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Although the SAP® Sybase® IQ 16 New Features Summary describes all new SAP Sybase IQ functionality, some features may require additional action on your part to take advantage of the new architecture introduced in the initial 16.0 version.

Load Performance Configuration Issues
Customers upgrading from a previous release, for example, may need to change some initial compatibility options or rebuild wide columns to accommodate different datatypes. The new load engine provides better performance, but requires changes to the default memory allocation to use all available hardware resources efficiently.

This topic highlights migration issues and features which impact load performance. See the appropriate topics in the SAP Sybase IQ core documentation set for details. *Migration (Linux and UNIX)* and *Migration (Windows)* are new administration manuals in 16.0, describing the steps for upgrading your database, steps to install maintenance releases, and information on upgrading to the role-based security model. *Administration: Load Management* is also new in 16.0, describing data import and export procedures.

NBit
Continuous `NBit` dictionary compression replaces 1, 2, and 3 byte dictionary compression as the default column storage mechanism in 16.0. All datatypes except LOB (character and binary) and BIT datatypes can be `NBit` columns.

The `IQ UNIQUE` column constraint determines whether a column loads as `Flat FP` or `NBit FP`. An `IQ UNIQUE` n value set to 0 loads the column as `Flat FP`. An n value greater than 0 but less than the `FP_NBIT_AUTOSIZE_LIMIT` creates a `NBit` column initially sized to *n*. Columns without an `IQ UNIQUE` constraint implicitly load as `NBit` up to the auto-size limit.

Using `IQ UNIQUE` with an *n* value less than the auto-size limit is not necessary. The load engine automatically sizes all low or medium cardinality columns as `NBit`. Use `IQ UNIQUE` in cases where you want to load the column as `Flat FP` or when you want to load a column as `NBit` when the number of distinct values exceeds the value of the **FP_NBIT_AUTOSIZE_LIMIT** option.

Loads and Large Memory
Large memory represents the maximum amount of memory that SAP Sybase IQ can dynamically request from the OS for temporary use. Because some load operations may require more large memory than the 2GB default provides, adjust the startup options that control large and cache memory allocation based on the total amount of available physical memory.

As a general rule, large memory requirements represent one third of the total available physical memory allocated to SAP Sybase IQ. To ensure adequate memory for the main and temporary IQ stores, set the **–iqlm**, **–iqtc**, and **–iqmc** startup parameters so that each parameter receives one third of all available physical memory allocated to SAP Sybase IQ.

In most cases, you should allocate 80% of total physical memory to SAP Sybase IQ to prevent SAP Sybase IQ processes from being swapped out. Adjust actual memory allocation to accommodate other processes running on the same system. For example, on a machine with 32 cores and 128GB of total available physical memory, you would allocate 100GB (approximately 80% of the 128GB total) to SAP Sybase IQ processes. Following the general rule, you would set the **–iqlm**, **–iqtc**, and **–iqmc** parameters to 33GB each.

See *-iqlm iqsrv16 Server Option* and *-iqmc iqsrv16 Server Option* in the *Utility Guide*.

Index Changes

Changes to FP and HG indexes take advantage of the new column compression mechanism and improve load performance.

Index	Description
New Fast Projection (FP) Indexes	Take advantage of the new continuous NBit dictionary compression, which replaces 1, 2, and 3 byte dictionary compression. FP(1), FP(2), and FP(3) indexes roll over to NBit(8), NBit(16), and NBit(24) respectively. If FP_NBIT_IQ15_COMPATIBILITY='OFF', IQ UNIQUE constraints applied to the column determine whether the column loads as Flat FP or NBit. See *Fast Projection (FP) Index* in *Administration: Database*.
New tiered HG index structure	Decouples load performance from HG index size. In 15.x, load throughput could degrade as the amount of data in an HG index increased. As the index grew, loading the same amount of data could take more time. The new tiered structure decouples load performance from the HG index size to increase throughput. The CREATE_HG_WITH_EXACT_DISTINCTS option determines whether newly created HG indexes are tiered or non-tiered. This option is ON in all new 16.0 databases and all 16.0 databases migrated from 15.x. To take advantage of the new structure, set this option to OFF. See *CREATE_HG_WITH_EXACT_DISTINCTS Option* in *Reference: Statements and Options*. Use **sp_iqrebuildindex** to convert non-tired HG indexes to tiered HG and vice-versa.

Stored Procedures

New stored procedures return information about column indexes and constraints.

Procedure	Description
sp_iqindexmetadata	Returns details about column indexes, including the index types (Flat FP, NBit, HG, and tiered HG), distinct counts, IQ UNIQUE *n* value, and NBit dictionary size.
	See *sp_iqindexmetadata Procedure* in *Reference: Building Blocks, Tables, and Procedures*.
sp_iqcolumnmetadata	Returns FP index metadata for one or more user tables or all tables in the database.
	See *sp_iqcolumnmetadata Procedure* in *Reference: Building Blocks, Tables, and Procedures*.
sp_iqindexrebuildwidedata	Identifies wide columns that you must rebuild before they are available for read/write activities. Output includes statements that you can use with **sp_iqrebuildindex** to rebuild the columns.
	See *sp_iqindexrebuildwidedata Procedure* in *Reference: Building Blocks, Tables, and Procedures*.
sp_iqrebuildindex	Rebuilds FP indexes (Flat FP as NBit, or NBit as Flat FP) and HG indexes (single HG as tiered HG, or tiered HG as single HG). Before you can insert or update new data, you must rebuild all columns greater than 255 bytes wide.
	The index_clause can reset IQ UNIQUE n to an explicit value from 0 (to recast an NBit column to Flat FP) up to the limits defined in the FP_NBIT_AUTOSIZE_LIMIT and FP_NBIT_LOOKUP_MB options.
	sp_iqrebuildindex also enables read-write access to columns that contain large object (LOB) data. LOB columns migrated from 15.x databases are read-only until you run **sp_iqrebuildindex**. The estimated cardinality for NBit columns with an IQ UNIQUE value below or equal to the FP_NBIT_AUTOSIZE_LIMIT is stored as 0 regardless of the FP_NBIT_IQ15_COMPAT-IBILITY setting. This affects the value returned from **sp_iqin-dexmetadata**.
	See *sp_iqrebuildindex Procedure* in *Reference: Building Blocks, Tables, and Procedures*.

Database Options
Some database options are not enabled to take advantage of 16.0 features. Maintaining limited compatibility after a database upgrade provides some flexibility to transition existing applications.

Option	Description
FP_NBIT_IQ15_COMPATIBILITY	Provides tokenized `FP` support similar to that available in 15.x. This option is ON by default in all 16.0 databases upgraded from 15.x and OFF in all newly created 16.0 databases. • If this option is ON, the database engine uses the `MINIMIZE_STORAGE`, `FP_LOOKUP_SIZE`, and `FP_LOOKUP_SIZE_PPM` options to optimize column storage. These options are ignored in 16.0. • If this option is OFF, the database engine ignores 15.x options and columns conform to SAP Sybase IQ `NBit` storage options. Set this option to OFF to take advantage of `NBit` column compression.
CREATE_HG_WITH_EXACT_DISTINCTS	Determines whether new `HG` indexes explicitly created with a **CREATE INDEX** command, or implicitly creating or altering a table with a PRIMARY KEY or a FOREIGN KEY declaration, are tiered or non-tiered. This option is ON in 16.0 databases upgraded from 15.x and all newly created 16.0 databases. If this option is ON, all new `HG` indexes are non-tiered. To take advantage of the new tiered `HG` index structure, set this option to OFF. Use **sp_iqrebuildindex** to convert non-tiered `HG` indexes to tiered `HG` and vice-versa.
CREATE_HG_AND_FORCE_PHYSICAL_DELETE	Governs 16.0 delete behavior for tiered `HG` indexes. This option determines whether SAP Sybase IQ performs a physical delete immediately or defers the delete to a point later in the load. CREATE_HG_AND_FORCE_PHYSICAL_DELETE is ON by default, which instructs SAP Sybase IQ to perform physical deletes.

Option	Description
REVERT_TO_V15_OPTIMIZER	**REVERT_TO_V15_OPTIMIZER** forces the query optimizer to mimic SAP Sybase IQ 15.x behavior. **REVERT_TO_V15_OPTI-MIZER**='ON' by default in all 16.0 databases upgraded from 15.x. **REVERT_TO_V15_OPTIMIZER**='OFF' by default in all newly created SAP Sybase IQ 16.0 databases.
	If you plan to use SAP Sybase IQ hash partitioning features, set the **REVERT_TO_V15_OPTIMIZER** ='OFF' in databases upgraded from 15.x to 16.0.

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Product Summary

This release bulletin provides late-breaking information about SAP Sybase IQ. A more recent version may be available on the Web.

For information about compatible platform and operating system configurations and minimum patch levels, see the *Installation and Configuration Guide*.

For information about new features and behavior changes in this version, see the *New Features Summary* .

For information about accessibility, see *Accessibility Features* in this release bulletin.

Product Compatibilities

Information about the compatibility of SAP Sybase IQ with other products.

These SAP Sybase products are certified with this version of SAP Sybase IQ:

* jConnect™ for JDBC™ 7.0
* SAP Sybase IQ InfoPrimer 15.3
* SAP® Control Center (SCC) 3.3

These SAP Sybase products are certified to work as back ends in CIS functionality with this version of SAP Sybase IQ:

* SAP Sybase SQL Anywhere® 16.0
* SAP Adaptive Server® Enterprise 15.7

See *Sybase Product and Component Certifications* for instructions on accessing the latest online certification information.

Network Clients and ODBC Kits

SAP Sybase IQ Network Clients and ODBC kits for development are available on the SAP Sybase download site. A Network Client is available for each platform supported by this version of SAP Sybase IQ. A Linux 32-bit client is also available.

The SAP Sybase download site is *http://www.sybase.com/downloads*.

SAP Sybase IQ 16.0 does not require an upgrade of the 32-bit ODBC kits, if you use SAP Sybase IQ 15.2 32-bit ODBC kits.

Installation and Upgrade

This section provides last-minute information about installation and upgrading that was omitted from or incorrect in your installation guide, or that needs special emphasis.

For detailed information about installing and upgrading SAP Sybase IQ, see the *Installation and Configuration Guide*.

Before you run a new version of SAP Sybase IQ, see *Restrictions* for the most current requirements.

CR#	Description
n/a	• **SAP Sybase IQ 16.0 Requires a License** – SAP Sybase IQ 16.0 uses the SAP Sybase Software Asset Management (SySAM) licensing mechanism that lets system administrators enable and monitor their site's use of SAP Sybase products. SAP Sybase IQ includes separate SySAM licenses for each product edition and separate licenses for any optional features available for that edition. See *Licensing Your Software* in the *Installation and Configuration Guide*.
749005	• **Certicom Cryptography Services Replaced** – Certicom software, which provides cryptography services for securing storage and transmission of sensitive information, is no longer supported by SAP Sybase products. These services have been replaced by alternate providers, as indicated in the documentation for each SAP Sybase product. See *Encryption Support Changes* in *New Features Summary*.
728377	• **Extract and Install Installation Packages on the Same Machine** – The SAP Sybase Product Download Center is an online software delivery service that provides easy access to the latest versions of your software. When you download your software, uncompress the downloaded image and run the installer on the same machine where you install SAP Sybase IQ. Do not copy an uncompressed installation archive to a secondary machine and run the install.

CR#	Description
691212	• **Avoid Using Relative Path to Launch Installer** – SAP Sybase IQ installation fails if you launch the installer using a relative path. During GUI installation, the installer fails to prompt for the license file information and does not install properly. For example, when launched from the console using a command line: ``` Installer files directory : /system1/users/jones/in- stalldir $SYBASE dir : /system1/users/jones/IQ160 ``` ``` cd $SYBASE ../installdir/setup.bin ``` • **Workaround** – Launch the installer from the directory where it is located, or use an absolute path.
688135	• **Sybase Partners with v3 UDFs Must Specify a License Key When Upgrading to v4** – If you are an SAP Sybase design partner using v3 UDFs, your UDFs will not continue to work after you upgrade your libraries to v4 unless you specify the SAP Sybase-provided license key in the a_v4_extfn_license_info structure. You must implement the extfn_get_license_info method, and the method must return a valid key. See *User-Defined Functions* for information on upgrading to the v4 API, and adding the extfn_get_license_info method.
628594	• **SySAM Licensing Checkout** – If SAP Sybase IQ was licensed using a per-processor license type in previous releases, the license quantity was determined at startup. In this release, SAP Sybase IQ periodically checks the number of processors it can use and attempts to check-out additional licenses for any increase. SAP Sybase IQ shuts down after 30 days if additional licenses are not made available within this period. See the *SySAM Users Guide* for details regarding license grace.
n/a	• **ALTER DATABASE UPGRADE PROCEDURE ON Required** – To install new system tables, you must run **ALTER DATABASE UPGRADE PROCEDURE ON** on existing databases after installing SAP Sybase IQ 16.0. For syntax, see *Reference: Statements and Options*.
615420	• **Using Remote Server Classes for ASE** – Component Integration Services (CIS) connectivity from SAP Sybase IQ to SAP Adaptive Server Enterprise (ASE) is available using server class aseodbc. The aseodbc server class uses the ASE ODBC driver. The ASE ODBC driver requires a separate installation of SDK 15.5 ESD #8 or higher which can be downloaded from the SAP Sybase EBF download site.

Problem Solutions from Earlier Versions

SAP Sybase IQ includes solutions to problems that were solved in post-release updates to earlier versions.

SAP Sybase IQ 16.0 contains solutions to problems fixed up to and including these versions:

* SAP Sybase IQ 15.1 ESD #3 (N off #7 - SAP Sybase IQ 15.1 ESD #3.7)
* SAP Sybase IQ 15.2 ESD #1 (N off #8 - SAP Sybase IQ 15.2 ESD #1.8)
* SAP Sybase IQ 15.2 ESD #2 (N off #3 - SAP Sybase IQ 15.2 ESD #2.3)
* SAP Sybase IQ 15.2 ESD #3
* SAP Sybase IQ 15.3
* SAP Sybase IQ 15.4 ESD #3
* SAP Sybase IQ 16.0 ESD #1

Sub-Capacity Licensing

SAP Sybase offers sub-capacity licensing options for SAP Sybase IQ Enterprise Edition. Sub-capacity licensing refers to licensing an SAP Sybase product on a subset of the CPUs available on a physical machine.

Platform Support
Sub-capacity licensing is supported on the following platforms:

Table 1. Sub-Capacity Licensing Vendor Support

Vendor	Product	Platform Support	Virtualization Type
HP	nPar	HP IA 11.31	Physical Partition
	vPar		Virtual Partition
	Integrity Virtual Machines with Resource Manager		Virtual Machine
	Secure Resource Partitions		OS Containers
IBM	LPAR	AIX 6.1, AIX 7	Virtual Partition
	dLPAR		Virtual Partition
SUN	Dynamic System Domains	Solaris 10	Physical Partition

Vendor	Product	Platform Support	Virtualization Type
	Solaris Containers/Zones with Solaris Resource Manager		OS Partition
INTEL/AMD	VMWare ESX/ESXi Server [1] Guest OS: Windows	VMWare ESX Server 3.5, 4.0, and 4.1, ES-Xi4.1, ESXi5.0, Guest OS: Windows 2008 R2, Windows 7	Virtual Machine
	VMWare ESX/ESXi Server [1] Guest OS: Linux, Sun Solaris x64	VMWare ESX Server 3.5, 4.0 and 4.1, ES-Xi4.1, ESXi5.0, Guest OS: RH 5.5, RH 6.1, SuSE 11, Sun Solaris x64	Virtual Machine
	Xen, KVM, DomainU: Windows[2]	Windows 2008 R2, Windows 7	Virtual Machine
	Xen, KVM, DomainU: Linux[2]	RH 5.5, RH 6.1, SuSE 11	Virtual Machine
	Hyper-V	Windows 2008 R2, Windows 7, SuSE 11, RHEL 6.1	Virtual Machine
	[1]VMWare excludes VMWare Workstation and VMWare Server. [2]These hypervisors do not support Sun Solaris x64.		

How to Enable SAP Sybase Sub-Capacity Licensing

You must have a sub-capacity licensing agreement with SAP Sybase before you can enable sub-capacity licensing. If you choose to use SAP Sybase IQ in a sub-capacity environment, see the *SySAM Quick Start Guide* for instructions for generating your license key.

Note:

- Keep your license server up-to-date.
- Although the installation media includes a copy of the most recent SySAM license server, SAP Sybase recommends that you periodically check for license server updates on the *SySAM Standalone License Server Install site*.

Database Upgrades

Important information about database upgrades.

For detailed information about installing and upgrading SAP Sybase IQ, see the *Installation and Configuration Guide*.

CR#	Description
750748	• **Shut down all products that use $SYBASE before upgrade** – The SYBASE variable identifies the location of the common parent directory shared by SAP Sybase applications like SAP Adaptive Server Enterprise and Sybase Open Client. Failure to shut down all products that use $SYBASE may generate `signal 11 (SIGSEGV)` errors when you upgrade SAP Sybase IQ. • **Workaround** – Shut down all SAP Sybase applications, restart the SAP Sybase IQ server, and retry the upgrade.
702052	• **Drop all JOIN and all LD indexes. On multiplex, drop all logical servers named AUTO, COORDINATOR, ALL or DEFAULT** – If you do not drop these objects and try to run an **ALTER DATABASE UPGRADE** in SAP Sybase IQ 16.0, the upgrade fails and the server returns a message that indicates that a database upgrade is not possible when these objects are in use. • **Recovery Information** – To recover from a failed upgrade, shut down the 16.0 server, open the database with SAP Sybase IQ 15.x, and drop all LD and all JOIN indexes as well as any named logical servers before proceeding with the migration.

Known Issues

Review known issues and workarounds, listed by Change Request (CR) number.

Find issues by Change Request (CR) number.

Note: You can search the Sybase Web site for solved cases. Choose **Support > Solved Cases** or go to *http://search.sybase.com/search/simple.do?mode=sc*. You need a MySybase account to view solved cases in the archive.

Restrictions

Consider information about restrictions to avoid unexpected results from your system.

This information applies to servers and databases of this version of SAP Sybase IQ16.0 that have been upgraded from any earlier version of SAP Sybase IQ, unless specified otherwise.

CR#	Restriction
750481	• **License Required for Multiple User Dbspaces or Table Partitions –** You must be licensed for the IQ_VLDBMGMT option in order to create more than one table partition or user dbspace. If you are not licensed, SAP Sybase IQ returns a `No such feature exists` error during dbspace or partition creation.

561366	• **Dbspace Naming in RESTORE DATABASE Command –** If the dbspace name contains a file extension such as `.iq` or `.iqtmp`, you must enclose the dbspace name in double quotation marks when specifying the name in a **RESTORE DATABASE** command **RENAME** clause. For example:
	
	```RENAME temp1 TO '/work/temp1_res.iqtmp.iqtmp' DBSPACENAME "temp1_res.iqtmp"```
	
	or
	
	```RENAME "test_prod2.iq" TO '/test/test_prod2.iq'```

365281	• **Database Name Length Restriction –** The **dbbackup** utility truncates the database name to 70 characters and creates a target file with a truncated name. SAP Sybase IQ uses **dbbackup** when synchronizing secondary servers. Due to **dbbackup** restrictions, database names must be less than 70 characters long.

CR#	Restriction
n/a	• **Operations Restriction on HP Systems –** By default, on HP systems, SAP Sybase IQ writes server messages to `/var/adm/syslog/ syslog.log` (the system log file). To prevent the file system from filling quickly, use the **-s** option on the **start_iq** command to set the system log file to a location other than "user". For example: `start_iq -s local2` For a list of server startup parameters, see the *Utility Guide*.
n/a	• **Dbspace Management and File Placement –** When you allocate file system files for dbspaces (System, IQ main, or IQ temporary), do not place the files on a file system that is shared over a local area network. Doing so can lead to poor I/O performance and other problems, including overloading the local area network. Do not place IQ dbspace files on network drives or Network File System (NFS) file systems. To avoid conflicts, Sybase recommends that dbspace management be performed by a single database administrator on a single connection.
n/a	• **Unexpected Query Results –** In a few unusual circumstances, differences in semantics between SQL Anywhere and SAP Sybase IQ may produce unexpected query results. These circumstances are: • A query is issued from inside a user-defined function • A **SELECT** statement has no **FROM** clause • A **FROM** clause contains some tables that were created **IN SYSTEM** and others that were not created **IN SYSTEM** In these circumstances, subtle differences between the semantics of SQL Anywhere and SAP Sybase IQ may be exposed. These differences include: • SAP Sybase IQ treats the `CHAR` and `VARCHAR` data types as distinct and different; SQL Anywhere treats `CHAR` data as if it were `VARCHAR`. • When the **RAND** function is passed an argument, the behavior is deterministic in SAP Sybase IQ and nondeterministic in SQL Anywhere.

Known Issues for Installation and Configuration

Descriptions of known issues and workarounds for SAP Sybase IQ installation.

Table 2. Installer issues

CR#	Description
no CR	• **Installer reports: gzip: "Not Found"** – The installer cannot find the gzip file in the /usr/bin directory. • **Workaround** – On some HP-UX systems, gzip is located in the /usr/contrib/bin directory. If this is the case, update the path and run the installer.
749835	• **Windows installer requires Microsoft Visual C++ 2005 SP1 Redistributable Package** – Launching the installer may return the following exception: `Windows error 14001 occurred while loading the Java VM` • **Workaround** – If you get this error, install the Microsoft Visual C++ 2005 Service Pack 1 Redistributable Package MFC Security Update before launching the installer again. This service pack is included as part of the installation package. To install: 1. Open Windows Explorer. 2. Navigate to `\archives\ms-redist-2005` on the installable image. 3. Do this: 　• On 32-bit machines, run `vcredist_x86.exe` 　• On 64-bit machines, run `vcredist_x86.exe` and `vcredist_x64.exe` Microsoft Visual C++ 2005 Service Pack 1 Redistributable Package MFC Security Update is also available as a free download from the Microsoft Download Center at: *http://www.microsoft.com/en-us/download/details.aspx?id=26347*

CR#	Description

665300	• **Installer stops responding on some UNIX-like platforms** – On some UNIX-like operating systems, a network resource may cause the installer to stop responding and return the error "syntax error near unexpected token 'fi'." The **df** command also stops responding in this situation.
	
	• **Workaround** –
	
	  1. Identify the network file system (NFS) mounts that may have problems:
	    `strace -e statfs, statfs64 df`
	  2. Use the **umount** command to unmount an identified NFS mount:
	    `umount -l <path>`
	  3. Repeat the above steps until there are no more NFS mounts that have stopped responding.
	
	Note: The **umount** command requires root permission. If **umount** unmounts the NFS, you may have to restart your machine.

641873, 652690, 652696, 652866, 643106	• **Do not install SAP Sybase IQ16.0 into the same directory as older Sybase products** – Installing Sybase SAP Sybase IQ 16.0 into the same directory with older SAP Sybase Products may render some or all of these products unusable. • **Workaround** – Install SAP Sybase IQ16.0 into a different directory than the one you use for older products.

CR#	Description
628684	• **Installer unable to verify OS minimum requirements** – On HP systems, if the expanded_node_host_names kernel parameter is not set to the default value of 0 and the host name is greater than eight characters, the installer reports this warning, even if you are installing on a supported version of the operating system: ``` The installer is unable to verify whether your operating system meets the minimum requirements. ``` If you continue to install, the installer reports: ``` Errors occurred during the installation. An error occurred and production installation failed. Look at the log file <path>log.txt for details. ``` log.txt contains various errors, including no such file or directory. • **Workaround** – Set the expanded_node_host_names kernel parameter to the default value of 0.

Known Issues for SySAM Licensing

Descriptions of known issues and workarounds for SySAM licensing. These issues affect users who generate the license file from either SPDC or SMP.

Table 3. SySAM Licensing Issues

CR#	Description
670992	• **cpuinfo detects too many Itanium quad core chips fix from sylapi 2.2.0.7** – SySAM requests double the required amount of chip licenses for Itanium 9300 series quad-core chips. When this is the case, cpuinfo -v displays the diagnostic messages Family 32 Model 2 and Family 32 >= 32. Montecito or newer, so dual-core. • **Workaround** – None. This issue was fixed in sylapi 2.2.0.8

Known Issues for SAP Sybase IQ Operations

Descriptions of known issues and workarounds for SAP Sybase IQ operations.

Table 4. Open Client issues

CR#	Description

662422	• **Remote query performance degrades with DATETIME column –** SAP Sybase IQ16.0 and the default Open Client/Server included with SAP Sybase IQ16.0 support the TDS `BIGDATETIME` data type for remote queries.
	
	When an SAP Sybase IQ server executes a remote query using Open Client and fetches a `DATETIME` column on an IQ/SA remote server, the return data type is `BIGDATETIME`, instead of `DATETIME`. This may degrade performance.
	
	This performance degradation may not occur, when the remote server is an ASE server.
	
	To prevent the return of `BIGDATETIME` values, apply this workaround.
	• **Workaround –** Add these lines to the Open Client and Open Server configuration file `$SYBASE/$SYBASE_OCS/config/ocs.cfg` to prevent the return of `BIGDATETIME` values:
	
	`[SAP Sybase IQ]`
	`CS_CAP_RESPONSE = CS_DATA_NOBIGDATETIME`
	
	See also *Open Server 15.0, Open Client 15.0, and SDK 15.0 > Open Client Client-Library/C Reference Manual > Client-Library Topics > Using the runtime configuration file.*

Table 5. Server startup issues

CR#	Description
663054	• **Database recovery fails if server started with -iqro 1 flag –** A 15.2 database that is archived cannot be recovered if you specify the read-only flag **-iqro 1** on the startup command in SAP Sybase IQ 16.0.

SAP Sybase IQ Operations Known Issues from Previous Versions

Descriptions of known issues and workarounds for SAP Sybase IQ operations from previous versions.

CR#	Description
686818	• **Red Hat 6 Requires Compatibility Libraries –** Installation of SAP Sybase IQ 15.3 on Red Hat 6.0 fails with an `InvocationTargetException` error unless you install the required 32-bit compatibility libraries: • libXext-devel.i686 • libXtst-devel.i686
627872	• **PHP Bound Parameters on Big Endian Platforms –** In SAP Sybase IQ 15.2, PHP: Hypertext Preprocessor (PHP) drivers on big endian platforms require bound parameters to be initialized before the call to **sasql_stmt_bind_param** for `INT` and `BIGINT` data types. This example shows the values properly initialized before the call to **sasql_stmt_bind_param**: <code>$stmt = sasql_prepare($conn, "insert into testdefault(c1, c2, c3, c5) values(?,?,?,?)"); #Binding parameters with statement prepared $c1=22; $c2=33; $c3="col3data"; $c5="col5data"; sasql_stmt_bind_param ($stmt,"iiss", $c1, $c2, $c3, $c5); #executing statement sasql_stmt_execute($stmt);</code>

CR#	Description

622928	• **sp_iqstatus Returns Error on Chinese and Japanese Locale Installations** – On SAP Sybase IQ servers that are set up for Chinese and Japanese locales, running sp_iqstatus returns an error similar to:
	
	``
	Could not execute statement.
	Syntax error near '2010' on line 1
	SQLCODE=-131, ODBC 3 State="42000"
	Line 1, column 1
	``
	• **Workaround –**
	
	   1. Run these commands:
	     For Chinese locales:
	
	``
	% cd $IQDIR16/res
	% rm dblgzh_iq11_eucgb.res
	% rm dblgzh_iq11_cp936.res
	``
	
	     For Japanese locales:
	
	``
	% cd $IQDIR16/res
	% rm dblgja_iq11_eucjis.res
	% rm dblgja_iq11_sjis.res
	``
	   2. Restart SAP Sybase IQ.
	
	After this procedure, certain strings in the .iqmsg files and the output of **sp_iqmpxinfo**, **sp_iqstatistics**, and **sp_iqstatus** are in English, instead of Chinese or Japanese.

CR#	Description
622007	• **ASE Connections to SAP Sybase IQ with BIGDATETIME** – When a version 15.5 GA SAP Adaptive Server Enterprise server uses Component Integration Services (CIS) to connect to an SAP Sybase IQ server version that has BIGDATETIME and BIGTIME capability, any chronological data type sent to the SAP Adaptive Server Enterprise server using CIS results in the error: ```\nMsg 7225, Level 16, State 4:\nLine 1:\nUnknown datatype token 188 'BIGDATETIME NULL'\nencountered.\nExited passthru mode from server 'QA_IQ16_ASECIS'.\n``` SAP Sybase IQ sends the data as BIGDATETIME and relies on SAP Adaptive Server Enterprise to convert appropriately. The BIGDATETIME data type was implemented in CIS in SAP Adaptive Server Enterprise version 15.5 ESD #1, so this error occurs with SAP Adaptive Server Enterprise 15.5 before any ESDs have been applied. • **Workaround** – SET TEMPORARY OPTION RETURN_DATE_TIME_AS_STRING='ON' in SAP Sybase IQ for each session. The SAP Sybase IQ server sends all chronological data as strings and SAP Adaptive Server Enterprise completes the conversion. This workaround is for SAP Adaptive Server Enterprise 15.5 GA connecting to SAP Sybase IQ in passthrough mode. You can also use this workaround in the definition of a remote stored procedure, but it is not a solution for proxy tables created on SAP Adaptive Server Enterprise returning chronological data types from SAP Sybase IQ.

571993	• **dbisql Does Not Start on Linux Red Hat 5.3** – The Interactive SQL utility **dbisql** fails to start on Linux Red Hat 5.3, and issues a message similar to:
	
	```\nError! could not load the Java Virtual machine DLL:\n/root/users/user1/050509/shared/JRE-\n6_0_7_32BIT/lib/i386/client/libjvm.so\n```
	
	• **Workaround** – Run:
	
	```\n% cd $IQDIR16/bin32\n% dbisql -batch # creates below\n% dbisql.sh\n```

Known Issues for Interactive SQL

Descriptions of known issues for Interactive SQL.

Use **dbisql**, instead of **dbisqlc** , unless instructed to do otherwise for specific tasks. **dbisqlc** is supported, but does not contain all the features of **dbisql**. **dbisqlc** will be deprecated in a future release.

Table 6. Interactive SQL issues

CR#	Description
n/a	• **Creating output files in quiet mode** – If you run **dbisql** (Interactive SQL) with the **-q** (quiet mode) option, and the data extraction commands (primarily setting the option TEMP_EXTRACT_NAME1 to an output file) are in a command file, you must first set and make permanent the **dbisql** option "Show multiple result sets." If you do not set this option, the output file is not created.
n/a	• **Show multiple result sets** – To set the option "Show multiple result sets," click Tools | Options in the **dbisql** window, choose "SAP Sybase IQ," and select the "Results" tab. Under "Results Processing" and "For statements that return multiple result sets," select "Show all result sets."
n/a	• **Query plan on the Plan Viewer tab** – The query plan in the **dbisql** Plan Viewer tab is a SQL Anywhere style query plan. For an SAP Sybase IQ query plan, refer to the IQ .iqmsg file.

n/a	• **Unable to initialize screen routines** – If you set the terminal type on UNIX and Linux systems to "dumb" or "unknown" and then start **dbisqlc**, SAP Sybase IQ returns an error. For example:
	
	`% setenv TERM dumb`
	`% dbisqlc`
	
	`error at line 1 Unable to initialize screen routines`
	
	• **Workaround** – To avoid problems, run **dbisql** (Interactive SQL) instead, or use an xterm window to run **dbisqlc** on UNIX and Linux systems. For example, to start an xterm window with a scroll bar, enter:
	
	`% xterm -sb`

Known Issues for Multiplex Environment

Descriptions of known issues and workarounds for the multiplex environment.

Table 7. Multiplex issues

CR#	Description

748684	• **start_iq fails to restart secondary server with high availability enabled –** A secondary server with the high availability option enabled fails, but **start_iq** fails to restart it:
	
	`start_iq @params.cfg database.db`
	
	• **Workaround –** Specify the full path to restart a high availability server:
	
	`start_iq @/system1/IQ16/mydb/params.cfg /system1/`
	`IQ16/mydb/database.db`

611990	• **Emergency shutdown on secondary servers after CREATE TEXT IN-DEX –** A secondary server goes into emergency shutdown when:
	
	  • It is started with the **-sf external_library_full_text** flag, which disables loading of external libraries, and
	  • The user issues a **CREATE TEXT INDEX** statement on the coordinator with a text configuration that uses external libraries.
	
	All other servers replay the DDL successfully.
	
	• **Workaround –** Start secondary nodes in the multiplex without the **-sf external_library_full_text** flag.

Known Issues for In-Memory Row-Level Versioning

Descriptions of known issues for in-memory row-level versioning.

Table 8. In-Memory Row-Level Versioning (RLV) Issues

CR#	Description
737728	• **Server stops responding when asynchronous I/O subsystem is enabled with RLV –**
	• **Workaround –** Disable the flusher thread by setting the **RV_Disable_Logging_Flusher** database option to ON. This could have a small impact on concurrent loads and inserts into the RLV store.
	If the problem persists, disable asynchronous I/O by setting the **Enable_Async_IO** database option to OFF. This causes the real-time load and DML performance to be suboptimal, as these operations are dependent on I/O subsystem performance.
	Note: Disabling the flusher thread or asynchronous I/O options has no impact on the performance of any operations run against the IQ main store.

Documentation Changes

Updates, corrections, and clarifications to the documentation released with SAP Sybase IQ.

Please check the Free Download Terms document for more recent updates to third-party licensing details. The document is at: *http://www.sybase.com/softwarelicenses/ third_party_legal.*

Administration: Load Management Documentation Changes

Read about updates to Administration: Load Management.

These changes affect *Index Changes* in *Read Me First*.

The following was omitted from *New Fast Projection (FP) Indexes*:

Note: NBit loads and flat loads use different architectures. Therefore, you cannot compare their LOAD performance.

Administration: User Management and Security Documentation Changes

Read about updates to Administration: User Management and Security.

The Chinese and Japanese versions of this document contain errors. The following corrected topics replace the topics of the same names for SAP Sybase IQ 16.0 SP03.

Digital certificates

You need digital certificates to set up transport-layer security. You can obtain certificates from a certificate authority, or you can create them using the Certificate Creation utility (createcert).

Certificate Creation utility
You can use the Certificate Creation utility (createcert), to generate X.509 certificate files using RSA.

Certificate Viewer utility
You can use the Certificate Viewer utility, viewcert, to read X.509 certificates using RSA.

Certificates for server authentication
You can follow the same process to create certificate files for server authentication. In each case, you create an identity file and a certificate file.

For server authentication, you create a server identity file and a certificate file to distribute to clients.

Certificate configurations
The certificate can be self-signed or signed by a commercial or enterprise Certificate Authority.

- **Self-signed certificates –** Self-signed server certificates can be used for simple setups.
- **Enterprise root certificates –** An enterprise root certificate can be used to sign server certificates to improve data integrity and extensibility for multi-server deployments.

   You can store the private key used to sign server certificates in a secure central location. For server authentication, you can add database servers without reconfiguring clients.
- **Commercial Certificate Authorities –** You can use a third-party Certificate Authority instead of an enterprise root certificate. Commercial Certificate Authorities have dedicated facilities to store private keys and create high-quality server certificates.

Self-signed root certificates
Self-signed root certificates can be used for simple setups involving a single database server.

Tip: Use enterprise level certificate chains or commercial certificate authorities if you require multiple server identity files. Certificate authorities provide extensibility and a higher level of certificate integrity with dedicated facilities to store root private keys.

- **Certificate –** For server authentication certificates, the self-signed certificate is distributed to clients. It is an electronic document including identity information, the public key of the server, and a self-signed digital signature.
- **Identity file –** For server authentication certificates, the identity file is stored securely with a database server. It is a combination of the self-signed certificate (that is distributed to clients) and the corresponding private key. The private key gives the database server the ability to decrypt messages sent by the client in the initial handshake.
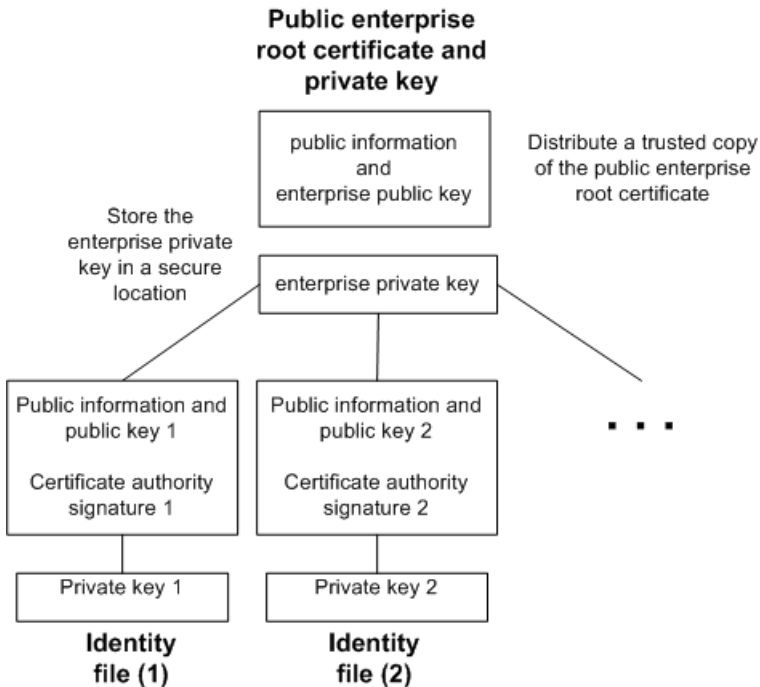
Certificate chains
If you require multiple identity files, you can improve security and extensibility by using certificate chains instead of self-signed certificates. Certificate chains require a Certificate Authority or an enterprise root certificate to sign identities.

Benefits of using certificate chains
Certificate chains provide the following advantages:

- **Extensibility –** For server authentication, you can configure clients to trust any certificate signed by an enterprise root certificate or Certificate Authority. If you add a new database server, clients do not require a copy of the new certificate.
- **Security –** The enterprise root certificate's private key is not in the identity file. Storing the root certificate's private key in a high-security location, or using a Certificate Authority with dedicated facilities, protects the integrity of server authentication.

The following diagram provides the basic enterprise root certificate architecture.

Using certificates in a multi-server environment
To create certificates used in a multi-server environment:

- Generate a public enterprise root certificate and enterprise private key.
  Store the enterprise private key in a secure location, preferably a dedicated facility.
  For server authentication, you distribute the public enterprise root certificate to clients.
- Use the enterprise root certificate to sign identities.
  Use the public enterprise root certificate and enterprise private key to sign each identity.
  For server authentication, the identity file is used for the server.

You can also use a third-party Certificate Authority to sign your server certificates. Commercial Certificate Authorities have dedicated facilities to store private keys and create high-quality server certificates.

Enterprise root certificates

Enterprise root certificates improve data integrity and extensibility for multi-server deployments.

> You can store the private key used to create trusted certificates in a dedicated facility.
>
> For server authentication, you can add servers without reconfiguring clients.

To set up enterprise root certificates, you create the enterprise root certificate and the enterprise private key that you use to sign identities.

Signed identity files

You can use an enterprise root certificate to sign server identity files.

For server authentication, you generate identity files for each server. Since these certificates are signed by an enterprise root certificate, you use the createcert -s option.

Globally signed certificates

A commercial Certificate Authority is an organization that is in the business of creating high-quality certificates and using these certificates to sign your certificate requests.

Globally signed certificates have the following advantages:

- For inter-company communication, common trust in an outside, recognized authority may increase confidence in the security of the system. A Certificate Authority must guarantee the accuracy of the identification information in any certificate that it signs.
- Certificate Authorities provide controlled environments and advanced methods to generate certificates.
- The private key for the root certificate must remain private. Your organization may not have a suitable place to store this crucial information, whereas a Certificate Authority can afford to design and maintain dedicated facilities.

Setting up globally signed certificates

To set up globally signed identity files, you:

- Create a certificate request using the createcert utility with the -r option.
- Use a Certificate Authority to sign each request. You can combine the signed request with the corresponding private key to create the server identity file.

Note: You might be able to globally sign an enterprise root certificate. This is only applicable if your Certificate Authority generates certificates that can be used to sign other certificates.

Globally signed identity files

You can use globally signed certificates directly as server identity files. The following diagram shows the configuration for multiple identity files:
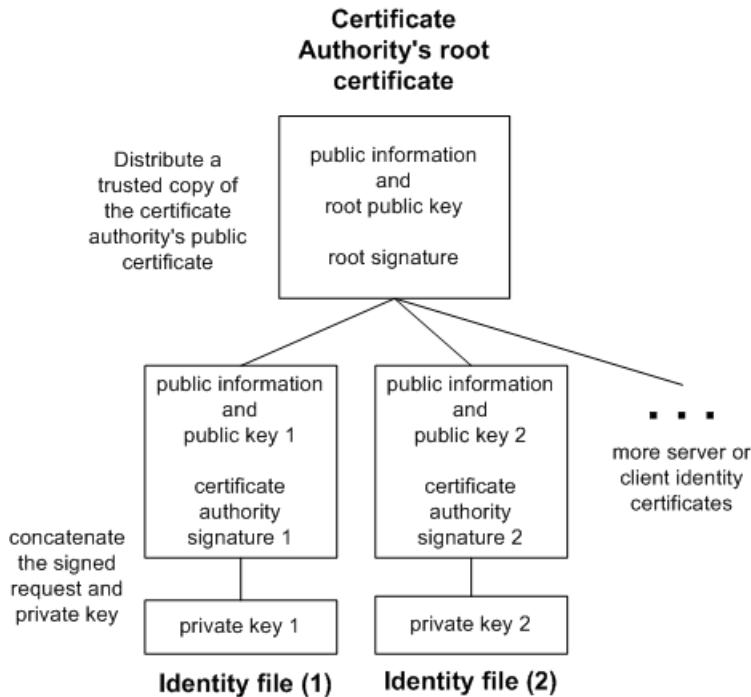
You reference the server identity file and the password for the private key on the iqsrv16command line.

Client trust setup for the certificate authority's certificate

For server authentication, you must ensure that clients contacting your server trust the root certificate in the chain. For globally signed certificates, the root certificate is the Certificate Authority's certificate.

Note: When using a globally signed certificate, each client must verify field values to avoid trusting certificates that the same Certificate Authority has signed for other clients.

FIPS-certified encryption technology

You can use FIPS-certified encryption algorithms to encrypt your database files, or to encrypt communications for database client/server communication, web services, and client/server communication.

Federal Information Processing Standard (FIPS) 140-2 specifies requirements for encryption algorithms. The FIPS 140-2 certification program is a joint effort between the American

National Institute of Standards and Technology (NIST) and the Canadian Communications Security Establishment (CSE). The Federal agencies of both Canada and the United States accept products that are certified as FIPS 104-2 conforming.

SAP Sybase IQ provides 32-bit and 64-bit FIPS-certified libraries for encryption from OpenSSL. On Windows, you must use the 64-bit libraries on a 64-bit system.

FIPS-certified RSA encryption
For a list of FIPS-certified components, see *http://www.sybase.com/detail?id=1061806*.

Enabling FIPS-certified encryption
Optionally, you can enforce the use of FIPS-certified encryption on the client or server with a FIPS option. When you set the FIPS option to on, all secure communications must be FIPS-certified. If someone tries to use non-FIPS RSA encryption, it is automatically upgraded to FIPS-certified RSA encryption. The FIPS option can be set on the client or server on which you want FIPS-certified encryption to be enforced. SAP Sybase IQ has a -fips command line option, and clients have a FIPS option that can be set with the Encryption connection parameter.

Programming Documentation Changes

Read about updates to Programming.

.NET API Reference

Topic	Section	Correction
.NET API Reference	All subtopics under *.NET API Reference* refer to the product as SQL Anywhere.	The product is SAP Sybase IQ. SQL Anywhere and SAP Sybase IQ use the same .NET API.

C/C++ API Reference

Topic	Section	Correction
SAP Sybase IQ Database API for C/C++	All subtopics under *SAP Sybase IQ Database API for C/C++* refer to the product as SQL Anywhere.	The product is SAP Sybase IQ. SQL Anywhere and SAP Sybase IQ use the same C/C++ API.

Reference: Building Blocks, Tables, and Procedures Documentation Changes

Read about updates to Reference: Building Blocks, Tables, and Procedures.

These changes affect *File Locations and Installation Settings*.

The following corrected topics replace the *JAVA_HOME Environment Variable* and *$SYBASE_JRE7_64, $SYBASE_JRE7_32 Environment Variables* topics for SAP Sybase IQ 16.0 SP03.

JAVA_HOME Environment Variable

Defines the JRE home which points to directory containing bin/java.

Used if the location of the Java VM is not set in the $SAP_JRE7_64, $SAP_JRE7, or $SAP_JRE7_32 environment variables.

JAVA_HOME is commonly created when installing a VM.

Settings
UNIX:

```
JAVA_HOME = $SYBASE/shared/JRE-7_(minor_version)_32BIT
```

or

```
JAVA_HOME = $SYBASE/shared/JRE-7_(minor_version)_64BIT
```

Windows:

```
JAVA_HOME = %SYBASE%\shared\JRE-7_(minor_version)_32BIT
```

or

```
JAVA_HOME = %SYBASE%\shared\JRE-7_(minor_version)_64BIT
```

Operating System
Required.

JRE Environment Variables

The SAP_JRE7_64, SAP_JRE7, and SAP_JRE7_32 variables specify the location of the Java Runtime Environment used by SAP Control Center.

On startup, SAP Control Center checks SCC_JAVA_HOME for Java version definition. If SCC_JAVA_HOME is undefined, SAP Control Center checks for installed JREs in this order:

- SAP_JRE7_64
- SAP_JRE7

- SAP_JRE7_32

SAP Control Center then sets SCC_JAVA_HOME to the first value it finds in this list.

Setting
Source the `IQ.sh` (Bourne/Korn shell) `IQ.csh` (C shell) files.

Tip: Alternately, you can set the JRE manually:

```
SCC_JAVA_HOME=${SYBASE}/shared/
SAPJRE-7_(minor_version)_(revision)_64BIT
```

or

```
SCC_JAVA_HOME=${SYBASE}/shared/
SAPJRE-7_(minor_version)_(revision)_32BIT
```

Utility Guide Documentation Changes

Read about updates to Utility Guide.

The Chinese and Japanese versions of this document contain errors. The following corrected topics replace the topics of the same names for SAP Sybase IQ 16.0 SP03.

@data iqsrv16 database server option

Reads in options from the specified environment variable or configuration file.

Syntax
```
iqsrv16 @data ...
```

Applies to
All operating systems and database servers. It is supported for all database utilities except the Language Selection utility (dblang), the Certificate Creation utility (createcert), the Certificate Viewer utility (viewcert), the Microsoft ActiveSync provider install utility (mlasinst), and the File Hiding utility (dbfhide).

the Language Selection utility (dblang)
the Certificate Creation utility (createcert)
the Certificate Viewer utility (viewcert)
the Microsoft ActiveSync provider install utility (mlasinst)
the File Hiding utility (dbfhide)

Remarks
Use this option to read in command-line options from the specified environment variable or configuration file. If both exist with the same name that is specified, the environment variable is used.

Configuration files can contain line breaks, and can contain any set of options.

To protect the information in a configuration file (for example, because it contains passwords), use the File Hiding (dbfhide) utility to obfuscate the contents of configuration files.

The @data parameter can occur at any point in the command, and parameters contained in the file are inserted at that point. Multiple files can be specified, and the file specifier can be used with command line options.

Example

The following configuration file holds a set of options for a server named `myserver` that starts with a cache size of 4 MB and loads the sample database:

```
-c 4096
-n myserver
"c:\mydatabase.db"
```

If this configuration file is saved as `c:\config.txt`, it can be used in a command as follows:

```
iqsrv16 @c:\config.txt
```

The following configuration file contains comments:

```
#This is the server name:
-n MyServer
#These are the protocols:
-x tcpip
#This is the database file
my.db
```

The following statement sets an environment variable that holds options for a database server that starts with a cache size of 4 MB and loads the sample database.

```
SET envvar=-c 4096 "c:\mydatabase.db";
```

The following command starts the database server using an environment variable named `envvar`.

```
iqsrv16 @envvar
```

-ec iqsrv16 database server option

Uses transport-layer security or simple encryption to encrypt all command sequence communication protocol packets (such as DBLib and ODBC) transmitted to and from all clients. TDS packets aren't encrypted.

Syntax

```
iqsrv16 -ec encryption-options ...
```

```
encryption-options :
```

```
{ NONE |
   SIMPLE |
```

```
TLS ( [ FIPS={ Y | N }; ]
IDENTITY=server-identity-filename;
IDENTITY_PASSWORD=password ) }, ...
```

Allowed values
- **NONE** – accepts connections that aren't encrypted.
- **SIMPLE** – accepts connections that are encrypted with simple encryption. This type of encryption is supported on all platforms, and on previous versions of the database server and clients. Simple encryption doesn't provide server authentication, RSA encryption, or other features of transport-layer security.
- **TLS** – accepts connections that are encrypted with RSA encryption. The TLS parameter accepts the following arguments:
  - **FIPS** – For FIPS-certified RSA encryption, specify `FIPS=Y`. RSA FIPS-certified encryption uses a separate certified library, but is compatible with version 9.0.2 or later clients specifying RSA.

    For a list of FIPS-certified components, see *http://www.sybase.com/detail? id=1061806*.

    The algorithm must match the encryption used to create your certificates.
  - *server-identity-filename* – is the path and file name of the server identity certificate. If you are using FIPS-certified RSA encryption, you must generate your certificates using the RSA algorithm.
  - *password* – is the password for the server private key. You specify this password when you create the server certificate.

Applies to
NONE and SIMPLE apply to all servers and operating systems.

TLS applies to all servers and operating systems.

For information about supporting FIPS-certified encryption, see *http://www.sybase.com/ detail?id=1061806*.

Remarks
You can use this option to secure communication packets between client applications and the database server using transport-layer security.

The -ec option instructs the database server to accept only connections that are encrypted using one of the specified types. You must specify at least one of the supported parameters in a comma-separated list. Connections over the TDS protocol, which include Java applications using jConnect, are always accepted and are never encrypted, regardless of the usage of the -ec option. Setting the TDS protocol option to NO disallows these unencrypted TDS connections.

By default, communication packets aren't encrypted, which poses a potential security risk. If you are concerned about the security of network packets, use the -ec option. Encryption affects performance only marginally.

If the database server accepts simple encryption, but does not accept unencrypted connections, then any non-TDS connection attempts using no encryption automatically use simple encryption.

Starting the database server with `-ec SIMPLE` tells the database server to only accept connections using simple encryption. TLS connections (RSA and RSA FIPS-certified encryption) fail, and connections requesting no encryption use simple encryption.

If you want the database server to accept encrypted connections over TCP/IP, but also want to be able to connect to the database from the local computer over shared memory, you can specify the -es option with the -ec option when starting the database server.

The `dbrsa16.dll` file contains the RSA code used for encryption and decryption. The file `dbfips16.dll` contains the code for the FIPS-certified RSA algorithm. When you connect to the database server, if the appropriate file cannot be found, or if an error occurs, a message appears in the database server messages window. The server doesn't start if the specified types of encryption cannot be initiated.

The client's and the server's encryption settings must match or the connection fails except in the following cases:

- If -ec SIMPLE is specified on the database server, but -ec NONE is not, then connections that do not request encryption can connect and automatically use simple encryption.
- If the database server specifies RSA and the client specifies FIPS-certified encryption, or vice versa, the connection succeeds. In these cases, the Encryption connection property returns the value specified by the database server.

Note: All strong encryption technologies are subject to export regulations.

Example

The following example specifies that connections with no encryption and simple encryption are allowed.

```
iqsrv16 -ec NONE,SIMPLE -x tcpip c:\myiqdemo.db
```

The following example starts a database server that uses the RSA server certificate `rsaserver.id`.

```
iqsrv16 -ec TLS(IDENTITY=rsaserver.id;IDENTITY_PASSWORD=test) -x
tcpip c:\myiqdemo.db
```

The following example starts a database server that uses the FIPS-approved RSA server certificate `rsaserver.id`.

```
iqsrv16 -ec TLS(FIPS=Y;IDENTITY=rsaserver.id;IDENTITY_PASSWORD=test)
-x tcpip c:\myiqdemo.db
```

-fips iqsrv16 database server option

Requires that only FIPS-certified algorithms can be used for strong database and communication encryption.

Syntax
```
iqsrv16 -fips ...
```

Applies to
Windows, Unix, and Linux.

Remarks
Specifying this option forces all database server encryption to use FIPS-certified algorithms. This option applies to strong database encryption, client/server transport-layer security, and web services transport-layer security. You can still use unencrypted connections and databases when the -fips option is specified, but you cannot use simple encryption.

Note: All strong encryption technologies are subject to export regulations.

For strong database encryption, the -fips option causes new databases to use the FIPS-certified equivalent of AES and AES256 if they are specified in the ALGORITHM clause of the CREATE DATABASE statement.

When the database server is started with -fips, you can run databases encrypted with AES, AES256, AES_FIPS, or AES256_FIPS encryption, but not databases encrypted with simple encryption. Unencrypted databases can also be started on the server when -fips is specified.

For transport-layer security, the -fips option causes the server to use the FIPS-certified RSA encryption algorithm, even if RSA is specified.

For transport-layer security for web services, the -fips option causes the server to use FIPS-certified HTTPS, even if HTTPS is specified.

When you specify -fips, the ENCRYPT and HASH functions use the FIPS-certified RSA encryption algorithm, and password hashing uses the SHA-256 FIPS algorithm rather than the SHA-256 algorithm.

-xs iqsrv16 database server option

Specifies server-side web services communications protocols.

Syntax
```
iqsrv16 -xs [,..]  { protocol[,...] }

protocol : {
NONE
 | HTTP [ ( option=value;...) ]
 | HTTPS [ ( option=value;...) ]
```

Allowed values
You can specify any of the following:

- *option* – A network protocol option
- **HTTP** – Listen for web requests by the client using the HTTP protocol. The default port on which to listen is 80.
- **HTTPS** – Listen for web requests by the client using the HTTPS protocol. The default port on which to listen is 443. You must specify the server's certificate and password to use HTTPS. The password must be an RSA certificate because HTTPS uses RSA encryption.

  The HTTP server supports HTTPS connections using SSL version 3.0 and TLS versions 1.0 and 1.1.

  You can specify `HTTPS`, or `HTTPS` with `FIPS=Y` for FIPS-certified RSA encryption. FIPS-certified HTTPS uses a separate certified library, but is compatible with HTTPS.
- **NONE** – Do not listen for web requests. This is the default.

Applies to
All operating systems and database servers.

Remarks
Use the -xs option to specify which web protocols you want to use to listen for requests.

If you do not specify the -xs option, the database server doesn't attempt to listen for web requests.

To specify multiple protocols, you can specify the -xs option for each protocol or you can specify multiple protocols with one -xs option. The server listens for web requests using all the specified protocols.

Note: To start multiple web servers at the same time, change the port for one of them since they both have the same default port.

You can use the HTTPS or FIPS-certified HTTPS protocols for transport-layer security.

On Unix, quotation marks are required if more than one parameter is supplied:

```
-xs "HTTP(OPTION1=value1;OPTION2=value2;...)"
```

Note: All strong encryption technologies are subject to export regulations.

Example

Listen for HTTP web requests on port 80:

```
iqsrv16 web.db -xs HTTP(PORT=80)
```

Listen for web requests using HTTPS:

```
iqsrv16 web.db -xs
HTTPS(FIPS=N;PORT=82;IDENTITY=ecserver.id;IDENTITY_PASSWORD=test)
```

Listen on ports 80 and 8080:

```
iqsrv16 -xs HTTP(port=80),HTTP(PORT=8080)
```

or

```
iqsrv16 -xs HTTP(port=80) -xs HTTP(PORT=8080)
```

Obtaining Help and Additional Information

Use the Product Documentation site and online help to learn more about this product release.

- Product Documentation at *http://sybooks.sybase.com/* – online documentation that you can access using a standard Web browser. You can browse documents online, or download them as PDFs. The Web site also has links to other resources, such as white papers, community forums, and support content.
- Online help in the product, if available.

To read or print PDF documents, you need Adobe Acrobat Reader, which is available as a free download from the *Adobe* Web site.

Note: A more recent release bulletin, with critical product or document information added after the product release, may be available from the Product Documentation Web site.

Technical Support

Get support for Sybase products.

If your organization has purchased a support contract for this product, then one or more of your colleagues is designated as an authorized support contact. If you have any questions, or if you need assistance during the installation process, ask a designated person to contact Sybase Technical Support or the Sybase subsidiary in your area.

Information for Technical Support

Technical Support needs information about your environment to resolve your problem.

Before contacting Technical Support, run the **getiqinfo** script to automatically collect as much information as possible. You may also need to collect some information manually .

In this list, * indicates items collected by **getiqinfo**:

- SAP Sybase IQ version (for example, 16.0 GA or SP level)
- Type of hardware, amount of memory, number of CPUs*
- Operating system and version (for example, Microsoft Windows 2008 Service Pack 1)*
- Operating system patch level
- Front-end tool used (for example, Business Objects Crystal Reports)
- Connectivity protocol used (for example, ODBC, JDBC, Tabular Data Stream™ (TDS))
- Open Client version
- Configuration type (single user or multiuser)

- (Important) Message log file* – by default, named `dbname.iqmsg` and located in the directory where you started the database server
- Stack trace file for the date and time the problem occurred (if applicable), by default named `stktrc-YYYYMMDD-HHMMSS_#.iq` and located in the directory where you started the database server*
- Command or query that produced the error
- Query plan* (recorded in `.iqmsg` file)

  The query plan is collected automatically by **getiqinfo**. If you manually collect information, enter commands like these, then re-run the command that produced the error.

  For UNIX or Linux:
  ```
  SET TEMPORARY OPTION Query_Plan = 'ON'
  SET TEMPORARY OPTION Query_Detail = 'ON'
  SET TEMPORARY OPTION Query_Plan_As_Html= 'ON'
  SET TEMPORARY OPTION Query_Plan_As_Html_Directory=
  '/mymachine1/user/myqueryplans'
  ```

  For Windows:
  ```
  SET TEMPORARY OPTION Query_Plan = 'ON'
  SET TEMPORARY OPTION Query_Detail = 'ON'
  SET TEMPORARY OPTION Query_Plan_As_Html= 'ON'
  SET TEMPORARY OPTION Query_Plan_As_Html_Directory=
  'C:\user1\myqueryplans'
  ```

  The plan is in the message log file.

  If you have performance problems, set this database option:
  ```
  SET TEMPORARY OPTION Query_Plan_After_Run = 'ON'
  ```

  This enables Technical Support to see which steps in the query processing used the time.
- Server logs
  - For UNIX and Linux: `IQ-16_0/logfiles/<servername>.nnnn.stderr` and `IQ-16_0/logfiles/<servername>.nnnn.srvlog*`
  - On Windows platforms: `%ALLUSERSPROFILE%SybaseIQ\logfiles\<servername>.nnnn.srvlog*`

    For example, on Windows 2003, the server log files are located in `C:\Documents and Settings\All Users\SybaseIQ\logfiles`. On Windows 2008, the server log files are located in `C:\ProgramData\SybaseIQ\logfiles`.
- Startup and connection option settings, from the configuration file (by default, `dbname.cfg`)*
- Database option settings and output from **sa_conn_properties*** (if the server is still running)
- Schema and indexes for the database
- Output from **sp_iqstatus** and **sp_iqcheckdb**
- On multiplex databases, execute **getiqinfo** on each node (coordinator and secondary nodes)

- Screen snapshot of the problem, if possible

A checklist for recording this information for Technical Support is provided in this release bulletin.

See *Collecting Diagnostic Information Using getiqinfo* in *Administration: Database.*

Checklist: Information for Technical Support

You can run the **getiqinfo** script to collect information.

Information Requested	Value
SAP Sybase IQ version (for example 16.0 GA or SP number)	
sp_iqlmconfig output	
Type of hardware	
Amount of memory	
Number of CPUs	
Operating system name and version (for example, Microsoft Windows 2008 Service Pack 1)	
Operating system patch level	
Front-end tool used (for example, Business Objects Crystal Reports)	
Connectivity protocol used (for example, ODBC, JDBC, TDS)	
Open Client version	
Configuration type (single node or multiplex)	
Message log file (`dbname.iqmsg`)	
Server log files (`server.nnnn.srvlog` and `server.nnnn.stderr`)	
Stack trace file (`stktrc-YYYYMMDD-HHNNSS_#.iq`)	
Command or query that produced the error	
Start up option settings	
Connect option settings	
Database option settings	
Schema and indexes for the database	
sp_iqstatus output	

Information Requested	Value
Query plan: set options (Query_Plan, Query_Detail, Query_Plan_After_Run, Query_Plan_As_Html, Query_Plan_As_Html_Directory, Query_Timing), re-run command or query	
Screen snapshot of the problem, if possible.	

Downloading Sybase EBFs and Maintenance Reports

Get EBFs and maintenance reports from the Sybase Web site or the SAP® Service Marketplace (SMP). The location you use depends on how you purchased the product.

- If you purchased the product directly from Sybase or from an authorized SAP Sybase IQ reseller:
  a) Point your Web browser to *http://www.sybase.com/support*.
  b) Select **Support > EBFs/Maintenance**.
  c) If prompted, enter your MySybase user name and password.
  d) (Optional) Select a filter, a time frame, or both, and click **Go**.
  e) Select a product.

     Padlock icons indicate that you do not have download authorization for certain EBF/Maintenance releases because you are not registered as an authorized support contact. If you have not registered, but have valid information provided by your Sybase representative or through your support contract, click **My Account** to add the "Technical Support Contact" role to your MySybase profile.
  f) Click the **Info** icon to display the EBF/Maintenance report, or click the product description to download the software.
- If you ordered your Sybase product under an SAP contract:
  a) Point your browser to *http://service.sap.com/swdc* and log in if prompted.
  b) Select **Search for Software Downloads** and enter the name of your product. Click **Search**.

Sybase Product and Component Certifications

Certification reports verify Sybase product performance on a particular platform.

To find the latest information about certifications:

- For partner product certifications, go to *http://www.sybase.com/detail_list?id=9784*
- For platform certifications, go to *http://certification.sybase.com/ucr/search.do*

Creating a MySybase Profile

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

1. Go to *http://www.sybase.com/mysybase*.

2. Click **Register Now**.

SAP Sybase IQ Developer Center

The SAP Sybase IQ Developer Center provides a forum for users to exchange information about SAP Sybase IQ.

You can visit the SAP Sybase IQ Developer Center at *http://scn.sap.com/community/ developer-center/analytic-server*.