

Adaptive Server[®] Enterprise 15.0.2 for Linux

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1. Accessing current release bulletin information

A more recent version of this release bulletin may be available on the Web. To check for critical product or document information added after the product release, use the Sybase Product Manuals Web site.

v Accessing release bulletins at the Sybase Product Manuals Web site

- 1 Go to Product Manuals at <http://www.sybase.com/support/manuals/>.
- 2 Select a product and language and click Go.
- 3 Select a product version from the Document Set list.
- 4 Select the Release Bulletins link.
- 5 From the list of individual documents, select the link to the release bulletin for your platform. You can either download the PDF version or browse the document online.

2. Product summary

Enclosed is Sybase Adaptive Server Enterprise version 15.0.2. Server and client components are distributed on separate CDs.

For details on system requirements, including disk space and RAM, see the installation guide for your platform.

2.1 Installation kit

The installation kit includes:

- The Server CD – for contents list, see the installation guide for your platform.
- The PC-Client CD – contains software client components to be installed on Windows 2000, Windows XP Pro, Windows 2003 and Windowsx64 computers.
- The Getting Started CD with the following documentation, specific to your platform:
 - Installation guide
 - Configuration guide
 - Release bulletin (this document)

2.2 Operating system requirements

Adaptive Server Enterprise version 15.0.2 has the following minimum operating system requirements:

- libaio-0.3.96-7 or higher

- RHEL release 3 update:8
 - kernel 2.4.21-47.EL
 - kernel-hugemem 2.4.21-47.EL (for Large Memory Support, LMS)
 - glibc-2.3.2-95.44
 - compat-libstdc++-7.3-2.96.128
- SLES 9 – patch level 2
- For details on different Linux distributions supported and operation system levels required, see the Red Hat Web site at <http://certification.sybase.com/ucr/search.do>.

3. Special installation instructions

Sybase strongly recommends that you install Adaptive Server version 15.0.2 into its own directory. Where this is not practical, install Adaptive Server version 15.0.2 *last*.

Adaptive Server Enterprise 15.0.2 includes new versions of many supporting components. The most current version of other Sybase products (such as Enterprise Connect™ Data Access 12.6) contain earlier versions of those same components. Installing Adaptive Server version 15.0.2 into the same directory with existing products should not impact the existing products.

See “Highlighted known installation issues” on page 33 for known installation problems.

Warning! Sybase recommends that you not install an older version of a Sybase product in a `$SYBASE` directory that already includes a newer Sybase product as this may not work. For example, attempting to install Replication Server 12.6 on top of Adaptive Server 15.0.2 may make either Adaptive Server Enterprise or Replication Server inoperable depending on the choices taken during install.

3.1 JRE Patch for Daylight Saving Time and Sybase Products

Warning! It is necessary to download the latest DST patch for your specific platform. If you do not, applications written in Java may report the incorrect local time. Please see link below:

In the 2007 USA DST change, daylight saving time moved ahead 3 weeks in March and behind 1 week in October. This has affected the local reported time for JRE applications. A problem persists despite the fact that a new JRE has been released with updated DST specifications. Because of this, it is necessary that users install a patch. Please download the appropriate patch for your platform at the Sybase Web site at <http://www.sybase.com/detail?id=1050614>.

Once you have downloaded the appropriate patch follow the instructions below:

Apply the tzupdate tool with -bc (backward compatibility) and -f (force) options.

```
java -jar tzupdater.jar -bc -f
```

3.2 Installing both OpenServer and Adaptive Server on the same machine

If you plan to install both OpenServer and Adaptive Server on the same machine, install OpenServer prior to installing Adaptive Server.

If you have already installed Adaptive Server, then during the OpenServer install select “yes” when prompted to override older version of “OpenServer”, “srvlib”, “Common Ctlib” and “ctlib” components. Then you must use Adaptive Server 15.0.2 install program to reinstall CT-lib components to fix older files installed.

3.3 Installing Adaptive Server interim releases on top of existing installations

When an Adaptive Server interim release is applied on top of an existing Adaptive Server high availability installation, it overwrites files that are modified and saved during the original Adaptive Server high availability installation.

The Adaptive Server interim release replaces:

- *ase_login_file* located in the *\$SYBASE/ASE-15_0/SC-3_0/etc* directory

- *SY.ase* located in the *\$SYBASE/ASE-15_0/SC-3_0/etc* directory
- *sybhauser* located in the *\$SYBASE/ASE-15_0/install* directory

To avoid problems, complete the following tasks before any interim release installation:

- 1 Save a copy of *ase_login_file*, *SY.ase*, and *sybhauser*.
- 2 Install the interim release.
- 3 Modify the new versions of the files installed by interim release using the saved copies of the files. Make any appropriate changes to the file contents.
- 4 Set the file ownership and permissions as existed prior to applying the interim release.

3.4 Using SySAM 2.0

Starting with Adaptive Server Enterprise version 15.0, the Sybase Software Asset Management System (SySAM) implementation has changed. With these changes, SySAM configuration is no longer optional, and requires some changes in the Adaptive Server Enterprise installation and configuration process. Review the updated SySAM implementation and plan your SySAM deployment before you install Adaptive Server Enterprise.

See the *Sybase Software Asset Management User's Guide* for complete details.

Warning! Adaptive Server Enterprise works for an initial period of 30 days without proper SySAM configuration. If your configuration does not identify a valid license within this 30-day grace period, Adaptive Server Enterprise shuts down.

3.5 Runtime libraries required for Linux on Power installation

Warning! You cannot install Linux on Power without the following procedure.

v **Installing Visual Age xlc compiler runtime libraries**

Adaptive Server is compiled and linked with the Visual Age compiler, xlc version 7.0. Before installing Adaptive Server, you must install the runtime libraries for the Visual Age compiler.

- 1 Confirm that the runtime libraries are installed by entering:

```
rpm -q vacpp.rte-7.0.0
```

If this command returns `vacpp.rte-7.0.0`, the Visual Age runtime packages are installed and you can skip the following steps.

If the command returns the message that `vacpp.rte-7.0.0` is not installed, you must install them.

- 2 Go to the IBM Web site at <http://www-1.ibm.com/support/docview.wss?uid=swg24007906>

Follow the instructions to download and install the runtime libraries on your operating system. Select the package that is appropriate for your Linux distribution. For details on different Linux distributions supported and operating system level required, go to the Sybase certification Web site at <http://certification.sybase.com/ucr/search.do>.

- 3 After installing the xlc runtime libraries, verify that `LD_LIBRARY_PATH` is set to include the xlc runtime library path.

3.6 Monitoring and Diagnostic (MDA) tables

The *installmontables* script for installing Monitoring and Diagnostic tables (MDA) has been modified to now use the materialized parameter when defining the MDA proxy tables. This change results in improved performance for many queries using the MDA tables, making it no longer necessary to define a “loopback” remote server in your `syssservers` table in order to use the MDA tables.

Sybase recommends you reinstall the MDA tables using the *installmontables* script contained in this release.

Note No changes are needed to the *installmontables* script unless you plan to use the MDA tables to monitor remote servers.

v **Monitoring remote servers using MDA tables**

Make these changes to use the MDA tables to monitor remote servers:

- 1 Update the *installmontables* script by changing all occurrences of “materialized” to “external procedure.”

- 2 Modify the `at` clause in the proxy table definitions in the *installmontables* script to add the name of the remote server followed by the string `"..."` before the MDA RPC name.
- 3 You can identify MDA RPC names by the `"$"` (dollar sign) preceding the name. The remote server name must be the same as the remote server name as it appears in the *interfaces* file on the server where the MDA tables are installed.

For example, for the `monState` table definition, if your remote server name appearing in the *interfaces* file is `SALESPROD`, change:

```
at "$monState"
to:
at "SALESPROD...$monState"
```

If the remote server has not already been registered with the server on which you are installing the MDA tables, use the `sp_addserver` stored procedure to do so.

When installing the MDA tables in order to reference a remote server as described above, be sure to use the version of the *installmontables* script that came with the version of the Adaptive Server Enterprise installed at the remote server.

Use of the materialized directive has changed the way some error messages from the MDA tables are sent to the client application. If all configuration parameters required by an MDA table used in a query are not enabled, then the client application receives an error message.

4. Special uninstallation instruction

This section describes special uninstallation instructions.

4.1 Multiple Sybase products installed in same `$$SYBASE` directory

If there are other Sybase products installed in the same `$$SYBASE` directory as Adaptive Server that also make use of Sybase Central then if you uninstall Adaptive Server some `.jar` files used by Sybase Central will be removed and “files not found” error messages will be promoted when you attempt to start Sybase Central after the uninstall.

Workaround: After Adaptive Server is uninstalled, re-install other Sybase products to `$$SYBASE` and overwrite the old products.

5. Special upgrade instructions

This section describes special upgrade instructions for Adaptive Server.

5.1 Upgrading using *allows_dss* in parallel

If you are using the configuration option `allows_dss` when upgrading from a 15.0.x version to 15.0.2 in parallel mode, the server may stack trace when the optimizer selects a plan that requires `tempdb`, which has not yet been online.

Workaround: Change configuration from `allows_dss` when rebooting with the new binary. After minor upgrade is complete the server can be returned to its previous configuration.

5.2 Upgrading compiled objects

Sybase recommends that you read “Upgrading compiled objects with `dbcc upgrade_object`” in Chapter 6, “Troubleshooting,” in the *Adaptive Server Installation Guide for Linux*.

5.3 Disabling High Availability during upgrade

When High Availability (HA) is enabled, upgrading the master database in one server (for example, PRIMARY) attempts to apply the same changes to the other server (for example, SECONDARY).

The result is that you cannot upgrade `syspartitionkeys` and `syslices` because those tables do not yet exist. Consequently, the first server that is upgraded cannot upgrade the master database.

The upgrade on the second server succeeds, although you see several warning messages about the privileges not being revoked (message 4622, state 1). When you re-run the upgrade process on the first server, it then succeeds, although it also produces the same messages.

To avoid this problem:

- 1 Disable HA in the *old* secondary server:

```
sp_companion primary-server-name, 'drop'  
sp_configure 'enable HA', 0
```

- 2 Disable HA in the *old* primary server:

```
sp_configure 'enable HA', 0
```

- 3 Restart the servers.
- 4 To perform the upgrade re-run installmaster.
- 5 In the *new* primary and secondary server, enter:

```
sp_configure 'enable HA', 1
<reboot>
```
- 6 Re-run installhasvss on both servers.
- 7 In the *new* secondary server, enter:

```
sp_companion primary-server-name,
configure[, with_proxydb]
```
- 8 Restart both servers.

5.4 Upgrading High Availability and cluster support

Adaptive Server version 15.0.2 supports the following cluster platforms for High Availability:

- HP-UX – MCSG 11.15
- IBM AIX – HACMP 5.2
- Sun Solaris – VCS4.0, SunCluster 3.0/3.1
- Linux – VCS4.0
- Win2000 – Cluster Manager 5.0
- Win2003 – Cluster Manager 5.2

Adaptive Server does not support SunCluster2.2 and VCS1.3/2.0 HA agents on Sun Solaris. If you are using these agents, upgrade the respective cluster versions to configure Adaptive Server 15.0.2 for High Availability on Sun Solaris.

5.4.1 Upgrading the cluster subsystem

You can upgrade the cluster subsystem in two ways:

- Perform a major upgrade, which involves cluster down time, then shutting down and restarting all servers. In this case, you must:
 - a Run `sp_companion suspend`, as described in *Using Sybase Failover in a High Availability System*.

- b Take the resource groups of primary and secondary companions on both nodes offline. Make sure this shuts down both the companion server and corresponding resource groups, and that they are not automatically brought online until the cluster system upgrade is complete.
- c Upgrade the cluster subsystem following the instructions from the cluster system vendor.

You may find options to migrate the current resource groups to the new cluster version. If such an option is not available (or if the resource groups get deleted or corrupted), re-create the resource groups and configure them appropriately after you have upgraded the cluster system.
- d Bring the resource groups online. This should bring primary and secondary companions online on their respective nodes.
- e Run `sp_companion resume` as described in *Using Sybase Failover in a High Availability System*.
- Perform a minor upgrade, which does not involve a cluster downtime. In this case, each node is failed over to another node and upgraded one at a time. Assuming ASE1 is the primary companion on node N1, and ASE2 is secondary companion running on node N2:
 - a Upgrade the primary companion:
 - 1 Fail over ASE1 from N1 to N2. You can achieve this by relocating the primary resource group to N2 or by shutting down ASE1.
 - 2 Upgrade the cluster subsystem on N1 following the upgrade instructions provided by the vendor.
 - 3 Fail back ASE1 from N2 to N1. See the appropriate cluster chapter in *Using Sybase Failover in a High Availability System* for more details on Adaptive Server failback.
 - b Upgrade the secondary companion.
 - If you are using an asymmetric configuration:
 - 1 Take the secondary resource group offline and verify ASE2 is shut down. ASE2 is not available during this upgrade.
 - 2 Upgrade the cluster subsystem on N2 following the upgrade instructions from the vendor.

- 3 Start ASE2 by bringing the secondary resource group online to N2.
- If you are using a symmetric configuration, follow the steps in “upgrade the primary companion,” above, for ASE2.

5.4.2 Upgrading Adaptive Server configured with high availability

The following procedure explains how to upgrade an Adaptive Server configured with High Availability. These upgrade steps are only applicable for major upgrades such as 12.5.x to 15.0.2.

v **Upgrading a High Availability-enabled Adaptive Server in an active-active configuration:**

- 1 Drop the high availability companionship.

- Asymmetric configuration – on the secondary server, use isql:

```
sp_companion <primary-server-name>, "drop"
go
```

- Symmetric configuration – run the same command as above on both servers.

Use isql to verify that both servers are in single-server mode:

```
sp_companion
go
```

- 2 Use the appropriate command for your cluster system to stop monitoring resources associated with Adaptive Server on each cluster node. You may want to offline or unmanage the resources and resource groups on some cluster systems to prevent unwanted failover during the upgrade.

- 3 Log in to the server using isql. Disable HA by entering:

```
sp_configure 'enable HA', 0
go
```

- 4 To complete the change, shut down and restart the Adaptive Server.
- 5 Upgrade each Adaptive Server Enterprise separately, following the instructions in the appropriate upgrade chapter of the installation guide for your platform.
- 6 Run the new Adaptive Server Enterprise installmaster script against the newly upgraded Adaptive Servers.
- 7 Enable the ASE HA property on the new server. Log in to the server using isql and configure the server to enable HA by entering:

```
sp_configure 'enable HA', 1
go
```

- 8 To complete the change, shut down and restart the Adaptive Server.
- 9 Run the new Adaptive Server *installhasvss* script against the newly upgraded Adaptive Servers.
- 10 Follow the instructions in *Using Sybase Failover in a High Availability System* to configure the permission and ownership for *\$\$SYBASE/\$SYBASE_ASE/bin/sybha* and *\$\$SYBASE/\$SYBASE_ASE/install/sybhauser*.
- 11 Modify high-availability related files such as the *RUN_server_file*, and the *SYBASE.csh* and *SYBASE.sh* files, if those files are required on the cluster platform.
- 12 Reconfigure each cluster resource associated with Adaptive Server, depending on platform-specific requirements. For example, on Veritas Cluster, update the *HAase* resource properties, the *RUN_server_file*, and *Sybase_home*.
- 13 Manually restart Adaptive Server on each cluster node using trace flag 2209. Use the Adaptive Server command line option *-T2209*.
- 14 Use the appropriate command for your cluster system to restart monitoring resources associated with Adaptive Server on each cluster node. You may need to online or manage the resources and resource groups if you offlined or unmanaged them in Step 2.
- 15 Reestablish companionship. See *Using Sybase Failover in a High Availability System* for information on how to configure companionship.

For an asymmetric configuration on the secondary server, use *isql*:

```
sp_companion <primary-server-name>, configure
go
```

If user databases exist on the secondary server, you may see one or more warning messages. You can safely ignore these messages, which look similar to:

```
Msg 18739, Level 16, State 1:
Server 'svr2', Procedure 'sp_hacmpcfgvrfy', Line 102:
Database 'svr2_db1': a user database exists. Drop this
database and retry the configuration again.
```

For a symmetric configuration run the `sp_companion` configure command as above on both servers. Use `isql` to verify that both servers are in single-server mode:

```
sp_companion
go
```

Warning! Do not use trace flag 2209 after the Adaptive Server companionship is re-established.

- 16 Use the appropriate cluster command to take offline, then bring back online, each resource group associated with Adaptive Server. Make sure you remove the `-T2209` option from `run_server_file` if added. Onlining and offlining the Adaptive Server resource shuts down the server and restarts it using the `run_server_file`.

Use `isql` to connect to each Adaptive Server Enterprise and verify the correct server companionship:

```
sp_companion
go
```

In asymmetric mode, the output you see on the primary server is similar to the following:

```
Server 'svr1' is alive and cluster configured.
Server 'svr1' is configured for HA services.
Server 'svr1' is currently in 'Primary normal' mode.
(return status = 0)
```

The output you see on the secondary server is similar to the following:

```
Server 'svr2' is alive and cluster configured.
Server 'svr2' is configured for HA services.
Server 'svr2' is currently in 'Secondary normal'
mode.
(return status = 0)
```

In symmetric mode, the output you see on the primary server is similar to the following:

```
Server 'svr1' is alive and cluster configured.
Server 'svr1' is configured for HA services.
Server 'svr1' is currently in 'Symmetric normal'
mode.
(return status = 0)
```

The output you see on the secondary server is similar to the following:

```

Server 'svr2' is alive and cluster configured.
Server 'svr2' is configured for HA services.
Server 'svr2' is currently in 'Symmetric normal'
mode.
(return status = 0)

```

- 17 To verify failover and failback, use the cluster command to switch resources associated with Adaptive Server to another node and then switch back.

v **Upgrading High Availability-enabled Adaptive Servers in an active-passive configuration**

- 1 Use the appropriate cluster system command to take Adaptive Server Enterprise offline.
- 2 Use the appropriate cluster system command to stop monitoring resources associated with Adaptive Server Enterprise.
- 3 Disable the HA on the server by entering:

```

sp_configure 'enable HA', 0
go

```

- 4 To complete the change, shut down and restart the Adaptive Server.
- 5 Follow the steps in the appropriate upgrade chapter of the installation guide for your platform.
- 6 Run the new Adaptive Server *installmaster* script against the newly upgraded Adaptive Server.
- 7 If Adaptive Server is configured for active-passive HA on SunCluster3.x, log in to the server using *isql* and configure the server to enable HA by entering:

```

sp_configure 'enable HA', 2
go

```

If using other cluster systems, make sure 'enable HA' is set to 0.

- 8 To complete the change, shut down and restart the Adaptive Server.
- 9 Modify the high-availability related files such as the *RUN_server_file*, and the *SYBASE.csh* and *SYBASE.sh* files, if those files are required on the cluster platform you are using.
- 10 Use the appropriate cluster system command to reconfigure resource properties to reflect the new Adaptive Server installation location.
- 11 Manually restart Adaptive Server.

- 12 Use the appropriate cluster system command to restart monitoring resource associated with Adaptive Server.
- 13 Use the appropriate cluster command to take resources associated with Adaptive Server offline on the same node, then bring them back online.
- 14 To verify failover and failback, use the cluster command to switch resources associated with Adaptive Server to another node and then switch back.

6. Changes that affect existing applications

Following are changes in Adaptive Server that affect your existing applications.

6.1 Syntax updates for *sysquerymetrics*

insert select statements are supported but not insert value statements. select, delete, and update statements are supported when at least one table is involved and no Component Integration Services (CIS) are involved.

6.2 Merge existing lib config files manually

Merge any existing *libtcl.cfg/libcl64.cfg* manually to *libtcl.cfg*. Before doing so make sure the service provider entry names are unique in the configuration file being used. Make sure a softlink, *libtcl64.cfg* under *\$SYBASE/\$SYBASE_OCS/config* is created and is pointing to *libtcl.cfg*.

6.3 Support for certain traceflags has been removed from Adaptive Server

The traceflags 1630, 1639, and 1649 have been rendered obsolete. Support for these traceflags has been removed from Adaptive Server.

6.4 Direct I/O support

Adaptive Server version 15.0.2 supports directio on Linux platforms.

6.5 Directory changes

Sybase has made the following directory structure changes:

- Adaptive Server Enterprise components are in *ASE-15_0*, and Open Client and Open Server components are in *OCS-15_0*.
- The Job Scheduler component (*JS-12_5* in Adaptive Server version 12.5) is now in the *ASE-15_0/jobscheduler* directory.
- The Web Services offering directory has changed from *WS-12_5* to *WS-15_0*.
- The licensing component (SySAM) is now available in the *SYSAM-2_0* directory.

6.6 Changes to ODBC and OLE DB Driver support

Adaptive Server version 15.0 and later contains new ODBC and OLE DB drivers developed by Sybase. The third-party rebranded ODBC and OLE DB Driver Kits included with previous versions are no longer shipped.

The retired ODBC Driver Kit was installed in *%SYBASE%\ODBC*, and registered with the ODBC Driver Manager as “Sybase ASE ODBC Driver.” The new ASE ODBC Driver by Sybase is installed in *%SYBASE%\DataAccess\ODBC*, and registered as “Adaptive Server Enterprise.” The version shipping with Adaptive Server and SDK 15.0 is version 15.0.2.

The retired OLE DB Driver Kit was installed in *%SYBASE%\OLEDB*, and used the provider short name of “Sybase.ASEOLEDBProvider” and the long name of “Sybase ASE OLE DB Provider.” The new ASE OLE DB Provider by Sybase is installed in *%SYBASE%\DataAccess\OLEDB*, and uses provider short name “ASEOLEDB.” The version shipping with SDK 15.0 is version 15.0.2.

Sybase recommends that you update your ODBC Driver and OLE DB Provider to the new Sybase ODBC Driver and OLE DB Provider as soon as possible. Specifically, you should migrate:

- When upgrading to Adaptive Server Enterprise version 15 or later versions of Adaptive Server Enterprise version 12.5.x
- For older versions of Adaptive Server Enterprise, before July 30, 2007

For your convenience during the migration process, the third-party drivers and providers support connectivity to the 15.x version of Adaptive Server until November 29, 2007. They will not support new features added after Adaptive Server 12.5.3. Patches released after that date will perform a version check, and will not allow connection to Adaptive Server 15.x. This version-check behavior will only be incorporated in patches released after November 30, 2007. If patches released after November 30, 2007 are not applied, the third-party driver and provider can continue to connect to any versions of Adaptive Server available in the market.

See *New Features for Open Server 15.0 and SDK 15.0 for Windows, Linux and UNIX*, for instructions on migrating to the new drivers.

For more information on migrating to the new OLE DB Provider, see *Open Server 15.0, Open Client 15.0 and SDK 15.0* and *New Features Open Server 15.0 and SDK 15.0 for Microsoft Windows, Linux, and UNIX*.

6.7 PC-Client CD

The release of PowerDesigner@Physical Modeling, included on the PC-Client CD with this release, no longer contains the DataDirect ODBC drivers that were previously bundled with the product. The Software Developer Kit (SDK), also included on the PC-Client CD, includes an ODBC Driver for Adaptive Server.

6.8 Changes that affect application behavior

This section discusses changes that affect application behavior.

6.8.1 Long-identifier changes

- Adaptive Server Enterprise now supports long identifiers. There are new limits for the length of object names or identifiers: 255 bytes for regular identifiers, and 253 bytes for delimited identifiers. The new limit applies to most user-defined identifiers including table name, column name, index name and so on. Due to the expanded limits, some system tables (catalogs) and built-in functions have been expanded. For variables, “@” counts as 1 byte, and the allowed name is 254 bytes long.
- Change identifier names with corresponding application changes for binding values. Make sure your application is not binding names of identifiers with only 30 bytes, which was the previous limit. This may cause a variety of unexpected behaviors or error messages.

6.8.2 Query changes

- Some queries may now return general syntax error (message 102) instead of syntax error at line # (message 156).
- The order of result sets in Adaptive Server Enterprise version 15.0.2 differs unless there is an order by clause in the query.
- Query compilation time may increase as the query processing engine looks for more ways to optimize the query.
- See *Query Processor* manual for details about query processing in Adaptive Server Enterprise version 15.0.2.

6.8.3 Component Integration Services changes

- NULL behavior differs in Oracle, ASA, and IQ – you must override ANSI NULL behavior for it to work as in Adaptive Server Enterprise version 15.0.2.
- Adaptive Server Enterprise version 15.0.2 no longer pads char null, varchar, binary null, and varbinary datatypes for proxy tables.
- By default, cursors are READONLY. Declare cursors with for update to update through them.
- You must have an index if you are using updateable cursors.
- Component Integration Services engines no longer take special measures to re-declare cursors for back ends that close cursors on end tran.
- You must declare an explicit begin tran and end tran around cursor statements for DB2 servers.
- If you attempt to create a column constraint on java, text, image, and unitext datatypes, message 11074 is raised.
- create table, create existing table, or create proxy table statements that contain a location clause are restricted to be the only statement in a batch. This also applies to select into statements that contain a location clause.

6.8.4 Error message changes

- Many messages have been changed to specify “ASE” in the error message.
- When creating a temporary table that already exists, Adaptive Server Enterprise raises message 12822, instead of 2714.

- The identity column overflow message is now raised with message 587 instead of 4916.
- When you create a Java function that does not exist in the catalogs, message 14216 is raised instead of syntax error message 195.
- When a non-owner executes `sp_procxmode` to change the transaction mode associated with a stored procedure, error message 10354 is raised.
- Arithmetic overflow errors are now raised with message 3606 with severity 16.
- Message 2579 has been replaced with message 12907 in `dbcc checktable` output.

6.8.5 jConnect version 6.05 ships with Adaptive Server Enterprise

Starting with Adaptive Server version 15.0 only jConnect™ for JDBC™ version 6.05 is shipped. If you have applications that are dependent on jConnect 5.5, Sybase recommends you either migrate those applications to jConnect 6.0 or use an existing jConnect 5.5 release area.

6.8.6 SQL Remote no longer ships on the PC-Client CD

SQL Remote has been replaced with a more flexible and powerful technology called MobiLink that provides bidirectional synchronization between ASA/UltraLite clients and various back-end databases, including Adaptive Server Enterprise. Download the developer edition of MobiLink at <http://www.ianywhere.com/developeredition>.

6.8.7 Table changes

- `sysindexes` has the following new columns:
 - `partitiontype`
 - `conditionid`
 - `status3`
- The following `sysindexes` columns are now maintained in `syspartitions`:
 - `doampg`
 - `ioampg`
 - `first`

- root

These columns display 0 after you upgrade. The base_partition column is now obsolete and displays 0 after you upgrade.

- The syspartitions table is renamed to syslices during the upgrade process, then the new table is empty and unused.
- syscomments gains a new column called partitionid.
- systabstats gains the following new columns:
 - partitionid
 - plldegree
 - statmoddate
- The systabstats columns spare2 and spare4 have been replaced with:
 - pioclmdata
 - pioclmindex
 - piocsmdata
 - piocsmindex
- The following columns in systabstats have been renamed:
 - spare5 has been renamed to warmcachepgcnt
- sysstatistics gains a new column called partitionid.
- There is a new type of object called a partition condition object, which has a row in sysobjects. A partition condition object is the representation of a tree for the partition table boundary conditions. The tree is stored in sysprocedures.
- sysobjects has the following new columns:
 - identburnmax
 - spacestate
 - erlchgts
- sysstatistics stores the data change counters with formatid=108. The space required by sysstatistics increases due to the additional rows stored.
- sysoptions is a new fake system table has the following columns:
 - spid

- scope
- name
- category
- currentsetting
- defaultsetting
- no indexes
- sysattribute has the following new classes:
 - password security class=14
 - password downgrade clas=31
 - password complexity checks class=27
 - login policy class class=32
 - Archive Database Access class=28
- The length of systypes has been modified to maxpagesize for the following datatypes: char, varchar, binary, varbinary, nchar, nvarchar, unichar and univarchar.
- syslogins changes include:
 - password – maximum length changed from 30 to 128.
 - The following new columns:
 - lastlogindate
 - crdate
 - locksuid
 - lockreason
 - lockdate
- Most system catalogs have been converted to the datarows-locking scheme. However, in Adaptive Server 15.0.2 these table locks are now shared or EX-intent locks to allow more concurrency. The row locking of the system catalogs can require an increase in the configuration parameter number of locks, depending on the DDLs in the application.
- The system catalogs converted to the datarows-locking scheme do not have a clustered index with indid equal to 1. The clustered indexes now have index ID greater than or equal to 2.

- `sysssrvroles` password length has changed from 30 to 128.

6.9 Changes that affect database administration operations

This section discusses changes that affect database administration operations.

6.9.1 Usage of system built-in functions

Built-in functions that provide space information, such as `data_pgs`, `reserved_pgs`, `used_pgs`, `ptn_data_pgs`, and `rowcnt` have been replaced with `data_pages`, `reserved_pages`, `used_pages`, and `row_count`, respectively. See *Reference Manual: Building Blocks* for detailed information.

6.9.2 DDL and DML changes

- `alter table... unpartition` is not allowed on tables with indexes (use `alter table` with 1 partition to remove the partitions).
- `alter table` on a partitioned table with `max parallel degree` less than the number of partitions may succeed without raising message 326.
- Creating a clustered index on an empty partitioned table returns a new informational message, 1936.
- null column names are not allowed during view creation.
- A select statement that contains an aggregate selection from a proxy table which is mapped to an RPC with a parameter fails with error 201.

6.9.3 System stored procedure changes

- The output of `sp_help object` has been changed. Specifically, `Data_Located_on_segment` has been removed, while `Computed_Column_Object` and information related to partitions have been added.
- The order of `index_keys` and `index_description` in the output of `sp_helpindex` has been changed.
- Major changes have been made to the output of `sp_helppartition` and `sp_helpsegment`.
- `sp_who` returns “NULL” instead of blank in the `hostname` column for all system tasks.

- `sp_objectsegment` now displays segment information for all partitions of the table.
- `sp_lock` output has a new column called `partitionid`, that currently has a value of 0, and is reserved for future use.
- `sp_monitorconfig` now accepts number of open partitions. When this procedure is executed with the parameter `all`, additional output for configuration parameter number of open partitions is displayed.
- The Metadata Cache Management section of `sp_sysmon` displays additional information pertaining to open partitions.

6.9.4 Common diagnostics changes including trace flag usage

- `dbcc listoam` output has changed substantially.
- The space state message printed in the old `dbcc listoam` output is now available as a new column `spacestate` in `sysobjects`.
- `dbcc tablealloc` output has changed.
- `dbcc checktable` output on a partitioned table has been changed to provide partition-level information.
- `dbcc checktable/tablealloc/indexalloc` has new syntax for partition support.
- Output for this command has changed:
`REORG RECLAIM_SPACE <tablename> with RESUME`
- `reorg rebuild` fails with message 11051 when table is in use by other tasks.
- Output of `sp_dbcc_faultreport` has been enhanced to show partition ID information.
- The `hostname`, `program_name`, `hostprocess`, and `cmd` columns in `sysprocesses` have been changed to `varchar(30)` and made nullable. `select from sysprocesses` returns `NULL` for these columns instead of space for system tasks.
- The “first” column in `sysindexes` has been moved to the “firstpage” column in `syspartitions`.
- The `name` column in `syspartitions` has been changed from `index_name+_+tableid` to `index_name+_+ptn_id` for partition table with indexes.
- The basic cost of the optimizer now includes CPU cost.

- Parallel costing is now performed only on base tables and indexes that are larger than 20 pages.
- For information about trace flags and diagnostics, see the *Query Processor* document.

6.9.5 System resource changes

- Adaptive Server version 15.0.2 uses more procedure cache for several reasons, including:
 - The query processing engine now looks for additional ways to optimize the query.
 - The execution engine avoids materialization of worktables and evaluates aggregations in memory as much as possible.
 - The data change counters maintained for the `datachange()` function allocate memory from procedure cache. The partition condition tree is cached in the procedure cache. Partition boundary values are allocated in the procedure cache, resulting in a required increase in procedure cache resources.
- A configuration parameter, `max repartition degree`, has been added. This parameter controls the maximum degree to which an intermediate data stream can be repartitioned. The default value of this parameter is 1, which indicates that repartitioning is not set and is bound by the number of online engines configured for Adaptive Server Enterprise. For a query with a large number of tables, Adaptive Server Enterprise version 15.0.2 can put an increased demand on auxiliary scan descriptors.

Set the value of `max repartition degree` to a value lower than the number of engines to decrease resource usage. You may also need to configure a larger value for the auxiliary scan descriptor pool.
- Adaptive Server Enterprise version 15.0.2 avoids worktable materialization and incurs more resources in auxiliary scan descriptors.
- During the upgrade process, `max memory` is increased by Adaptive Server Enterprise if the new total logical memory is greater than `max memory`. The new value of `max memory` is set to the new value of total logical memory.
- During the upgrade process, number of open partitions is set to the same value as number of open indexes, resulting in increased memory usage. An open partition requires approximately 950 bytes.

6.9.6 Unpartitioning of user tables during upgrade

In version 15.0, each table partition must have a different partitionid. To avoid the expense of changing the partitionid for each page during the upgrade process, Adaptive Server Enterprise unpartitions any partitioned tables. Repartition these tables when the upgrade process completes.

6.9.7 Space management changes

- System databases have increased in size by 2 allocation units. The master database has increased in size by 14 allocation units. The default user database size has increased by 2 allocation units.
- The upgrade process requires free space to convert system catalogs to the datarows-locking scheme. The typical requirement for free space is 125 percent of the largest system catalog. If you are upgrading from a 32-bit to 64-bit binary, additional space of 55 percent of sysprocedures is required.

6.9.8 Changes to transaction dump content

You can load a transaction dump from Adaptive Server Enterprise version 11.9.2, 12.0x, or 12.5x over a database dump or transaction dump that has preceded it in the load sequence.

However, if that transaction dump contains a create index transaction, then load transaction recovery treats that transaction's sort record as the end of the log. Adaptive Server Enterprise does not process any more log records in that transaction, and does not allow load transaction dumps in the load sequence. This message prints:

```
The pre-15.0 log for database '%.*s' includes a create
index incompatible with this server version and
operating environment. Only transactions completed
before create index will be recovered.
```

This behavior is much like the point-in-time recovery that is affected by the load transaction until_time option.

In contrast, Adaptive Server Enterprise should successfully load any database dump from one of the earlier versions, regardless of its content.

There is no content limitation in load database or load transaction when using a dump from a version 15.0.2 Adaptive Server Enterprise.

6.10 Open Client and Open Server changes

For information about changes that affect Open Client and Open Server, see the most recent release bulletins for these products at the Sybase Web site at <http://sybooks.sybase.com>.

7. Known problems

This section describes known problems and workarounds for Adaptive Server Enterprise.

Note Sybase no longer includes System Problem Reports (SPR) and Closed Problem Reports (CPR) with your copy of Adaptive Server Enterprise. Known problems, which used to be in the SPR, are now described in this section of the release bulletin. Closed issues that were documented in the CPR are now searchable from Solved Cases at the Sybase Web site at <http://www.sybase.com>. To access the Solved Cases search form, click Support and Services | Solved Cases.

7.1 Column join issue with no case sort order and others

[CR# 468692] If you have two columns joined and one column has lower case and the other upper case only one copy will be returned.

Workaround: There is no workaround for this issue.

7.2 Syntax error for Queries containing certain clauses

[CR# 467548] Queries containing 'order by' or 'group by' clauses may run into a syntax error if the column name follows the 'order by' or 'group by' is 'range', 'list', 'hash', or 'roundrobin'.

Workaround: Add '()' around the column name following 'order by' or 'group by'.

7.3 Error 15432

[CR# 470177] Error 15432 may appear incorrectly in the following scenerios.

Scenario 1: When data is encrypted using a key with one or more key copies. The encrypted data is accessed through a stored procedure by two users. One user has access to the data through the base key and the other user has access through a key copy.

Workaround: The user who has access to data through the base key should always execute the procedure with the recompile option.

Scenario 2: When encrypted data is accessed through a stored procedure and the password on the base key is changed between consecutive executions of the procedure.

Workaround: Execute the stored procedure with recompile once after the base key's password has been modified. Subsequent executions of the stored procedure do not require recompile.

7.4 Source code text in syscomments corruption

[CR# 470100] If there are spaces before the create procedure keywords in a batch, the procedure source code text in syscomments may be corrupted. The first execution of these procedures after upgrade has marked them for recompilation, will generate a syntax error.

Workaround: If the execution generates a syntax error, re-create that procedure manually.

7.5 Error 2708

[CR# 469665] If you run update all statistics on syslogins in Adaptive Server 15.0.2, when you downgrade to a pre-15.0.2 Adaptive Server, queries selecting data from syslogins may encounter a 2708 error. This is due to the column length changes in the password field.

Workaround: Before running sp_downgrade on Adaptive Server 15.0.2 , execute the two commands delete statistics master..sysrvroles(password) and delete statistics master..syslogins(password) to remove statistics for password columns.

7.6 syconfig cannot execute preupgrade

[CR# 470078]. If your current server is installed into a different folder than the new server then environment variable path could near the maximum length. If it does syconfig cannot execute preupgrade.

Workaround: You must set the 15.0.2 path and run syconfig.

7.7 Deallocated sysindexes page is deleted

[CR# 469970] Since the sysindexes page is deallocated the pages are not flushed at the time the read from disk is read so deleted information is lost.

Workaround: There is no workaround for this issue.

7.8 Maximum password length for Adaptive Server

[CR# 471287] When a new login is created with a password longer than 30 characters, a warning is shown to indicate only the first 30 characters will be used for the password. However, using just the first 30 characters at connection time results in authentication failure.

Workaround: Only set passwords that are 30 characters or less. Reset any long password using `sp_password` to a password that is only 30 characters.

7.9 Password error message with encrypted columns key with user password

[CR #465538] If a table has more than one column encrypted with same key protected by a user password and one of the columns is decrypted using alter table after setting password for that column, it results in error that the user password has not been set.

Workaround: Set encryption password to specify the key instead of the column.

7.10 Owner of a key copy can be made the new owner of the key

[CR #465967] A user who already has a copy of a key can be made the new owner of the key in violation of the restriction that a key owner may not have a key copy.

Workaround: The new owner should drop their key copy.

Workaround 2: The original key owner should drop any key copies held by the user to whom key ownership is being transferred.

7.11 Wrong error message or no error message with set encryption password

[CR #465509] When set encryption password statement sets a password for a key which is encrypted with system encryption password, no error is given.

Workaround: When set encryption password statement specifies a column which is not encrypted, error 15424 is given wrongly.

7.12 sp_engine fails under certain circumstances

[CR# 465765] Circumstance 1: If you have only enabled one option of 'enable real time messaging' Adaptive Server will boot successfully but when you try to online an engine the attempt will fail.

Workaround: Disable 'enable real time messaging' then reboot Adaptive Server before attempting to online an engine.

Circumstance 2: If 'enable java' is set to 1 in the *config* file and its license is expired, after Adaptive Server is booted successfully, the attempt to online an engine will fail.

Workaround: Shutdown Adaptive Server. Modify the Adaptive Server *config* file to set 'enable java' as 0. Then reboot Adaptive Server and this time online an engine succeeds.

7.13 Stack trace may be reported when using XML features

[CR# 464192] In some circumstances the message “current process infected with 11” together with a stack trace that includes the modules “fdpr_glue_tramp_alighn_fdpr”, “conn_hdlr_fdpr” may be reported when using XML features on IBM Linux Pseries platforms.

Workaround: There is no workaround for this issue.

7.14 Sybase Central ASE Plug-in failure

[CR# 453227] Sybase Central ASE Plug-in sometimes will fail to connect to an Adaptive Server that has just been configured by ASE Plug-in to use SSL for connections, with the following error:

```
java.sql.SQLException: JZ006:  
Caught IO  
Exception:javax.net.ssl.SSLHandshakeException:  
sun.security.validator.ValidatorException:  
Certificate signature validation failed
```

Workaround: Exit Sybase Central and open it again. Afterwards, ASE Plug-in will connect to the Adaptive Server using SSL.

7.15 Connection deadlock with two or more concurrent connections and LDAP authentication

[CR# 451821] A deadlock can occur while establishing a new connection resulting in the termination of a connection. This can occur when two or more connections from a multi-threaded client application to the same login account are attempted concurrently and LDAP User Authentication is used to authenticate the connections

Workaround: There is no workaround for this issue.

7.16 Creating Job Scheduler schedules for Adaptive Server with Simplified Chinese

[CR# 439404] When you attempt to create a Job Scheduler schedule using the Adaptive Server plug-in for an Adaptive Server localized for Simplified Chinese, you occasionally receive an error indicating that the varchar datatype can not be converted to a date.

Workaround: Localize Adaptive Server for Simplified Chinese before configuring Job Scheduler.

7.17 Configuring Job Scheduler Self Management for Simplified Chinese

[CR# 439406] When you configure the Job Scheduler Self Management feature for an Adaptive Server localized for Simplified Chinese, you occasionally receive an error saying that a varchar datatype can not be converted to a date. The Job Scheduler configuration process stops at this point.

Workaround: Do not configure the Self Management feature for Simplified Chinese.

7.18 Installing an ESD overlay with Unified Agent

[CR #427275] The ESD overlay installations file do not replace the Unified Agent's *ARL.xml* file. As a result, any developer updates or changes to *ARL.xml* are not available.

Workaround: Rename the old *ARL.xml* before you run the installer.

7.19 Using SYBASE_LICENSE_FILE

[CR #438342] On Linux AMD 64-bit platforms, if you use the SYBASE_LICENSE_FILE environment variable during start-up, Adaptive Server fails to start.

Workaround: Copy the licenses or create pointer licenses in the default license directory.

7.20 Highlighted known installation issues

This section contains information about known installation problems and their workarounds.

Warning! If you have multiple Sybase products installed in the same \$SYBASE directory, uninstalling one of them *may* make the other products inoperable. If this happens, you may need to reinstall those remaining products.

7.20.1 Installing correct fonts when displaying Chinese characters

[CR# 434986, 440097] If the fonts installed on your target machine did not match the default font configuration in *font.properties*, the InstallShield GUI interface and Sybase Central do not display Chinese characters properly.

Workaround: Set the *font.properties* file manually for the precise language and platform you are using. To set the *font.properties* file manually:

- 1 Check whether the locale is set correctly into Chinese (using the locale command to see the correct locale information). If not, set locale to Chinese.
- 2 Check whether the Chinese fonts are installed correctly. If not, reinstall them.
- 3 Select one available Chinese font you want to use to display Chinese characters. Remember the name and the absolute path of the font's file.
- 4 Go to the directory where you execute the setup program to install Adaptive Server. Go into the subdirectory *JVM\lib*.

Look for the *font.properties.zh_CN.<platform>* file for your platform. For example, if your platform is SuSE 9.0, look for *font.properties.zh_CN.SuSE* or *font.properties.zh_CN.SuSE9.0*. If the file does not exist, create it.

- 5 Open *font.properties.zh_CN.<platform>*, and configure the file content correctly. The following two links should be shown to customers. For information about the format of the font.properties file, see the Sun Web site at <http://java.sun.com/j2se/1.4.2/docs/guide/intl/fontprop.html>. For information about how to configure the font.properties files, see the Sun Web site at <http://java.sun.com/j2se/corejava/intl/reference/faqs/index.html>

7.20.2 Formatting the options file during a silent installation

[CR #437646] When you run the Installer to generate an options file for the silent installation, a series of formatting error messages display.

Workaround: You can safely ignore these error messages. An accurate options file has been generated.

7.20.3 Installing Adaptive Server 15.0.2 on top of Workspace

[CR#468836] If Adaptive Server is installed on top of Workspace the EAServer and Security Manager plug-ins no longer show in Sybase Central.

Workaround: Re-register these plug-ins manually.

[CR#468836] When Adaptive Server is installed on top of Workspace two Start menu items are created for Sybase Central. Start | Programs | Sybase | Sybase Central v4.3 is created by Adaptive Server. The other Start | Programs | Sybase | Sybase Workspace | EAServer 5.3 | EAServer Manager is created by Workspace. The menu item created by Workspace will produce a “JRE not found” error message when started.

Workaround: Edit the target and “Start in” directory for this short cut to match the values from the menu item created by Adaptive Server.

7.20.4 EAServer manager and Security manager

[CR #400839] The Adaptive Server Enterprise Sybase Central 15.0.2 install overwrites the EAServer Manager and the Security Manager. When you cannot access the EAServer Manager you cannot access Jaguar Manager.

Workaround: Copy the information about EAServer Manager and Security Manager from file *C:\Sybase\WorkSpace\DevRuntimes\Shared\Sybase Central 4.3\scRepository* to the end of file *C:\sybase\Shared\Sybase Central 4.3\scRepository*, save it. You must restart EAServer Manager.

7.21 Running on RH3.0 64-bit distribution occasionally stops responding

Due to a Red Hat 3.0 update 3 anomaly, Adaptive Server Enterprise occasionally stops responding when kernel asynchronous I/O is enabled. When this happens, Adaptive Server Enterprise generally displays a high CPU load—approximately 99%—without I/O. Adaptive Server Enterprise can still accept connections, but cannot recover; you must restart the system to clear the process.

This problem has been reported to Red Hat and addressed in kernel 2.4.21-27.6.EL.

For more information, see the Red Hat Web site at https://bugzilla.redhat.com/bugzilla/show_bug.cgi?id=138905.

7.22 Interactive SQL and Adaptive Server Enterprise plug-in issues

This section discusses Interactive SQL and Adaptive Server Enterprise plug-in issues and their workarounds.

7.22.1 Opening XML files with Interactive SQL

[CR #400825] Interactive SQL displays a stack trace when you open an XML file.

Workaround: There is no workaround for this issue.

7.22.2 Connecting Adaptive Server Enterprise plug-in to RepConnector

[CR #400709] The Adaptive Server Enterprise plug-in cannot connect to Adaptive Server Enterprise if RepConnector™ 2.5 and the Adaptive Server Enterprise plug-in 15.0.2 are installed in the same *\$\$SYBASE* location.

Workaround: Install RepConnector and the Adaptive Server Enterprise plug-in into different *\$\$SYBASE* directories.

7.22.3 Query support in Interactive SQL

[CR #398435] Interactive SQL does not support queries with a compute clause.

Workaround: Use *isql* from the command line instead.

7.23 Monitor GUI does not start when the LDAP server is used

[CR #400784] When you start the Monitor Client GUI in an environment using LDAP instead of an *interfaces* file, the Monitor Client GUI cannot connect to any servers.

Workaround: Create an *interfaces* file with entries for the servers that are monitored and use this with the Monitor Client GUI.

7.24 allow backward scan does not work

[CR #401543] There is a defect. The configuration parameter allow backward scan does not work in Adaptive Server.

Workaround: If you are encountering increased deadlocks while executing backward scans, separate problematic scans:

- 1 Select the required rows into a temporary table in ascending order.
- 2 Select from the temporary table in descending order.

7.25 set statistics io does not display I/O generated by worker processes

[CR# 433611] After executing a parallel query, displays only show the alpha thread scan, and logical and physical I/O counts. set statistics io does not display I/O counts generated by worker processes.

Workaround: Use set statistics plancost on to display the I/O counts from alpha thread scan and any child threads in a graphical format.

7.26 Replication Server compatibility issues

[CR #382874] rs_init in Replication Server version 12.6 and earlier cannot create an RSSD database in Adaptive Server Enterprise version 15.0.2.

Workaround: Create the RSSD database manually before using rs_init to create a new Replication Server if you do not use an Embedded RSSD. See the *Replication Server Administration Guide* for additional information.

7.27 Blank spaces in an ldap server entry

[CR #333307] If you have a blank space after your ldap server entry, dscp defaults to using the *interfaces* driver and does not connect to an ldap server.

Workaround: To use dscp to make an entry into an ldap server, enable ldap by editing the `$SYBASE/OCS-15_0/config/libtcl.cfg` file to add the ldap server you plan to use.

7.28 Handling multibyte character sets during migration

[CR #353079] If you configure multibyte character sets after migrating data from system catalogs `sysattributes` and `sysxtypes`, the text columns in these catalogs are inconsistent with the multibyte character sets.

Workaround: Manually run `dbcc fix_text` on `sysattributes` and `sysxtypes` to make the text columns consistent with the multibyte character sets.

7.29 Sybase Central

[CR #428292] Using the Adaptive Server Plug-in with an older Sybase Central release results in “SybPasswordField not found” stack trace.

Workaround: Update the existing Sybase Central version, or install Sybase Central in a new location.

7.30 File names

[CR #416569] When updating the filename column of a proxy table mapped to a directory of files, Sybase recommends that you qualify the update to specific files by having the filename included in the `where` clause of the update. Since some file systems may implement a rename as a deletion followed by the creation of a new directory entry, the same filename could be updated multiple times if the update were not restricted.

For example, this statement could cause multiple updates:

```
update t1 set filename=filename + 'old' where filetype
= 'REG'
```

Workaround: Add a clause such as `'and filename like '%.c' .`

7.31 *sp_configure current audit table*

[CR #431802] The following stored procedure does not generate an error if the audit table is not empty and the previous and current audit table numbers are the same:

```
sp_configure 'current audit table' <number>
```

You see an informational message:

```
18932, "Resulting configuration value and memory use
have not changed from previous values: new configuration
value %1!, previous %2!."
```

8. Product compatibilities

This section lists the Sybase components that are compatible with Adaptive Server Enterprise version 15.0.2. For information about operating system requirements, see individual component documentation.

Note The DirectConnect for Informix, DirectConnect for Microsoft SQL Server, and DirectConnect for DB2 UDB do not support LDAP.

The following components have been tested for compatibility with Adaptive Server Enterprise version 15.0.2:

- Sybase Character Sets 3.0
- Sybase Central viewer 4.3
- ECDA option for ODBC 12.6x
- ECDA option for Informix 12.6x
- MainframeConnect DirectConnect for z/OS 12.6x
- ECDA option for Oracle 12.6x
- ECDA option for Microsoft SQL Server 12.6x
- ECDA option for DB2 Universal Database 12.6x
- OpenSwitch 12.5, OpenSwitch 12.5.1, ESD #2

Note OpenSwitch 12.5 does not support SSL.

- jConnect for JDBC 5.5
- jConnect for JDBC 6.05
- Open Server™ 12.5.1
- Open ServerConnect™ (CICS, IMS/MVS) 4.0
- Open ClientConnect™ (CICS, IMS/MVS) 4.0

- InfoMaker™ 7.0.3
- Replication Server® 12.6
- PhysicalArchitect™ 8.0
- XA-Library™ for CICS/ENCINA/Tuxedo 12.5.1
- PowerTransfer
- ADO.NET 1.15.x Windows x86 32-bit
- ADO.NET 1.1x Windows x86 32-bit
- ASE ODBC Driver by Sybase 12.5.x Window x86 32-bit
- ASE ODBC Driver by Sybase 15.0.x Window x86 32bit and x64 64-bit
- ASE OLE DB Provider by Sybase 12.5.x Windows x86 32-bit
- ASE OLE DB Provider by Sybase 15.x Windows x86 32-bit and x64 64-bit
- ASE ODBC Driver by Sybase Linux x86 32-bit

8.1 Adaptive Server interoperability

The following tables show the interoperability of Adaptive Server version 15.0.2 against other Sybase products across different platforms and versions, as well as client products. For specific platform or operating system level information, perform a search at the Sybase Certification Web page at <http://certification.sybase.com/ucr/search.do> for the appropriate platform certification.

Note 1 Even though two or more products might be interoperable, features introduced in a newer version of a product are not likely to be supported with older versions of the same or other products.

Note 2 Interoperability between big-endian and little-endian platforms has also been verified. Windows and Linux-32 platforms are little-endian. IBM AIX, Sun Solaris, Linux on Power, and HP-UX are big-endian platforms.

Table 1: Adaptive Server version 15.0.x interoperability with other products

Platforms		OC/OS 12.0x	OC/OS 12.5X	OC/OS 15.0X	jConnect 5.5	jConnect 6.0.x	ASE ODBC by Sybase 12.5x	ASE ODBC by Sybase 15.0x	ASE OLEDB by Sybase 12.5x	ASE OLEDB by Sybase 15.0x	ADO.NET 1.1x	OEM ODBC Driver Kit 5.00.0096	OEM OLEDB Driver Kit 2.70.0063	Replication Server 12.6	Replication Server 15.0.x
AIX	32-bit	X	X	X	X	X	X	X	X	X	X	+	+	X	X
	64-bit	X	X	X	X	X	X	X	X	X	X	+	+	X	X
HP-UX	32-bit	X	X	X	X	X	X	X	X	X	X	+	+	X	X
	64-bit	X	X	X	X	X	X	X	X	X	X	+	+	X	X
	IA 64-bit	X	X	X	X	X	X	X	X	X	X	+	+	X	X
Linux	x86 32-bit	X	X	X	X	X	X	X	X	X	X	+	+	X	X
	Pseries 64-bit	X	X	X	X	X	X	X	X	X	X	+	+	X	X
	x64 64-bit	X	X	X	X	X	X	X	X	X	X	+	+	X	X
	IA 64-bit	X	X	X	X	X	X	X	X	X	X	+	+	X	X
Solaris	32-bit	X	X	X	X	X	X	X	X	X	X	+	+	X	X
	64-bit	X	X	X	X	X	X	X	X	X	X	+	+	X	X
Windows	x86 32-bit	X	X	X	X	X	X	X	X	X	X	+	+	X	X
	x86 64-bit	X	X	X	X	X	X	X	X	X	X	+	+	X	X

+ Available until November 2007. See "Changes to ODBC and OLE DB Driver support" on page 18 for details.

Table 2 shows the supported platforms of client products listed in Table 1.

Table 2: Supported client platforms

Client name	Version	Supported platform	
Open Client/Open Server	12.0.x	<ul style="list-style-type: none"> • AIX 32-bit • HP-UX 32-bit • Solaris 32-bit 	<ul style="list-style-type: none"> • TruUNIX (Alpha) 64-bit • Windows x86 32-bit • Windows x64 64-bit
	12.5.x	<ul style="list-style-type: none"> • AIX 32-bit • AIX 64-bit • HP-UX 32-bit • HP-UX 64-bit • HP-UX IA 32-bit • HP-UX IA 64-bit • Linux x86 32-bit • Linux Pseries 32-bit • Linux Pseries 64-bit • Linux x64 32-bit • Linux x64 64-bit • Linux IA 64-bit 	<ul style="list-style-type: none"> • Mac OSX 64-bit • SGI 32-bit • SGI 64-bit • Solaris 32-bit • Solaris 64-bit • Solaris x86 32-bit • Solaris Opteron 64bit • TruUnix (Alpha) 64-bit • Windows x86 32-bit
	15.0.x	<ul style="list-style-type: none"> • AIX 32-bit • AIX 64-bit • HP-UX 32-bit • HP-UX 64-bit • HP-UX IA 32-bit • HP-UX IA 64-bit • Linux x86 32-bit • Linux x64 32-bit • Linux x64 64-bit • Linux Pseries 32-bit • Linux Pseries 64-bit 	<ul style="list-style-type: none"> • Solaris 32-bit • Solaris 64-bit • Solaris Opteron 32-bit • Solaris Opteron 64-bit • Windows x86 32-bit • Windows x64 64-bit
jConnect	5.5	<ul style="list-style-type: none"> • All 	
	6.0x	<ul style="list-style-type: none"> • All 	
ASE ODBC by Sybase	12.5.x	<ul style="list-style-type: none"> • Linux x86 32-bit • Linux x64 32-bit • Mac OSX 32-bit 	<ul style="list-style-type: none"> • Windows x86 32-bit • Windows x64 64-bit
	15.0.x	<ul style="list-style-type: none"> • Linux x86 32-bit • Linux x64 32-bit 	<ul style="list-style-type: none"> • Windows x86 32-bit • Windows x64 32-bit • Windows x64 64-bit

Client name	Version	Supported platform
ASE OLEDB by Sybase	12.5.x	<ul style="list-style-type: none"> Windows x86 32-bit Windows x64 32-bit
	15.x	<ul style="list-style-type: none"> Windows x86 32-bit Windows x64 32-bit
ADO.NET	1.1.x	<ul style="list-style-type: none"> Windows x86 32-bit Windows x64 32-bit
OEM ODBC Driver Kit	5.00.0096	<ul style="list-style-type: none"> Windows x86 32-bit
OEM OLEDB Driver Kit	2.70.0063	<ul style="list-style-type: none"> Windows x86 32-bit
Replication Server	12.6	<ul style="list-style-type: none"> AIX 32-bit HP UX 32-bit HP UX IA 32-bit Linux x86 32-bit Linux x64 32-bit Mac OSX 32-bit SGI 32-bit Solaris 32-bit TruUnix (Alpha) 64-bit Windows x86 32-bit
	15.0.x	<ul style="list-style-type: none"> AIX 32-bit HPUX 32-bit HPUX IA 32-bit Linux x86 32-bit Linux x64 32-bit Solaris 32-bit Windows x86 32-bit

8.2 Adaptive Server Replicator 15.0 support of Adaptive Server Enterprise 15.0.2 datatypes

Adaptive Server Replicator 15.0 does not support large identifiers, or these datatypes that are supported in Adaptive Server Enterprise version 15.0.2: bigint, unsigned bigint, unsigned int, unsigned smallint, unitext, computed columns, XML, and encrypted columns.

8.3 Known compatibility issues

This section discusses known compatibility issues.

8.3.1 Password compatibility with Replicator Server

The new 15.0.2 master device can only replicate to other 15.0.2 installations and not to 15.0.1 or other upgraded 15.x installations.

8.3.2 Installing Enterprise Connect Data Access (ECDA) or MainframeConnect DirectConnect for z/OS with other Sybase software

Sybase strongly recommends you install the ECDA DirectConnect option or MainframeConnect DirectConnect for z/OS, including DirectConnect Manager, into its own product directory.

8.3.3 jConnect 6.0 and *sqldbg*

Due to missing components in jConnect 6.0, *sqldbg* does not run correctly if you select a “Typical” installation. If you plan on using *sqldbg*, select the “Full” installation option to install jConnect6.0.

8.3.4 Installing Replication Server with other Sybase software

Sybase strongly recommends that you install Replication Server, including Replication Server Manager (RSM), in its own product directory, separate from other Sybase products.

8.3.5 Using Job Scheduler templates

Sybase recommends that you upgrade to the Job Scheduler templates provided with Adaptive Server Enterprise 15.0.2. The templates contain important changes in support of new functionality, and use new functions `reserved_pages` and `data_pages`. For information on upgrading the templates, see Chapter 5, “Upgrading Adaptive Server,” in the installation guide for your platform.

Note If you have existing jobs created from templates delivered with a pre-15.0 Adaptive Server Enterprise, see the 15.0 release bulletin for your platform and follow the upgrade steps there for the Job Scheduler templates. Then you can upgrade Job Scheduler templates as explained above.

8.3.6 Copy menu

Job scheduler context menus are nonstandard. The options on the Copy menu do not copy to the clipboard, but create new objects in `sybmgmtdb`.

Edit | Duplicate As is identical to the Copy command.

9. Documentation updates and clarifications

This section describes updates and clarifications for Adaptive Server Enterprise documentation.

9.1 *System Administration Guide*

This section discusses updates and clarifications to *System Administration Guide*.

9.1.1 'o/s File Descriptors' Summary and Information

The *System Administration Guide* lacks clarification on the behavior of configuration parameter 'o/s file descriptors'. By default Adaptive Server uses just under 2000 max o/s file descriptors. Then Adaptive Server dynamically increases its usage of o/s file descriptors from the @@max_connections setting up to the max configured value allowed by the o/s upon startup. This number does not decrease though. To process DBA's request to increase @@max_connections setting, Adaptive Server first check the o/s max setting.

9.1.2 '@@max_connections' stored number of file descriptors

The *System Administration Guide* needs to be updated in light of recent changes in code. The number of maximum connections that the file descriptors configuration allows can be higher than the number of maximum connections stored in @@max_connections. The number can dynamically increase with an increase in connections, however at startup it will default back to the previous stored number in @@max_connections.

9.1.3 enable metrics capture

The *System Administration Guide* contains incorrect summary information for 'enable metrics capture'. The correct information is captured below:

Summary information	
Default value	0
Range of values	1 (enabled), 0 (disabled)
Status	Dynamic
Display level	Intermediate
Required role	System Administrator
Configuration group	SQL Server Administration

9.2 Transact SQL User's Guide

Add the following to the "Overview" section of the "Partitioning Tables and Indexes" chapter of the *Transact SQL User's Guide*.

9.2.1 Range-partitioned tables and sort order change

If you change the sort order, Adaptive Server marks range-partitioned tables with character-based partition keys as "suspect" in sysindexes. These restrictions apply when you run commands on tables that are marked suspect:

- You cannot run DML commands or use cursors with partitions marked “suspect.”
- You can run commands like `select` on tables marked “suspect,” but the query processor treats these tables as round-robin partitioned tables, so optimizations using partition conditions such as “partition pruning” do not apply.
- The only `alter table` command you can run on partitions marked suspect is `alter table...repartition`.
- You cannot create index on | from or drop index on | from on tables marked with suspect partitions.
- You can fix tables with suspect partitions using:
 - `alter table...repartition` – if you need to change the partition condition after a sort order change, or
 - `reorg rebuild` – if you know the partition condition is correct.

When a table is marked as having suspect partitions and suspect indexes, you can run `alter table...repartition` or `reorg rebuild` to fix the partition and the index.

9.3 Reference Manual: Building Blocks

This section discusses updates and clarifications to *Reference Manual: Building Blocks*.

9.3.1 Corrections to global variables

Chapter 3, “Global Variables,” includes the following global variables, which return the values in ticks, but were described erroneously as returning the values in seconds. Replace the descriptions in the chapter with the following text:

- `@@idle` – returns the amount of time, in ticks, that Adaptive Server has been idle since it was last started.
- `@@cpu_busy` – returns the amount of time, in ticks, that the CPU has spent doing Adaptive Server work since the last time Adaptive Server was started.
- `@@io_busy` – returns the amount of time, in ticks, that Adaptive Server has spent doing input and output operations.

9.3.2 Correction to example in *curunreservedpgs*

Example 1 for the function *curunreservedpgs* includes the following erroneous *select* syntax:

```
select db_name(dbid), d.name,
       curunreservedpgs(dbid, lstart, unreservedpgs)
from sysusages u, sysdevices d
where d.low <= u.size + vstart
      and d.high >= u.size + vstart -1
      and d.status &2 = 2
```

Replace Example 1 in its entirety with the following text:

Example 1 Returns the database name, device name, and the number of unreserved pages for each device fragment

If a database is open, *curunreservedpgs* takes the value from memory. If it is not in use, the value is taken from the third parameter you specify in *curunreservedpgs*. In this example, the value comes from the *unreservedpgs* column in the *sysusages* table.

```
select db_name(dbid), d.name,
       curunreservedpgs(dbid, lstart, unreservedpgs)
from sysusages u, sysdevices d
where u.vdevno=d.vdevno
      and d.status &2 = 2
```

	name	
-----	-----	-----
master	master	1634
tempdb	master	423
model	master	423
pubs2	master	72
sybssystemdb	master	399
sybssystemprocs	master	6577
sybsyntax	master	359

(7 rows affected)

9.3.3 Update in *derived_stat*

The information for the *derived_stat* built-in function in *Reference Manual: Building Blocks* is incomplete. Replace the entire reference section for *derived_stat* with the following:

Description	Returns derived statistics for the specified object and index.
-------------	--

Syntax `derived_stat("object_name" | object_id,
index_name | index_id,
["partition_name" | partition_id],
"statistic")`

- Parameters
- *object_name* – is the name of the object you are interested in. If you do not specify a fully qualified object name, `derived_stat` searches the current database.
 - *object_id* – is an alternative to *object_name*, and is the object ID of the object you are interested in. *object_id* must be in the current database
 - *index_name* – is the name of the index, belonging to the specified object that you are interested in.
 - *index_id* – is an alternative to *index_name*, and is the index ID of the specified object that you are interested in.
 - *partition_name* – is the name of the partition, belonging to the specific partition that you are interested in. *partition_name* is optional. When you use *partition_name* or *partition_id*, Adaptive Server returns statistics for the target partition, instead of for the entire object.
 - *partition_id* – is an alternative to *partition_name*, and is the partition ID of the specified object that you are interested in. *partition_id* is optional.
 - "statistic" – the derived statistic to be returned. Available statistics are:

Value	Returns
data page cluster ratio or dpcr	The data page cluster ratio for the object/index pair
index page cluster ratio or ipcr	The index page cluster ratio for the object/index pair
data row cluster ratio or drcr	The data row cluster ratio for the object/index pair
large io efficiency or lgio	The large I/O efficiency for the object/index pair
space utilization or sput	The space utilization for the object/index pair

Examples **Example 1** Selects the space utilization for the `titleidind` index of the `titles` table:

```
select derived_stat("titles", "titleidind", "space utilization")
```

Example 2 Selects the data page cluster ratio for index ID 2 of the `titles` table. Note that you can use either "dpcr" or "data page cluster ratio":

```
select derived_stat("titles", 2, "dpcr")
```

Example 3 Statistics are reported for the entire object, as neither the partition ID nor name is not specified:

```
1> select derived_stat(object_id("t1"), 2, "drcr")
2> go
```

```
-----
0.576923
```

Example 4 Reports the statistic for the partition tl_928003396:

```
1> select derived_stat(object_id("t1"), 0, "t1_928003306", "drchr")
2> go
```

```
-----
1.000000
```

(1 row affected)

Example 5 Selects derived statistics for all indexes of a given table, using data from syspartitions:

```
select convert(varchar(30), name) as name, indid,
       convert(decimal(5, 3), derived_stat(id, indid, 'sput')) as 'sput',
       convert(decimal(5, 3), derived_stat(id, indid, 'dpcr')) as 'dpcr',
       convert(decimal(5, 3), derived_stat(id, indid, 'drchr')) as 'drchr',
       convert(decimal(5, 3), derived_stat(id, indid, 'lgio')) as 'lgio'
from syspartitions where id = object_id('titles')
go
```

name	indid	sput	dpcr	drchr	lgio
titleidind_2133579608	1	0.895	1.000	1.000	1.000
titleind_2133579608	2	0.000	1.000	0.688	1.000

(2 rows affected)

Example 6 Selects derived statistics for all indexes and partitions of a partitioned table. Here, mymsgs_rr4 is a roundrobin partitioned table that is created with a global index and a local index.

```
1> select * into mymsgs_rr4 partition by roundrobin 4 lock datarows
2> from master..sysmessages
3> go
```

(7597 rows affected)

```
1> create clustered index mymsgs_rr4_clustind on mymsgs_rr4(error, severity)
2> go
1> create index mymsgs_rr4_ncind1 on mymsgs_rr4(severity)
2> go
1> create index mymsgs_rr4_ncind2 on mymsgs_rr4(langid, dlevel) local index
2> go
```

```
2> update statistics mymsgs_rr4
1>
```

```
2> select convert(varchar(10), object_name(id)) as name,
```



```

3>      (select convert(varchar(20), i.name) from sysindexes i
4>      where i.id = p.id and i.indid = p.indid),
5> convert(varchar(30), name) as ptnname, indid,
6> convert(decimal(5, 3), derived_stat(id, indid, partitionid, 'sput')) as 'sput',
7> convert(decimal(5, 3), derived_stat(id, indid, partitionid, 'dpcr')) as 'dpcr',
8> convert(decimal(5, 3), derived_stat(id, indid, partitionid, 'dr cr')) as 'dr cr',
9> convert(decimal(5, 3), derived_stat(id, indid, partitionid, 'lgio')) as 'lgio'
10> from syspartitions p
11> where id = object_id('mymsgs_rr4')

```

name	ptnname	indid	sput	dpcr	dr cr	lgio
mymsgs_rr4	mymsgs_rr4	786098810	0.90	1.000		
1.00	1.000					
mymsgs_rr4	mymsgs_rr4	802098867	0.90	1.000		
1.00	1.000					
mymsgs_rr4	mymsgs_rr4	818098924	0.89	1.000		
1.00	1.000					
mymsgs_rr4	mymsgs_rr4	834098981	0.90	1.000		
1.00	1.000					
mymsgs_rr4	mymsgs_rr4_clustind	850099038	0.83	0.995		
1.00	1.000					
mymsgs_rr4	mymsgs_rr4_ncind1	882099152	0.99	0.445		
0.88	1.000					
mymsgs_rr4	mymsgs_rr4_ncind2	898099209	0.15	1.000		
1.00	1.000					
mymsgs_rr4	mymsgs_rr4_ncind2	914099266	0.88	1.000		
1.00	1.000					
mymsgs_rr4	mymsgs_rr4_ncind2	930099323	0.877	1.000		
1.000	1.000					
mymsgs_rr4	mymsgs_rr4_ncind2	946099380	0.945	0.993		
1.000	1.000					

Example 7 Select derived statistics for all allpages-locked tables in the current database:

```

2> select convert(varchar(10), object_name(id)) as name
3>      (select convert(varchar(20), i.name) from sysindexes i
4>      where i.id = p.id and i.indid = p.indid),
5> convert(varchar(30), name) as ptnname, indid,
6> convert(decimal(5, 3), derived_stat(id, indid, partitionid, 'sput')) as 'sput',
7> convert(decimal(5, 3), derived_stat(id, indid, partitionid, 'dpcr')) as 'dpcr',
8> convert(decimal(5, 3), derived_stat(id, indid, partitionid, 'dr cr')) as 'dr cr',
9> convert(decimal(5, 3), derived_stat(id, indid, partitionid, 'lgio')) as 'lgio'
10> from syspartitions p
11> where lockscheme(id) = "allpages"
12> and (select o.type from sysobjects o where o.id = p.id) = 'U'

```

name		ptnname	indid	sput	dpcr	drcr	lgio
stores	stores	stores_18096074	0	0.276	1.000	1.000	1.000
discounts	discounts	discounts_50096188	0	0.075	1.000	1.000	1.000
au_pix	au_pix	au_pix_82096302	0	0.000	1.000	1.000	1.000
au_pix	tau_pix	tau_pix_82096302	255	NULL	NULL	NULL	NULL
blurbs	blurbs	blurbs_114096416	0	0.055	1.000	1.000	1.000
blurbs	tblurbs	tblurbs_114096416	255	NULL	NULL	NULL	NULL
tlapl	tlapl	tlapl_1497053338	0	0.095	1.000	1.000	1.000
tlapl	tlapl	tlapl_1513053395	0	0.082	1.000	1.000	1.000
tlapl	tlapl	tlapl_1529053452	0	0.095	1.000	1.000	1.000
tlapl	tlapl_ncind	tlapl_ncind_1545053509	2	0.149	0.000	1.000	1.000
tlapl	tlapl_ncind_local	tlapl_ncind_local_1561053566	3	0.066	0.000	1.000	1.000
tlapl	tlapl_ncind_local	tlapl_ncind_local_1577053623	3	0.057	0.000	1.000	1.000
tlapl	tlapl_ncind_local	tlapl_ncind_local_1593053680	3	0.066	0.000	1.000	1.000
authors	auidind	auidind_1941578924	1	0.966	0.000	1.000	1.000
authors	aunmind	aunmind_1941578924	2	0.303	0.000	1.000	1.000
publishers	pubind	pubind_1973579038	1	0.059	0.000	1.000	1.000
roysched	roysched	roysched_2005579152	0	0.324	1.000	1.000	1.000
roysched	titleidind	titleidind_2005579152	2	0.777	1.000	0.941	1.000
sales	salesind	salesind_2037579266	1	0.444	0.000	1.000	1.000
salesdetai	salesdetail	salesdetail_2069579380	0	0.614	1.000	1.000	1.000
salesdetai	titleidind	titleidind_2069579380	2	0.518	1.000	0.752	1.000
salesdetai	salesdetailind	salesdetailind_2069579380	3	0.794	1.000	0.726	1.000
titleautho	taind	taind_2101579494	1	0.397	0.000	1.000	1.000
titleautho	auidind	auidind_2101579494	2	0.285	0.000	1.000	1.000
titleautho	titleidind	titleidind_2101579494	3	0.223	0.000	1.000	1.000
titles	titleidind	titleidind_2133579608	1	0.895	1.000	1.000	1.000
titles	titleind	titleind_2133579608	2	0.402	1.000	0.688	1.000

(27 rows affected)

Usage

- `derived_stat` returns a double precision value.
- The values returned by `derived_stat` match the values presented by the `optdiag` utility.
- If the specified object or index does not exist, `derived_stat` returns `NULL`.
- Specifying an invalid statistic type results in an error message.
- Using the optional *partition_name* or *partition_id* reports the requested statistic for the target partition; otherwise, `derived_stat` reports the statistic for the entire object.
- If you provide:
 - Four arguments – `derived_stat` uses the third argument as the partition, and returns derived statistics on the fourth argument.
 - Three arguments – `derived_stat` assumes you did not specify a partition, and returns derived statistic specified by the third argument.

9.4 Reference Manual: Commands

This section discusses updates and clarifications to *Reference Manual: Commands*.

9.4.1 Clarification in *alter table*

The Usage section of the alter table reference pages includes the following bulleted description:

- The partition *number_of_partition* and unpartition clause are provided for compatibility with versions of Adaptive Server earlier than 15.0. You can use partition *number_of_partition* clause only on unpartitioned tables to add (*number_of_partition*-1) empty round-robin partitions; existing data is placed on the first partition, with subsequent data distributed among all partitions. If the table has a global clustered index, Adaptive Server places subsequent data rows in the first partition. To redistribute the data, drop and re-create the index.

9.4.2 Correction in *create table*

The Usage section of the create table reference pages includes the following information, which erroneously lists the limit of user-defined columns per table as 250:

- There can be as many as 2,000,000,000 tables per database and 250 user-defined columns per table. The number of rows per table is limited only by available storage.

The correct number of user-defined columns per table is *1024*.

9.4.3 Correction in *create trigger*

The following bullet in the Usage section of create trigger is incorrect:

- You cannot create a trigger on a temporary table.

The correct text is:

- You cannot create a trigger on a session-specific temporary table.

9.4.4 Clarification in *dbcc*

Example 13 for the *dbcc* command is described as being an abbreviated output for the *dbcc traceon(3604)* command. You can obtain the same abbreviated version using *dbcc serverlimits*; running *dbcc traceon(3604)* results in a complete listing of limits in the server.

9.4.5 Correction in *grant set proxy*

The syntax for restricting roles using *set proxy* in the reference pages for the *grant* command incorrectly describes the parameter as “restricted role.” If you execute *grant set proxy* with this syntax, you see the following error:

```
1> grant set proxy to tester restricted role all
2> go
Msg 102, Level 15, State 1:
Server 't15', Line 1:
Incorrect syntax near 'restricted'.
```

The correct syntax is “restrict role”:

```
grant set proxy to role_list
    [restrict role role_list | all | system]
```

The error also appears in examples 38, 39, and 40 of the *grant* command.

9.4.6 Additional usage information for *reorg*

Add this note to the description of *reorg reclaim_space*:

Note *reorg reclaim_space* only affects tables with variable-length rows, and only frees up space within a page. To reduce the number of pages used, use the *reorg rebuild* command.

Add these items to the Usage section of the *reorg* command description:

- Earlier versions of Adaptive Server restricted you from using *reorg rebuild* on all-pages locked tables (APL). As of Adaptive Server 15.0, you can run *reorg rebuild* on the entire table that uses APL. *reorg rebuild* rebuilds the entire table, copying the data to new sets of pages, and rebuilds all indexes.
- You cannot use the *reorg rebuild* sub commands (for example, *compact*, *reclaim_space*, and *forwarded_rows*) on APL tables.
- You can use *reorg rebuild table_name index_name* on APL tables.

9.4.7 Correction in *select*

select and the IDENTITY column In the reference section for the *select* command, a bulleted item describes how to add a new IDENTITY column and use precision to specify the numeric datatype:

- A specification to add a new IDENTITY column to the result table:

```
column_name = identity(precision)
```

Beginning with Adaptive Server Enterprise version 12.5.4, you can specify the IDENTITY column with *int*, *smallint*, and *tinyint*, as well as precision.

- A specification to add a new IDENTITY column to the result table:

```
column_name = identity(int | smallint | tinyint | precision)
```

If you specify *int*, *smallint*, or *tinyint*, the resulting column is an integer. If you specify precision, the result is a numeric datatype.

select into existing table The reference section for the *select* command for Adaptive Server version 15.0 described the following *select* parameter:

```
[existing table ] [[database.]owner.]table_name
```

indicates that you are selecting data into a proxy or other existing table.

You cannot select data into a nonproxy table that has indexes. The column list in the *select* list must match the type, length, and number in the target table.

This information is incorrect. Replace it with the following:

```
existing table table_name
```

indicates that you are selecting data into a proxy table. You cannot use this *select into* with any other table type except proxy. The column list in the *select* list must match the type, length, and number in the proxy table.

In addition, example 13—which updated the existing authors table to include only books priced over \$20—is incorrect, as it implied that the authors table existed, without including the existing keyword.

9.4.8 Correction in *set proc_output_params off*

The example provided for *set proc_output_params off* in the *set* command reference pages includes two errors in the output:

In the first portion, the value of @x returned from the command is erroneously listed as “2.” The value is 1, and appears in bold in the following corrected version:

In the second portion, the return parameters output is erroneously published as “3.” The value is 2, and appears in bold in the following corrected version:

Example 14 Suppresses the output of parameter information:

```
1> create procedure sp_pout (@x int output) as select @x = @x + 1
2> go
1> set proc_output_params off
2> go
1> declare @x int
2> select @x = 1
3> exec sp_pout @x output
4> print "Value of @x returned from sproc is: %1!", @x
5> go
(1 row affected)
(return status = 0)
```

Value of @x returned from sproc is: **1**

If you do not perform set proc_output_params off, the output after (return status = 0) includes the following:

```
Return parameters:
-----
                2
```

9.4.9 setuser

The setuser command has no effect when *creating* a database.

9.5 Reference Manual: Procedures

This section describes updates and clarifications in *Reference Manual: Procedures*.

9.5.1 sp_dbcc_deletehistory

Add the following note in the description of sp_dbcc_deletehistory:

Note sp_dbcc_deletehistory does not free any space associated with the deleted historical data, as workspaces are pre-allocated and of a fixed size.

9.5.2 *sp_helpconstraint* truncates keys

Add the following bullet in the Usage section of *sp_helpconstraint*:

- *sp_helpconstraint* truncates foreign keys and reference keys to 30 characters.

9.5.3 *sp_monitorconfig* example updated with new parameters

Replace example 8 for *sp_monitorconfig* in the book with the following, which incorporates new parameters introduced in version 12.5.3:

Example 8 Using the optional parameter *result_tbl_name* to create a user table, saves the *sp_monitorconfig* result to this table:

```
1> create table sample_table
2> (Name varchar(35),Config_val int, System_val int, Total_val int,
3> Num_free int, Num_active int, Pct_act char(6), Max_used int,
4> Num_Reuse int, Date varchar(30))
5> go
```

The name of the table created becomes the second parameter of *sp_monitorconfig*:

```
1> sp_monitorconfig "locks", sample_table
2> go

(return status = 0)

1> sp_monitorconfig "number of alarms", sample_table
2> go

(return status = 0)

1> select * from sample_table
2> go
```

Name	Config_val	System_val	Total_val	Num_free	Num_active
Pct_act	Max_used	Num_Reuse	Date		
number of locks	5000	684	5000	4915	85
1.70	117	0	Aug 23 2006	6:53AM	
number of alarms		40	0	40	12
30.00	13	0	Aug 23 2006	6:53AM	

The result set saved to the table accumulates until you delete or truncate the table.

Note If `sample_table` is in another database, you must provide its fully qualified name in quotes.

9.5.4 *sp_poolconfig*

The reference pages for `sp_poolconfig` have been revised. Replace the pages for `sp_poolconfig` with the following.

Description	Creates, drops, resizes, and provides information about memory pools within data caches.
Syntax	<p>To create a memory pool in an existing cache, or to change pool size:</p> <pre style="margin-left: 40px;">sp_poolconfig cache_name [, "mem_size [P K M G]", "config_poolK" [, "affected_poolK"]]</pre> <p>To change a pool's wash size:</p> <pre style="margin-left: 40px;">sp_poolconfig cache_name, "affected_poolK ", "wash=size[P K M G]"</pre> <p>To change a pool's asynchronous prefetch percentage:</p> <pre style="margin-left: 40px;">sp_poolconfig cache_name, "affected_poolK ", "local async prefetch limit=percent "</pre>
Parameters	<ul style="list-style-type: none"> • <i>cache_name</i> – is the name of an existing data cache. • <i>mem_size</i> – is the size of the memory pool to be created or the new total size for an existing pool with the specified I/O size. The minimum size of a pool is 256 logical server pages. For a 2K logical page size server, the minimum size is 256K. Specify size units with P for pages, K for kilobytes, M for megabytes, or G for gigabytes. The default is kilobytes. • <i>config_pool</i> – is the I/O size performed in the memory pool where the memory is to be allocated or removed. <p>Valid I/O sizes are multiples of the logical page size, up to four times the amount.</p> <ul style="list-style-type: none"> • <i>affected_pool</i> – is the size of I/O performed in the memory pool where the memory is to be deallocated, or the pool's attributes such as 'wash size' and 'prefetch limit' are to be modified. If <i>affected_pool</i> is not specified, the memory is taken from the lowest logical page size memory pool. • <i>wash=size</i> – changes the wash size (the point in the cache at which Adaptive Server writes dirty pages to disk) for a memory pool.

- `local async prefetch limit=percent` – sets the percentage of buffers in the pool that can be used to hold buffers that have been read into cache by asynchronous prefetch, but that have not yet been used.
- Examples
- Example 1** Creates a 16K pool in the data cache `pub_cache` with 10MB of space. All space is taken from the default 2K memory pool:
- ```
sp_poolconfig pub_cache, "10M", "16K"
```
- Example 2** Creates 16MB of space to the 32K pool from the 64K pool of `pub_cache`:
- ```
sp_poolconfig pub_cache, "16M", "32K", "64K"
```
- Example 3** Reports the current configuration of `pub_cache`:
- ```
sp_poolconfig pub_cache
```
- Example 4** Removes the 16K memory pool from `pub_cache`, placing all of the memory assigned to it in the 2K pool:
- ```
sp_poolconfig pub_cache, "0K", "16K"
```
- Example 5** Changes the wash size of the 2K pool in `pubs_cache` to 508K:
- ```
sp_poolconfig pub_cache, "2K", "wash=508K"
```
- Example 6** Changes the asynchronous prefetch limit for the 2K pool to 15 percent:

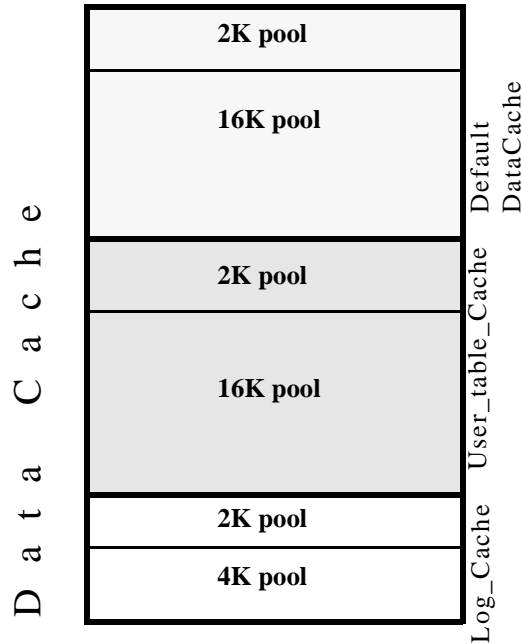
```
sp_poolconfig pub_cache, "2K", "local async prefetch limit=15"
```

#### Usage

- When you create a data cache with `sp_cacheconfig`, all space is allocated to the logical page size memory pool. `sp_poolconfig` divides the data cache into additional pools with larger I/O sizes.
- If no large I/O memory pools exist in a cache, Adaptive Server performs I/O in logical page size units, the size of a data page, for all of the objects bound to the cache. You can often enhance performance by configuring pools that perform large I/O. A 16K memory pool reads and writes eight data pages in a single I/O for a 2K logical page size server.
- The combination of cache name and I/O size must be unique. In other words, you can specify only one pool of a given I/O size in a particular data cache in `sp_poolconfig` commands.
- Only one `sp_poolconfig` command can be active on a single cache at one time. If a second `sp_poolconfig` command is issued before the first one completes, it sleeps until the first command completes.
- Figure 1 shows a data cache on a server that uses 2K logical pages with:

- The default data cache with a 2K pool and a 16K pool
- A user cache with a 2K pool and a 16K pool
- A log cache with a 2K pool and a 4K pool

**Figure 1: Data cache with default and user-defined caches**



- You can create pools with I/O sizes up to 16K in the default data cache for a 2K page size server.
- The minimum size of a memory pool is 256 logical pages (for example, a 2K logical page size server, the minimum size is 512K). You cannot reduce the size of any memory pool in any cache to less than 256 pages by transferring memory to another pool.
- Two circumstances can create pools less than 512K:
  - If you attempt to delete a pool by setting its size to zero, and some of the pages are in use, `sp_poolconfig` reduces the pool size as much as possible, and prints a warning message. The status for the pool is set to “Unavailable/deleted”.

- If you attempt to move buffers to create a new pool, and enough buffers cannot be moved to the new pool, `sp_poolconfig` moves as many buffers as it can, and the cache status is set to “Unavailable/too small.”

In both of these cases, you can retry the command at a later time. The pool will also be deleted or be changed to the desired size when the server is restarted.

- You can create memory pools while Adaptive Server is active; no restart is needed for them to take effect. However, Adaptive Server can move only “free” buffers (buffers that are not in use or that do not contain changes that have not been written to disk). When you configure a pool or change its size, Adaptive Server moves as much memory as possible to the pool and prints an informational message showing the requested size and the actual size of the pool. After a restart of Adaptive Server, all pools are created at the configured size.
- Some `dbcc` commands and drop table perform only logical page size I/O. `dbcc checkstorage` can perform large I/O, and `dbcc checkdb` performs large I/O on tables and logical page size I/O on indexes.
- Most Adaptive Servers perform best with I/O configured for transaction logs that is twice the logical page size. Adaptive Server uses the default I/O size of twice the logical page size if the default cache or a cache with a transaction log bound to it is configured with a memory pool twice the logical page size. Otherwise, it uses the logical page size memory pool.
- You can increase the default log I/O size for a database using the `sp_logiosize` system procedure. However, the I/O size you specify must have memory pools of the same size in the cache bound to the transaction log. If not, Adaptive Server uses the logical page size memory pools.

#### **Wash percentage**

- The default value for the wash size is computed as follows:
  - If the pool size is less than 300MB, the default wash size is set to 20 percent of the buffers in the pool
  - If the pool size is greater than 300MB, the default wash size is 20 percent of the number of buffers in 300MB
- The minimum setting for the wash size is 10 buffers, and the maximum setting is 80 percent of the size of the pool.

- Each memory pool contains a wash area at the least recently used (LRU) end of the chain of buffers in that pool. Once dirty pages (pages that have been changed while in cache) move into the wash area, Adaptive Server initiates asynchronous writes on these pages. The wash area must be large enough so that pages can be written to disk before they reach the LRU end of the pool. Performance suffers when Adaptive Server needs to wait for clean buffers.

The default percentage, placing 20 percent of the buffers in the wash area, is sufficient for most applications. If you are using an extremely large memory pool, and your applications have a very high data modification rate, you may want to increase the size to 1 or 2 percent of the pool. Run `sp_sysmon` to look for recommendations, or contact Sybase Technical Support for more information about choosing an effective wash size.

#### Local asynchronous prefetch percentage

- The default value for a pool's asynchronous prefetch percentage is set by the configuration parameter `global async prefetch limit`. The pool limit always overrides the global limit.
- To disable prefetch in a pool (if the global limit is a nonzero number), set the pool's limit to 0.
- See the *Performance and Tuning Guide* for information on the performance impact of changes to the asynchronous prefetch limit.

#### Permissions

Only a System Administrator can execute `sp_poolconfig` to reconfigure memory pools within data caches. Any user can use `sp_poolconfig` to get information about memory pools.

#### Auditing

Values in event and extrainfo columns from the `sysaudits` table are:

| Event | Audit option                | Command or access audited | Information in extrainfo                                                                                                                                                                                                                                                                                                                                         |
|-------|-----------------------------|---------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 38    | <code>exec_procedure</code> | Execution of a procedure  | <ul style="list-style-type: none"> <li>• <i>Roles</i> – Current active roles</li> <li>• <i>Keywords or options</i> – NULL</li> <li>• <i>Previous value</i> – NULL</li> <li>• <i>Current value</i> – NULL</li> <li>• <i>Other information</i> – All input parameters</li> <li>• <i>Proxy information</i> – Original login name, if set proxy in effect</li> </ul> |

#### See also

**System procedures** `sp_cacheconfig`, `sp_helpcache`, `sp_logiosize`, `sp_unbindcache`, `sp_unbindcache_all`

### 9.5.5 *sp\_sproc\_columns* column\_type description

In the reference pages for the *sp\_sproc\_columns* stored procedure, the table listing the result set includes the following description of the *column\_type* column:

This field always returns a value:

- 0 = SQL\_PARAM\_TYPE\_UNKNOWN
- 1 = SQL\_PARAM\_TYPE\_INPUT
- 2 = SQL\_PARAM\_TYPE\_OUTPUT
- 3 = SQL\_RESULT\_COL
- 4 = SQL\_PARAM\_OUTPUT
- 5 = SQL\_RETURN\_VALUE

This information is erroneous and should be removed from the description.

### 9.5.6 Change in *xp\_cmdshell*

The maximum length of the command parameter of the *xp\_cmdshell* extended stored procedure has been expanded, from 255 to 8192 bytes.

## 9.6 Reference Manual: Tables

This section describes updates and clarifications in *Reference Manual: Tables*.

### 9.6.1 *syscomments*

In the reference page for *syscomments*, the description for the *status* column is blank. Insert the following information:

| Name   | Datatype      | Description                                                                                                                                                                                                                                                                                                     |
|--------|---------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| status | smallint null | Bits indicating the status of the objects: <ul style="list-style-type: none"> <li>• 0x1 – SYSCOM_TEXT_HIDDEN indicates that the text is hidden</li> <li>• 0x2 – Reserved for internal use</li> <li>• 0x4 – SYSCOM_QUOTED_ID_ON indicates that quoted identifiers were on when the object was created</li> </ul> |

### 9.6.2 *sysdatabases*

The reference page for *sysdatabases* includes Table 1-8, which lists the *status3* control bits for *sysdatabases*. In it, the 0x0001 status was left blank. Insert the following description:

A normal or standard database, or a database without a proxy update in the create statement.

## 9.7 Installation Guide

This section describes updates and clarifications in the installation guide for your platform.

### 9.7.1 Determining devices for a database

**[CR# 407828]** The installation guide gives incorrect information on how to determine which device a database is using. The `infocenter.sybase.com` search function may show many hits but it does not show the documents where the hits occur. See Appendix 2 of the installation guide for complete details.

*Workaround:*

- In versions of Adaptive Server Enterprise prior to 15.0, you use `sysdevices` to determine which device has a low through high virtual page range that includes the `vstart`. The device fragment whose `vstart` you used is on that device.
- Select the `vdevno` from `sysusages` matching the `dbid` retrieved in step 1.

### 9.7.2 Incorrect syntax for running `uninstmsgs.ebf` and `instmsgs.ebf` after upgrade:

Use the following syntax to run `uninstmsgs.ebf`:

```
isql -Usa -P<sa-password> -w1000 -iuninstmsgs.ebf -orestoremsgs.ebf
```

Use the following syntax to run `instmsgs.ebf`:

```
isql -Usa -P<sa-password> -iinstmsgs.ebf
```

### 9.7.3 If you downgraded back to original installation after upgrading to 15.0.2

You must restore the original messages by running the following script after downgrading the server.

```
isql -Usa -P<sa-password> -irestoremsgs.ebf
```

## 9.8 Performance and Tuning Guide: Monitoring

The behavior for `sp_sysmon` has changed so that you no longer have to specify the `noclear` option to prevent `sp_sysmon` from clearing the monitor counters. The `noclear` option is now the default behavior for `sp_sysmon` when you specify a sample interval.

If you run `sp_sysmon` using the `begin_sample` and `end_sample` options to begin and end the sample period, `sp_sysmon` always clears the monitor counters. Adaptive Server issues an error message if you run `sp_sysmon` with `begin_sample` or `end_sample` and the `noclear` option.

If you need to clear the monitor counters, use `sp_sysmon` with the `clear` option. For compatibility reasons, Adaptive Server accepts the `noclear` option as a valid parameter, but it does not affect the behavior of `sp_sysmon`.

## 10. Technical support

Each Sybase installation that has purchased a support contract has one or more designated people who are authorized to contact Sybase Technical Support. If you have any questions about this installation or if you need assistance during the installation process, ask the designated person to contact Sybase Technical Support or the Sybase subsidiary in your area.

## 11. Other sources of information

Use the Sybase Getting Started CD, the SyBooks™ CD, and the Sybase Product Manuals Web site to learn more about your product:

- The Getting Started CD contains release bulletins and installation guides in PDF format, and also contains other documents or updated information not included on the SyBooks CD. It is included with your software. To read or print documents on the Getting Started CD, you need Adobe Acrobat Reader, which you can download at no charge from the Adobe Web site using a link provided on the CD.
- The SyBooks CD contains product manuals and is included with your software. The Eclipse-based SyBooks browser allows you to access the manuals in an easy-to-use, HTML-based format.

Some documentation can be provided in PDF format, which you can access through the PDF directory on the SyBooks CD. To read or print the PDF files, you need Adobe Acrobat Reader.



Refer to the *SyBooks Installation Guide* on the Getting Started CD, or the *README.txt* file on the SyBooks CD for instructions on installing and starting SyBooks.

- The Sybase Product Manuals Web site is an online version of the SyBooks CD that you can access using a standard Web browser. In addition to product manuals, you will find links to EBFs/Maintenance, Technical Documents, Case Management, Solved Cases, newsgroups, and the Sybase Developer Network.

To access the Sybase Product Manuals Web site, go to Product Manuals at <http://www.sybase.com/support/manuals/>.

## 11.1 Sybase certifications on the Web

Technical documentation at the Sybase Web site is updated frequently.

### v **Finding the latest information on product certifications**

- 1 Point your Web browser to Technical Documents at <http://www.sybase.com/support/techdocs/>.
- 2 Click Certification Report.
- 3 In the Certification Report filter select a product, platform, and time frame and then click Go.
- 4 Click a Certification Report title to display the report.

### v **Finding the latest information on component certifications**

- 1 Point your Web browser to Availability and Certification Reports at <http://certification.sybase.com/>.
- 2 Either select the product family and product under Search by Base Product; or select the platform and product under Search by Platform.
- 3 Select Search to display the availability and certification report for the selection.

### v **Creating a personalized view of the Sybase Web site (including support pages)**

Set up a MySybase profile. MySybase is a free service that allows you to create a personalized view of Sybase Web pages.

- 1 Point your Web browser to Technical Documents at <http://www.sybase.com/support/techdocs/>.
- 2 Click MySybase and create a MySybase profile.

## 11.2 Sybase EBFs and software maintenance

- v **Finding the latest information on EBFs and software maintenance**
  - 1 Point your Web browser to Sybase Support at <http://www.sybase.com/support>.
  - 2 Select EBFs/Maintenance. If prompted, enter your MySybase user name and password.
  - 3 Select a product.
  - 4 Specify a time frame and click Go. A list of EBF/Maintenance releases is displayed.

Padlock icons indicate that you do not have download authorization for certain EBF/Maintenance releases because you are not registered as a Technical Support Contact. If you have not registered, but have valid information provided by your Sybase representative or through your support contract, click Edit Roles to add the “Technical Support Contact” role to your MySybase profile.
  - 5 Click the Info icon to display the EBF/Maintenance report, or click the product description to download the software.

## 12. Accessibility features

This document is available in an HTML version that is specialized for accessibility. You can navigate the HTML with an adaptive technology such as a screen reader, or view it with a screen enlarger.

Adaptive Server Enterprise HTML documentation has been tested for compliance with U.S. government Section 508 Accessibility requirements. Documents that comply with Section 508 generally also meet non-U.S. accessibility guidelines, such as the World Wide Web Consortium (W3C) guidelines for Web sites.

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**Note** You might need to configure your accessibility tool for optimal use. Some screen readers pronounce text based on its case; for example, they pronounce ALL UPPERCASE TEXT as initials, and MixedCase Text as words. You might find it helpful to configure your tool to announce syntax conventions. Consult the documentation for your tool.

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For information about how Sybase supports accessibility, see Sybase Accessibility at <http://www.sybase.com/accessibility>. The Sybase Accessibility site includes links to information on Section 508 and W3C standards.

