

# New Features Guide

## Sybase® ETL 4.8

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This guide describes the new features in Sybase® ETL 4.8.

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## New features in Sybase ETL 4.8

This section describes the new features in Sybase ETL 4.8, which supports loading data into Sybase IQ. Sybase ETL is certified with Sybase IQ 12.7 and Sybase IQ 15.0. However, not all features are supported in Sybase IQ 12.7.

Table 1 lists the functionality and other differences between ETL 4.8 when used with Sybase IQ 12.7 and Sybase IQ 15.0.

**Table 1: Using ETL 4.8 with Sybase IQ 12.7 and 15.0**

Differences	Sybase IQ 12.7	Sybase IQ 15.0
<b>Features:</b> <ul style="list-style-type: none"> <li>• Sybase IQ client-side load support</li> <li>• Sybase IQ load support (Upsert)</li> <li>• Lock table support</li> <li>• Web-based monitoring</li> <li>• Multiple Writers support</li> </ul>	No Yes Yes Yes No	Yes Yes Yes Yes Yes
<b>Licensing:</b> <ul style="list-style-type: none"> <li>• ETL Development</li> <li>• ETL Server</li> </ul>	Paper license Paper license	Paper license SySAM license
<b>Platform:</b> <ul style="list-style-type: none"> <li>• Red Hat Enterprise Linux 4.0 on POWER (32-bit)</li> </ul>	Yes	No
<hr/> <p><b>Note</b> For detailed information on all updated platform and operating system versions that Sybase ETL 4.8 supports, see the <i>Sybase ETL 4.8 Release Bulletin</i>.</p> <hr/>		

## Sybase IQ client-side load support enhancements

Sybase ETL 4.8 lets you bulk-load data from text files located on remote host machines into Sybase IQ 15.0, using the “DB Bulk Load - Sybase IQ” and “IQ Loader File via Load Table” components.

In earlier versions of Sybase ETL, text files were required to be available on the same host machine as the IQ server. Also, Sybase ETL was required to be installed on the same machine as Sybase IQ. In version 4.8, you no longer need to install Sybase ETL and Sybase IQ on the same machine; the ETL server and Sybase IQ can communicate in a networked environment that allows you to bulk-load from a remote machine in a single step.

To enable client-side loading on Sybase IQ, set the `allow_read_client_file` and `allow_write_client_file` options to `on`. You must set these options once on every IQ server.

Use Sybase Central to change the value of these two options:

- 1 Connect to the Sybase IQ 15.0 server.
- 2 Right-click and select Options to see a list of all the available permanent option settings for Sybase IQ.
- 3 Select `allow_read_client_file` and `allow_write_client_file` and change the value to `on`. The default value is `off`.

Next, you need to set the server option property `allow_read_client_file` to `on`. To do this, run the following commands using `isql` or `dbisql` utility:

```
set option allow_read_client_file=on
GRANT READCLIENTFILE TO <group | user>
```

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**Note** In ETL 4.8 client-side bulk loading is supported by ODBC clients using the IQ 15.0 ODBC driver, which uses the Command Sequence communication protocol (CmdSeq). The protocol can use the `read_client_file` and `write_client_file` secure SQL components to control how a client file is read or written to a database. Use the `-sf` server option to enable or disable features for a database server. For details, see the *SQL Anywhere 11.0* documentation on Product Manuals Web site at <http://www.sybase.com/support/manuals/>.

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You can use “DB Bulk Load - Sybase IQ” and “IQ Loader File via Load Table” components to load text files to Sybase IQ located on a remote machine, when the text file:

- Is generated using ETL but not written to the IQ host machine.
- Is generated outside ETL and not placed on the IQ host machine.

In both scenarios, the text file must be in a format that is compatible with the loader components, which are mainly ASCII or binary data.

For more details on formats supported in Load Table statements, see “LOAD TABLE statement” in Chapter 6, “SQL Statements” of the *Sybase IQ 12.7 Reference Manual*.

For more details about component descriptions, see “DB Bulk Load - Sybase IQ,” in “Destination components,” and “IQ Loader File via Load Table,” in “Loader components,” in Chapter 5, “Components” in the *Sybase ETL 4.8 Users Guide*.

## Sybase IQ load support enhancement (Upsert and Delete)

ETL 4.8 includes support for Upsert function for the Bulk - Load components, namely, “IQ Loader File via Load Table”, “IQ Loader DB via Insert Location”, and “DB Bulk Load Sybase IQ”. This new functionality allows you to perform bulk insert, update, and replace on records in a table that are identified through key attributes.

The Upsert function updates a row if the record already exists; else insert a record to a table in a database if the record does not exist. This functionality does not update the existing records; it only replaces the existing record on an attribute level. In earlier versions of ETL, Upsert functionality was performed only by separate row - level update and insert operations.

In addition, ETL 4.8 now supports Delete function on the “DB Bulk Load Sybase IQ” component, which provides a faster method to delete existing records in a table that are referenced by a key. In earlier versions of ETL, delete operations were performed by executing a Delete function for each row.

For more information, see Chapter 5, “Components” in the *Sybase ETL 4.8 Users Guide*.

## Lock Table support

In Sybase ETL 4.8, you can use the Lock Table statement to acquire exclusive locks on a set of Sybase IQ tables, and prevent these tables from being accessed or modified by other concurrent transactions. To lock a table in EXCLUSIVE mode, you must be the table owner or have DBA authority. When an exclusive table lock is applied, no other transaction can execute queries, perform updates of any kind, or any other action against the locked table.

When Lock Table statement locks the tables of the first project, the second project does not fail; instead it waits for a user-defined time before trying again. This ensures the projects are not required to wait for a manual restart or for the next scheduled execution. For example, if project ‘A’ is writing data to the target table and project ‘B’ is trying to acquire the exclusive lock on the same table, project ‘B’ is made to wait for the specified wait time before it can acquire the lock. The wait time is the maximum blocking time for acquiring the EXCLUSIVE lock. When a time argument is given, the data update statements (DML) wait for the specified period of time if the target tables are locked. Otherwise the server waits indefinitely until a lock is available or an interruption occurs.

The syntax for applying an exclusive table lock is:

```
LOCK TABLE table-name WITH HOLD IN EXCLUSIVE MODE WAIT
[time]
```

Where:

- `table-name` — Must be a base table, not a view
- `WITH HOLD` — Holds the lock until the end of the connection. Otherwise, releases the lock when current transaction is rolled back or ends.
- `EXCLUSIVE mode` — Other transactions cannot execute queries, updates, or any other transaction against the table. Requires DBA authority or ownership of the table.

This statement blocks or delays other transactions that may require access to the table. `LOCK TABLE` statement allows direct control over concurrency at a table level, independent of isolation level.

The following Sybase IQ components supports the exclusive lock table statement:

- Destination - all data sink components, except “Text Data Sink”, supports Lock Table.
- Loader - all the loader components.
- Staging - DB Staging component.

You can set two additional parameters for these components, which, when writing to the Sybase IQ database, appropriately lock the Sybase IQ table before writing the data.

- IQ Lock Table in Exclusive Mode:
  - Not selected - does not lock the target table in `EXCLUSIVE` mode.
  - Selected - locks the target table in `EXCLUSIVE` mode.
- Wait Time for IQ Lock Table:
  - `hh:nn:ss.sss` - specifies maximum blocking time for an exclusive lock.

For example:

- `00:06:00.000` - sets the maximum blocking time for a exclusive lock to 6 minutes.
- `00:00:00.000` - gets the exclusive lock immediately without any waiting.
- `''` (empty string) - waits infinite until getting the exclusive lock.

If the Lock Table mode is selected, Sybase ETL generates a Lock Table statement and executes it before any other SQL statements are executed on the table.

For detailed information about the Lock Table feature in Sybase IQ, see Chapter 6, “SQL Statements” in the *Sybase IQ 12.7 Reference Manual*.

For information about new parameters in the ETL components for Sybase IQ, see Chapter 5, “Components” in the *Sybase ETL 4.8 Users Guide*.

## Web-based monitoring

Sybase ETL 4.8 has been enhanced to support Web-based remote monitoring. Now, you can monitor remote jobs and projects using a Web browser, as well as monitor the ETL grid engines on the network.

Web-based monitoring lets you:

- Monitor the state of all grid engines that are part of the grid network
- Monitor the state of a remote job or project
- Cancel, suspend, and resume a remote job and project
- View a remote log file of a grid engine

In versions earlier than Sybase ETL 4.8, you could only monitor a project or a job that launched from ETL Development. Now, with the introduction of browser-based remote monitoring, you can monitor, cancel, pause, and restart all remote jobs and projects being executed on the ETL grid engines using a Web browser, regardless of the launch mode of your job. This includes all jobs and projects, whether started using command line or ETL Development. Also, in earlier versions, you could view the status of all the available grid engines only from ETL Development. Now you can view engine status using a Web browser on any machine.

To launch the Web monitoring screen, enter this URL in a Web browser:

```
http://<hostname>:<port_number>
```

where *<hostname>* is the network name of the machine the ETL grid engine is running, and *<port\_number>* is the port on which the node is started. The default port number is 5124.

The monitoring screen shows you all jobs, projects, and grid engines that are running. You can also view the:

- List of all nodes in the grid network and their status

- Complete information of a job, including name, start time, running status, list of projects in the job, and row counts per project and per job
- Log file of a selected grid engine

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**Note** You must have Internet Explorer (IE) 6.0 or higher to use this feature.

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For more information on this feature, see Chapter 6, “Sybase ETL Server” in the *Sybase ETL 4.8 Users Guide*.

## Sybase IQ multiple writer support

Sybase ETL 4.8 supports using multiple writers for loading data into an IQ database. IQ Multiple Writer allows parallel loading of Sybase IQ tables and is faster than sequential loading.

The following IQ ETL components have been enhanced to support loading data using multiple writers:

- IQ Loader File via Load Table
- IQ Loader DB via Insert Location
- DB Bulk Load - Sybase IQ

To use the multiple writer functionality, you must have create table and execute `sp_iqstatistics` stored procedure privilege in the target IQ database. This is because ETL creates two tables (`ETL_MULTIPLEX_STATE` and `ETL_MULTIPLEX_VERSION`) in the IQ database. Each row in the `ETL_MULTIPLEX_STATE` table displays information about the IQ writer selected by the ETL gridnode that is removed automatically after each execution. In case, gridnode crashes due to unexpected error, you must clean the state data in the table, manually.

Use Sybase Central to set the create table and execute `sp_iqstatistics` permission for selected users:

- 1 Connect to the Sybase IQ 15.0 server.
- 2 Expand Users & Groups and then select the user for whom you want to set the create table permission.
- 3 Right-click the user and select Properties.
- 4 Select Authorities tab and check Resource option to give the permission to the user to create database objects in the IQ database.

- 5 Next, select Permissions tab and then select Procedures & Functions to see a list of all the available permissions.
- 6 Select `sp_iqstatistics` and click Execute to give the permission to the user to execute the stored procedure in the IQ database.
- 7 Click OK to save the settings.

For details on multiplex execution configuration, see “Configuring IQ multiple writers for loading data” in Chapter 5, “Components” of the *Sybase ETL 4.8 Users Guide*.

For optimum performance, use multiple writers when you must load multiple tables in IQ, such as in the following scenarios:

- If you have selected more than one table from the source database and you are migrating to more than one table in the target IQ database.
- If you have created a job with a multiproject component involving multiple tables, or if you have selected multiple projects that are linked to parallel execution topology, for job execution.

## IPv6 support

In addition to IPv4, Sybase ETL 4.8 now supports the Internet Protocol version 6 (IPv6) on all platforms.

Using IPv6 for database connectivity requires that the underlying database and connectivity library supports IPv6. All Sybase databases and ctplib support IPv6, and can be used with ETL on IPv6 networks.

Table 2 lists the databases that support IPv4 and IPv6.

**Table 2: Database support for IPv6**

Database	IPv4	IPv6
Sybase IQ 15.0	Yes	Yes
Sybase IQ 12.7	Yes	No
Sybase Adaptive Server® Enterprise 15.0.2	Yes	Yes
Sybase Adaptive Server Enterprise 15.0.1	Yes	Yes
Sybase Adaptive Server Enterprise 12.5.4	Yes	Yes
Adaptive Server Anywhere 11.0	Yes	Yes
Adaptive Server Anywhere 10.0	Yes	Yes
IBM DB2 9.1	Yes	Yes
Microsoft SQL Server 2005	Yes	Yes
Microsoft Access 2007	Yes	Yes
MySQL	Yes	No
Oracle 11g	Yes	No
Oracle 10g	Yes	No

IPv6 addresses a number of problems with IPv4, such as the limited number of available IPv4 addresses, which are needed by all new machines added to the Internet. IPv6 increases address size from 32 bits to 128 bits and adds improvements to IPv4 in areas, such as routing and network auto-configuration. IPv6 is expected to gradually replace IPv4, with the two coexisting for a number of years during the transition period.

## FDCC compliance

Sybase ETL 4.8 is now compliant with the Federal Desktop Core Configuration (FDCC), which is a security standard mandated by the U.S. Office of Management and Budget (OMB). To meet the FDCC security requirements, ETL 4.8 can be installed only by a system administrator. However, ETL 4.8 and the applications that you develop with ETL 4.8 are designed to be run in a standard user context without elevated system administration privileges.

By default, most ETL 4.8 files install to *Program Files\Sybase* subdirectories, and typically, write access to these subdirectories is restricted to administrative users. To meet the FDCC requirements, all writable files are installed into, copied to or from, or created in directories where standard users have write access.

