ALLBASE/SQL
Release G3.14 Release Notes

HP 9000 Computer Systems

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1 Announcements

ALLBASE/SQL is Hewlett-Packard's relational database management system. ALLBASE/SQL includes the interactive SQL interface (ISQL); the C, FORTRAN, PASCAL and COBOL Preprocessors (psqlc, psqlfor, psqlpas and psqlcob respectively); and the utility programs SQLAudit, SQLUtil, SQLGEN, SQLMigrate and SQLMON. An optional component of ALLBASE/SQL is ALLBASE/NET, which you can install by itself to form a runtime client-only configuration, or in addition to the rest of ALLBASE/SQL in a server configuration.

ALLBASE/SQL, version G3.14, contains a major enhancement providing significant benefits in the following areas:

- HP Driver for JDBC

The following enhancements are from prior releases of ALLBASE/SQL:

- String Functions
- Security
- Year 2000 Compatibility
- ODBCLink/SE

The ALLBASE/SQL version numbers for this release are:

- 36217-02A.G3.14 (Series 700 and 800)

HP Driver for JDBC

Java Database Connectivity (JDBC) is a standard Application Programming Interface (API) for database access from Java. HP Driver for JDBC is an implementation of the standard JDBC API. It consists of HP's fully-java Driver for JDBC, network protocol and database server interface components for concurrent access to IMAGE/SQL and ALLBASE/SQL databases.

The HP Driver for JDBC is explained in more detail in Chapter 2 of these Release Notes.

OMNIBACK Support Dropped from SQLUtil

ALLBASE/SQL no longer supports `OMNIBACK` as the backup routine in SQLUtil. Previously, `OMNIBACK` could be chosen to do the backup and restore operations in SQLUtil by invoking the `SET BACKUP OMNIBACK` option. SQLUtil now supports only ALLBASE/SQL internal backup mechanism, and it is the default setting.

SQLUtil is modified in the following manner:

- `SET BACKUP` command will not accept `OMNIBACK` as the keyword. It will fail with the message, "Command not yet implemented. (`DBERR 8102`)."
- `SET` will only display the following values for the flags: `ECHO_ALL, EXIT_ON_DBERR`, and `ALLBASE`.
- Default backup setting is ALLBASE/SQL internal format. It can also be selected explicitly by `SET BACKUP ALLBASE`.

2 What's New in Version G3.14?

ALLBASE/SQL, version G3.14 contains a major enhancement providing significant benefits in the following areas:

- HP Driver for JDBC (G3.14)

The following enhancements are from earlier releases:

- String Functions (G3)
- Security (G2)
- Year 2000 Compatibility (G2)
- ODBCLink/SE (G2)

If you are updating from an earlier release of ALLBASE/SQL, refer to the migration information in the "Installation Procedures" section appearing in the chapter "Compatibility and Installation Requirements." To order this product, contact your HP Representative.

A list of ALLBASE/SQL reference manuals for HP-UX is provided in chapter 5.

Features

The following features are contained in G3.14 and later releases.

HP Driver for JDBC (G3.14)

Java Database Connectivity (JDBC) is a standard Application Programming Interface (API) for database access from Java. HP Driver for JDBC is an implementation of the standard JDBC API. It consists of HP's fully-java Driver for JDBC, network protocol and database server interface components for concurrent access to IMAGE/SQL and ALLBASE/SQL databases.

HP JDBC Components

There are three components supplied with the HP JDBC product, the JDBC Driver, the JDBC Monitor, and the JDBC Server.

The Driver is a set of Java classes that implement the java.sql.* interfaces and provide an implementation of a JDBC driver that can communicate with an ALLBASE/SQL or IMAGE/SQL database. The HP Driver for JDBC typically will reside on the client side of

the user application. It provides the translation from the Java language and the JDBC API to the HP proprietary network protocol.

The JDBC Monitor is a component that is installed on the JDBC server host that manages all client JDBC Driver connections to the server host. It is typically started as a daemon when the server machine is booted. All JDBC client connections are made through the JDBC Monitor. The monitor performs validation of the userid and password that are passed in the client connection request and spawns JDBC Server processes to serve each of the client connections. Once the server process is spawned, the monitor returns to wait for the next client connection.

The JDBC Server is the server process that is spawned by the JDBC Monitor to service a client connection. It handles the translation from the HP proprietary network protocol to the ALLBASE/SQL calls. There is at least one JDBC Server process for each client connection to the server host. More than one JDBC Server process may be used to handle multiple client statements using the same connection. This component also handles the translation from JDBC SQL to ALLBASE SQL and conversion of the database data from ALLBASE/SQL format to JDBC format.

Both the JDBC Monitor and the JDBC Server must be installed on the same host where the ALLBASE/SQL databases reside.

Java Requirements

The HP JDBC Client components (the JDBC driver itself) requires a Java Development Kit (JDK) version 1.1 and above, which includes JDBC version 1.2. Java and JDK components need to be installed only on the client platform. The JDBC server platforms use native components and must be installed on the same host where the ALLBASE/SQL databases reside.

HP-UX Server Requirements

The HP JDBC Server components require HP-UX version 10.20 or greater.

ALLBASE/SQL Requirements

The HP JDBC Server components require ALLBASE/SQL G3.01 or greater.

Documentation

For more details about installation and use of JDBC, refer to *HP Driver for JDBC Users' Manual*.

G3 Release Enhancements

The remainder of this chapter provides information about enhancements from earlier releases.

String Functions

With the G3 release of ALLBASE/SQL and IMAGE/SQL, the supported SQL syntax has been enhanced to include the following string manipulation functions: `UPPER`, `LOWER`, `POSITION`, `INSTR`, `TRIM`, `LTRIM` and `RTRIM`. These string functions allow you to manipulate or examine the `CHAR` and `VARCHAR` values within the SQL syntax, allowing for more sophisticated queries and data manipulation commands to be formed. These string functions were designed to be compatible with functions specified in the ANSI SQL '92 standard and functions used in ORACLE. In cases where the ANSI SQL '92 standard and the ORACLE functions were not compatible (such as the `LTRIM` and `RTRIM` in ORACLE versus `TRIM` in the ANSI standard), both versions were implemented. The specifications for each of these functions follows.

Function Specification

LOWER Converts all the characters in *stringexpr* to lower case

Syntax [LOWER (*stringexpr*)]

UPPER Converts all the characters in *stringexpr* to upper case

Syntax [UPPER (*stringexpr*)]

POSITION Searches for the presence of the string *stringexpr1* in the string *stringexpr2* and returns a numeric value that indicates the position at which *stringexpr1* is found in *stringexpr2*

Syntax [POSITION (*stringexpr1*, *stringexpr2*)]

INSTR Searches *stringexpr1* beginning with its *n*th character for the *m*th occurrence of *stringexpr2* and returns the position of the character in *stringexpr1* that is the first character of this occurrence. If *n* is negative, Instr counts and searches backward from the end of *stringexpr1*. The value of *m* must be positive. The default values of both *n* and *m* are 1, meaning Instr begins searching at the first character of *stringexpr1* for the first occurrence of *stringexpr2*. The return value is relative to the beginning of *stringexpr1* regardless of the value of *n*, and is expressed in characters. If the search is unsuccessful (if *stringexpr2* does not appear *m* times after the *n*th character of *stringexpr1*) the return value is 0.

If *n* and *m* are not specified the function is equivalent to the ANSI SQL-92 POSITION function, except that the syntax is slightly different.

Syntax [INSTR (*stringexpr1*, *stringexpr2* [,*n* [,*m*]])]

LTRIM LTRIM function trims the characters specified in *charset* from the beginning of the string *stringexpr*.

Syntax [LTRIM (*charset*, *stringexpr*)]

RTRIM RTRIM function trims the characters specified in *charset* from the end of the string *stringexpr*.

Syntax [RTRIM (*charset*, *stringexpr*)]

TRIM TRIM function allows you to strip the characters specified in *charset* from the beginning and/or the end of the string *stringexpr*. If *charset* is not specified, then blank characters would be stripped from *stringexpr*.

Syntax

```
[ TRIM ({ LEADING | TRAILING | BOTH} (,charset ,stringexpr)]
```

Examples:

Example 1

```
SELECT LOWER (OWNER) || '.' || LOWER (NAME)
 FROM SYSTEM.TABLE
 WHERE NAME = UPPER ('vendors');
```

Returns "purchdb .vendors "

Example 2

```
SELECT POSITION ('world', 'hello world')
 FROM SYSTEM.TABLE
 WHERE NAME = UPPER('vendors');
```

Returns the numeric value 7

Example 3

```
SELECT INSTR ('hello world hello world', 'world', 5, 2)
 FROM SYSTEM.TABLE
 WHERE NAME = UPPER('vendors');
```

Returns the numeric value 18 (starting position of the second occurrence of the string 'world')

Example 4

```
SELECT * FROM SYSTEM.TABLE
 WHERE NAME = LTRIM ('?*', 'VENDORS?*???***')
 AND OWNER = 'PURCHDB';
```

Returns the system table entry for PURCHDB.VENDORS

Example 5

```
SELECT TRIM (BOTH '?*' FROM '??**?*hello ?* world???*')
 FROM SYSTEM.TABLE
 WHERE NAME = 'VENDORS';
```

Returns 'hello ?* world'.

3 Compatibility and Installation Requirements

Software Requirements

ALLBASE/SQL is bundled with HP-UX systems and requires Software Distributor(SD) as a prerequisite for the Software to be installed.

Hardware Requirements

ALLBASE/SQL is supported on HP 9000 Series 700 and 800 computer systems.

Operating System Platform Requirements

ALLBASE/SQL is supported on HP 9000 Series 700 and 800 computer systems running on the HP-UX based operating system. ALLBASE/SQL is also supported on HP 3000 computer systems running MPE/iX.

Disk Space Requirements

To install and operate ALLBASE/SQL, you need at least 4 megabytes of memory and 10 megabytes of swap space for a single-user DBEnvironment. Allow 3.5 megabytes of swap space for each additional concurrent ALLBASE/SQL user in a multiuser DBEnvironment.

- /opt Directory Space

The following is an estimate of the amount of disk space required in /opt to install each fileset in the ALLBASE/SQL product (figures are *approximate*):

Table 3-1. Disk Space Required by ALLBASE/SQL FileSets

Fileset	Name	700/800 Space
RunTime	AB-RUN	25.2 Mbytes
Development	AB-DEV	8.0 Mbytes
AB-NET	AB-NET	0.75 Mbytes
AB-SAMPLEDB	AB-SAMPLEDB	1.2 Mbytes
AB-REPLICATE	AB-REPLICATE	21 KBytes
AB-ODBCSE	AB-ODBCSE	8 Mbytes
AB-JDBC	AB-JDBC	2.5 Mbytes

About two thirds of the total is in /opt/allbase/bin and one third is in /opt/allbase/lib.

- Local Directory Space

The following space is required in a local directory ($local) to create a copy of the sample DBEnvironment PartsDBE and to preprocess, compile, and link the sample programs:

Table 3-2. Disk Space Required for Copies of Sample DBEnvironment

Pathname	700/800 Space
$local/hpsql/sampledb	2.6 Mbytes
$local/hpsql/programs	15 Mbytes

Files in the ALLBASE/SQL Filesets:

Table 3-3. AB-RUN Fileset

MODE	OWNER	GROUP	FILENAME	DESCRIPTION
4555	hpdb	bin	/opt/allbase/bin/dumpshm	support tool
555	bin	bin	/opt/allbase/bin/isql	ISQL program file
4555	hpdb	bin	/opt/allbase/bin/sqlgen	SQLGEN program file
4555	hpdb	bin	/opt/allbase/bin/sqlmig	SQLMigrate program file
4555	hpdb	bin	/opt/allbase/bin/sqlutil	SQLUtil program file
555	bin	bin	/opt/allbase/bin/sqlver	SQLVER program file
4555	hpdb	bin	/opt/allbase/bin/sqlmon	SQLMON program file
4555	hpdb	bin	/opt/allbase/bin/sqlcheck	SQLCheck program file
555	bin	bin	/opt/allbase/bin/sqlaudit	SQLAudit program file
444	bin	bin	/opt/allbase/bin/odbcse/ odbccl16	Self-extracting file, all 16-bit client software
444	bin	bin	/opt/allbase/bin/odbcse/ odbccl32	Self-extracting file, all 32-bit client software
6544	bin	bin	/opt/allbase/bin/odbcse/ odbclnse	The listener program
4455	bin	bin	/opt/allbase/bin/odbcse/ odbcutse	Utility for support purposes
444	bin	bin	/opt/allbase/lib/hpsqlcat	message catalog file
4555	hpdb	bin	/opt/allbase/lbin/ hpsqlproc	ALLBASE/SQL program file
444	bin	bin	/opt/allbase/lib/isqlwel	welcome message banner
444	bin	bin	/opt/allbase/lib/libsql.a	ALLBASE/SQL library file
444	bin	bin	/opt/allbase/lib/nls/C/ sqlver.cat	sqlver message catalog file
444	bin	bin	/opt/allbase/lib/nls/C/ hpsqlcat	message catalog file
444	bin	bin	/opt/allbase/lib/nls/C/ isqlwel	welcome message banner
4555	hpdb	bin	/opt/allbase/lbin/ sqldaemon	process cleanup daemon

Table 3-4. AB-DEV Fileset

MODE	OWNER	GROUP	FILENAME	DESCRIPTION
555	bin	bin	/opt/allbase/bin/psqlc	C preprocessor program file
555	bin	bin	/opt/allbase/bin/psqlcbl	COBOL preprocessor program file
555	bin	bin	/opt/allbase/bin/psqlfor	FORTRAN preprocessor program file
555	bin	bin	/opt/allbase/bin/psqlpas	Pascal preprocessor program file
444	bin	bin	/opt/allbase/include/sqlcall.c	COBOL preprocessor interface source file
444	bin	bin	/opt/allbase/include/sqlcall.cbl	COBOL preprocessor system file
444	bin	bin	/opt/allbase/include/sqlcall.h	COBOL preprocessor interface header file

Table 3-5. AB-NET Fileset

MODE	OWNER	GROUP	FILENAME	DESCRIPTION
4544	root	bin	/opt/allbase/bin/hpdaARPA	listener daemon for ARPA
444	bin	bin	/opt/allbase/lib/hpsqlcat	message catalog file
555	bin	bin	/opt/allbase/bin/isql	ISQL program file
444	bin	bin	/opt/allbase/lib/isqlwel	welcome message banner
444	bin	bin	/opt/allbase/lib/libsql.a	ALLBASE/SQL library file
555	bin	bin	/opt/allbase/bin/netutil	ALLBASE/NET utility program file
444	bin	bin	/usr/lib/nls/C/hpsqlcat	message catalog file
444	bin	bin	/usr/lib/nls/C/isqlwel	welcome message banner

Table 3-6. AB-SAMPLEDB Fileset

MODE	OWNER	GROUP	FILENAME	DESCRIPTION
444	bin	bin	/opt/allbase/lib/readme	text file
Files installed in /opt/allbase/lib/hpsql/				
444	bin	bin	readme	text file
555	bin	bin	setup	executable script
555	bin	bin	sqlsetup	executable script
444	bin	bin	sampledb/Album	data file
444	bin	bin	sampledb/CREAINDX	command file
444	bin	bin	sampledb/CREASEC	command file
444	bin	bin	sampledb/CREATABS	command file
444	bin	bin	sampledb/Clubs	data file
444	bin	bin	sampledb/Events	data file
444	bin	bin	sampledb/Inventor	data file
444	bin	bin	sampledb/LOADTABS	command file
444	bin	bin	sampledb/Members	data file
444	bin	bin	sampledb/OrderIte	data file
444	bin	bin	sampledb/Orders	data file
444	bin	bin	sampledb/Parts	data file
444	bin	bin	sampledb/Report1	data file
444	bin	bin	sampledb/STARTDBE	command file
444	bin	bin	sampledb/SupplyBa	data file
444	bin	bin	sampledb/SupplyPr	data file
444	bin	bin	sampledb/TestData	data file
444	bin	bin	sampledb/Title	data file
444	bin	bin	sampledb/Vendors	data file
444	bin	bin	sampledb/creajob	creation script
444	bin	bin	sampledb/gengen	command file
444	bin	bin	programs/TMPLC1	Up and Running template
444	bin	bin	programs/TMPLC2	Up and Running template
444	bin	bin	programs/TMPLC3	Up and Running template

Table 3-6. AB-SAMPLEDB Fileset

MODE	OWNER	GROUP	FILENAME	DESCRIPTION
444	bin	bin	programs/TMPLCA	Up and Running template
444	bin	bin	programs/TMPLCB	Up and Running template
444	bin	bin	programs/cex10a	C program
444	bin	bin	programs/cex10b	C program
444	bin	bin	programs/cex12	C program
444	bin	bin	programs/cex2	C program
444	bin	bin	programs/cex5	C program
444	bin	bin	programs/cex7	C program
444	bin	bin	programs/cex8	C program
444	bin	bin	programs/cex8a	C program
444	bin	bin	programs/cex9	C program
444	bin	bin	programs/cobex10a	COBOL program
444	bin	bin	programs/cobex10b	COBOL program
444	bin	bin	programs/cobex12	COBOL program
444	bin	bin	programs/cobex2	COBOL program
444	bin	bin	programs/cobex5	COBOL program
444	bin	bin	programs/cobex7	COBOL program
444	bin	bin	programs/cobex8	COBOL program
444	bin	bin	programs/cobex8a	COBOL program
444	bin	bin	programs/cobex9	COBOL program
444	bin	bin	programs/forex12	FORTRAN program
444	bin	bin	programs/forex2	FORTRAN program
444	bin	bin	programs/forex5	FORTRAN program
444	bin	bin	programs/forex7	FORTRAN program
444	bin	bin	programs/forex8	FORTRAN program
444	bin	bin	programs/forex8a	FORTRAN program
444	bin	bin	programs/forex9a	FORTRAN program
444	bin	bin	programs/forex9b	FORTRAN program
444	bin	bin	programs/pasex10a	Pascal program

Table 3-6. AB-SAMPLEDB Fileset

MODE	OWNER	GROUP	FILENAME	DESCRIPTION
444	bin	bin	programs/pasex10b	Pascal program
444	bin	bin	programs/pasex12	Pascal program
444	bin	bin	programs/pasex2	Pascal program
444	bin	bin	programs/pasex5	Pascal program
444	bin	bin	programs/pasex7	Pascal program
444	bin	bin	programs/pasex7l	Pascal program
444	bin	bin	programs/pasex8	Pascal program
444	bin	bin	programs/pasex8a	Pascal program
444	bin	bin	programs/pasex9	Pascal program

Table 3-7. AB-REPLICATE Fileset

MODE	OWNER	GROUP	FILENAME	DESCRIPTION
444	bin	bin	/opt/allbase/lib/libwss.a	REPLICATE Library File

Table 3-8. AB-ODBCSE Fileset

MODE	OWNER	GROUP	FILENAME	DESCRIPTION
444	bin	bin	/opt/allbase/bin/odbcse/HPREADME	text file
6544	bin	bin	/opt/allbase/bin/odbcse/odbclnse	ODBC listener program file
4455	bin	bin	/opt/allbase/bin/odbcse/odbcutse	ODBC Utility program file
444	bin	bin	/opt/allbase/bin/odbcse/odbccl16	ODBC client (16 bit)
444	bin	bin	/opt/allbase/bin/odbcse/odbccl32	ODBC client (32 bit)

Table 3-9. AB-JDBC Fileset

MODE	OWNER	GROUP	FILENAME	DESCRIPTION
444	bin	bin	/opt/allbase/jdbc/READ1ST	text file
444	bin	bin	/opt/allbase/jdbc/RELNOTES	text file
444	bin	bin	/opt/allbase/jdbc/hpjdbc_112.tar	tar file

System Configuration

This section discusses the system configurable parameters which directly affect the execution of ALLBASE/SQL. These parameters are part of the system configuration and can be modified using SAM. Please refer to the *System Administration Tasks HP 9000* for more information. You may need to increase parameter values to meet your needs.

The system parameters namely semmni, semmns, shmmni and shmseg and their uses by ALLBASE/SQL are explained in the following table:

Table 3-10. System Parameters Used By ALLBASE/SQL

Parameter	700/800 Default	Purpose
maxuprc	50	Specifies the maximum number of processes that a user may have. When an application connects to a DBEnvironment, a process is spawned. In addition, each active DBEnvironment has one database daemon process running.

semmni	64	Specifies the number of sets (identifiers) of semaphores available to the users. The semmni should be set to:
		`semmni = NDBE + (2 * NCON)`
		`where: NDBE = number of distinct DBEnvironments`
		`NCON = number of DBEnvironment connections (maximum of 32 per user application)`
		See the *System Administration Tasks HP 9000* for the interactions of the semmni parameter with other system parameters.

semmap	formula at right	Specifies the maximum number of semaphore maps. The system default is:
		`semmap = ((semmni + 1) / 2 + 2)`
		`where: semmni = number of semaphore identifiers`
		Note: If semmap is set too low, the following message appears on the console:
		`danger: mfree map overflow`

semmns	64	Specifies the maximum number of semaphores. To determine the maximum number of semaphores allowed, use the following formula:
		`semmns = (2 * NDBE) + (3 * NCON)`
		`where: NDBE = number of distinct DBEnvironments`
		`NCON = number of DBEnvironment connections (maximum of 32 per user application)`

shmseg	12	Specifies the maximum number of shared memory segments to which one process can simultaneously attach. An ALLBASE/SQL user application will be attached one shared memory segment for every connection to a DBEnvironment. The maximum number of DBEnvironment connections for a user application is 32. This shared memory segment allows communication between the user application and the ALLBASE/SQL DBCore process.

Table 3-10. System Parameters Used By ALLBASE/SQL

Parameter	700/800 Default	Purpose

shmmni	100	Specifies the maximum number of shared memory segments that can be allocated by the system. To determine how many shared memory segments you will need, use the following formula:
		`shmmni = NDBE + NCON`
		
		`where: NDBE = number of distinct DBEnvironments`
		`NCON = number of DBEnvironment connections (maximum of 32 per user application)`

shmmax	64 Mbytes	Specifies in hexadecimal the maximum number of bytes in a shared memory segment. (Decimal values are given in parentheses). The total size of the shared memory segment specified by the parameters of the SQL START DBE command or the SQLUtil ALTDBE command cannot exceed this maximum. For ALLBASE/SQL, the shared memory used by a particular DBEnvironment comprises the Number of Runtime Control Block Pages, the Number of Log Buffer Pages, the Number of Data Buffer Pages, and the Number of Transaction Block Buffer Pages.

There are several other system parameters which are not directly affected by the execution of ALLBASE/SQL, but may be indirectly affected by an ALLBASE/SQL user's application. Refer to the *System Administration Tasks HP 9000* for information on memory allocation and system reconfiguration. Refer also to “Estimating Shared Memory Requirements” in the “Physical Design” chapter of the *ALLBASE/SQL Database Administration Guide* for further information on system parameters.

Installation Procedures

ALLBASE/SQL is auto-installable. However, if you are updating from an earlier release of ALLBASE/SQL, you must perform the ALLBASE/SQL migration to migrate your DBEnvironments to the G3 format. The method used depends upon the version of ALLBASE/SQL you are currently running. The version options are:

- Updating from G0, G1 or G2 using SQLINSTL
- Updating from E0, E1, or F0 using SQLMigrate
- Updating from versions prior to E0—contact your Hewlett-Packard Response Center for procedures if updating from these old versions.

Backing Up your DBEnvironment and Software

Unless this is a new installation, create a backup of each DBEnvironment and the ALLBASE/SQL software prior to updating the operating system and ALLBASE/SQL software.

Do the following for each DBEnvironment that will be migrated:

1. Start ISQL and issue a START DBE statement. This ensures that the DBEnvironment is logically consistent. Type the following:

```
isql
isql=> START DBE 'DBEnvironmentName'

isql=> exit
```

2. Start SQLUtil and issue the STORE command to backup each DBEnvironment. Type the following:

```
sqlutil
>>store
WARNING:  If you are using STORE to support RollForward
          .
          .
          .
Do you wish to proceed (y/n)?: y
DBEnvironment Name: DBEnvironmentName
Maintenance Word: MaintenanceWord
To File Name: TAPE
```

NOTE Log files are not stored using this command.

See the *ALLBASE/SQL Database Administration Guide* appendix, "SQLUtil," for more information.

3. Backup the ALLBASE/SQL software. Refer to the *Release Notes* for your current release of ALLBASE/SQL for a complete listing of files.
4. If you are updating the operating system, make sure you have a backup of the operating

system. Refer to the *System Administration Tasks HP 9000* for information on how to do a system backup.

Installing the Software

1. Install the appropriate version of the HP-UX operating system. Refer to the documentation on *Installing and Updating HP-UX* for information. If you are not installing a new operating system, omit this step.
2. Install the G3 version of the ALLBASE/SQL software. Refer to "HP-UX SWINSTALL Utility" later in these *Release Notes*.
3. If you are updating from an earlier version, proceed to the appropriate section for your older version.

Updating from Versions G0, G1 or G2 Using SQLINSTL

If your release of ALLBASE/SQL is G0, G1 or G2, execute the SQLINSTL script to migrate to the current version G3. ALLBASE/SQL has added new views and modified some existing views. The SQLINSTL script is provided to make it easy for a database administrator to migrate between versions of a release (such as G3.02 to G3.03) or minor releases (such as G2 to G3). Using SQLINSTL ensures that you have access to the most recent version of the SYSTEM and CATALOG views, and it also uses `VALIDATE FORCE` statements to revalidate all stored sections.

If SQLINSTL is not executed on a DBEnvironment after installing a new version of ALLBASE/SQL, stored sections may not be properly revalidated causing run-time errors. Revalidating stored sections at run-time during production hours can also cause concurrency problems due to exclusive locks placed on the system catalog. You must execute SQLINSTL whenever a new version of ALLBASE/SQL is installed unless you need to use SQLMigrate. SQLINSTL does not need to be executed if SQLMigrate is being executed to migrate between major releases.

Example using SQLINSTL:

```
HP-UX   /usr/bin/isql
        isql=> start /usr/lib/allbase/hpsql/sqlinstl (mydbe);
        isql=> exit;
```

Read the SQLINSTL file on your system for more information.

If you are using `ARCHIVE MODE LOGGING`, you must make a backup of the DBEnvironment after using SQLINSTL. This backup must be used if rollforward recovery is to be performed at some point in the future.

NOTE Customers installing G3 cannot apply rollforward recovery to a backup created using the G0 version (or earlier) of ALLBASE/SQL.

Updating from Versions E0, E1, or F0 Using SQLMigrate

If your old release of ALLBASE/SQL is E0, E1, or F0, use SQLMigrate to migrate to a G3 version. A backup of the DBE should be done prior to running SQLMigrate. The procedures below also appear in the *ALLBASE/SQL Database Administration Guide*.

Use the following procedure to convert a DBEnvironment from E0, E1, or F0 format to the G3 format:

1. Enter the command:

   ```
   :sqlmig
   ```

2. For each DBE that is to be migrated, check for potential errors during the migration by using the PREVIEW command, which follows:

   ```
   SQLMIGRATE=> PREVIEW 'DBEnvironmentName' FORWARD;
   ```

NOTE Make sure that you have a backup of the DBEnvironment prior to issuing the PREVIEW command since PREVIEW is not a read-only command.

During the PREVIEW check, you may receive messages stating that there is not enough space in the SYSTEM DBEFileSet. If this occurs, use the following commands to create a new DBEFile and add it to the SYSTEM DBEFileSet:

```
SQLMIGRATE=> CREATE DBEFILE DBEFileName
    WITH PAGES = DBEFileSize, NAME = 'SystemFileName';

SQLMIGRATE=> ADD DBEFILE DBEFileName TO DBEFILESET SYSTEM;
```

The syntax of these commands is the same as in ISQL.

Repeat this step until no errors are encountered and SQLMigrate returns the following message:

```
The proposed migration should be successful
```

3. Issue the MIGRATE command as follows:

   ```
   MIGRATE=> MIGRATE 'DBEnvironmentName' FORWARD;
   ```

   When the forward migration has successfully completed, SQLMigrate purges the old log files and performs a START DBE NEWLOG to create a new log file using the parameters stored in the DBECON file. This is shown in the following example.

   ```
   START DBE NEWLOG BEGINNING (TUE, JUL 09, 1996, 4:12 PM)

   START DBE 'DBENAME' NEWLOG
      BUFFER = (100,24),
      TRANSACTION = 50,
      MAXIMUM TIMEOUT = 3600 SECONDS,
      DEFAULT TIMEOUT = 30 SECONDS,
      RUN BLOCK = 37

      LOG DBEFILE log1 WITH PAGES = 250,
         NAME = 'DBELog1';
   START DBE NEWLOG SUCCEEDED (TUE, JUL 19, 1996, 4:13 PM)
   ```

4. If the START DBE NEWLOG (issued by SQLMigrate) should fail for any reason, you must run ISQL and issue the START DBE NEWLOG command from ISQL.
5. To enable archive-mode logging, run SQLUtil and issue the STOREONLINE command.
6. Exit SQLMigrate:

   ```
   SQLMIGRATE=> EXIT;
   ```

7. Make a backup of the migrated DBEnvironment immediately after the START DBE NEWLOG statement completes. SQLUtil STOREONLINE should be used for switching on archive logging and STORE for keeping up non-archive logging.
8. Start SQLUtil (if you are not already in SQLUtil from the previous step) and issue the SHOWDBE command to check the parameters of the new version of the DBEnvironment. Use the ALTDBE command if changes are necessary. Use the SHOWLOG command to display current log information.
9. Exit SQLUtil. The DBEnvironment should be ready for access.

Installation Information and Recommendations

Before upgrading or installing ALLBASE/SQL, ensure that your system meets the requirements described in this section:

- HP-UX Version
- ALLBASE/SQL Configuration
- The User hpdb
- The ALLBASE/SQL Filesets
- RunTime ALLBASE/SQL Considerations
- HP-UX SWINSTALL Utility
- Using SQLVER

HP-UX Version

These release notes are specifically for ALLBASE/SQL Release G3.14 on HP-UX releases 10.X and 11.0. Please make sure that your version of ALLBASE/SQL is appropriate for your version of HP-UX. If not, you must install the appropriate version of HP-UX on your system in addition to ALLBASE/SQL Release G3.14.

ALLBASE/SQL Configuration

When running ALLBASE/SQL with a large number of users, increase the configurable parameters accordingly. You can do this when you first create the DBEnvironment or by using SQLUtil. Refer to the "Maintenance" chapter in the *ALLBASE/SQL Database Administration Guide* for more information setting ALLBASE/SQL parameters. See the *ALLBASE/SQL Performance and Monitoring Guidelines* for more information about choosing the optimal values for configurable parameters.

The User hpdb

Before creating or connecting to an ALLBASE/SQL DBEnvironment, make sure there is a special user named *hpdb* with a user id number of 27 and a group id number of 2 on your system. If necessary, add the following line to the /etc/passwd file before invoking the HP-UX SWINSTALL utility to install the ALLBASE/SQL product:

```
hpdb:*:27:2: hpdb ALLBASE/SQL:/usr:/sbin/sh
```

In addition, add user *hpdb* to the group *bin* in the /etc/group file, as in the following example:

```
bin::2:root,rootc,bin,daemon,lp,hpdb
```

The user id number 27 is reserved for the user name *hpdb*, which is required to execute the ALLBASE/SQL program files. It is not required that the *hpdb* user belong to the group *bin*; however, all of the ALLBASE/SQL files are associated with *bin*. If the user id number

27 does not exist on your system, or if a user other than *hpdb* is assigned to this user id number, the security and integrity of your DBEnvironments cannot be guaranteed.

The ALLBASE/SQL program files are owned by the user *hpdb*. Several of the ALLBASE/SQL program files have set the file mode to 4555 which causes the "switch user id bit" to be turned on. Any users executing these ALLBASE/SQL program files have their effective user name changed to *hpdb* while these program files are executing. The user's group name remains the same as the group name the user is associated with in the file /etc/group. All files that are created as part of the database have the file permissions of 600, are owned by *hpdb*, and have the file creator's group association. For example, if user *peter*, who is a member of group *dbsupport*, creates a DBEnvironment named *PartsDBE*, the HP-UX file permissions and ownership for the DBECon file (DBEnvironment configuration file) will appear as follows:

```
-rw-  1 hpdb     dbsupport  12288 Apr 15 17:00 PartsDBE
```

The ALLBASE/SQL Filesets

The number of filesets on your installation tape depends on which bundle of ALLBASE/SQL you have purchased.

ALLBASE/SQL Development bundle has the following filesets:

- `ALLBASE-SQL.Development.AB-DEV`
- `ALLBASE-SQL.Development.AB-NET`
- `ALLBASE-SQL.Development.AB-RUN`
- `ALLBASE-SQL.Development.AB-SAMPLEDB`
- `ALLBASE-SQL.Development.AB-REPLICATE`
- `ALLBASE-SQL.Development.AB-ODBCSE`
- `ALLBASE-SQL.Development.AB-JDBC`

ALLBASE/SQL Runtime bundle has the following filesets:

- `ALLBASE-SQL.Runtime.AB-NET,`
- `ALLBASE-SQL.Runtime.AB-RUN, and`
- `ALLBASE-SQL.Runtime.AB-SAMPLEDB`
- `ALLBASE-SQL.Runtime.AB-REPLICATE`
- `ALLBASE-SQL.Runtime.AB-ODBCSE`
- `ALLBASE-SQL.Runtime.AB-JDBC`

You do not need to load the `SAMPLEDB` fileset. `SAMPLEDB` is provided as an educational example and is not required for either the runtime or development version of ALLBASE.

Runtime ALLBASE/SQL Considerations

With Release G3, you have the option of installing a runtime version of ALLBASE/SQL. If you are installing only the runtime system, *and* if you have previously installed a complete earlier version of ALLBASE/SQL on your system, you should remove pre-Release G3

ALLBASE/SQL files from your system to ensure that all database files are consistent. Before removing the ALLBASE/SQL pre-Release G3 files, you may want to make a backup copy of them. If the database files are in their original directories, you may have to remove all previously installed ALLBASE/SQL files.

For example, assume that your system currently has ALLBASE/SQL F0.00. Installing the runtime version of ALLBASE/SQL G3 would result in an F0.00 version of the ALLBASE/SQL preprocessors coexisting with a Release G3 version of the runtime system. In this case the preprocessors will not work correctly.

After removing the old files, install your new ALLBASE/SQL package as shown in the section “HP-UX SWINSTALL Utility.”

Client-Only Configuration

The AB-NET fileset contains ALLBASE/NET, which is required for remote database access. If you desire a runtime client-only configuration, this is the only fileset you need to install.

Terminating a Database Process

The *kill -9* command, commonly used by a superuser to abort a process, may cause an undetected deadlock condition to occur or other processes connected to the same DBEnvironment to terminate or hang if it is used to abort a database process in a multiuser environment. You should never use the *kill -9* command to abort an ALLBASE/SQL database process in a multi-user environment. Instead, use the TERMINATE USER command in ISQL to terminate a specific SessionID or all sessions for a DBEUserID. Refer to the *ALLBASE/ISQL Reference Manual* for further details.

Remote Database Access

Use ALLBASE/NET to establish remote access to ALLBASE/SQL DBEnvironments.

HP-UX SWINSTALL Utility

The `swinstall` utility is used by system administrator to add optional software to the system and to update the entire system when necessary. For detailed instructions on the use of `swinstall`, refer to the appropriate HP-UX Installation manual for your series.

The `swinstall` command installs the software-selections from a software source (tape) to the local host (root filesystem). The software is configured for use on the target after it is installed.

There are three main steps in the installation process namely:

- **Selection phase**
- **Analysis phase**
- **Install phase**

Type `swinstall` at the command line.

You will be first asked to specify the target or destination of the software. Then you will be asked for the source from where the software will be installed. Fill up the details for Source Host Name and the Source Depot Path from where the software has to be installed.

Press OK. You will get the message saying “Reading the Software source.” The Software Selection Window then displays the Software bundle that is available with the tape.

Selection Phase

ALLBASE/SQL is available on both S800 and S700 platforms and is bundled as follows:

B5414BA	ALLBASE/SQL	Runtime Environment for HP-UX 10.20 (S700)
B5416BA	ALLBASE/SQL	Development Environment for HP-UX 10.20 (S700)
B5418BA	ALLBASE/SQL	Runtime Environment for HP-UX 10.20 (S800)
B5420BA	ALLBASE/SQL	Development Environment for HP-UX 10.20 (S800)
B5414BA	ALLBASE/SQL	Runtime Environment for HP-UX 11.00 (S700)
B5416BA	ALLBASE/SQL	Development Environment for HP-UX 11.00 (S700)
B5418BA	ALLBASE/SQL	Runtime Environment for HP-UX 11.00 (S800)
B5420BA	ALLBASE/SQL	Development Environment for HP-UX 11.00 (S800)

NOTE Your product tape will contain only the bundles that you have ordered.

Select the software bundle that you need to install.

1. Select and highlight the names of software bundles to install by pointing and clicking the left mouse button.
2. Mark the highlighted bundles or products by selecting the Mark For Install item from the Actions menu. You will get the message marked `Yes` under `Marked` column of the Software Selection Screen.

Analysis Phase

The **Analysis Phase** lets you determine if the software can be successfully installed on the system BEFORE it is actually installed. A series of checks are performed on the process and the results are displayed in the window or written to a log file.

1. Open up the Actions pop-up menu of the Software Selection screen.
2. Select the option `Install(Analysis)`. There will be a new pop-up window Install Analysis, when the analysis phase is being carried out.

   Once the Analysis Phase is successful, the confirmation window for Installation appears and waits for you to type `Yes` or `No` to continue the Installation Process.
3. Select `Yes` for installation. The Install Window screen appears.

Install Phase

The **Install Phase** is when the actual installation takes place. The Install window allows you to monitor the progress of the operation as the software is loaded and configured.

This completes the process of Installation of ALLBASE/SQL on HP-UX System. To confirm

that the installation is successful and no files are missing, refer to “Using SQLVer” below.

Native Language Support Issues

The default user language for ALLBASE/SQL and HP-UX Release 10.0 is **C**.

Using SQLVer

SQLVer allows you to check the version strings of the ALLBASE/SQL files. To verify that the correct files have been installed and that no files are missing, run SQLVer, as shown in this example:

```
% sqlver
------------------------------------------------------------------------
Checking AB-RUN(Runtime).
AB-RUN: No missing files.
------------------------------------------------------------------------
Checking AB-DEV (Development).
AB-DEV: No missing files.
------------------------------------------------------------------------
Checking AB-NET (Net).
AB-NET: No missing files.
------------------------------------------------------------------------
                        ********************
                        This Pass => A.G3.14
                        ********************
0 missing files.
------------------------------------------------------------------------
```

4 What's New in Each Release

New Features in ALLBASESQL Releases

The following table highlights the new or changed functionality added in each of the G Releases, and shows you where each feature is documented.

Table 4-1. New Features in ALLBASE/SQL Releases

Ver.	Feature (Category)	Description	Documented in...
G3.14	HP Driver for JDBC	JDBC Driver classes and server components to access ALLBASE/SQL databases from Java applications and applets.	*HP Driver for JDBC User's Manual*
G3	String Functions (Usability)	The supported SQL syntax has been enhanced to include the following string manipulation functions: `UPPER, LOWER, POSITION, INSTR, TRIM, LTRIM, AND RTRIM`. These string functions allow you to manipulate or examine the `CHAR` and `VARCHAR` values within the SQL syntax, allowing for more sophisticated queries and manipulation commands to be formed.	*ALLBASE/SQL Reference Manual*
G2	Allow or disallow `SQLMON` for users. (Usability)	Grants or revokes the ability to run SQLMON for specific users. New attribute for `GRANT` and `REVOKE: MONITOR`.	*ALLBASE/SQL Reference Manual*, `GRANT, REVOKE` in "SQL Statements"
G2	Allow or disallow authority to create modules. (Usability)	Grants or revokes the ability to create modules for specific users. New attributes for `GRANT` and `REVOKE: INSTALL`.	*ALLBASE/SQL Reference Manual*, `GRANT, REVOKE` in "SQL Statements"
G2	PC ODBC 16-bit and 32-bit support (Connectivity, Client/Server)	ODBCLINK/SE allows connectivity to ALLBASE and IMAGE/SQL servers from a PC running MS Windows using ODBC.	*ODBCLINK/SE Reference Manual*

Table 4-1. New Features in ALLBASE/SQL Releases

Ver.	Feature (Category)	Description	Documented in...
G2	Year 2000 solution (Standards)	Provides the JCW HPSQLSPLITCENTURY to use in setting a value between 0 and 99. This value is used to change the century part of the DATE and DATETIME functions to override the default of 19.	"Date/Time Functions" in the "Expressions" chapter of the *ALLBASE/SQL Reference Manual*
G1	New operand to concatenate strings (Standards)	Adds an operand to concatenate character or binary strings in an expression. New operand: ||	*ALLBASE/SQL Reference Manual*, "Expressions"
G1	RENAME Column or Table (Usability)	Adds capability of defining a new name for an existing table or column in a DBEnvironment. You cannot rename a table or column that has check constraints or an IMAGE/SQL table. New commands: RENAME COLUMN, RENAME TABLE.	*ALLBASE/SQL Reference Manual*, RENAME COLUMN and RENAME TABLE in "SQL Statements"
G1	CAST function added to Expression syntax (Usability)	Adds the CAST function to allow explicitly converting from one data type to another. It allows conversion between compatible data types and between normally incompatible data types such as CHAR and INTEGER. New Expression function: *CastFunction*.	*ALLBASE/SQL Reference Manual*, "Cast" in "Expressions"
G1	Syntax added to VALIDATE (Usability, Performance)	Automates execution of COMMIT WORK after each module or procedures is validated when WITH AUTOCOMMIT is used. All sections are revalidated whether valid or invalid when FORCE is used. This can reduce log space and shared memory requirements for the VALIDATE statement. New syntax for VALIDATE: FORCE, WITH AUTOCOMMIT.	*ALLBASE/SQL Reference Manual*, VALIDATE in "SQL Statements"
G1	Syntax added to DELETE (Usability, Performance)	Automates execution of COMMIT WORK at the beginning of the DELETE and after each batch of rows is deleted when WITH AUTOCOMMIT is used. Reduces log-space and shared-memory requirements. WITH AUTOCOMMIT cannot be used in some cases (see the DELETE statement). New syntax for DELETE: WITH AUTOCOMMIT.	*ALLBASE/SQL Reference Manual*, DELETE in "SQL Statements"

Table 4-1. New Features in ALLBASE/SQL Releases

Ver.	Feature (Category)	Description	Documented in...
G1	Decimal operations (Usability)	Increases maximum precision from 18 to 27.	*ALLBASE/SQL Reference Manual*, "Decimal Operations" in "Data Types"
G1	Terminate a query (Usability, Performance)	Allows termination of a query for a connection or transaction. New statement: `TERMINATE QUERY`. New syntax for `SET SESSION, SET TRANSACTION`.	*ALLBASE/SQL Reference Manual*, `TERMINATE QUERY, SET SESSION, SET TRANSACTION` in "SQL Statements"
G1	Terminate a transaction (Usability, Performance)	Allows stopping of a given transaction. New statement: `TERMINATE TRANSACTION`. New syntax for `SET SESSION, SET TRANSACTION`.	*ALLBASE/SQL Reference Manual*, `TERMINATE TRANSACTION, SET SESSION, SET TRANSACTION` in "SQL Statements"
G1	Timeout enhanced to allow specifying what is rolled back or terminated (Usability, Performance)	Allows specifying the action when a timeout expires. New attributes for `SET SESSION` and `SET TRANSACTION: TERMINATION AT LEVEL, USER TIMEOUT, ON TIMEOUT ROLLBACK`.	*ALLBASE/SQL Reference Manual*, in "SQL Statements"
G1	New SQLUtil command `CHKPTHLP` reduces time for flushing data (Performance)	Flushes the data in parallel to the `CHECKPOINT` command in ISQL. New SQLUtil command: `CHKPTHLP`.	*ALLBASE/SQL Database Administration Guide*, `CHKPTHLP` in "SQLUtil"
G1	Allow or disallow `SQLMON` for users. (Usability)	Grants or revokes the ability to run `SQLMON` for specific users. New attribute for `GRANT` and `REVOKE: MONITOR`.	*ALLBASE/SQL Reference Manual*, `GRANT, REVOKE` in "SQL Statements"
G1	Allow or disallow authority to create modules. (Usability)	Grants or revokes the ability to create modules for specific users. New attributes for `GRANT` and `REVOKE: INSTALL`.	*ALLBASE/SQL Reference Manual*, `GRANT, REVOKE` in "SQL Statements"

Table 4-1. New Features in ALLBASE/SQL Releases

Ver.	Feature (Category)	Description	Documented in...
G1	Script for migration to a new release (Usability, Tools)	Provides SQLLINSTL script for migration to a new release of ALLBASE/SQL. Read the SQLINSTL file on your system for more information.	SQLINSTL file; *Communicator 3000 MPE/iX Release 5.5 (Non-Platform Software Release C.55.00)*, "ALLBASE/SQL Enhancements"; *ALLBASE/SQL Database Administration Guide* in 'SQLINSTL" section of the "DBA Tasks and Tools" chapter
G1	GENPLAN on a section (Usability)	Obtains an access plan of a stored static query by specifying the module and section number. Changed syntax: GENPLAN.	*ALLBASE/SQL Reference Manual*, GENPLAN in "SQL Statement."
G1	POSIX support (Tools)	Starting with G1, the ALLBASE/SQL preprocessor (PSQLCOB) supports preprocessing and generation of Microfocus COBOL source code under POSIX (Portable Operating system Interface).	*Communicator 3000 MPE/iX Release 5.5 (Non-Platform Software Release (C.55.00)*, "ALLBASE/SQL Enhancements"
G1	Terminate a user's connections (Connectivity)	Terminates one or more connections for a user. New syntax for TERMINATE USER: CID *ConnectionID*.	*ALLBASE/SQL Reference Manual*, TERMINATE USER in "SQL Statements"
	Run Queue Control for ALLBASE/NET (Connectivity)	Allows running HPDADVR in D queue for an MPE/iX session or HP-UX connection or C queue for an MPE/iX job connection. New environment variable: HPSQLJOBTYPE.	*Communicator 3000 MPE/iX Release 5.5 (Non-Platform Software Release C.55.00),"*ALLBASE/SQL Enhancements"
	PC ODBC 16-bit and 32-bit support (Connectivity, Client/Server)	ODBCLINK/SE allows connectivity to ALLBASE and IMAGE/SQL servers from a PC running MS Windows using ODBC.	*ODBCLINK/SE Reference Manual*
	Year 2000 solution (Standards)	Provides the JCW HPSQLSPLITCENTURY to use in setting a value between 0 and 99. This value is used to change the century part of the DATE and DATETIME functions to override the default of 19.	"Date/Time Functions" in the "Expressions" chapter of the *ALLBASE/SQL Reference Manual*

5 ALLBASE/SQL Manuals

The following list includes the manuals supported for this release of ALLBASE/SQL.

Title of ALLBASE/SQL Manual

ALLBASE/ISQL Reference Manual

ALLBASE/NET User's Guide

ALLBASE/SQL Advanced Application Programming Guide

ALLBASE/SQL C Application Programming Guide

ALLBASE/SQL COBOL Application Programming Guide

ALLBASE/SQL Database Administration Guide

ALLBASE/SQL FORTRAN Application Programming Guide

ALLBASE/SQL Message Manual

ALLBASE/SQL Pascal Application Programming Guide

ALLBASE/SQL Performance and Monitoring Guidelines

ALLBASE/SQL Reference Manual

Up and Running with ALLBASE/SQL

ODBCLink/SE Reference Manual

HP Driver for JDBC User's Manual