

CMVC frequently asked questions: How to perform typical operations with DB2 UDB 5

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ABSTRACT

This technical report provides a collection of hints and tips for CMVC family administrators that use the DB2 UDB database management system (DBMS), Version 5. Some of the scenarios are:

- Installing DB2 UDB and configuring DB2 instances.

- Starting and stopping the DB2 instance.

- Creating a CMVC family under DB2.

- Backup and restore of DB2 databases.

- Accessing the CMVC tables.

- Error messages and how recover from them.

ITIRC KEYWORDS

CMVC

DB2

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INTRODUCTION

This technical report provides a collection of hints and tips for CMVC family administrators that use the DB2 UDB database management system (DBMS), version 5.

The specific product is DB2 Universal Database Enterprise Edition, Version 5.2.

The chapters in this TR are organized in the expected sequence of utilization of DB2 from a CMVC point of view:

Chapter “General information about DB2 and CMVC” on page 5 provides some general information about DB2 and CMVC, such as the different user roles, the relationship between a DB2 instance and a CMVC family.

Chapter “Installing DB2” on page 11 provides some overall recommendations for installing DB2.

Chapter “Configuring DB2” on page 25 describes how to configure a DB2 instance in order to properly create and support CMVC 2.3.1 families.

Chapter “Starting and stopping the DB2 DBMS” on page 39 describes how to start, stop, query the status, and find out the version of the DB2 instance. Chapter “Creating a database for a CMVC family” on page 43 describes how to create a CMVC family under DB2.

Chapter “Backup and restore” on page 47 describes how to perform a backup of the database and how to restore it.

Chapter “Accessing the DB2 database tables” on page 49 provides procedures for accessing the database tables and views used by CMVC.

Chapter “Common error messages with DB2” on page 55 describes the most common error messages that a CMVC family administrator may encounter when working with DB2, and how to recover from them.

UPDATES TO THE CMVC USER'S REFERENCE MANUAL

In the CMVC User's Reference manual, the note on page 53 of Chapter 7 is incorrect (section "4.4.2 Database information on CMVC Tables for queries").

The following is the correct information:

ORACLE 7	INFORMIX	SYBASE	DB2
number	integer	int	int
varchar2	varchar	varchar	varchar
long	text in table	text	long varchar

DISCLAIMERS

To avoid misunderstandings with the purpose of this technical report and to better understand its scope, the following disclaimers are in order:

This technical report is not an official publication from the CMVC group. The author is solely responsible for its contents.

This technical report was prepared when working with DB2 7.3.4 in AIX 4.2.1. Therefore, if you have a different version of the mentioned software, then you may expect some differences in the information or in the procedures described in this technical report.

This technical report covers information that the authors have gathered thru the years while working with the CMVC technical support team.

It is the intention of this technical report to provide recommendations and guidelines that can be helpful to CMVC administrators when using CMVC families where the database is stored in DB2. In some cases, the procedures will not be exhaustive, and will just show the overall sequence that has worked before, which might be different in your case.

Real values that were used in our setup will be used in this technical report. Thus, you will need to customize the commands that you issue to reflect the values that are meaningful to your setup.

It is assumed that the reader has knowledge of CMVC, DB2 and the appropriate operating system.

This technical report is not a substitute to the information provided by DB2, CMVC and the appropriate operating system. Please refer to the appropriate documentation provided with the corresponding software.

HOW TO GET THE MOST UP TO DATE VERSION OF THIS TECHNICAL REPORT.

The most up to date version of this technical report can be obtained from the IBM CMVC ftp site at URL:

`ftp://ftp.software.ibm.com/ps/products/cmvc/doc/tr/trcmfdb2.txt`

For the list of available technical reports, see the file:
<ftp://ftp.software.ibm.com/ps/products/cmvc/doc/tr/README.index.txt>

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Many of the questions and answers that are compiled in this technical report were obtained from the CMVC forum in the IBMPC conferencing disk and from the CMVC6000 forum in the IBMUNIX conferencing disk. We want to thank the main participants in these electronic forums for their support!

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GENERAL INFORMATION ABOUT DB2 AND CMVC

This chapter provides some general information about DB2 and CMVC.

ASSUMPTIONS IN THIS TR FOR THE INSTALLATION OF DB2

This TR was written with the following assumptions in mind:

DB2 (in any version) has not been installed previously in your target system.

This document does not cover migration from previous versions nor co-existence of DB2 UDB V5 with other versions of DB2.

It is assumed that this is the first installation of DB2 UDB V5 in your system.

In case you have tried before but did not achieve a complete and successful installation, then you need to cleanup your system; otherwise, you may encounter problems when running the procedures specified in this document. See the DB2 Quick Beginnings manual for details.

In UNIX, the DB2 Installer utility will be used.

Instead of trying to install DB2 in a manual manner by using low level system commands (such as the `installp` command in AIX), it is highly recommended that you install and configure DB2 Universal Database products in UNIX using the DB2 Installer utility, because it takes care of creating the necessary group IDs, user IDs, DB2 instances. Furthermore, this utility updates the `/etc/services` file by adding the new port numbers.

If you are familiar with DB2 V1 or V2, you might not know that the DB2 Installer is a great utility, and you might be tempted to extrapolate from your knowledge of DB2 V1 or V2 and try to create the DB2 instance by hand. If you decide to do it manually, then you need to be aware of the required Fenced User ID and of the highly recommended DB2 Administration Server.

The only communication protocol for DB2 discussed here will be TCP/IP because this is the only one used by CMVC.

The default values from the DB2 Installer that are used in a pristine system will be used in this document.

For example, the first DB2 instance to be created will be called "db2inst1".

For illustration purposes, the CMVC family name will be "cmfamily". The family will be located in the host "oem-ppc3".

CMVC HAS BEEN TESTED ONLY WITH DB2 UDB 5

CMVC has been tested only with DB2 UDB 5.0 and 5.2, up to Fixpak 11.

There are no plans to test CMVC with latest version of DB2, such as versions 6.x or 7.x.

USER ROLES IN DB2 AND CMVC

Operating System Administrator (root).

This user maintains the operating system with superuser or "root" privileges. One of the activities is to install the DB2 code and to create a DB2 instance.

DB2 instance user id

It is a UNIX login that owns a specific instantiation (thus, "instance") of the DB2 run-time files and serves as a manager of up to 8 individual databases.

There could be several DB2 instances in a host. Each instance is physically and logically separated from the other; this means that if one instance fails, the other instances are not affected.

DB2 administrator server user id

It is a UNIX login that owns a special type of DB2 instance, which is used to communicate remotely with DB2 clients. For example, the DB2 Control Center from another machine interacts with this special instance and this in turn, interacts with the local DB2 instances.

CMVC family user id

It is a UNIX login that owns a particular CMVC family, including the directories and files and database, and performs maintenance activities.

RELATIONSHIP BETWEEN A DB2 INSTANCE AND A FAMILY

The relationship between a DB2 instance, which is a logical database server environment, and a family is explained in this section.

The objects used by a CMVC family (such as the family "cmfamily" which resides in /home/cmfamily) are stored inside a DB2 database, which is controlled by one DB2 instance (such as the DB2 instance "db2inst1" which resides in /home/db2inst1).

The CMVC family server daemon runs the code from CMVC_HOME (such as /usr/lpp/cmvc), which in turn uses services from the DB2 instance which runs the DB2 code from /home/db2inst1 and from where the actual DB2 code is installed (such as /usr/lpp/db2_05_00).

For a summary of the directory structure, see “What is the directory structure for each component?” on page 8.

If DB2_DBPATH is not explicitly identified, then the place where the files for the DB2 database is under the directory structure of the DB2 instance.

The Figure 1 shows the relationship between all these players. Also, see “Activities to be performed by the CMVC family user id.” on page 43 for the syntax on how to include the environment variables into the UNIX profile for the family.

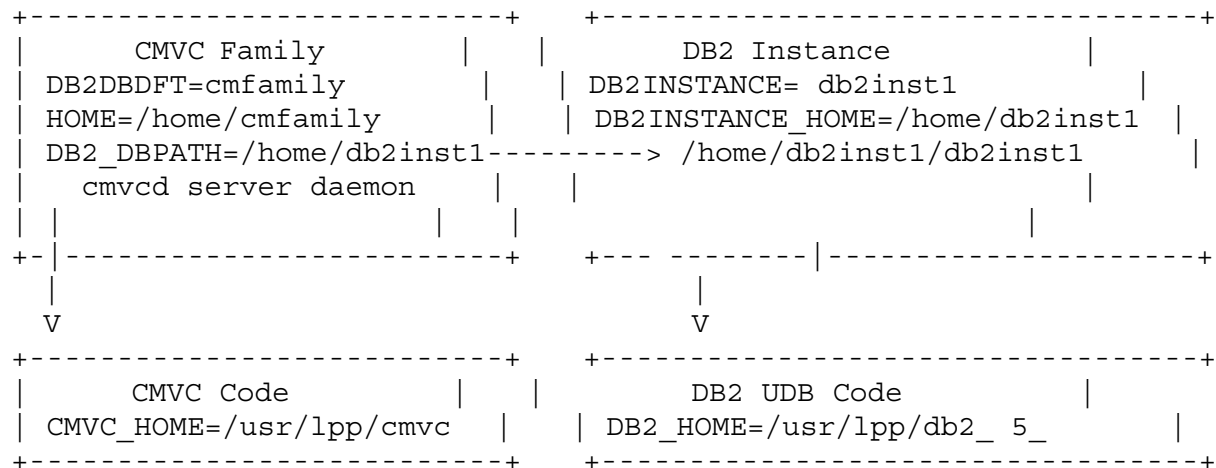


Figure 1. Relationship between all DB2 and CMVC players

Recommendations for families

Based on the relationships shown above, please keep in mind the following recommendations when you create DB2 instances and CMVC families:

Each CMVC family that is used to maintain production code and documents (that is, not for just tutorial purposes), should be isolated in one DB2 instance and that DB2 instance should not be shared by any other production family.

By having one production family per DB2 instance, you will insure that if this DB2 instance stops working, it will not affect other DB2 instances (and consequently, it will not affect other families).

In UNIX, it is recommended to have one DB2 instance per family. This TR uses different user ids, in order to clarify the roles. For example:

- Use "db2inst1" for the DB2 instance.

- Use "cmfamily" for the CMVC family.
- Use "db2as" for the DB2 Administration Server.
- Use "db2fenc1" for the DB2 Fenced User ID.

In a UNIX machine, for medium/large production families it is recommended to isolate each DB2 instance and its associated CMVC database in its own file system. For more details, see “(Optional) Create file system for the DB2 instance and family” on page 13.

Better yet, try to setup this file system into its own hard disk. In that way, the hard disk will be totally dedicated to the DB2 instance and the family. This should have better performance than a setup in which a single hard disk has to serve other applications besides the desired pair of DB2 instance and family.

In a UNIX machine, you can have several DB2 instances, each one will have a different user ID and group ID. This means that you can have multiple families running on that server, one family per DB2 instance.

What is the directory structure for each component?

Directory structure for DB2 UDB

This is a summary of the default directory structure used by DB2 UDB:

DB2 UDB - code

The UNIX location cannot be changed!

AIX /usr/lpp/db2_05_00

DB2 instance (such as db2inst1)

Note: In DB2 UDB 5.2 you can now change the location of the DB2 instance if you use the DB2 Installer in UNIX. This was not possible with DB2 UDB 5.0.

AIX /home/db2inst1

DB2 Administration Server (such as db2as)

Note: In DB2 UDB 5.2 you can now change the location of the DB2 Administration Server if you use the DB2 Installer in UNIX. This was not possible with DB2 UDB 5.0.

AIX /home/db2as

Directory structure for CMVC

This is a summary of the default directory structure used by CMVC:

CMVC code (CMVC_HOME)

The AIX location cannot be changed if you use smit installp images!

AIX /usr/lpp/cmvc

CMVC family (such as cmfamily)

AIX /home/cmfamily

By default, the actual database is stored under the DB2 Instance home.

NUMBER OF DB2 LICENSES NEEDED BY CMVC

The minimum number of user licenses required by DB2 to run 4 CMVC daemons and all the other CMVC tools is shown below:

```
1  license for db2 line processor to query the database
1  license for the notify daemon
1  license for chfield
1  license for other CMVC tools, such as vcPath
4  one license for each cmvcd daemon.
---
8  Total
```

However, the number of user licenses required depends on the number of CMVC server daemons started by the CMVC administrator. This number varies depending on the number of CMVC clients that simultaneously request service from the CMVC server.

INSTALLING DB2

This chapter provides some overall recommendations when installing DB2.

You need to consult the following manual (or its equivalent for your operating system) for the details on the requirements and installation steps:

`DB2 Quick Beginnings for Unix`

This manual will be referenced in this document as the "DB2 Quick Beginnings".

It is assumed that this is the first installation of DB2 in your server. That is, this TR does not explain how to perform advanced installation/upgrade tasks.

OVERVIEW OF THIS CHAPTER

After completing the installation of DB2 according to these instructions and by using the DB2 Installer, you will have done the following:

- Installed DB2 UDB Enterprise Edition, including the appropriate NLS related files and online documentation.

IMPORTANT INFORMATION ABOUT INSTALLING THE CODE AND CREATING USER IDS

Please adhere to the following guidelines in order to have a smoother administration and maintenance processes:

- Do use different directories for the DB2 code, for the CMVC code, for the DB2 instance, and for the CMVC family.

- Do not alter the contents of `$DB2_HOME`, or `$CMVC_HOME`.

- Do not use as the home directory for any families or users the following directories:

- `$CMVC_HOME`, such as `/usr/lpp/cmvc`
- `$DB2_HOME`, such as `/usr/lpp/db2v5`
- The home of the DB2 instances.

It is very important that the directories and the user ids must be kept separate. This will avoid potential loss during maintenance activities.

INSTALLATION STEPS

To install the DB2 products on UNIX systems, perform the following steps:

1. Identify and record the parameter values. See “Identify and record the parameter values” on page 12.
2. If desired, you can create a file system dedicated to the DB2 instance and the family. See “(Optional) Create file system for the DB2 instance and family” on page 13.
3. Mount the CD-ROM. See “Mount the CD-ROM” on page 14.
4. Install DB2 UDB Enterprise Edition. See “Install DB2 UDB Enterprise Edition using DB2 Installer” on page 14.
5. Perform the post-installation tasks. See “Post-installation tasks” on page 36.
6. Verify that the DB2 configuration is correct by creating the DB2 Sample database. See “Verify the configuration by creating the DB2 Sample database” on page 36.

Identify and record the parameter values

After completing these installation instructions, the values shown below will be the values of all the appropriate parameters used during this installation procedure for DB2:

Note: It is recommended that you change the passwords of the following DB2 user IDs.

The parameters for the normal DB2 instance are:

Figure 2. Parameters for the DB2 Instance

Parameter	Description
Full path name	/home/db2inst1
User Name	db2inst1
UID	System-generated UID
Group Name	db2iadm1
GID	System-generated GID
Password	ibmdb2
TCP/IP Connection Service Name	db2cdb2inst1
TCP/IP Connection Port Number	50000
TCP/IP Interrupt Service Name	db2idb2inst1
TCP/IP Interrupt Port Number	50001

The parameters for the normal DB2 Fenced User ID are:

Figure 3. Parameters for the DB2 Fenced User ID

Parameter	Description
Full path name	/home/db2fenc1
User Name (UDF)	db2fenc1
UID (UDF)	System-generated UID
Group Name (UDF)	db2fadm1
GID (UDF)	System-generated GID
Password (UDF)	ibmdb2

The parameters for the DB2 Administration Server (DAS) are:

Figure 4. Parameters for the DB2 Administration Server (DAS)

Parameter	Description
Full path name	/home/db2as
User Name	db2as
UID	System-generated UID
Group Name	db2asgrp
GID	System-generated GID
Password	ibmdb2
TCP/IP Port Number	523

(Optional) Create file system for the DB2 instance and family

If desired, you can create a file system dedicated to the DB2 instance and the family. In this way, you can increase the performance and maintainability of the family by isolating it from other applications that might compete for file system resources. Also, it will allow you to easily backup the entire file system and restore it.

Just for completeness, place the DB2 fenced user ID that corresponds to the DB2 instance in the same file system.

Because the DB2 Administration Server is not really associated to a particular DB2 instance, there is no need to place it in the dedicated file system for the DB2 instance.

Mount the CD-ROM

To install DB2 products using the DB2 Installer, you must first mount the platform-specific CD-ROM for DB2 UDB Version 5. After you have mounted the CD-ROM, you can start installing DB2.

Perform the following steps to mount the CD-ROM on AIX operating systems:

1. Log in as root.
2. Insert the CD-ROM in the drive.
3. Create a root directory, such as /cdrom, by typing the following command:

```
mkdir -p /cdrom
```
4. Allocate a CD-ROM file system by typing the following command:

```
smit storage
```
5. Select "FileSystems".
6. Select "Add/Change/Show/Delete FileSystems".
7. Select "CD-ROM FileSystems".
8. Select "Add CDROM FileSystems".
9. Select the "DEVICE Name".
10. Respond to the prompt, mount point, by typing the following:

```
/cdrom
```
11. Mount the CD-ROM file system by typing the following command:

```
smit mountfs
```
12. Select the "FileSystem" name. For example, the name can be /dev/cd0.
13. Select the "Directory" name: /cdrom.
14. Select the "Type of filesystem": cdrfs.
15. Set the Mount as READ-ONLY system to Yes.
16. Log out.
17. After mounting the CD-ROM, proceed to "Install DB2 UDB Enterprise Edition using DB2 Installer."

Install DB2 UDB Enterprise Edition using DB2 Installer

The DB2 Installer is a tool that performs the following independent tasks:

1. Install the code for DB2 UDB Enterprise Edition. See "Installing the code for DB2 UDB Enterprise Edition" on page 15 for details.
2. Create a DB2 Instance, create the DB2 Administration Server, create all the related ids and make the necessary file changes. See "Creating the DB2 Instances" on page 26 for details.

In this TR, the above 2 tasks are performed separately, although it is possible to perform the above tasks in the same session with DB2 Installer; however, we do not recommend this approach because we have seen some problems, especially in the second part (when creating DB2 instances).

Note: If you are using DB2 Installer from a remote server, it is better to open a telnet session instead of using the rlogin command to connect to your remote server.

Installing the code for DB2 UDB Enterprise Edition

Installing DB2 UDB from the CD-ROM:

1. Log in as root.
2. Change to the directory where the CD-ROM is mounted by typing the following command:

```
cd /cdrom
```

Where /cdrom is the mount point of the CD-ROM drive.

3. Type the following command to start the DB2 Installer:

```
./db2setup
```

It will take some time for the DB2 Installer to start up, as it is scanning your system for information.

Then you will see the main menu for DB2 installer:

```
+----- DB2 Installer -----+
|
| Select Install to select products and their components to install, or
| select Create to create the DB2 services.
|
| To select products and their components, select      [ Install... ]
| Install.
|
| To create a +--- Please Wait -----+ [ Create... ]
| Server, sele|
|           | Scanning your system for information... |
|           |
|           +-----+
|
| [ Close ]
|
|           [ Help ]
|
+-----+
```

Figure 5. DB2 Installer screen

4. From the product list on the "Install DB2 V5" screen, select to install:

DB2 UDB Enterprise Edition.

Navigation Hints: Use the left tab key to move around; the Shift-tab key does not move backwards. If you keep pressing the tab key, then when you reach the last entry at the bottom right corner, it will start again from the upper left corner. You may also use the arrow keys to move up and down, and left to right.

Use the tab key to move to the entry "DB2 UDB Enterprise Edition" then press the space bar to select it.

Select Customize and press enter.

```
+----- Install DB2 V5 -----+
|
| Select the products you are licensed to install. Your Proof of
| Entitlement and License Information booklet identify the products for
| which you are licensed.
|
| To see the preselected components or customize the selection, select
| Customize for the product.
| [ ] DB2 Client Application Enabler           : Customize... :
| [ ] DB2 UDB Enterprise Edition             [ Customize... ]
| : : DB2 Connect Enterprise Edition         : Customize... :
|
| To choose a language for the following components, select Customize for
| the product.
|   DB2 Product Messages                     [ Customize... ]
|   DB2 Product Library                      [ Customize... ]
|
| [ OK ]                                     [ Cancel ]
|
+-----+

```

Figure 6. Install DB2 V5 screen

5. From the "DB2 Universal Database Enterprise Edition" screen you may unselect components, such as the Code Page Conversion Support if you are using English only.

Consider to install the new DB2 Web Control Center, which will allow you to perform administration tasks from a remote machine. See the section "Web Control Center installation and configuration" in the DB2 UDB 5.2 manual "What's New".

You may unselect the item "Replication" and any extra "Code Page Conversion Support" that you do not need.

When you have finished choosing product components, select OK. To undo any selections you made, select Cancel.

```
+--- DB2 Universal Database Enterprise Edition -----+
|
| Required:      DB2 Client
|                DB2 Run-time Environment
|                DB2 Engine
|                DB2 Communication Support:
|                  TCP/IP          IPX/SPX
|                  SNA             DRDA AS
|                DB2 Sample Database Source
|                Administration Server
|                DB2 Connect Support
|                License Support
|
| Optional:     [ ] Open Database Connectivity (ODBC)
|               [ ] Java Support
|               [ ] Replication
|               [ ] DB2 Web Control Center
|               Code Page Conversion Support:
|                 [ ] Japanese      [ ] Simplified Chinese
|                 [ ] Korean        [ ] Traditional Chinese
|
| [ Select All ]      [ Deselect All ]      [ Default ]
| [   OK   ]         [ Cancel ]           [ Help ]
|
+-----+
```

Figure 7. DB2 Universal Database Enterprise Edition screen

- You will be back to the "Install DB2 V5" screen. Please note that the messages for the default en_US locale will be installed always (and that is the reason there is no explicit choice for it).

Move the tab key to the [Customize...] for DB2 Product Messages. Press enter.

- From the "DB2 Product Messages" screen select the desired locales by moving the cursor (tab key) and then pressing the space bar to select.
- You will be back to the "Install DB2 V5" screen, where you could specify, if you want, to install the Product Library (HTML).

Contrary to the Product Messages in which the en_US is installed by default, the Product Library in the en_US locale is not installed by default, and thus, this time there is an explicit entry for it.

Move the tab key to the [Customize...] for DB2 Product Library. Press enter.

- From the "DB2 Product Library" screen select the desired locales by moving the cursor (tab key) and then pressing the space bar to select. For example, en_US.

Select the OK button that is below Select All (in the inside window). Press enter.

```

+--- DB2 Product Library -----+
|
| Required:      DB2 Client
| Optional:     DB2 Product Library (HTML):
|               [ ] en_US      : : fr_FR      : : de_DE
|               : : es_ES      : : pt_BR      [ ] ja_JP
|               [ ] ko_KR      [ ] zh_CN      [ ] Zh_TW
|               : : da_DK      : : fi_FI      : : no_NO
|               : : sv_SE      : : cs_CZ      : : hu_HU
|               : : pl_PL      : : ru_RU      : : bg_BG
|               : : sl_SI
|
| DB2 Web Control Center Help (HTML):
|               [ ] fr_FR      [ ] de_DE      [ ] es_ES
|               [ ] it_IT      [ ] pt_BR      [ ] ja_JP
|               [ ] ko_KR      [ ] zh_CN      [ ] Zh_TW
|               : : da_DK      : : fi_FI      : : no_NO
|               : : sv_SE
|
| [ Select All ]      [ Deselect All ]      [ Default ]
| [ OK ]              [ Cancel ]            [ Help ]
+-----+

```

Figure 8. DB2 Product Library screen

- You will be back to the "Install DB2 V5" screen, where you can select OK and press enter to go to the "Create DB2 Services" screen.

If the selections are not correct, press the F3 key to return to the previous screen.

If the selections are correct, select Continue and press enter.

16. When the installation process is completed, then you will see the next window:

```

Administration S+--- Notice -----+
Note:           | Completed successfully. |
The log file i|           [ OK ]           |
+-----+
  
```

Figure 12. Notice screen of completion of the installation

Press OK to see the next window with the Status Report.

17. When the installation is complete, use the Up or Down arrow keys to review the Status Report. Ensure that all the items have a status of "SUCCESS".

```

+----- DB2 Installer -----+
+-- Status Report -----+
Installation
-----
DB2 Client                SUCCESS
DB2 Run-time Environment  SUCCESS
DB2 Engine                SUCCESS
DB2 Communication Support - TCP/IP    SUCCESS
Administration Server    SUCCESS
DB2 Communication Support - SNA      SUCCESS
DB2 Communication Support - DRDA Application Server  SUCCESS
DB2 Communication Support - IPX/SPX  SUCCESS
[ More... ]
+-----+
[ View Log ]                [ OK ]
+-----+
  
```

Figure 13. Status Report screen

CONFIGURING DB2

This chapter describes how to create DB2 instances in order to properly support CMVC 2.3.1 families.

OVERVIEW OF THIS CHAPTER

After completing the creation of DB2 instances according to these instructions and by using the DB2 Installer, you will have done the following:

Created a normal DB2 Instance; this is the default place where the database for the family will be created later on.

It is recommended that a new group ID be created which should be used as a primary group ID for the DB2 instance user ID.

Created a DB2 fenced user ID with its separate user name and group name.

Although this is not used by CMVC, it is needed by the DB2 tools. It does not hurt to create it and it does not consume significant resources. Just accept the defaults for this user ID; do not try to delete or change this user ID.

Because DB2 allows the creation of user-defined functions (UDFs), DB2 requires that these functions should be placed in a "fenced" area, and not in the DB2 instance. Thus, a dedicated user name and group name is needed to keep the fenced user-defined functions (UDFs) and Stored Procedures.

For security reasons, it is recommended that you do not use the DB2 instance user name and group name for the fenced UDFs and Stored Procedures.

Created a DB2 Administrator Server (DAS) instance which is used to allow the remote administration by means of the DB2 Control Center running on an Intel workstation.

This DB2 Administrator Server instance must have its separate user name and group name.

For security reasons, it is recommended that you do not use the DB2 Instance user name and group name for the Administration Server.

Created a DB2 Sample database. You can use this database as your sand box to practice some of the administration tasks, without affecting the database used by VisualAge TeamConnection or CMVC.

CREATING THE DB2 INSTANCES

After the installation of the code for DB2 UDB V5 has been successfully performed, now you can create the DB2 instance and the DB2 Administration Server.

Notice that the DB2 Administration Server is a special DB2 instance and it should be the only one of its type in the host. Thus, if you come to this section to create another normal DB2 instance, and if you already have created a DB2 Administration Server make sure that you do not create another DB2 Administration Server.

The sequence to create the DB2 instances is shown below:

1. Login as root
2. The DB2 Installer is now available in \$DB2_HOME/install, and so, there is no reason to mount the CD-ROM again. Thus, execute the following command:
`/usr/lpp/db2_5_ /install/db2setup`
3. You will see the "DB2 Installer" screen. This time, select "Create ..." in order to create a DB2 Instance or the Administration Server.

```
+----- DB2 Installer -----+
|
|   Select Install to select products and their components to install, or
|   select Create to create the DB2 services.
|
|   To select products and their components, select          [ Install... ]
|   Install.
|
|   To create a DB2 Instance, or the Administration          [ Create... ]
|   Server, select Create.
|
|   [ Close ]
|
|
|   [ Help ]
+-----+

```

Figure 15. DB2 Installer screen - Create instances

4. From the "Create DB2 Services" screen, ONLY select "Create a DB2 Instance".

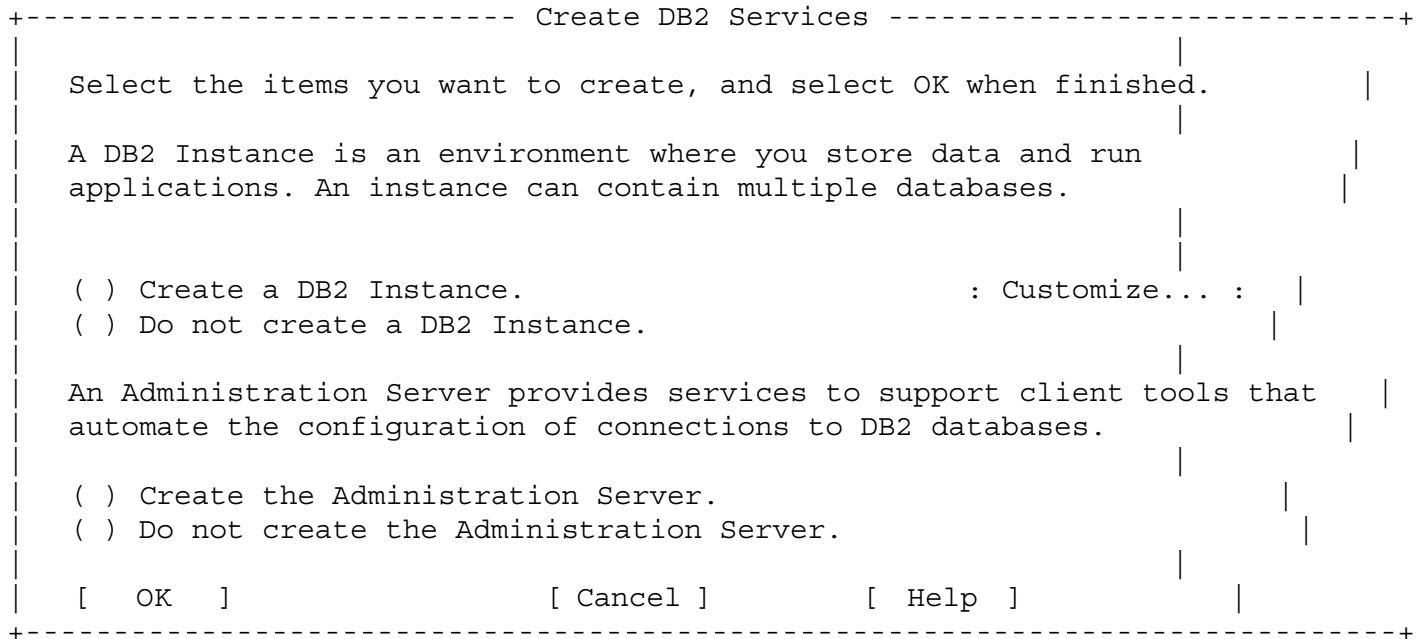


Figure 16. Create DB2 Services screen, snapshot 1

If this is the first time, when pressing the space bar to select the item, you will automatically be taken to Figure 17 on page 28.

- The recommendation is to take the defaults in the "DB2 Instance" screen, although you may want to modify the password and the home directory.

Press enter to continue.

```

+--- DB2 Instance -----+
|
| Authentication:
|   Enter User ID, Group ID and Password that will be used for
|   the DB2 Instance.
|   User Name      [db2inst1]
|   User ID       :      :      [ ] Use default UID
|   Group Name    [db2iadm1]
|   Group ID     :      :      [ ] Use default GID
|   Home Directory [/home/db2inst1 ]
|   Password     [      ]
|   Verify Password [      ]
|
| Select Properties to view or change more options.      [ Properties... ]
|
| Select Default to restore all default settings.      [ Default ]
|
| [ OK ]           [ Cancel ]           [ Help ]
+-----+

```

Figure 17. DB2 Instance screen

6. In case you want to customize the default instance properties or if you are just curious, then select Properties and you will see the "DB2 Instance Properties" screen.

Note: When showing sub-windows (windows inside another window), the outer window will not be shown completely.

```

+--- DB2 Instance Properties -----+
|
| Authentication Type:
|   Select one of the following types of authentication for
|   the DB2 Instance.
|   ( ) Server
|   ( ) Client
|   ( ) DCS
|
| Communication Protocols:
|   Select protocols and then select Properties to modify
|   the protocol values.
|   [ ] TCP/IP   Detected           [ Properties... ]
|   : : IPX/SPX                               : Properties... :
|
| [ ] Auto start DB2 Instance at system boot.
| [ ] Create a sample database for DB2 Instance.
|
| [ OK ]           [ Cancel ]           [ Help ]
+-----+

```

Figure 18. DB2 Instance Protocol screen

Then by selecting the Properties and pressing Enter, the following sub-sub-window will be shown:

```

+--- +--- TCP/IP -----+
|
| S | Enter the Service Name and Port Number that will
| p | be used for TCP/IP connection.
|
| [ | Service Name           [db2cdb2inst1 ]
| : | Port Number             [5 ]           [ Default ]
|
| | Select Default to restore all default [ Default ]
| | settings.
| [ | [ OK ]           [ Cancel ] [ Help ]
+---+

```

Figure 19. Customization of TCP/IP Protocol screen

Press enter until you return to the screen "Create DB2 Services", "DB2 Instance", in step 5 on page 28.

Then press OK to continue.

7. From the "User-Defined Functions" screen, just accept the defaults, although you may want to change the password.

The Fenced User Name and Group Name are used for user-defined functions (which need to be "fenced" in a separate account, away from the actual account of the DB2 instance). So far, they are not supported by TeamConnection nor CMVC, and there are no plans at this moment to support them, but it is a good idea to go ahead and create this user ID because they are needed for the creation of the DB2 instance.

Press enter.

```
+--- User-Defined Functions -----+
|
| Fenced User-Defined Functions enable application developers to          ||
| create their own suite of functions specific to their application      ||
| or domain.                                                            ||
|
| Authentication:                                                       ||
|   Enter User ID, Group ID and Password that will be used for         ||
|   the fenced User-Defined Functions.                                  ||
|   User Name      [db2fenc1]                                           ||
|   User ID       :      :      [ ] Use default UID                    ||
|   Group Name    [db2fadm1]                                           ||
|   Group ID     :      :      [ ] Use default GID                    ||
|   Password     [          ]                                           ||
|   Verify Password [          ] [ Default ]                             ||
|
| Note: It is not recommended to use the DB2 Instance user ID for      ||
|       security reasons.                                              ||
|
| [ OK ]           [ Cancel ]     [ Help ]                               ||
+-----+
```

Figure 20. User-Defined Functions screen

8. You will be back to the "Create DB2 Services" screen.

It is highly recommended that you also create the DB2 Administration Server (DAS), because it will allow your UNIX database to be administered remotely by the DB2 Control Center from an Intel platform or from the DB2 Web Control Center from a Web Browser. Even if you do not plan to use the Control Center now, your plans may change in the future and by installing it now you will be prepared.

The administration of a DB2 instance and its databases is greatly simplified by using the Control Center.

Select ONLY the item "Create the Administration Server". As soon as you press the space bar, you will be taken to the next screen.

```
+----- Create DB2 Services -----+
|
| Select the items you want to create, and select OK when finished.
|
| A DB2 Instance is an environment where you store data and run
| applications. An instance can contain multiple databases.
|
|
| ( ) Create a DB2 Instance. : Customize... :
| ( ) Do not create a DB2 Instance.
|
| An Administration Server provides services to support client tools that
| automate the configuration of connections to DB2 databases.
|
| ( ) Create the Administration Server.
| ( ) Do not create the Administration Server.
|
| [ OK ] [ Cancel ] [ Help ]
+-----+

```

Figure 21. Create DB2 Services screen, snapshot 2.

9. From the "Administration Server" screen, accept the defaults, although you may want to change the password.

Select OK and press enter.

```

+--- Administration Server -----+
|
| Authentication:
|   Enter User ID, Group ID and Password that will be used for
|   the Administration Server.
|   User Name      [db2as  ]
|   User ID       :      :      [ ] Use default UID
|   Group Name    [db2asgrp]
|   Group ID      :      :      [ ] Use default GID
|   Home Directory [/home/db2as ]
|   Password      [          ]
|   Verify Password [          ] [ Default ]
|
| Select Properties to view or change more
| options.
| Select Default to restore all default
| settings.
|
| Note: It is not recommended to use the DB2 Instance
| security reasons.
|
| [ OK ] [ Cancel ] [ Help ]
+-----+

```

Figure 22. Administration Server screen

10. A small subwindow will appear indicating that your host name will be assigned to the variable DB2SYSTEM.

Press enter.

```

|
| Group I+--- Notice -----+
| Passwor|
| Verify | (!) DB2SYSTEM will be set to "oem-ppc3". |
|
| Protocol: | [ OK ] |
| Select +-----+

```

Figure 23. Notice screen about DB2SYSTEM

11. You will be back to the "Create DB2 Services" screen.

Select OK and press enter.

12. A Summary Report will be shown:

```
+----- DB2 Installer -----+
|
| +-- Summary Report -----+
| |
| | DB2 Services Creation
| | -----
| |
| | DB2 Instance
| |
| | Group Name          db2iadm1
| | User Name          db2inst1
| | Password           ibmdb2
| | Service Name       db2cdb2inst1
| | Port Number        5
| | Update DBM Configuration file for TCP/IP
| |
| | User-Defined Functions
| |
| | [ More... ]
| |
| +-----+
|
| [ Continue ]
|
+-----+
```

Figure 24. Summary Report screen for the configuration tasks

13. If the selections are not correct, press the F3 key to return to the previous screen.

14. If the selections are correct, select Continue and press enter.

15. Now you will see the following warning:

```

|  |      +--- Warning -----+
|  | Adminis|
|  |      | (X) This is your last chance to stop.
|  | Note:  |
|  |      | Select OK to start, or Cancel to abort.
|  | The 1|
|  |      | [ OK ]
|  |      | [ Cancel ]
|  |      +-----+

```

Figure 25. Warning screen before configuring the DB2 instance

Press enter to start the configuration.

WARNING!: Because you have been pressing the enter key a lot, avoid pressing the enter key in the next subwindows, because then you will stop the configuration process! The temptation is really big to press that enter key! Resist the temptation!

16. You will see the "Configuring..." screen that will indicate the progress of the configuration.

WARNING!: Because you have been pressing the enter key a lot, avoid pressing the enter key in the next subwindows, because then you will stop the configuration process! The temptation is really big to press that enter key! Resist the temptation!

Wait for the installation to finish.

```

|  |      +--- Configuring... -----+
|  | Adminis|
|  |      | DB2 Instance
|  | Note:  |
|  |      | [ Cancel ]
|  |      +-----+

```

Figure 26. Configuration progress screen

17. When the installation process is completed, you will see the next window:

```
| | Administration S+--- Notice -----+ | | | | |
| | Note: | Completed successfully. | | | |
| | The log file i | [ OK ] | | | |
| | +-----+ | | | |
```

Figure 27. Notice screen of completion of the configuration of instances.

Press OK to see the next window with the Status Report.

18. When the installation is complete, use the Up or Down arrow keys to review the Status Report.

Ensure that all the items have a status of "SUCCESS".

Select OK to continue.

19. The DB2 Installer will perform some cleanup and then you will see the "DB2 Installer" screen.

20. Select Close from the "DB2 Installer" screen to terminate the DB2 Installer.

Select OK to exit.

If this is the first time a DB2 Instance is created, then continue with the post-installation tasks mentioned in "Post-installation tasks" on page 36.

If this is the subsequent creation of another DB2 Instance, then there is no need to perform the post-installation tasks.

Post-installation tasks

Update the profile for the DB2 instances

The default profiles that are used by the DB2 Instance and the DB2 Administration Server do not set the complete operating environment because the DB2 support group did not want to assume which UNIX shell was being used (such as Bourne/Korn or C, which have different syntax). Instead, you have to manually invoke an additional profile.

However, in order to simplify the handling of the commands for the DB2 instances, we are suggesting the following change in the .profile to set up the complete environment automatically upon login (using the profile for the Korn shell):

1. Edit the .profile.
2. Add the following line after the line "export PATH":

```
. ./sqlllib/db2profile
```

3. Save and exit the .profile.

Note: By the way, the DB2 Administration Server is a special DB2 instance; therefore, you may want to also make the change mentioned above into its profile.

Verify the configuration by creating the DB2 Sample database

It is a good idea to create the DB2 Sample Database for the following reasons:

To verify that you have installed and configured DB2 correctly.

To practice your DB2 administration commands, such as backup and restore. In this way, you can experiment without the fear of damaging the real family database.

To have a practice database for the DB2 Control Center.

To create the DB2 Sample database, do the following:

1. Login as the DB2 instance owner (such as db2inst1).
2. Enter the following from a command prompt to create the database with alias SAMPLE that will take around 10 MB of hard disk. Note that this command is standalone, and it does not work if you run it within the DB2 command line processor.

```
$ db2sampl
```

3. This command may take a few minutes to process. There is no completion message, when the command prompt returns, the sample database has been created.

To remove the DB2 Sample database, do the following as the instance owner:

```
$ db2 drop database sample
```

Verify the license information in the nodelock file

When you install DB2 UDB by itself, the proper licensing information is not automatically added to the nodelock file. In this case, the result is that when you manually stop (db2stop) and restart (db2start) a DB2 instance you will see this warning message. Furthermore, after this "evaluation period", your DB2 instance will not start at all.

```
SQL8  7W  There are "xx" day(s) left in the evaluation period ...
```

In case you have this situation, to fix it you need to add the licensing information into the nodelock file. When this information is added to the nodelock file, then there are no warning errors and the license will expire in the year 2047.

Login as root.

Ensure that umask is 022, and not 077, because the nodelock file needs to have 755 permission (or at least 644).

Note: If the file permission is 700 or 600 then the error message about exceeding limit of trial and buy will be shown when starting the instance.

If you purchase DB2 UDB separately and you install it from its CD-ROMs, then you will need to follow the instructions mentioned in the section "Upgrading from a Try-and-Buy License" from the DB2 Quick Beginnings for UNIX manual.

Note: In AIX, the file `/usr/lib/netls/conf/nodelock` is usually a symbolic link to `/var/ibm/nodelock` file.

STARTING AND STOPPING THE DB2 DBMS

This chapter describes how to start, stop, query the status, and find out the version of the DB2 DBMS.

STATE DIAGRAM FOR DB2 INSTANCES

The figure Figure 28 shows the main states in which an DB2 instances can be at a given point in time, and the commands that are used to trigger the state transitions.



Figure 28. Stage diagram for DB2 instances

Notes:

1. You need to be the DB2 instance user id in order to issue the commands for starting or stopping the DB2 instance.

HOW TO START THE DB2 INSTANCE

To start the DB2 instance (database manager) do the following:

1. Login into the DB2 instance user id.
2. Start the DB2 instance:

```
db2start
```

Wait for the end of the startup process:

```
SQL1 63N  DB2START processing was successful.
```

The state of the DB2 instance will move from off-line to on-line.

HOW TO STOP THE DB2 INSTANCE

To stop the DB2 instance do the following:

1. Login into the DB2 instance user id.
2. Stop the DB2 instance:

```
db2stop
```

Wait for the end of the shutdown process:

```
SQL1 64N DB2STOP processing was successful.
```

The state of the DB2 instance will move from on-line to off-line.

HOW TO QUERY THE STATUS OF THE DB2 INSTANCE

One way to find out if the DB2 instance is active, is by using the following command:

```
ps -ef | grep -i db2
```

You should see some processes like:

```
db2inst1 16852 23218 2 14:31:56 pts/3 : -ksh
db2inst1 2 218 243 6 14:32:21 - : db2tcpim
db2inst1 2 472 243 6 14:32:21 - : db2tcpcm
db2inst1 2 726 243 6 14:32:21 - : db2ipccm
db2inst1 2 99 24 52 14:32:22 - : db2srvlst
db2inst1 21244 24 52 14:32:22 - : db2resyn
db2inst1 24 52 243 6 14:32:21 - : db2gds
db2inst1 243 6 1944 14:32:21 - : db2sysc
db2inst1 25862 16852 21 14:33:22 pts/3 : ps -ef
db2inst1 2612 16852 2 14:33:22 pts/3 : grep db2inst1
```

If you do not see any processes related to DB2, then the DB2 instance is not active.

HOW TO FIND OUT THE VERSION OF DB2

To find out the version of DB2, perform the following:

1. Login into the DB2 instance user id.
2. Execute the command:

```
db2level
```

The output will have something like this (the example is for Fixpak 11):

DB21 85I Instance "db2inst1" uses DB2 code release "SQL 5 2 " with level identifier " 2 9 1 3" and informational tokens "DB2 v5.2. .33", "c99 9 4" and "U4658 7".

CREATING A DATABASE FOR A CMVC FAMILY

This chapter describes how to create a CMVC family under DB2.

This is an overview on how to create a CMVC family that uses an DB2 database. For more information see the manual CMVC Server Administration and Installation, 2.3.

ACTIVITIES TO BE PERFORMED BY ROOT

1. Login as root.
2. Create the CMVC family user id, which should belong to the same primary group as the DB2 user id.

In this example, the family name is "cmfamily" and it belongs to the group "db2iadm1".
3. Add the new CMVC family user id in /etc/hosts.
4. Add the new CMVC family user id in /etc/services and assign it a port number.
5. Logout as root.

ACTIVITIES TO BE PERFORMED BY THE CMVC FAMILY USER ID.

1. Login as the CMVC family user id.
2. Copy the sample profile for a CMVC family:

```
cp /usr/lpp/cmvc/install/profile.db2 .profile
```


The above command uses the default location for CMVC.

All the CMVC related environment variables are already listed and documented in the sample profile for a CMVC family that uses DB2.
3. Modify the .profile. Follow the instructions in the comments in the header of the file.
4. Ensure that all the environment variables related to DB2 are defined:

```
##  
## DB2 setup  
##  
## The following variable is used by DB2 itself, to identify the instance:  
export DB2INSTANCE=db2inst1  
  
## The following variables are used during the creation of the DB2 database  
## for the CMVC family. The defaults are different for AIX 3 and AIX 4.  
## If you are creating in AIX 4 a CMVC family to be migrated from AIX 3,
```

```

## then use the defaults for AIX 3.
## You can use the following DB2 command to find out the details of a database:
##   db2 get database configuration for familyName | more
## See the DB2 Administration Guide for the details on the code set and
## territory. In V1, this information is in Appendix E, Page 345, Table 41;
## the value for DB2_TERRITORY is taken from the first column "Supported Locale
## and the value for DB2_CODESET is taken from the third column
## "Supported Code Set".

## Uncomment the following defaults if using AIX 4
# export LANG=en_US
# export DB2_CODESET="ISO8859-1"
# export DB2_TERRITORY="en_US"

## The following variables are used by CMVC.

export DB2_HOME=/home/db2inst1

## See the file /usr/lpp/cmvc/doc/README.pubs for clarification on
## the usage of the following environment variable:
export DB2_DBPATH=/home/db2inst1

## The following variable must have the password for the CMVC Family
## (and not the password for the DB2 instance)
export DB2_PASS=passwordForCMVCFamily

## Invoke DB2 profile and setup other DB2 variables. You m
## You may take a look at the profile and modify it if you wish.
. /home/db2inst1/sqlllib/db2profile

## Specify the default database to be used when connecting.
export DB2DBDFT=familyName

## The DB2OPTIONS variable allows you to see more information for SQLCA.
## If you want it, you can uncomment the following line.
# export DB2OPTIONS=-a

##
## Modification of PATH
##

## Make sure that your normal PATH is properly set below:
PATH=/usr/bin:/etc:/usr/sbin:/usr/ucb:$HOME/bin:/usr/bin/X11:/sbin:..

## The following statements include needed CMVC entries:
PATH=$PATH:$CMVC_HOME/install:$CMVC_HOME/bin:$CMVC_HOME/samples
PATH=$PATH:$DB2_HOME/sqlllib/bin:$DB2_HOME/sqlllib/adm
export PATH

```

5. After editing the profile, exit your session and login again in order to have a clean environment.

6. Create the CMVC family. At this time, all the environment variables and the configuration items should be ready for creating and starting the CMVC family with 2 server daemons:
 - a. mkfamily
 - b. mkdb -d
 - c. cmvcd cmfamily 2
 - d. notifyd
 - e. You can now use the CMVC family.
 - f. To monitor the usage of the CMVC daemons do: monitor 1
Press an alphanumeric key to stop the monitor command.
 - g. To stop the CMVC daemons do: stopCMVC \$LOGNAME

BACKUP AND RESTORE

This chapter describes how to perform a backup of the database and how to restore it.

BACKUP OF DB2 DATABASES

1. Login as the CMVC family administrator (\$LOGNAME):

2. Stop the CMVC family:

```
stopCMVC $LOGNAME
```

3. Create a directory where to store the backup files and ensure that it has proper file permissions for the DB2 instance to write a file there:

```
$ $HOME/backup  
$ chmod 777 $HOME/backup
```

4. Use the **db2 backup** command to backup the database of a CMVC family. For example:

```
db2 backup database $LOGNAME to $HOME/backup
```

5. Wait for the backup to be completed:

```
Backup successful. The timestamp for this backup image is : 2 1 21415492
```

RESTORE OF DB2 DATABASES

1. Login as the CMVC family administrator (\$LOGNAME):

2. Use the **db2 restore** command to restore the database of a CMVC family. For example:

```
db2 restore database $LOGNAME from $HOME/backup
```

3. In this example, we are restoring into an existing DB2 database, and therefore, we will answer "y" (yes) to the following warning:

```
SQL2539W Warning! Restoring to an existing database  
that is the same as the backup image database.  
The database files will be deleted.  
Do you want to continue ? (y/n) y
```

4. Wait for the backup to be completed:

```
DB2 I The RESTORE DATABASE command completed successfully.
```


ACCESSING THE DB2 DATABASE TABLES

This chapter provides procedures for accessing the database tables and views used by CMVC. The concrete example of adding a new host list entry is shown; although we discourage the manual modification of the database, in some situations (such as after renaming the hostname) it is necessary to add a host list entry directly into the database.

The section “How to use a script to execute SQL commands” on page 52 shows a Korn shell script that can be used to query the database.

HOW TO GAIN ACCESS TO THE DATABASE

Sometimes it is necessary to access the DB2 database used by the CMVC family in order to query the entries for a certain table or view.

To gain access to the DB2 database, do the following:

1. Login to an account that has access to DB2, such as the CMVC family user id.

2. Connect to the database:

```
db2 connect to $LOGNAME
```

You will see the following message:

```
Database Connection Information

Database server      = DB2/6      5.2.
SQL authorization ID = CMPC3DB2
Local database alias = CMPC3DB2
```

3. Now proceed to access the database via batch mode or interactive mode.

Using batch mode

Once you have connected to the database, do the following to access the database in batch mode.

1. You can now perform SQL queries, such as:

```
db2 "select  from Sequence"
```

Notice that you have to use double quotes around the SELECT statement to avoid the expansion of the asterisk (*) by the shell.

You will see the output, such as:

```

NAME                LASTSERIAL
-----
defect                1
source
general                3

```

3 record(s) selected.

Using interactive mode

Once you have connected to the database, do the following to access the database in interactive mode.

1. In DB2, go into interactive SQL; in DB2 (command line processor) type the following:

```
db2 -t
```

Note: The -t flag tells DB2 that the semicolon is the termination character; this allows you to enter several statements in a row.

Now you can see the "db2" prompt:

```
db2 =>
```

2. You can now perform SQL queries, such as:

```
select from Sequence;
```

Notice that you do not have to use double quotes (as in batch mode) but you need to specify the semicolon.

You will see the output, such as:

```

NAME                LASTSERIAL
-----
defect                1
source
general                3

```

3 record(s) selected.

3. To exit the interactive mode, issue:

```
quit;
```

HOW TO INSERT A NEW HOST ENTRY INTO THE HOSTS TABLE

1. Choose the batch mode or the interactive mode to access the DB2 database.
2. Perform the following statements:

```

insert into Hosts (userId, name, login, address)
values (1, 'example.cary.ibm.com', 'loginId', );

```

Notes:

- a.
 - b. The `userId` value of 1 is the id associated with the original `CMVC_SUPERUSER`. If another `userid` is needed, then follow in a similar manner the step “How to look at the contents of Hosts table for first user” on page 51 to show the id value in the Users table for the appropriate user id. This field is numeric.
 - c. During `mkdb`, the value for "name" (with a value shown here of 'example.cary.ibm.com') is `$HOSTNAME`, where this value is obtained by means of executing:

```
/usr/bin/hostname $CLIENT_HOSTNAME
```
 - d. During `mkdb`, the value for "login" is obtained from `$CLIENT_LOGIN`
3. Continue with “How to look at the contents of Hosts table for first user.”

HOW TO LOOK AT THE CONTENTS OF HOSTS TABLE FOR FIRST USER

- 1. Choose the batch mode or the interactive mode to access the DB2 database.
- 2. Perform the following statements:

```
select name,login from Hosts where userId=1
```

Notes:

- a. Refer to the `CMVC User's Reference`, Chapters 6 and 7 for the field names and sizes.
 - b. DB2 is NOT case sensitive for any names. The headers are always shown in upper-case, but the information is displayed according to the case.
3. An example of the output from the SQL command:

```
NAME
-----

LOGIN
-----
carcps 8.cary.ibm.com
build
```

This mean that the host name is `carcps08.cary.ibm.com` and that the login is `build`.

HOW TO USE A SCRIPT TO EXECUTE SQL COMMANDS

The Korn shell script shown in “Korn shell script: db2Script” on page 52 can be used to interact with the DB2 tool to issue SQL commands and to store the output in an output file.

In this example, the following SQL command will be executed (show all users, sorted by login):

```
select    from Users where login like '%' order by login
```

Actually, the above command needs to be specified between 2 specific lines in the Korn script; each line contains the delimiter !!! . The following lines show the correct location; notice that the select statement needs to terminate with a semicolon, to allow multiple SQL commands to be issued in the same script:

```
db2 -o -t -v +p >> $LOG 2>&1 <<!!!  
select    from Users where login like '%' order by login;  
!!!
```

Once the script is ready, you can execute it as follows (you need to specify the CMVC family name):

```
DB2Script familyName
```

There are 2 outputs:

The messages displayed in the screen:

```
DB2Script: Starting script cmfamily
```

```
DB2Script: Please see the following log for the details  
           of the execution of the DB2 commands: DB2Script.out
```

```
DB2Script: End of script
```

The file DB2Script.out that contains the results.

Korn shell script: db2Script

The DB2Script Korn shell script is shown below. Please notice the usage of the following command options:

-o to display output.

-t to set the termination character, which is a semicolon.

-v to echo the current command.

+p to suppress the display of interactive input.

```

#!/usr/bin/ksh
#
# Name:          db2Script familyName
#
# Purpose:       This is a sample shell script that shows
#                how to issue a set of DB2 command lines.
#                There is a log file generated with the output of the
#                execution of this script.

# Process the proper number if input parameters

if [ "$#" -ne 1 ]
then
    print -u2 'usage: db2Script familyName  '
    exit 1
else
    print 'db2Script: Starting of script ' $1
fi

db2 connect to $1
export LOG=db2Script.out

##### Customization notes #####
# Place the actual DB2 commands inside the begin and end !!!
# Remember to put the ; (semicolon) at the end of each logical statement
#####

# The DB2 command options used here are:
# -o display output
# -t set termination character (semicolon)
# -v echo the current command
# +p suppress the display of interactive input

db2 -o -t -v +p >> $LOG 2>&1 <<!!!
list database directory;

!!!
# The above !!! indicates the end of the long series of DB2 commands

db2 terminate

print ' '
print 'db2Script: Please see the following log for the details'
print '          of the execution of the DB2 commands: ' $LOG
print ' '
print 'db2Script: End of script'

exit

# end of file

```


COMMON ERROR MESSAGES WITH DB2

This chapter describes the most common error messages that a CMVC family administrator may encounter when working with DB2, and how to recover from them.

To avoid duplication, this chapter describes those error messages that are not described in the other chapters in this TR.

HOW TO DEAL WITH THE DB2 SQL -954 PROBLEM

Problem:

When doing an action with CMVC, such as Defect -view, there is an error 0010-256 which indicates that there is a generic problem. Then in the /var/spool/syslog file there is a CMVC error 0010-061 which shows a DB2 -954 error message.

Action:

First of all, you can issue the following command to find out more about the DB2 -954 (SQL0954) error message:

```
$ db2 ? sql 954
```

```
SQL 954C Not enough storage is available in the
        application heap to process the statement.
```

Explanation: All available memory for the application has been used.

The statement cannot be processed.

User Response: Terminate the application on receipt of this message. Increase the database configuration parameter (applheapsz) to allow a larger application heap.

```
sqlcode:  -954
```

```
sqlstate:  57 11
```

Second, the DB2 Version 1 Administration Guide, Chapter 10 "Configuring DB2", page 160 mentions some possible ways to update this parameter. The database "cmpc3db2" will be used as an example when using the command line processor (CLP):

1. Ensure that the CMVC family is not running.
2. Login as the DB2 instance owner.

3. db2start

4. db2 get database configuration for cmpc3db2

A listing of the configuration items is displayed. One of the entries will be for applheapsz:

```
Default application heap (4KB) (APPLHEAPSZ) = 128
```

5. db2 update database configuration for cmpc3db2 using applheapsz 196

6. Repeat the query on the database configuration and verify that the value is indeed 196.

7. db2stop

8. db2start

9. Logoff and login into the CMVC family and restart it.

10. Repeat the CMVC action such as Defect -view. If the -954 still happens, then repeat this procedure and increase even more the value for applheapsz.

After changing the parameters, DB2 must be stopped (db2stop) and then restarted (db2start) in order for the new parameter values to take effect.

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