

CHAPTER 2

New Features in Adaptive Server Anywhere

6.0.1

About this chapter This chapter provides an overview to the new features introduced in Adaptive Server Anywhere 6.0.1

Contents

Topic	Page
Adaptive Server Anywhere for Windows CE	8
Remote data access	11
Character set translation	14
New Java features	15
Additional new features	16
New features in SQL Remote	18
Behavior changes	19

Adaptive Server Anywhere for Windows CE

The Microsoft Windows CE operating system developed for handheld computing devices and embedded devices custom-built to carry out a specific task.

Starting with Version 6.0.1, Adaptive Server Anywhere is available for Windows CE. Versions 2.0 and up of the CE operating system are supported.

The Windows CE version of Adaptive Server Anywhere has the following characteristics:

- ◆ **Full-featured database** All SQL features in other versions of Adaptive Server Anywhere are available in the Windows CE version, including transaction processing, referential integrity actions, procedures and triggers, and so on.

The Java features and the remote data access features are not available in Windows CE.

- ◆ **Administer from your desktop** When running Windows CE on a device that can be attached to a network or directly to a PC, you can administer your Windows CE database from a Sybase Central running on the PC.
- ◆ **ODBC and Embedded SQL applications** You can use either of these interfaces to develop client applications.
- ◆ **SQL Remote replication** The SQL Remote file link is implemented to be compatible with Windows CE ActiveSync synchronization.

Desktop management of Windows CE databases

Instead of the personal database server, the network database server (*dbsrv6.exe*) is supplied with Windows CE. The network server supports communications over a TCP/IP network link.

The usual client/server arrangement has the database server running on a machine with more power and resources than the client applications. Clearly, this is not the case with Windows CE; instead, the less powerful machine is running the database server.

The advantage to supplying a network server on Windows CE is that you can run database applications on your desktop computer to carry out tasks on your Windows CE database. For example:

- ◆ You can use Sybase Central on your desktop PC to manage your database

- ◆ You can use Interactive SQL on your desktop to load and unload data, and carry out queries.
- ◆ You can use InfoMaker to produce reports.

The Windows CE database server does not start the TCP/IP network link unless it is explicitly requested:

```
dbsrv6 -x tcpip ...
```

Creating Windows CE databases

If you have Windows CE services installed on your Windows 95 or Windows NT desktop, you get an option to create a Windows CE database when you create a database from Sybase Central (Windows Edition). Sybase Central enforces the requirements for Windows CE databases, and optionally copies the resulting database file to your Windows CE machine.

SQL Remote and Windows CE

If you have Windows CE services installed on your Windows 95 or Windows NT desktop, you get an option to create a Windows CE database when you extract a remote database from Sybase Central (Windows Edition). Sybase Central enforces the requirements for Windows CE databases, and optionally copies the resulting database file to your Windows CE machine.

From within the Sybase Central (Windows Edition) Utilities folder, if you have Windows CE services installed, you have an option to set up SQL Remote for ActiveSync synchronization. This sets your folder for FILE message link messages to be the ActiveSync folder. When you dock your Windows CE machine to your desktop machine, ActiveSync keeps the files in your desktop machine's ActiveSync folder synchronized with those in the Windows CE ActiveSync folder.

Windows CE database features

The Windows CE version of the database software contains all the features found on other operating systems except for a few features that are not appropriate for Windows CE. The excluded features include the following:

- ◆ Java in the Database
- ◆ External procedures and functions
- ◆ Only the network database server is supplied.

The following SQL statements are not supported on Windows CE:

- ◆ ALTER DATABASE
- ◆ ALTER SERVER
- ◆ ALTER WRITEFILE
- ◆ CREATE COMPRESSED DATABASE
- ◆ CREATE DATABASE
- ◆ CREATE EXPANDED DATABASE
- ◆ CREATE EXTERNLOGIN
- ◆ CREATE EXISTING TABLE and CREATE TABLE using the AT clause.
- ◆ CREATE SERVER
- ◆ CREATE WRITEFILE
- ◆ DROP DATABASE
- ◆ DROP SERVER
- ◆ INSTALL JAVA
- ◆ REMOVE JAVA
- ◆ START JAVA
- ◆ STOP JAVA

Using ODBC with Windows CE

There is no ODBC driver manager for Windows CE. This requires changes to the use of data sources compared to other Windows operating systems.

ℳ For information on how to use ODBC data sources with Windows CE, see "Using ODBC data sources on Windows CE" on page 44 of the book *Adaptive Server Anywhere User's Guide*.

Remote data access

Starting with Adaptive Server Anywhere Version 6.0.1, a single connection can access data from external data sources, as if it were stored on the local server. Supported external data sources include the following:

- ◆ Adaptive Server Anywhere databases
- ◆ Adaptive Server Enterprise databases
- ◆ Oracle databases
- ◆ IBM DB2 databases
- ◆ Microsoft SQL Server Databases
- ◆ Other ODBC data sources

Remote data access capabilities

There are several aspects to the remote data access features::

- ◆ Carry out queries that join tables in external data sources to tables in the local data source, or to other external data sources.
- ◆ Insert, update, and delete data in external data sources.
- ◆ Send statements to a remote server in its native SQL syntax.
- ◆ Migrate data from one server to another.

☞ For information about remote data access, see the chapter "Accessing Remote Data" on page 731 of the book *Adaptive Server Anywhere User's Guide* and the chapter "Server Classes for Remote Data Access" on page 761 of the book *Adaptive Server Anywhere User's Guide*. These chapters contain pointers to the relevant reference sections.

Sybase Central (Java Edition)

Sybase Central is now available in a Java Edition as well as the 32-bit Windows version. The Java Edition of Sybase Central runs on any platform for which a Java runtime environment is available.

Java Sybase Central can be used to manage the remote data access features of Adaptive Server Anywhere. This feature is not available in the Windows version of Sybase Central.

☞ For information, see "Accessing Remote Data" on page 731 of the book *Adaptive Server Anywhere User's Guide*.

Obtaining Sybase Central Java Edition

Sybase Central (Java Edition) is not included on the 6.0.1 CD-ROM.

To obtain Sybase Central (Java Edition), go to <http://techinfo.sybase.com/css/techinfo.nsf/DocID/ID=47872> at the Sybase Technical Library.

Connecting to databases


You can connect to databases using either JDBC (through Sybase jConnect) or ODBC (using a JDBC/ODBC bridge). It is recommended that you use JDBC (jConnect) to connect to databases.

To use jConnect, you must specify a user ID, password, and a URL. The URL consists of the following:

- ◆ **Machine name** If the server is running on the same machine as Sybase Central, you can use the machine name **localhost**.
- ◆ **Port Number** By default, Adaptive Server Anywhere uses port 2638 for TCP/IP connections. You need change this setting only if your server was instructed to use a different port when it was started.
- ◆ **Database name** If you are connecting to a server running more than one database, you can enter a database name to select which one you will connect to.

Help for Java Sybase Central

Online Help for the Java Edition of Sybase Central will be provided once JavaHelp, the online Help system for Java applications, is available. Currently, Java has no online Help system.

 For information on using Sybase Central to manage access to remote data, see the following locations:

- ◆ "Creating remote servers using Sybase Central" on page 737 of the book *Adaptive Server Anywhere User's Guide*
- ◆ "Altering remote servers using Sybase Central" on page 738 of the book *Adaptive Server Anywhere User's Guide*
- ◆ "Creating external logins from Sybase Central" on page 741 of the book *Adaptive Server Anywhere User's Guide*
- ◆ "Creating proxy tables using Sybase Central" on page 744 of the book *Adaptive Server Anywhere User's Guide*

Java Edition features

The Java Edition of Sybase Central does not currently have all the features of the Windows version. In the Java Edition you cannot do the following:

- ◆ Manage or start Windows NT services.
- ◆ Use drag and drop operations
- ◆ Use copy and paste operations.
- ◆ Use connection profiles

- ◆ Start Interactive SQL to view data.
- ◆ Display a list of available ODBC data sources when connecting to a database.
- ◆ Start other tools (PowerDesigner, ODBC Administrator, and so on) from Sybase Central
- ◆ Use Integrated logins, although you can create them.
- ◆ Execute SQL Remote passthrough mode statements.
- ◆ Add base Java classes to the database
- ◆ Re-install metadata support for jConnect.
- ◆ Upgrade a database from the utility folder. Instead, you must right-click the database and select Upgrade from the popup menu.
- ◆ Extract a database for SQL Remote by right-clicking on the database.

Character set translation


Character set translation has been added to translate strings automatically between different character sets as data is passed between client applications and the database server. This enables more flexibility in mixed character-set environments.

Character set translation can be carried out among character sets that represent the same characters, but at different values. There needs to be a degree of compatibility between the character sets for this to be possible. For example, character set translation between EUC-JIS and Shift-JIS character sets, but not between EUC-JIS and OEM code page 850.

To enable character-set translation, you must start the database server using the new `-ct` command-line option. For example:

```
dbeng6 -ct asademo.db
```

Most of the character set translation features occur automatically, with little user intervention required.

 For a description of character set translation features, see "Using character set translation" on page 297 of the book *Adaptive Server Anywhere User's Guide*. For more detailed information, see "Character set translation details" on page 315 of the book *Adaptive Server Anywhere User's Guide*.

New Java features

There are some changes made to the Java support. These include the following:

- ◆ **Updating Java fields** You can now use standard UPDATE syntax to update a field in a column of Java data type. The following statement was not supported before 6.0.1, but is now supported:

```
UPDATE Product
SET JProd>>unit_price = 16.00
WHERE ID = 302
```

Use of the EVALUATE function is no longer required.

- ◆ **Compressed jar files** You can now install compressed jar files and zip files into the database. However, you should not use the *jar* utility that comes with the Sun JDK. Other zip utilities do produce suitable files.
- ◆ **Result sets from Java procedures** You can wrap Java methods in a stored procedure, which can return a result set or multiple result sets to the calling environment.

✍ For information on this feature, see "Returning result sets from Java methods" on page 491 of the book *Adaptive Server Anywhere User's Guide*.

- ◆ **Default internal connection** When a database connection is established for internal JDBC operations, it is now recommended that you use the following URL:

```
jdbc:default:connection
```

In version 6.0.0, an empty string was used to establish this connection. While the empty string does still work, it is deprecated. The new URL corresponds to the SQLJ1 proposed standard.

Additional new features

Several other features have been added to Adaptive Server Anywhere 6.0.1. These include the following:

- ◆ **jConnect 4.0** The version of jConnect included in this product has been updated to version 4.0.
- ◆ **Autostart connection parameter** This parameter prevents a personal server from starting if no network connection is successful.
ℳ For a description, see "AutoStart connection parameter" on page 41 of the book *Adaptive Server Anywhere Reference Manual*.
- ◆ **MESSAGE statement** Extensions to the MESSAGE statement allow messages to be directed to the client, the server window, or a log file.
ℳ For a description, see "MESSAGE statement" on page 509 of the book *Adaptive Server Anywhere Reference Manual*.
- ◆ **Message callbacks** Windows Embedded SQL applications can handle messages received from the server while a request is being processed by registering a message callback function.
ℳ For more information, see "Request management functions" on page 67 of the book *Adaptive Server Anywhere Programming Interfaces Guide*.
- ◆ **More control over operating system threads** A new database server command-line option (`-gx`) controls the number of operating system threads that are in use. The existing `-gt` option controls how many can be in use at one time, effectively controlling the number of CPUs that can be exploited.
ℳ For more information, see "The database server" on page 12 of the book *Adaptive Server Anywhere Reference Manual*.
- ◆ **Connection property system procedures** Two additional system procedures provide alternative ways of querying connection information.
ℳ For more information, see "sa_conn_properties_by_conn system procedure" on page 754 of the book *Adaptive Server Anywhere Reference Manual*, and "sa_conn_properties_by_name system procedure" on page 754 of the book *Adaptive Server Anywhere Reference Manual*.

- ◆ **NULLIF function** This provides an abbreviated form of the CASE expression. NULLIF compares the values of the two expressions. If the first expression equals the second expression, NULLIF returns NULL. If the first expression does not equal the second expression, NULLIF returns the first expression. The NULLIF function provides a short way to write some CASE expressions.

↪ For more information, see "Miscellaneous functions" on page 277 of the book *Adaptive Server Anywhere Reference Manual*.

New features in SQL Remote

Several features have been added to SQL Remote.

- ◆ **Minimized Message Agent** The Message Agent can be made to start with a minimized window using the `-q` command-line switch.
- ◆ **Message Agent request to resend messages** The point at which the Message Agent requests that a missing message be resent is not user configurable using the `-rp` command-line switch.

☞ For information on these options, see "The Message Agent" on page 306 of the book *Data Replication with SQL Remote* and "Tuning incoming message polling" on page 245 of the book *Data Replication with SQL Remote*.

- ◆ **Cleaning the stable queue** For Adaptive Server Enterprise, the new `-fq` command-line option on the Message Agent assists administration by cleaning confirmed messages from the stable queue.

☞ For information, see "The Message Agent" on page 306 of the book *Data Replication with SQL Remote*.

- ◆ **Windows CE** For information on using SQL Remote with Windows CE, see "SQL Remote and Windows CE" on page 9

Behavior changes

This section describes behavior changes between version 6.0.0 and 6.0.1.

Java system table changes The system tables used to record Java class information (SYSJAR, SYSJARCOMPONENT, and SYSJAVACLASS) had SMALLINT primary keys. These data types have been altered to use INTEGER primary keys. This change allows more Java classes to be stored in a database, and more changes to the Java classes in the database.

This change takes effect for new databases and databases upgraded using the Upgrade utility from this or future releases.

Parentheses in -x command line In previous releases, database server command lines using the -x command-line option have used the brace character ({} to surround options. The same applies to the string in the CommLinks connection parameter. For example:

```
dbsrv6 -x tcpip{Localhost=demo}
```

Existing command lines that use braces are still supported, but it is now recommended that you use parentheses to surround the options. Use of parentheses provides support for multi-byte character set identifiers in the database server command line and the CommLinks command-line parameter.

```
dbsrv6 -x tcpip(Localhost=demo)
```

ANSINULL default for Transact-SQL and jConnect connections

This has been changed to ON, which matches Adaptive Server Enterprise default behavior.

Database server -v command-line option Prior to Version 6, this option produced verbose output to the transaction logs. This is obsolete, and -v is now used to supply version information.

Database server -gss command-line option The behavior of the -gs server command-line option, used to set the stack size, was complicated. The -gs command-line option is now deprecated, and -gss provides the same functionality in a clearer way.

☞ For more information, see "The database server" on page 12 of the book *Adaptive Server Anywhere Reference Manual*.

Character set conversion in Interactive SQL Formerly, when the CHAR_OEM_TRANSLATION option was set to DETECT, Interactive SQL would fetch the collation label from the database to determine whether or not OEM to ANSI character set translation would be turned on. If the collation label started with a string that indicated an ANSI code page, translation would be turned off. Otherwise it would be turned on. When the option was set to DETECT, Interactive SQL would display a message in the status window indicating the collation label of the database and the display translation setting.

The new behaviour is as follows. If the option is set to DETECT, Interactive SQL will obtain the CharacterSet connection property from the server. This is the character set that the server is using for sending all character strings on this connection. If this character set indicates an ANSI code page, then OEM to ANSI translation is turned off. Otherwise it is turned on. A new message is displayed, indicating the collation label of the database, the character set used for communication over this connection, and the display translation setting.