Installing and configuring a single-partition IBM DB2 UDB Version 8.x database on HP Integrity servers running HP-UX

Executive summary

As more robust market-leading solutions are being offered, it is becoming increasingly attractive for customers to consider higher-performing, lower-cost platforms, such as HP-UX on the Intel® Itanium® 2 Processor Family system architecture.

HP is committed to developing the HP Integrity server, an industry-leading UNIX® platform for enterprise applications. Running the HP-UX operating system and powered by Itanium 2 processors, the HP Integrity server delivers high performance, scalability, and reliability.

Itanium 2 Explicitly Parallel Instruction Computing (EPIC) processors provide greater instruction-level parallelism than Reduced Instruction Set Computer (RISC)- or Complex Instruction Set Computer (CISC)-based processors, offering advanced features like predication, speculation, and explicit parallelism. This new processor architecture has already achieved better price performance and more record-breaking performance results than other processor architectures.

The current versions of IBM DB2 Universal Database – Version 8.1 and Version 8.2 – are supported on HP-UX 11i v2 (HP-UX 11.23).

This white paper offers an instruction of the installation and configuration of a DB2 single-partition database on an HP Integrity server running HP-UX. The paper provides references to sources of additional information and then details an installation and configuration methodology. Information on installing and configuring a client to communicate with the DB2 server is also provided. The paper concludes with information on removing DB2 from the server and a brief troubleshooting section.

Important:
This white paper provides comprehensive, detailed instructions for the installation and general configuration of DB2 V8. However, before you follow these procedures HP highly recommends reviewing documentation supplied by IBM for the code being installed. These documents include install.txt, release.txt, and readme files under product and component directories on the DB2 installation CD. Alternatively, you can access these documents at http://www-306.ibm.com/software/data/db2/udb/support/manualsv8.html.

Audience

This paper is aimed at DB2 database administrators and assumes a working knowledge of the following:

- DB2 installation and database administration
- HP-UX system and network administration

Terminology

The following terminology is used in this paper:

DB2	DB2 Enterprise Server Edition
HP-UX	HP-UX 11i v2 or above, executing on an HP Integrity server
db2inst1	Username for the server database instance
dasusr1	Username for the server DB2 Administration Server (DAS) instance
db2user	Username for the client database instance

Sample commands

The implementation section of this paper uses sample commands to show how DB2 can be installed and configured.

Important:
The sample commands may need to be modified to meet the needs
of your particular environment.
The outputs of some sample commands may be environment-
dependent.

Font styles are used to differentiate the various types of information that make up these commands, as follows:

Information type	Font style
UNIX user	Regular
Command	**Bold**
Text to edit	**Bold**
Output to command	Regular
Command or text variable	*Italic*

Sources for additional information

The following documents can help you implement the latest DB2 installation and configuration procedures on HP Integrity servers running HP-UX.

Installing DB2

The following documents can be helpful:

Source	Information
"Quick Beginnings for DB2 Servers"	DB2 installation information
"Installation and Configuration Supplement"	Supplemental installation information
"Quick Beginnings for DB2 Clients"	DB2 client installation information
"Release Notes"	Product enhancements; installation, migration, upgrade, and configuration information; limitations; known problems and workarounds; and documentation updates

The above documents are available at http://www-306.ibm.com/software/data/db2/udb/support/manualsv8.html.

In addition, install.txt or install.htm files (supplied with your installation CD or tar files) provide prerequisite installation information for servers, clients, and related DB2 products.

DB2 FixPaks

DB2 FixPaks for HP Integrity servers running HP-UX are available at[1] ftp://ftp.software.ibm.com/ps/products/db2/fixes/english-us/db2hplA64v8/fixpak/

HP-UX patches

Patches for the HP-UX operating system are available at http://www.itrc.hp.com/.

HP-UX documentation

Documentation for the HP-UX operating system is available at http://www.docs.hp.com.

DB2 Information Center

IBM's DB2 Information Center provides general DB2 information, including the following:

- DB2 UDB version support for HP Integrity servers on HP-UX, FixPaks, and clients
- Instructions for a single-partition installation
- Installation requirements for a DB2 server on HP-UX
- Instructions for modifying HP-UX kernel parameters
- Information on Java™ SDK levels for DB2 UDB

You can access the DB2 Information Center at http://publib.boulder.ibm.com/infocenter/db2help/index.jsp.

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[1] IBM anonymous FTP server

DB2 migration to an HP Integrity server platform

The migration of a DB2 database from an HP-UX PA-RISC platform to HP Integrity is discussed in a white paper called, "HP-UX HP 9000 Transition Strategies for DB2."

This paper is available at http://h21007.www2.hp.com/dspp/files/unprotected/database/T-ISV-PA-Integrity-Transition-strategies-DB2-1.0.pdf

DB2 Installation Kit for HP-UX Integrity

A trial version of the DB2 installation kit for HP Integrity servers on HP-UX is available at http://www-306.ibm.com/software/data.

Click on **Trials and betas** and search for **DB2 on HP-UX**. You are required to register with the site and sign in before proceeding to the download page.

For HP Integrity servers on HP-UX, the kit is named

      DB2_V82_ESE_HPI_3264_*.tar

where * depends on your language selection. File size is between 619 and 651 MB.

DB2 single-partition server installation

After addressing some general prerequisites, you are ready to start the four-stage process for installing your DB2 single-partition server.

General prerequisites

Before installing DB2, address the following prerequisites:

- Verify that the operating system and hardware are functioning correctly.
- Check the system log file (/var/adm/syslog) for any errors.
- Make sure all disk subsystem components to be used by DB2 are functioning correctly.

Installation

The process for performing a DB2 single-partition server installation is documented in the "Quick Beginnings for DB2 Servers" manual and on the DB2 Information Center website at http://publib.boulder.ibm.com/infocenter/db2help/index.jsp→DB2 Universal Database→Single-partition installation (UNIX).

There are four stages to installing DB2 Enterprise Server Edition in a single-partition database. These stages are:

1. Review DB2 product prerequisites
2. Mount the DB2 product CD-ROM
3. Modify kernel parameters
4. Install the DB2 product

Detailed explanations of these stages follow.

Review DB2 product prerequisites

Prerequisites for disk, memory, Java, the operating system, the browser, communications, DAS, and NAS are outlined; sources of additional information are suggested.

More information

You should review the following information:

Source	Information
"Installation requirements for DB2 servers (HP-UX)" section of the "Quick Beginnings for DB2 Servers" manual, and DB2 Information Center website	• Hardware, operating system, software, communications, and DAS requirements • NFS installation support • Modifying HP-UX kernel parameters • Installing the appropriate-level Software Development Kit (SDK) for DB2 Control Center • Creating and running a Java application, including stored procedures and user-defined functions
The doc subdirectory of the DB2 product CD-ROM	• DB2 product requisites for HP Integrity servers on HP-UX Supplemental installation information Note: A web browser – such as Mozilla, provided with HP-UX – is required to view the installation notes in HTML format (install.htm).

Summary of prerequisites

The prerequisites outlined here were valid when this white paper was published; however, HP recommends that you reference the above documents to obtain up-to-date information.

Disk requirements

Disk requirements for the installation vary based on your particular environment and whether you are installing the DB2 server or client.

If you are using a file system for database storage, you should enable Large File Support – by default, the file system will only be able to accommodate files of 4 GB or less.

Since DB2 installs into the file system /opt, you should ensure there is sufficient space in the file system before proceeding with the installation. The exact amount of space required depends on the file system being used and the type of installation performed. To help you determine the space you need, the DB2 Enterprise Server Edition setup wizard provides dynamically-created size estimates based on installation type and component selection, as shown in Table 1.

Table 1: Space requirements calculated by the setup wizard

Installation type	Space required	Components installed
Typical	820 – 990 MB	DB2 is installed with most features and functionality, including graphical tools such as Control Center and Configuration Assistant.
Compact	760 – 920 MB	Basic DB2 features and functions are installed. The installation does not include graphical tools or federated access to IBM data sources.
Custom	760 – 960 MB	You select the features you wish to install.

Remember to include sufficient disk space for other software, communication products, and documentation.

Note:
Documentation for DB2 V8 is provided on CD-ROMs.

Note:
If software is downloaded from a website and decompressed, the temporary disk space required may be up to two or three times the size of the installed DB2 software.
2 GB of temporary storage is usually sufficient for a full installation of DB2 Enterprise Edition.

Memory requirements

The following memory requirements apply to a DB2 installation:

- 256 MB of RAM minimum
- 512 MB of RAM memory is recommended if you are using graphical tools
- To benefit from 64-bit addressing, at least 4 GB is required
- An additional 16 MB of RAM is required for every five client connections
- Additional memory is required to improve performance if other software is running on your system.

Java requirements

Important:
Java is not required unless the system is using Graphical User Interfaces (GUIs) or remote support via DAS.

Java Run Time Environment (RTE) 1.4.1 is installed with HP-UX 11.23 (RTE 1.4.2.07 is installed with HP-UX 11.23 0505). Java support that comes with the DB2 code on the same CD will not be installed during the installation process.

If you wish to install a different version of Java, you can obtain assistance from the HP website, http://www.hp.com/go/java. Note that SDK/RTE 1.4 or later is required if you intend to create 64-bit instances; SDK/RTE 1.4 is required to run 64-bit Java applications.

To review required patches for Java SDK or RTE, visit
http://www.hp.com/products1/unix/java/patches/index.html.

Operating system requirements

Up-to-date operating system information can be found at
http://www.ibm.com/software/data/db2/udb/sysreqs.html.

DB2 Workgroup Server Edition (single-partition database environments only) and DB2 Enterprise
Server Edition (single-partition and partitioned database environments) can run on HP-UX Version 11i
v2 (B.11.23) for Itanium-based systems. The operating system patches listed in Table 2 are required.

Table 2: Required operating system patches (at the time of publication)

DB2 version	Operating system patches
8.1.4 – 8.1.6	PHKL_30065
8.1.7, 8.2, or 8.2.2	PHKL_30065
	PHSS_30230
	PHSS_31086

To check on whether these operating system patches have been installed, use the **swlist** utility to
obtain a list of all the software currently installed on your system. This utility also indicates the version
of HP-UX and identifies all installed patches.

If the patches shown in Table 2 have not been installed (or if you wish to confirm that these are still
the latest requirements), visit http://www1.itrc.hp.com/service/index.html to download the latest.
Note that these patches may have been superseded by the latest ones.

For updated operating system requirements, check the DB2 Information Center at
http://publib.boulder.ibm.com/infocenter/db2help/index.jsp. Review **Installing→Database
systems→DB2 Universal Database for Linux, UNIX and Windows→DB2 servers→DB2 UDB Enterprise
Server Edition (non-partitioned)→HP-UX** for updated requirements.

Browser requirements

Mozilla Version 1.0 or greater is required to view online help.

Mozilla is one of the operating system modules installed with HP-UX – Mozilla Version 1.6 is installed
with HP-UX 11.23 0505.

You may wish to update to the latest version of Mozilla to take advantage of security enhancements.

Communication requirements

IBM Advanced Program-to-Program Communication (APPC) protocol or Transmission Control
Protocol/Internet Protocol (TCP/IP) is required. TCP/IP is only needed for remote database
administration.

The use of APPC requires additional software to be installed. For more information, refer to your IBM
documentation.

Note:
64-bit HP Integrity/HP-UX server platforms running DB2 Version 8
do not support 64-bit DB2 Version 7 local applications.

DAS requirements

A DAS must be created for Control Center and Task Center to work properly. Each DAS must be created under a user ID, just like an instance.

For more information, refer to your IBM documentation.

NFS recommendations

Installing DB2 code on Network File System (NFS) can cause problems that are difficult to diagnose. As a result, HP recommends always installing DB2 code locally.

While the installation image (a tar file or CD-ROM) can, however, be placed on an NFS-mounted device for use during the installation process, installed code should always be written to the /opt/IBM/db2/V8.1 directory on the local server.

Important:

The installation of DB2 on a NFS-mounted device is not currently supported.
Take care when installing code from a remote, NFS-mounted device. NFS can squash your root directory and deprive it of some privileges. By default, root Set User ID (SUID) executables are denied access to NFS-mounted directories. To enable access, turn off root-squash on the NSF server.

Mount the DB2 product CD/DVD-ROM

Use the following procedure to mount a DVD-ROM (or CD-ROM) on HP-UX 11i v2 (B.11.23):

1. Log in as root.
2. Insert the CD or DVD media into the DVD-ROM drive and wait for the drive's busy light to stop blinking.
3. Find the CD or DVD-ROM device file name using the following command:

   root# **ioscan -fnC disk | more**

   You should see a display similar to the following:

   disk   0 0/0/2/0.0.0.0 sdisk   CLAIMED   DEVICE   TEAC   DV-28E-B

   /dev/dsk/c0t0d0   /dev/rdsk/c0t0d0

   In this example, the device name is /dev/dsk/c0t0d0.

4. Create the mount point under root(/):

   root# **mkdir /dvdrom**

5. Mount the CD or DVD onto the new directory as a file system. For example, the following command mounts the /dev/dsk/c0t0d0 device as the /dvdrom directory:

   root# **mount /dev/dsk/c0t0d0 /dvdrom**

To assess available disk space and file systems, and to check if the CD-ROM is mounted, enter the following command:

   root# **bdf – i**

The above command provides a listing of mounted file systems and data, and specifies the amount of disk capacity used and the amount currently available.

Distributing the DB2 Installation Kit to other servers

Storing a local disk copy of a DB2 CD image on a NFS shared file system allows you to subsequently install DB2 on multiple machines in parallel using a response file. To make a local copy of a DB2 image enter the following two commands:

> root# **mkdir** /home/db2inst1/db2cdrom
>
> root# **cp -R** /cdrom /home/db2inst1/db2cdrom

Note:

Installing DB2 in parallel is much faster than installing DB2 on each machine separately from a mounted CD-ROM. However, installing from a CD-ROM is the only option if insufficient disk space is available on a machine.

Modify HP-UX kernel parameters

Proper kernel configuration is critical for the following:

- Successful creation of DB2 instances
- System performance
- Database performance

IBM recommends that you run the **db2osconf** command for DB2 UDB 64-bit on HP-UX to list kernel parameters recommended for your system.

Instructions for modifying HP-UX kernel parameters are documented in the following sources:

- In the "Quick Beginnings for DB2 Servers" manual under "Modifying kernel parameters (HP-UX)"
- On the DB2 Information Center under "Modifying kernel parameters (HP-UX);" navigate to the following URL:

> http://publib.boulder.ibm.com/infocenter/db2help/index.jsp→ Installing→Database systems→DB2 Universal Database for Linux, UNIX and Windows→DB2 servers→DB2 UDB Enterprise Server Edition (non-partitioned)→HP-UX →Modifying kernel parameters

A DB2 installation is required before executing the **db2osconf** command.

If your DB2 installation requires the creation of a db2 instance (such as a demo database or the creation of a DAS instance), you may need to change certain kernel parameters before creating these databases.

You can use the following sample output from **db2osconf** on an HP Integrity server as a reference:

```
root# db2osconf

****************** System Resources *********************

Physical RAM ==> 68703363072

Number of CPUS ==> 1

System Scale Factor ==> 2048.00

* Recommended HP-UX Kernel Parameters Based on this System *

nproc ==> 2064

maxuprc ==> 688

maxfiles ==> 1024

nflocks ==> 4096
```

```
ninode ==> 2867

nfile ==> 11469

msgseg ==> 32767

msgmnb ==> 65535

msgmax ==> 65535

msgtql ==> 1638

msgmap ==> 1640

msgmni ==> 1638

msgssz ==> 32

semmns ==> 4097

semmni ==> 2048

semmnu ==> 2048

shmmax ==> 61833026765

shmmni ==> 2048

maxdsiz_64bit ==> 1900000000


****** Please Change the Following in the Given Order ******

Your system has sufficient values for kernel parameters.

No changes are necessary.
```

Important:
The *msgmax* parameter must be set to 65535.
The *msgseg* parameter must be set no higher than 32767.
The *shmmax* parameter should be set to 134217728 or 90% of
the physical memory (in bytes), whichever is higher.

Use either **kcweb** or the **kctune** utility to change the values of these parameters.

Note:
The first step should be to set static parameters, which requires a
reboot for the changes to take effect. Following the reboot,
dynamic parameters should be set.

Install the DB2 server product

Installing the DB2 server product requires planning and the selection of a suitable installation method.

Installation planning

Before installing the database software and major database objects (such as database instances and directories for database containers), you should first plan and specify the overall structure of the database environment. Consider the following:

- **Installation directory structures** (home, symbolic links)
  Whether the DB2 installation is automated or manual, it is very useful to determine up front the location and structure of the home and installation directories.

- **Home directory**
  The home directory could be as simple as /home/db2instx, where db2instx is the directory for the instance owner being created. Alternatively, the home directory could reflect existing corporate security, database administration, and naming standards. In either case the directory must belong to the instance owner.

- **Standard object names** (hostname, IP, instance/database, users/groups, passwords)
  To ensure that all required objects are correctly identified, named, and available before the installation, their names should be verified and approved by respective system and database administrators. This is particularly important in order to avoid duplicates; meet corporate standards and security administration guidelines; and contribute to the smooth configuration of client server connectivity.

- **DB2 users and groups**
  Whichever installation method you select, before installing DB2 you can manually create HP-UX users and groups for DB2.
  The *db2setup* installation method can create HP-UX users and groups automatically if you elect to do so. Alternatively, HP-UX DB2 users and groups can be created using the **sam** utility or, as user root, by running the following sample commands:
  – Creating UNIX groups on HP-UX

     root# **groupadd** *–d 901 db2iadm1*

     root# **groupadd** *–d 801 db2fadm1*

     root# **groupadd** *–d 701 dasadmgp*

  – Creating UNIX users for each group

     root# **useradd** *-g db2iadm1 -d /home/db2instl   -m db2inst1*

     root# **useradd** *-g db2fadm1   -d /home/db2fenc1 -m db2fenc1*

     root# **useradd** *-g dasadmgp -d /home/dasusr1   -m dasusr1*

  You must run command **passwd** to set passwords for these users.

Note:
For HP-UX trusted systems, make sure that database das and instance user passwords contain at least one digit; for example, db2inst1 / pas2word.

- **Special directories**

  Consider creating the following directories for the database images and the critical system patches:

  – db2cdrom – CD-ROM directory on disk

  – depot – for patch management

  – database – for data

  You must create directories for patches and other software that you need to install, including a directory for DB2 FixPaks. Note that a typical FixPak is several hundred MBs in size; operating system patches are usually a few tens of MBs.

  You can store all downloaded files in a single directory or separate them.

  You must also create a depot directory for new HP-UX software and patches. The default directory for a depot is /var/spool/sw.

Note:
The system /tmp directory may be refreshed on a reboot; as a result, the contents of this directory can never be guaranteed.

In addition, you may wish to create the directory structure for the actual databases. It is important to separate directories that contain data from log files and temporary tablespaces; typically, indexes are also maintained in separate directories. Furthermore, to simplify management, the directory where log files are archived should have a separate path from the location of the active log files.

Selecting a suitable DB2 installation method

The following methods are available for installing DB2 on HP Integrity servers running HP-UX:

- **DB2 Setup** wizard – this GUI-based installer performs initial setup and configuration tasks, providing an easy way to install DB2

- **db2_install** script – this text-based installer (in English only) installs all DB2 components after you provide a DB2 product keyword; **db2_install** does not include DB2 configuration tasks (such as creating HP-UX users and groups, a DB2 instance, or a demo database)

- Response file installation – a DB2 installation is performed using a response file that contains setup and configuration information

- Native installation tool (such as the HP **swinstall** utility) – this method does not offer the same level of automation as either the **DB2 Setup** wizard utility or **db2_install** script. However, **swinstall** is the only option for installing DB2 into a directory other than /opt/IBM/db2/V8.1. The install directory, where code will be physically stored, is specified during the installation process. Finally, you must define the soft (symbolic) links between the specified install directory and the IBM's standard /opt/IBM/db2/V8.1/ directories to make the DB2 installation work.

Note:
Since **swinstall** may require a lot of manual setup and configuration, HP does not recommend this method when installing DB2.

The **DB2 Setup** and **db2_install** methods are described below. The use of response files and native installation tools are described in the "IBM DB2 Installation and Configuration Supplement" manual.

Using the DB2 Setup wizard

An automated installation using the **DB2 Setup** wizard (db2setup) is the most reliable and preferred method. With **db2setup**, DB2 creates instance and DAS users and groups, creates DAS and instance processes, and configures communications, making the new DB2 environment ready to work "out-of-the-box".

DB2 is installed into the /opt/IBM/db2/V8.1/ directory by default.

The **db2setup** utility is included in the root of the installation image disk. Enter the following commands to start the installation:

> root# **cd /cdrom**
>
> root# **./db2setup**

An interactive session provides the user with prompts for a number of different choices and configuration settings to the target DB2 environment. These prompts include:

- Database partitioning scheme – select the single-partition database option.
- Language -- specify the preferred language and message code defaults
- Required products – select "Tools Database" so that jobs can be scheduled either locally or remotely.

- Instance and DAS configuration – select new or existing user names and passwords for the DB2 instance and DAS.
- Automatic or manual configuration – choose whether or not to have the instance configured automatically during the installation.
- Automatic start – decide whether you want the instance to start automatically at boot time.
- Administration alert notification – specify the alert notification method and details.
- Sample database creation – determine whether or not to have the SAMPLE database created during the installation.

Using the db2_install script

While this installation option does not offer the level of automation provided by **db2setup**, the **db2_install** script can be very simple and useful in the following circumstances:

- You first need to install the software to be able to run **db2osconf**
- There is a problem with running a Java- or GUI-driven environment

The **db2_install** utility requires root authority and can be found in the root directory of a DB2 image/installation package.

Start the installation by executing the command **db2_install, cd** to the root directory of the installation image disk (or directory). You should see some directories and several DB2 installation and de-installation scripts, including **db2_install**. Enter the following command:

    root# **./db2_install**

DB2 responds by asking which DB2 product to install and listing options, as in the following example:

    Specify one or more of the following keywords,

    separated by spaces, to install DB2 products.

    Keyword   Product Description

    DB2.ESE   DB2 Enterprise Server Edition for HPIPF

    DB2.ADMCL   DB2 Administration Client for HPIPF

    DB2.ADCL   DB2 Application Development Client for HPIPF

    Enter "help" to redisplay product names.

    Enter "quit" to exit.

After you enter your selection, the installation process begins.

DB2 single-partition server configuration

After you have used one of the installation methods described above, you are now ready to configure DB2. The configuration process involves the following stages – unless you used the db2setup installation method, in which case the HP-UX user and groups and the DB2 instance may already have been configured:

- Adjusting operating system kernel parameters
- Manually creating the HP-UX user and groups (if applicable)
- Manually creating a DB2 instance (if applicable)
- Manually creating DAS
- DB2 license administration
- DB2 FixPak administration

Operating system kernel parameters adjustment

Once DB2 has been installed, you can execute the **db2osconf** utility to identify operating system kernel parameters that need adjustment – the recommended method for fine-tuning the kernel for DB2 in large, 64-bit installations. No special authorization is required; however, you need root access to make the changes recommended by **db2osconf**.

The utility can be invoked from */opt/IBM/db2/V8.1/bin64* by entering the following command:

        root# **db2osconf**

Command syntax

To list currently-supported options, run the following command:

        db2osconf –h

Options include:

```
    Usage:
     -f                      # Compare to current
     -h                      # Help screen
     -l                      # List current
     -p <perf level>         # Msg Q performance level (0-3)
     -s <scale factor>       # Scale factor (1-3)
```

Command parameters

-f   The '-f' switch compares current kernel parameters with recommended values. '-f' is the default if no other options are entered with the **db2osconf** command. On HP-UX, '-f' returns a list of parameters with the changes recommended to the values of these parameter values:

        ****** Please Change the Following in the Given Order ******

        WARNING [<parameter name>] should be set to <value>

-l   The '-l' switch lists current kernel parameters.

-p   The '-p' switch sets the performance level for UNIX System V (SysV) message queues. The default is zero; three is the highest setting. Setting this value higher can increase the performance of the message queue facility at the expense of using more memory.

-s   The '-s' switch sets the scale factor to a value between one and three.
The scale factor sets the kernel parameters recommendations to those of a system proportionally larger then the size of your system. The default scale factor is one, which should be sufficient for almost any workload. If a factor of one is insufficient, the system may be too small to handle the workload.

If the '-l' or '-f' switch is not specified, the **db2osconf** utility displays kernel parameters using the syntax of the /etc/system file. To prevent human error, you can cut-and–paste the output directly into the /etc/system file.

Basis for recommendations

Kernel parameters are recommended based on the number of CPUs and the amount of physical memory on the system. If either the CPU or memory resource is disproportionately low, the recommendations will be based on the lower of the two.

Example

The following is a sample output produced by running the **db2osconf** utility. The results show that some parameters need adjustment and that more memory may be needed.

root# **cd /opt/IBM/db2/V8.1/bin64**

root# **./db2osconf**

```
****************** System Resources **********************
Physical RAM ==> 4286713856
Number of CPUS ==> 2
System Scale Factor ==> 2896.31

* Recommended HP-UX Kernel Parameters Based on this System *

nproc ==> 2912
maxuprc ==> 971
maxfiles ==> 1448
nflocks ==> 5793
ninode ==> 4055
nfile ==> 16219
msgseg ==> 32767
msgmnb ==> 65535
msgmax ==> 65535
msgtql ==> 2317
msgmap ==> 2319
msgmni ==> 2317
msgssz ==> 32
semmns ==> 5794
semmni ==> 2896
semmnu ==> 2896
shmmax ==> 3858042470
shmmni ==> 2896
maxdsiz_64bit ==> 1900000000


****** Please Change the Following in the Given Order ******

WARNING[1]: Amount of Physical RAM = 4GB. To benefit from using 64bit
addressing at least 4GB is required.
WARNING[2]: nflocks = 4096. nflocks should be set to 5793.
WARNING[3]: msgseg = 20480. msgseg should be set to 32767.
WARNING[4]: msgmni = 512. msgmni should be set to 2317.
WARNING[5]: shmmax = 1073741824. shmmax should be set to 3858042470.
WARNING[6]: shmmni = 512. shmmni should be set to 2896.
WARNING: msgseg = 20480. msgseg must be set to 32767.
```

Manually creating the HP-UX user and groups

HP recommends creating the HP-UX user and groups before the installation or, for the db2setup
method, at installation time. However, you are still able to create the user and groups now, if
necessary.

For more information, see Creating HP-UX User and Creating HP-UX Group sections of this white
paper.

Manually creating a DB2 instance

Manual creation of a DB2 instance is only required if your chosen installation method did not create
the DB2 instance, or if you wish to run multiple instances on the same HP-UX system.

If not performed during installation, you must now manually create and configure the DB2 and DAS
instances. You can use the **db2icrt** utility.

Under certain circumstances – if instance files have been corrupted – it may be much simpler and
more effective to manually drop and recreate a DB2 instance rather than performing a full DB2
reinstall.

Critical prerequisites

The existence and correct configuration of the following system objects are critical for the successful creation of a DB2 instance:

- Operating system kernel parameters
- Operating system patches
- Instance user and group
- Instance home directory
- DB2 instance user authorization for the home directory

Create an instance

To create a single-partition, 64-bit instance, enter the following commands from the database server:

> root# **cd /opt/IBM/db2/V8.1/instance**
>
> root# **./db2icrt –w 64 –s ese –u** *db2fenc1 db2inst1*

where db2fenc1 is the fenced user ID and db2inst1 is the instance user ID name.

For complete usage information, run the command with the **–h** option.

Note:
Root access is required in order to create a DB2 instance.

You should expect the following results:

- New instance software and sub-directories in the $INSTHOME/db2inst1/*sqllib*
- Selected soft links from $INSTHOME/sqllib/ directories to the /opt/IBM/db2/V8.1/instance
- A *.profile* file in the $INSTHOME/db2inst1 directory

To complete the creation of the instance, carry out these remaining steps:

- Verifying the DB2INSTANCE[2] environment variable – view the $INSTHOME/sqllib/db2profile file
- Updating the DB2COMM registry variable – run the following DB2 command:
  > db2inst1# **db2set DB2COMM=TCPIP**

  Setting this variable initiates DB2 communications managers when the Data Manager starts.

- Updating the /etc/services file with the SVCENAME parm of the dbm cfg file – run the following command:
  > root# **vi /etc/services**
  >
  > db2c_db2inst1   50000/tcp

  Make sure the SVCENAME reflects the dbm cfg parms and there are no port assignment conflicts (duplicates) in the /etc/services file.

---

[2] Where DB2INSTANCE=<name-of-the-instance>

- Creating the SAMPLE database – from the /home/db2inst1 directory, logon to a server using the db2inst1 ID and start the instance; run the following command:

    db2inst1# **db2start**

Initiate the **db2sampl** script that builds the SAMPLE database. There are two versions of **db2sampl** for HP Integrity servers: /opt/IBM/db2/V8.1/bin/db2sampl and /opt/IBM/db2/V8.1/bin64/db2sampl. You can use either one.

    db2inst1# **db2sampl**

- Verifying database connectivity and data retrieval –

    db2inst1# **db2 connect to** *sample*

    db2inst1# **db2 "select * from staff where dept = 20"**

Manually creating DAS

DAS is required to support the following GUI operations:

- Remote database management using Control Center
- Job scheduling across multiple servers and databases
- Database discovery using Control Center

Critical prerequisites
The following prerequisites must be met:

- An existing DAS user and group
- DAS user authorization for the home directory

Create DAS
Root access is required to create a DAS process. Enter the following commands:

    root# **cd /opt/IBM/db2/V8.1/instance**

    root# **./dascrt –u** *dasuser1*

where *dasuser1* is the name of the user owning the DAS process.

The expected result of these commands is that a DB2 DAS process is ready to be run; no further configuration is necessary.

Start or stop the DAS using the following commands:

> **su** – *dasusr1*
>
> dasusr1# **db2admin start**   to start the DAS process
>
> dasusr1# **db2admin stop**   to stop the DAS process

where *dasusr1* is the name of the DAS owner (user).

At this point, DB2 is ready to be used – both run-time and administration clients have been installed by default with the database server.

DB2 license administration

DB2 license policy must be established manually after the code has been installed. This is not part of the database installation and configuration process – whether automated or manual.

The DB2 "Installation and Configuration Supplement" describes DB2 license policies and provides instructions on registering the DB2 product.

While the License Center (selected from the Tools menu option of the DB2 Control Center) can be used to set license policy, only the use of the command line for setting policy is demonstrated in this white paper.

Setting DB2 license policy using the db2licm command

In order to verify the current state of the license enter the following command:

> root# **db2licm –l**

The output from this command contains a description of the policy, as shown in the following example. Note the product identifier DB2ESE.

```
Product Name                        = "DB2 Enterprise Server Edition"
Product Identifier                  = "DB2ESE"
Version Information                 = "8.2"
Expiry Date                         = "Permanent"
Registered Connect User Policy      = "Disabled"
Number Of Entitled Connect Users    = "5"
Enforcement Policy                  = "Soft Stop"
Number of processors                = "2"
Number of licensed processors       = "1"
Database partitioning feature       = "Not entitled"
Annotation                          = ""
Other information                   = ""

Product Name                        = "DB2 High Availability Disaster Recovery Option"
Product Identifier                  = "DB2HADR"
Version Information                 = "8.2"
Expiry Date                         = "Permanent"
Annotation                          = ""
Other information                   = ""

Product Name                        = "DB2 Advanced Security Option"
Product Identifier                  = "DB2ASO"
Version Information                 = "8.2"
Expiry Date                         = "Permanent"
Annotation                          = ""
Other information                   = ""
```

For Registered User licenses (Enterprise Edition) enter the following command using the prod-passwd:

> root# **db2licm –p db2ese registered**

To upgrade the license with the number of processors, enter the following command using the product password:

```
root# db2licm –n db2ese  N
```

where *N* is the number of processors included in the license.

Adding or updating the license key

You must install a license key on each computer where DB2 is installed. Adding or updating the DB2 product license key can be performed by running the **db2licm** command and specifying the license file name for your DB2 product.

Log in as a user with root authority and run the following commands to update the license key:

```
root# cd  /opt/IBM/db2/V8.1/adm/
root# db2licm   –a   <filename>
```

where *<filename>* is the full pathname and filename for the license file that corresponds to your product. The license file is located in the /db2/license directory at the root of your DB2 image CD-ROM or directory.

For example, on HP-UX, if the DB2 image CD-ROM is mounted in the /cdrom directory and the name of the license file is db2ese.lic, the commands should be as follows:

```
root# cd  /opt/IBM/db2/V8.1/adm/
root# db2licm   –a   /cdrom/db2/license/db2ese.lic
```

For HP-UX, product license keys are located in the /var/lum directory.

DB2 product license files

The following list provides license file names for selected DB2 V8.2 products. You must add or update the license file before using DB2.

db2ese.lic	DB2 Enterprise Server Edition
db2ese_dpf.lic	DB2 database partitioning feature (DPF)
db2exp.lic	DB2 UDB Express Edition
db2conee.lic	DB2 Connect Enterprise Edition
db2conas.lic	DB2 Connect Application Server Edition
db2conpe.lic	DB2 Connect Personal Edition
db2conue.lic	DB2 Connect Unlimited Edition
db2dlm.lic	DB2 Data Links Manager
db2gse.lic	DB2 Spatial Extender
db2gse_geo.lic	DB2 Geodetic Extender
db2iiae.lic	DB2 Information Integrator Advanced Edition
db2iide.lic	DB2 Information Integrator Developer Edition
db2iire.lic	DB2 Information Integrator Replication Edition
db2iise.lic	DB2 Information Integrator Standard Edition
db2iiue.lic	DB2 Information Integrator Advanced Edition Unlimited
db2nse.lic	Net Search Extender

db2pe.lic	DB2 Personal Edition
db2wm.lic	DB2 Warehouse Manager
db2wse.lic	DB2 Workgroup Server Edition
db2wsue.lic	DB2 Workgroup Server Unlimited Edition

DB2 FixPak administration

A DB2 FixPak contains updates and fixes for bugs, based on Authorized Program Analysis Reports (APARs) found during testing at IBM, as well as fixes for bugs reported by customers. Every FixPak is accompanied by a document (APARLIST.TXT) that describes its contents.

New features are also added via FixPaks, speeding up the delivery of functionality requested by customers.

FixPaks are cumulative; as such, the latest FixPak for any given version of DB2 contains all updates from previous FixPaks for the same version. HP recommends running your DB2 environment at the latest FixPak level to ensure better operation. Each FixPak may have specific prerequisites; see the FixPak README file that accompanies the FixPak for more information.

Note:
To eliminate possible long-term effects from applying a new FixPack in a production environment, you should consider installing an Alternate FixPack in a separate directory (a full image) and testing independently to ensure performance and business requirements are met.

When installing a FixPak on a partitioned Enterprise Server Edition system, all participating machines must have the same FixPak installed while each is offline.

Installing a DB2 FixPak

Download the latest DB2 FixPak from the DB2 Universal Database for Linux, UNIX and Windows Product support website at http://www-3.ibm.com/cgi-bin/db2www/data/db2/udb/winos2unix/support/download.d2w/report.

Each FixPak contains a set of Release Notes and a README document. The README provides instructions for installing the FixPak.

Note:
When new DB2 code is installed, you should install the appropriate FixPak before creating a database. With no package binds against databases, installing the FixPak is simpler.

- **Determining your current fix level** – Before installing the FixPak, ensure that the fix level of DB2 Version 8 is lower than the FixPak. To determine your current product fix level, run the following DB2 command:

  $ **db2level**

  which provides a detailed description of the DB2 release, level, and other information.

Alternatively, you can enter the following HP-UX command to display information about the currently installed version of DB2:

> root# **swlist -l product** *"*DB2*"*

which provides an output similar to the following:

DB2V81CAE	8.1.0.64	Administration Client for HP-UX
DB2V81CC	8.1.0.64	Control Center Help (HTML)
DB2V81CONN	8.1.0.64	Connect Enterprise Edition for HP-UX
DB2V81JHLP	8.1.0.64	Java Help (HTML)
DB2V81MSG	8.1.0.64	Product Messages
DB2V81SDK	8.1.0.64	Application Development Tools for HP-UX
DB2V81WGRP	8.1.0.64	UDB Workgroup Server Edition for HP-UX
DB2V81XENT	8.1.0.64	UDB Enterprise Server Edition for HP-UX

In this case, there is no FixPak installed.

- **Stopping database processes** – After ensuring that all applications are stopped and no active work is ongoing, enter the following commands for each instance to stop database manager processes:

  > root# **su** – *db2inst1*
  >
  > db2inst1# **.$INSTHOME/sqllib/db2profile**
  > db2inst1# **db2 force application all**
  > db2inst1# **db2 terminate**
  > db2inst1# **db2stop**

  where db2inst1 represents the instance owner name.

  Enter the following commands to stop database administration processes:

  > root# **su** – *dasusr1*
  > dasusr1# **.$DASHOME/sqllib/db2profile**
  > dasusr1# **db2admin stop**
  >
  > exit

  where dasusr1 represents the DAS owner name.

- **Installing the FixPak** – Change to the (root) directory where the FixPak image is located. To launch the application, run the following command:

  > root# **./installFixPak**

  By default, this command commits all updated filesets.

- **Post-installation tasks** – Update instance and DAS processes and rebind the bind files, as follows:

  – **Updating the instance process**

  Log on as root and issue the **db2iupdt** command:

  > root# **.$INSTHOME/instance/db2iupdt** *db2inst1*

  where *db2inst1* represents the instance name and INSTHOME represents the install directory for your operating system.

– **Updating the DAS process**
  If the DAS process exists and is a DB2 Version 8 DAS instance, log on as root and issue the **dasupdt** command:

  root# **.$INSTHOME/das/dasupdt** *dasusr1*

  where *dasusr1* represents the DAS and INSTHOME represents the install directory for your operating system.

– **Restarting the instances**
  Enter the following command:
      root# **su** **-** *db2inst1*

  where *db2inst1* is the instance owner name.
  Now enter the following command to start the instance:

  db2inst1# **db2start**

  Repeat for each instance.

– **Restarting the DAS**
  Enter the following command:
      root# **su** **-** *dasusr1*

  where *dasusr1* is the DAS owner name.
  Now enter the following command to start the DAS:

  dasusr1# **db2admin start**

– **Re-binding bind files to DB2 UDB**

Note:
This step can be skipped if the FixPak was applied immediately after the DB2 was installed and you have not yet created any databases (such as SAMPLE or TOOLS). When you later create a database, DB2 automatically creates the binds.

Due to the new bind (.bnd) files shipped with the FixPak, you must bind your DB2 utilities against all your databases after the FixPak installation. This step is necessary for the fixes in this FixPak to become effective.

The binding procedure, which follows, needs only be performed once per database.

At a command prompt enter the following commands:

db2 terminate

db2 db2start

db2 CONNECT TO *<dbname>*

db2 BIND *<path>*/@**db2ubind.lst BLOCKING ALL GRANT PUBLIC**

db2 BIND *<path>*/@**db2cli.lst BLOCKING ALL GRANT PUBLIC**

db2 terminate

Alternatively, you can enter the following at the DB2 command line:

TERMINATE

DB2START

CONNECT TO *<dbname>*

BIND *<path>*/@**db2ubind.lst BLOCKING ALL GRANT PUBLIC**

BIND *<path>*/@**db2cli.lst BLOCKING ALL GRANT PUBLIC**

TERMINATE

where the following representations apply:

<dbname> identifies the database to which the utilities should be bound

*<path>*is the full path name of the directory where the bind files are located, such as $HOME/sqllib/bnd

$HOME is the home directory of the instance for the database server

---

Note:
db2ubind.lst and **db2cli.lst** contain lists of required bind files used by DB2 UDB.

DB2 client installation and configuration

There are four different clients for IBM DB2 databases, Administration client, Application Development client, Run-Time Client, and Run-Time Client Lite. The last one is available only on Windows. This white paper only describes installation and configuration of DB2 HP-UX clients.

DB2 clients are installed by default when DB2 servers are installed. The IBM "Quick Beginnings for DB2 Clients" manual documents the steps for installing DB2 clients on UNIX platforms. This document is available at
http://www-306.ibm.com/software/data/db2/udb/support/manualsv8.html.

The steps for installing a client are very similar to the single-partition server installation steps described above, consisting of the following:

• DB2 product prerequisites
• Mounting the CD-ROM
• Installing the DB2 client product
• Performing DB2 client configuration tasks

Each of these steps is described in more detail below.

HP-UX DB2 client prerequisites

- **Disk space requirements** – Ensure there is enough disk space – at least 2.5 times the size of the downloaded compressed image.

  Actual fixed disk requirements for an installation may vary depending on your file system and the client components you install. Ensure that you have allowed sufficient disk space for your application development tools and communication products.

  When you install a DB2 client using the DB2 setup wizard, size estimates are dynamically provided by the installation program based on installation type and component selection.

- **HP-UX version and maintenance levels** – Ensure that the operating system patch levels on the client are the same as those on the server. For more information, see "Operating system requirements" in this white paper.
- **Software requirements** – A C compiler is required to build SQL stored procedures with the Development Client.
- **Communications requirements** – A TCP/IP protocol stack is required and is provided with the HP-UX base operating system.

Note:
TCP/IP is the only protocol supported by DB2 Version 8 for remote database administration.

- **SDK** – You require the appropriate SDK to use Java-based tools like the DB2 Control Center, and to create and run Java applications, including stored procedures and user-defined functions.
- **Java Common Client** – The default database character (code) set for HP-UX is roman8 and not iso88591 as with other platforms. If a Java Type 4 client cannot connect to a database created using the roman8 character set, then all SQLJ and JDBC applications that use the Type 4 driver must connect to a database created with a different character set.

  If your LANG environment variable is set to "C" or to "roman8" locale, you must change it to the corresponding ISO locale. For example, if your current LANG is set to en_US.roman8, it must be replaced by en_US.iso88591. Use the following command to set the locale to the desired value:

      export **LANG**=en_US.iso88591
- **HP-UX kernel configuration** – You must implement kernel changes and reboot the server before installing client software. The steps are the same as those in the server installation; for more information, see "Modify HP-UX kernel parameters" in this white paper or refer to the IBM "Quick Beginnings for DB2 Clients" manual.

Mounting the CD-ROM

Mount the CD-ROM of the selected client image (Administration Client, ADMCL; Run-Time Client, RTCL; or Application Development Client, ADCL). For more information, see "Mount the DB2 product CD-ROM" in this white paper.

Installing the DB2 client product

HP recommends using the DB2 db2setup utility for installing client software.

From the root of the mounted CD, run the db2setup script and install the client connectivity software as follows:

> root# **cd /cdrom**
>
> root# **./db2setup**

Performing DB2 client configuration tasks

- **Installing Client FixPak** (optional) – Client FixPaks for RTCL, ADMCL, and ADCL are shipped as full rather than incremental installs and, as such, are managed somewhat differently than server FixPaks – more like new Alternate FixPaks. A key difference is the large sizes of client FixPaks (210 MB, 560 MB, and 570 MB respectively), requiring careful space management on typically smaller client workstations.

- **Creating the user account on the client workstation** – Log in as root and create the DB2 user account that will own the new client DB2 instance. For example:

    > Group: db2users (GID300)
    >
    > User: db2user (UID301)

- **Creating the DB2 client environment** (instance) – Log in as root to create a client DB2 instance. Use the following command:

    > root# **cd** /opt/IBM/db2/V8.1/instance
    >
    > root# **./db2icrt -s** *client db2user*

    where *db2user* is the name of the instance owner.

- **Cataloging the remote database** – In order to connect to a remote database, the client must store and have access to basic information about the database and its associated remote server in order to build and maintain communication sockets. The information necessary for remote communications includes the following:
    – Server host name or IP address
    – Server listening service name or port number
    – Node name
    – Remote database name and alias name

Becoming the DB2 user
Run the following commands to become the instance owner on the client:

      root# **su** – **db2user**

      db2user# **db2 catalog tcpip node** *cube11* **remote** *192.140.12.10* **server** *50000*

      db2user# **db2 terminate**

where the following representations apply:

      <cube11> is a node name (any name) that identifies the remote server

      <192.140.12.10> (or the host name) is the IP address of the database server

      <50000> (or the DB2 service name) identifies the DB2 instance listening port

      db2user# **db2 catalog db** *sample* **at** node *cube11*

      db2user# **db2 terminate**

where *sample* is the database alias name.

Note:
Both node and database directories are stored on the client
workstation for a local reference to support remote client/server
connectivity.

Verifying that the node and database have been properly cataloged
Run the following commands:

      db2user# **db2 list node directory**

            Node Directory
            Number of entries in the directory = 1
            Node 1 entry:
            Node name = cube11
            Comment =
            Protocol = TCPIP
            Hostname = 192.140.12.10
            Service name = 50000

      db2user# **db2 list database list directory**

The output listing should indicate that both the cataloged node and the database exist and should point to a remote server where a subject database with the given alias name resides.

- **Accessing the database from the client** – Run the following command as the DB2 user (*db2user*) from the client workstation:

      db2inst1# **db2 connect to sample user** *db2user* **using** *password*

where *db2user* is the name of the DB2 user (client instance owner) and *password* is the password assigned to *db2user*.

You can expect a response from DB2 that is similar to the following:

Database server = DB2/HPUX 8.2

SQL authorization ID = DB2USER

Local database alias = SAMPLE

DB2 software removal

Removing DB2 involves preparing the system, removing packages installed as part of the DB2 FixPak installation, and, finally, removing all files associated with DB2.

For more information on uninstalling DB2, refer to "Chapter 18, Uninstalling DB2 UDB (UNIX)" in the IBM "Quick Beginnings for DB2 Servers" manual, which is available at

ftp://ftp.software.ibm.com/ps/products/db2/info/vr82/pdf/en_US/db2ise81.pdf

A detailed description of removing DB2 from an HP-UX environment follows.

Preparation

Before the DB2 software can be safely and completely removed, all DB2 processes must first be stopped. Perform the following tasks:

- Stop and remove the DAS
- Disconnect from all databases and DB2 applications, and remove all DB2 instances
- Stop DB2 fault monitor, ensuring that all DB2 processes are stopped

Each of these tasks is described in more detail below.

Stopping and removing the DAS

Perform the following steps to remove the DAS:

- Log in as the DAS owner.
- Run the start up script, using either:

      dasusr1# .*DASHOME***/das/dasprofile**   (bash, Bourne, or Korn shells)

  or:

      dasusr1# **source** *DASHOME***/das/dascshrc**   (C shell))

  where *DASHOME* is the home directory of the DAS.

- Stop the DAS by running the following command:

      dasusr1# **db2admin stop**

- If necessary, back up the files in the *DASHOME*/das directory.
- Log off.
- Log in as root and remove the DAS by running the following command:

      root# *DB2DIR/dasname/***dasdrop**

  where *DB2DIR* is /opt/IBM/db2/V8.1 and *dasname* is the name ID of the DAS owner (dasusr1, for example).

Disconnecting from all databases and DB2 applications and removing all DB2 instances

Perform the following steps:

- Log in as the DB2 instance owner.
- Run the start up script, using either:

    db2inst1# *.INSTHOME***/sqllib/db2profile**   (bash, Bourne, or Korn shells)

    or:

    db2inst1# **source** *INSTHOME***/sqllib/db2cshrc**   (C shell))

    where *INSTHOME* is the home directory of the DB2 instance.

- Disconnect all database connections by running the following command:

    db2inst1# **db2 force application all**

- Stop the instance using the following DB2 command:

    db2inst1# **db2stop**

- If necessary, back up the files in the *INSTHOME*/sqllib directory.
- Log off.
- Log in as root and remove the DB2 instance by running the following command:

    root# *DB2DIR/instancename/***db2idrop**

    where *DB2DIR* is installation directory /opt/IBM/db2/V8.1 and *instancename* the name ID of the instance owner (db2inst1, for example).

Stopping the DB2 fault monitor

As the instance owner, run the following command to stop fault monitoring:

    root# **db2fm –i** *dasusr1* **–f yes**

To shut down the fault monitor service, enter:

    root# **db2fm –i** *dasusr1* **–d**

Ensuring all DB2 processes are stopped

Most of the problems with DB2 software removal are caused when DB2 processes are still running during the de-installation, preventing the effective removal of all software. As a result, you should make sure you perform the following tasks before de-installing DB2:

- Ensure the DB2 Fault Monitor daemon was stopped.
- Run the following command to ensure that no db2 processes are running:

    root# **db2 ps –ef | grep –i "db2"**

- Kill any db2 process that are running

Removing DB2 FixPaks (if applicable)

It is now easy to selectively remove DB2 FixPak from the system. You must use the HP utility **swremove**, which can be invoked under SAM indirectly as well as from the command line.

When all DB2 processes have been stopped, you can remove DB2 FixPak by performing the following steps:

- First, HP recommends reviewing existing packages on the system by running the following command as root:

      root# **swlist**

- After identifying FixPak components, use **swremove** to remove all packages with the DB2 label. For more information, refer to the online **swremove** manual.

DB2 server software removal

Once you have removed the FixPak, you can remove remaining DB2 software through one of the following methods:

- Using **db2_deinstall** – this is the recommended method for removing the DB2 product from your system
- Manual removal – if **db2_deinstall** is unavailable or has failed, you can manually remove DB2 from HP-UX

Both methods are described below.

Note:
HP recommends that, after removing the DB2 product, you reboot
your operating system.

Using the IBM db2_deinstall utility

HP recommends using **db2_deinstall** to remove DB2 products from a system.

Perform the following tasks before removing DB2 products:

- Ensure that you have performed all the tasks described in the "Preparation" and "Removing DB2 FixPaks (if applicable)" subsections above.
- Acquire the root authority necessary to remove DB2 products.
- Locate the **db2_deinstall** command in the root directory of the DB2 Version 8 product.

Note:
The DB2 **db2_deinstall** could be in the form of CD-ROM, local disk
copy of CD-ROM, or an untared downloaded .tar file image.

Follow these steps:

- Log in as a user with root authority.
- Mount a DB2 Version 8 product CD-ROM (or **cd** to untared downloaded .tar file directory)
- Run the **db2_deinstall** command and follow the prompts:

      root# **./db2_deinstall**

Removing DB2 manually

An alternative to using **db2_deinstall** is to manually remove subsets of DB2 products from your system, as follows:

- **Removing HP-UX registry information**
  HP-UX system utilities **swremove** and **sam** can be used to remove some or all DB2 products (such as DB2 clients or FixPaks) in a very controllable and reliable fashion.

- **Removing DB2 directories and files**
  To ensure that no DB2 directories are left on the system, remove the following directories and their entire contents,
  - Remove DAS directory

    root# **rm –rf /home/dasusr1/das**

  - Remove instance installation directory

    root# **rm -rf /home/db2inst1/sqllib**

  - Remove DB2 installation directory

    root# **rm -rf /opt/IBM/db2**

  - Remove registry directories

    root# **rm -rf /var/opt/db2**

IMPORTANT:

Removal of the /var/opt/db2 directory is very important. It is frequently missed as it is not automatically deleted by DB2 during the de-installation process. Failure to remove it can cause configuration inconsistencies during DB2 re-installations and eventually result in instance operational failures.

DB2 installation and configuration troubleshooting

The IBM "Quick Beginnings for DB2 Servers" and "Installation and Configuration Supplement" manuals both provide DB2 troubleshooting information.

This white paper describes a common database cataloging and remote access problem.

Mis-configured client/server environment

Table 3 provides more information on troubleshooting a SQL30081N error.

Table 3: Possible causes of and recommended solutions for a SQL30081N error

Possible cause	Recommended solution
Invalid host name	Ensure you are using a true server host name. If there is no DNS service, you must enable it or use the server's IP address instead. Update the /etc/hosts file with the host name / IP address on the client workstation.
Incorrect instance service name or port number; port numbers and service names do not match	Port numbers must match between servers and clients. Typically, both must be 50000.
Communications protocol improperly configured in DB2 registry	Make sure that the DB2COMM registry variable is set to TCPIP.
Firewall at the server – ports 50000 and/or 523 are blocked	Obtain the assistance of IT staff responsible for back-end network support
Network problem at the socket level when sending or receiving TCP/IP packages	Obtain the assistance of IT staff responsible for back-end network support

For more information

HP sources

General HP-UX documentation	http://docs.hp.com
HP-UX operation system patch information and download	http://www.itrc.hp.com/
Java on HP-UX	http://www.hp.com/go/java
Java patch information on HP-UX	http://www.hp.com/products1/unix/java/patches/index.html

IBM sources

DB2 information	http://www-306.ibm.com/software/data/db2/udb/support/manualsv8.html
IBM DB2 Information Center	http://publib.boulder.ibm.com/infocenter/db2help/index.jsp
"Quick Beginnings for DB2 Servers"	ftp://ftp.software.ibm.com/ps/products/db2/info/vr82/pdf/en_US/db2ise81.pdf
"Quick Beginnings for DB2 Clients"	ftp://ftp.software.ibm.com/ps/products/db2/info/vr82/pdf/en_US/db2ite81.pdf
"Installation and Configuration Supplement"	ftp://ftp.software.ibm.com/ps/products/db2/info/vr82/pdf/en_US/db2iye81.pdf

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