	V	List of HELP Text Files for French
ARIS004	MACRO	V	List of HELP Text Files for German
ARID001	MACRO	V	List of HELP Text Files for Japanese
ARID003	MACRO	V	List of HELP Text Files for Simplified Chinese
ARIS5ASC	MACRO	Q and V	Sample Assembler Program
ARIS5CBC	MACRO	Q and V	Sample COBOL II Program
ARIS5CC	MACRO	Q and V	Sample C Program
ARIS5FTC	MACRO	Q and V	Sample FORTRAN Program

Figure 26 (Page 3 of 3). MACROs

File name	File type	File mode	Description
ARIS5PLC	MACRO	Q and V	Sample PL/I Program
ARITPOP	MACRO	V	SYSSTRINGS and SYSCCSIDS Population
ARIUXDT	MACRO	V	User Date Conversion Routine
ARIUXIT	MACRO	V	User Exit Router Routine
ARIUXTM	MACRO	V	User Time Conversion Routine

Figure 27 (Page 1 of 2). TEXT Files

File name	File type	File mode	Description
ARIMS001	TEXT	V	DB2 for VM American English message repository
ARIMS002	TEXT	V	DB2 for VM Upper Case English message repository
ARIMS003	TEXT	V	DB2 for VM French message repository
ARIMS004	TEXT	V	DB2 for VM German message repository
ARIMD001	TEXT	V	DB2 for VM Japanese message repository
ARIMD003	TEXT	V	DB2 for VM Simplified Chinese message repository
ARIPADR	TEXT	Q and V	COBOL Application Program Interface Text for SQL/DS 2.1 and earlier
ARIPADR4	TEXT	Q and V	COBOL Application Program Interface Text for SQL/DS 2.2 and later
ARIRVSTC	TEXT	Q and V	SQL Application Program Interface Text
ARISDBKC	TEXT	V	Skeleton Bootstrap Module
ARISISKC	TEXT	V	Skeleton ISQL Facility Bootstrap Module
ARISLKAC	TEXT	V	Assembler Preprocessor Link Book
ARISLKBC	TEXT	V	C Preprocessor Link Book
ARISLKCC	TEXT	V	COBOL Preprocessor Link Book
ARISLKDC	TEXT	V	DBSS/DSC Link Book
ARISLKFC	TEXT	V	Trace Formatter Link Book
ARISLKIC	TEXT	V	ISQL Link Book
ARISLKMC	TEXT	V	System and Accounting Interface Link Book
ARISLKPC	TEXT	V	PL/I Preprocessor Link Book
ARISLKRC	TEXT	V	RDS/DRRM/WUM Link Book
ARISLKTC	TEXT	V	FORTRAN Preprocessor Link Book
ARISLKUC	TEXT	V	DBS Utility Link Book
ARISLKVC	TEXT	V	Resource Adapter/DRRM Link Book
ARISLKXC	TEXT	V	User Exit Router Link Book
ARISLK1C	TEXT	V	Database Maintenance Link Book
ARISLK2C	TEXT	V	Reset Resource Adapter Link Book
ARISLK4C	TEXT	V	Flagger Semantic Routines Link Book
ARISLK5C	TEXT	V	Flagger View Analysis Routines Link Book
ARISLVLC	TEXT	Q and V	Program to Check VM CP and CMS Levels
ARISRMKC	TEXT	Q and V	Skeleton Resource Adapter Bootstrap Module
ARIUME	TEXT	Q and V	SQL CMS American English Message Repository
ARIUME	TXTUCENG	Q and V	SQL CMS Upper Case English Message Repository
ARIUME	TXTFRANC	Q and V	SQL CMS French Message Repository
ARIUME	TXTGER	Q and V	SQL CMS German Message Repository
ARIUME	TXTKANJI	Q and V	SQL CMS Japanese Message Repository
ARIUME	TXTHANZI	Q and V	SQL CMS Simplified Chinese Message Repository
ARIUXDT	TEXT	V	Date Local Exit
ARIUXIT	TEXT	V	Accounting Exit

Figure 27 (Page 2 of 2). TEXT Files

File name	File type	File mode	Description
ARIUXTM	TEXT	V	Time Local Exit

Figure 28. Miscellaneous Files

File name	File type	File mode	Description
ARICLOC	XEDIT	Q and V	Find Database/Machine ID Macro
ARIMS001	MODULE	Q and V	DB2 for VM American English message repository
ARIMS002	MODULE	Q and V	DB2 for VM Upper Case English message repository
ARIMS003	MODULE	Q and V	DB2 for VM French message repository
ARIMS004	MODULE	Q and V	DB2 for VM German message repository
ARIMD001	MODULE	Q and V	DB2 for VM Japanese message repository
ARIMD003	MODULE	Q and V	DB2 for VM Simplified Chinese message repository
ARIRS001	MODULE	V	DB2 for VM American English message repository for the Resource Adapter
ARISDBHX	XEDIT	V	Reformat Data from SYSLANGUAGE
ARISQLLD	LOADLIB	Q and V	DB2 for VM Load Library
ARISQLLD	CSLLIB	Q	DB2 for VM CSL Library
ARIYDEL	XEDIT	V	Used by SQLADBEX
FILE	CARDIN	Q and V	Input file for sample programs
SNA	NETID	Q and V	DB2 for VM SNA NETID File
SQLMACH	PROFILE	Q and V	Sample Profile EXEC Entries for database and service machines machines
SQLUSER	PROFILE	Q and V	Sample Profile EXEC Entries for user machines
FP102CY	ASSEMBLE	V	Sample field procedure for cultural sorting for the Cyrillic code (Regions: Russia, Bulgaria, Serbia and Montenegro).
FP870L2	ASSEMBLE	V	Sample field procedure for cultural sorting for the Latin 2 code (Regions: Slovenia, Poland and Romania).

Appendix E. IBM Language Environment for VM User Exit Customization for use with TCP/IP

This appendix describes how to customize the User Exit for IBM Language Environment for VM, for use with DB2 Server for VM applications.

If you will be using TCP/IP Communications between your end users and the database server **AND**executing the DBS Utility program or Preprocessors or user applications which use SYSIN, SYSPRINT or CEEDUMP CMS FILEDEF commands, you will need to customize the IBM Language Environment for VM User Exit program. This is because of a conflict between the way IBM Language Environment for VM handles CMS End-Of-Command processing and the way DB2 Server for VM Resource Adapter handles CMS End-Of-Command processing.

Without this customization, these FILEDEFs will get cleared by IBM Language Environment for VM before the application is finished using them, causing file read or write errors and application abends. This is because the IBM Language Environment for VM environment is cleaned up before the application ends.

The IBM Language Environment for VM User Exit must be customized so that it does NOT clear the above mentioned FILEDEFs if the DB2 Server for VM Resource Adapter is loaded in the virtual machine. After this customization is done, you will have generated a new CEEPIPI MODULE. You can either move this new module (which contains the customized User Exit) to the CMS "Y" minidisk, replacing the existing one, or you can move this new module to the DB2 Server for VM production minidisk, where it will only be used by users when they run DB2 Server for VM applications.

The steps required to perform any IBM Language Environment for VM User Exit customization are documented in the "Program Directory for IBM Language Environment for MVS & VM," under "Customizing Language Environment." Below are only the steps required to update the "CEEBXITB ASSEMBLE" User Exit file that is supplied with IBM Language Environment for VM.

Below are the assembler language statements to be inserted in the "CEEBXITB ASSEMBLE" file, with several original statements before and after the new code to identify the location of the inserts. The new statements are inserted immediately after the label "PROC_TERM_EXIT DS   0H." Note that the inserted statements all end with 'DB2' as an eye catcher.

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```
      ⋮
*/*===================================================================*/
*/*       Process termination exit.                               */
*/*===================================================================*/
        SPACE 1
*
PROC_TERM_EXIT DS   0H
* DB2/VM Modification to bypass CMS 'FILEDEF xxx CLEAR'         DB2
* commands if the DB2/VM Resource Adapter is loaded as         DB2
* a CMS Nucleus Extension:                                     DB2
        LA    R1,80(0,R13)        Ptr to R/W NUCEXT Plist Storage  DB2
        LA    R2,=CL8'ARICMOD '   Nucleus Extension Name to Query  DB2
        NUCEXT QUERY,NAME=(2),MF=(E,(1)) Execute the NUCEXT QUERY DB2
        LTR   R15,R15             If ARICMOD found, then R15 = 0   DB2
        BZ    RETURN              ARICMOD found, bypass FILEDEFs   DB2
*                                 ARICMOD NOT found, Do FILEDEFs   DB2
* DB2/VM Modification END                                      DB2
*
        LA    R1,FI_C_SYO         FILEDEF CLEAR SYSOUT       @MF0006A
        CMSCALL ,ERROR=*          PLIST ASSUMED IN R1        @MF0006A

      ⋮
```

Reader's Comments

Program Directory for DB2 Server for VM Version 6 Release 1 Modification Level 0

You may use this form to comment about this document, its organization, or subject matter. Please understand that your feedback is of importance to IBM, but IBM makes no promises to always provide a response to your feedback.

For each of the topics below please indicate your satisfaction level by circling your choice from the rating scale. If a statement does not apply, please circle N.

RATING SCALE						
very satisfied		◄----------------------------------►			very dissatisfied	not applicable
1	2	3	4		5	N

	Satisfaction					
Ease of product installation	1	2	3	4	5	N
Time required to install the product	1	2	3	4	5	N
Contents of program directory	1	2	3	4	5	N
Readability and organization of program directory tasks	1	2	3	4	5	N
Necessity of all installation tasks	1	2	3	4	5	N
Accuracy of the definition of the installation tasks	1	2	3	4	5	N
Technical level of the installation tasks	1	2	3	4	5	N
Installation verification procedure	1	2	3	4	5	N
Ease of customizing the product	1	2	3	4	5	N
Ease of migrating the product from a previous release	1	2	3	4	5	N
Ease of putting the system into production after installation	1	2	3	4	5	N
Ease of installing service	1	2	3	4	5	N

- Did you order this product as an independent product or as part of a package?

    □ Independent
    □ Package

    What type of package was ordered?

        □ CustomPac
            □ FunctionPac
            □ SystemPac
        □ System Delivery Offering (SDO)
        □ Other - Please specify type: _____

- Is this the first time your organization has installed this product?

  □ Yes
  □ No

- Were the people who did the installation experienced with the installation of VM products using VMSES/E?

  □ Yes

    How many years of experience do they have? _____

  □ No

- How long did it take to install this product? _____

- If you have any comments to make about your ratings above, or any other aspect of the product installation, please list them below:

  _____

  _____

  _____

  _____

  _____

  _____

  _____

  _____

Please provide the following contact information:

_____

Name and Job Title

_____

Organization

_____

_____

Address

_____

Telephone

Thank you for your participation.

Please send the completed form to the following address, or give to your IBM representative who will forward it to the DB2 Server for VM Development group:

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