

HP NonStop Enterprise Connectivity



Connect to NonStop SQL database from a variety of client platforms

In a typical enterprise environment, a variety of systems and applications are deployed to implement business processes and provide answers to business requirements. To realize greater return on investment from automation of business processes, enterprises constantly optimize the way they operate and manage their environment. These optimization efforts usually result in demands for greater flexibility and interoperability between heterogeneous systems and applications based on open standards.

For the last 35 years, HP NonStop has been providing a linearly scalable, highly reliable, and 24x7 continuously available platform of choice for mission-critical applications with extreme service-level agreement requirements.

HP NonStop SQL builds on these platform standards and offers a clustered, shared-nothing, and massively parallel and extensible database architecture that enables porting of applications to the platform.

HP provides a broad range of connectivity options to the NonStop SQL database platform

The ANSI SQL compliant NonStop SQL/MX database can be accessed using Open Database Connectivity (ODBC) 3.5.1 standards and Java Database Connectivity (JDBC) 3.0 API specifications from Oracle.

The JDBC Type 4 driver allows Java applications running on client platforms that support JDK 1.5 or later to access NonStop SQL database.

The JDBC Type 2 driver uses native APIs to access NonStop SQL database and runs only on NonStop servers.

For client applications developed to use Microsoft ODBC API to access NonStop SQL database, we offer ODBC drivers for Windows, Linux, HP-UX platforms as well as NonStop Open System Services (OSS).

The Windows driver can be deployed on Microsoft Windows 98, Windows NT 4, Windows 2000, Windows 2000 Server, Windows 2003 Server, Windows XP, Windows Vista, or Windows 7.

The Linux driver is LSB 4.1 compliant and is tested on RHEL 5.1, 6.0 and Ubuntu 11.4.

For a complete and current list of supported platforms please refer to NonStop SQL release documentation.

JDBC Type 4 and ODBC drivers use NonStop SQL/MX Connectivity services (MXCS) to access the NonStop SQL subsystem.

The drivers and the MXCS subsystem provide a highly reliable, 24x7 available, and scalable connectivity solution, which is standards compliant and engineered for high performance and throughput, and is well integrated with the NonStop database servers.

With a variety of standard interfaces available, NonStop SQL customers can use query and reporting, data integration, and extraction, transformation, and load products from independent software vendors that support ODBC and JDBC interfaces.

The standard interfaces mitigate the risk of deployment of NonStop SQL into an existing customer environment and preserve customer's investments in third-party tools, people, and processes.

ODBC driver

ODBC is a common framework for accessing a database platform. An ODBC driver is installed on the client platform that supports the database platform. Developers use an open standard application program interface (API) to access the back-end database. The API specifies standardized representation of data types, and a library of function calls to execute a SQL Data Definition Language and Data Manipulation Language request and retrieve results as a single row or as result sets. The client application need not know the proprietary database interfaces. The ODBC driver handles the request and converts it into one that NonStop SQL understands and executes.

HP NonStop has made an on-platform native ODBC driver as well as an off-platform driver usable by all Windows, Linux, and HP-UX based clients.

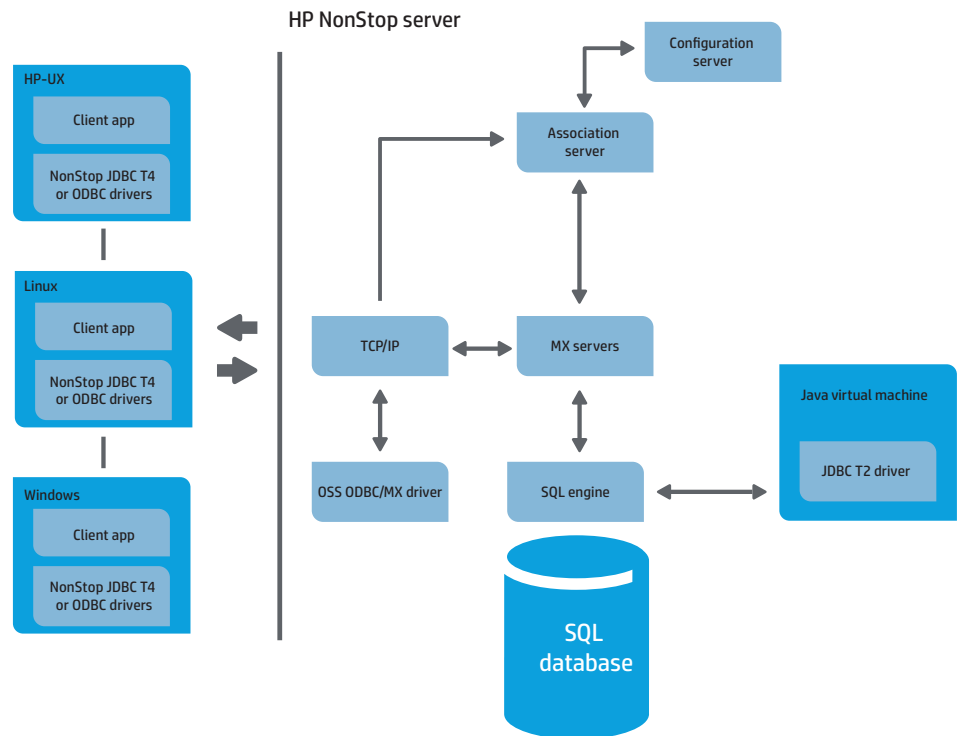
The API is flexible and enables:

- Construction of SQL statements at compile or runtime
- Access to multiple instances of a database
- Sending and receiving data in a format convenient to the client application while relying on the driver to do the conversion between the database and application platform

Key features and benefits

- Out-of-the-box ODBC standards compliant engineered for high performance and throughput.
- Available for many data sources for greater flexibility.
- A broad range of connectivity options through 32-bit and 64-bit connectivity.
- Failover detection and automatic recovery—single failures affect, at most, a single connection. All other application connections remain unaffected by the failure of one application connection. This enables higher reliability and almost continuous availability.
- Multiple, concurrent applications through a single driver instance.
- ANSI and Unicode access to databases.
- Utilities to install, remove, and query installed drivers; for example DBC Administrator and ODBC Test Utility.

Figure 1. SQL/MX connectivity services architecture overview



JDBC driver

The JDBC API is a set of classes allowing a vendor-neutral access to a database from within a Java application.

NonStop provides two JDBC drivers:

- JDBC Type 2 driver consists of Java wrappers to the SQL CLI. It offers better performance but is local to the NonStop platform. It translates JDBC function calls to native SQL calls.
- JDBC Type 4 driver is a pure self-contained Java implementation. The driver is loaded in the same Java Virtual Machine as the client and calls database APIs.

These drivers are JDBC 3.0 compliant and run on all platforms supporting Java Development Kit (JDK) 1.5 or later. The drivers also support JDBC API for connection and statement pooling and data sources.

Key features and benefits

- Enables out-of-the-box JDBC connectivity to NonStop SQL database for high performance and throughput.
- Is available for many supported data sources for greater flexibility.
- Supports 32-bit and 64-bit connectivity enabling a broad range of connectivity options.
- Provides failure containment. Single failures affect, at most, a single connection. All other application connections remain unaffected by the failure of one application connection. This enables higher reliability and nearly continuous availability.
- Provides superior performance with extensions to JDBC, such as connection pooling, statement caching, static module file caching, row sets, and result sets. NonStop SQL Connectivity Services TCP protocol has been tuned for very fast data access. Robust security with SSL-based data encryption over the network.
- Supports Dynamic SQL, Java Stored Procedures, metadata API, Unicode, I18, row sets, result sets, and Binary Large Objects/Character Large Objects data types.
- Provides JDBC 3.0 standards compliance.
- Runs on all platforms that support JDK 1.5 or later.
- Supports XA Resource Manager that enables NonStop SQL to participate in distributed transaction environments.
- Supports thread-safe nonblocking behavior.

In summary, NonStop Enterprise Connectivity provides a complete set of standards-based drivers and APIs for connectivity applications and platforms with NonStop SQL database, supporting a variety of languages and environments. NonStop SQL and connectivity offerings have been proven in demanding environments like communications, financial services, healthcare, retail, and government.

Technical specifications

Industry standards	<ul style="list-style-type: none"> • JDBC 3.0 • ODBC 3.5.1 API compliant
APIs and interfaces	C, C++, Java, JDBC, ODBC
System requirements—Software	
Software on NonStop servers	Minimum: HP NonStop Operating System, Release Version Update (RVU) G06.32 or later for NonStop S-Series servers, RVU H06.16 or later for HP NonStop Integrity NS-Series servers, and RVU J06.05 or later for HP NonStop Integrity server blades
Supported databases	NonStop SQL/MX R3.0 or later
Client Software	JDK 1.5 or later
Supported client platforms*	<ul style="list-style-type: none"> • Microsoft Windows 98, Windows NT 4, Windows 2000, Windows 2000 Server, Windows 2003 Server, Windows XP, Windows Vista, or Windows 7. • HP-UX 11i v3 • Red Hat Enterprise Linux 5.1, 6.2 and Ubuntu 11.4. • NonStop Operating System, RVU G06.32 or later • NonStop Operating System, RVU H06.16 or later • NonStop Operating System, RVU J06.05 or later

* Refer to the product Softdocs for the latest platform information

Ordering information

Part number	Description
HP NonStop J-series servers	
QSR90, QSR92	HP NonStop JDBC and ODBC drivers and server side components are now packaged with NonStop SQL PIDs
HP Integrity NonStop NS-series servers	
HSR90, HSR92	HP NonStop JDBC and ODBC drivers and server side components are now packaged with NonStop SQL PIDs
HP NonStop S-series servers	
SJ82V2A	HP NonStop JDBC Type 4 driver
SJ08V1	HP NonStop ODBC/MP server

Customize your IT lifecycle management, from acquisition of new IT, management of existing assets, and removal of unneeded equipment. hp.com/go/hpfinancialservices

HP Factory Express

HP Factory Express provides customization and deployment services along with your storage and server purchases. You can customize hardware to your exact specifications in the factory—helping speed deployment. hp.com/go/factoryexpress

Customer technical training

Gain the skills you need with ExpertOne training and certification from HP. With HP NonStop training, you will accelerate your technology transition, improve operational performance, and get the best return on your HP investment. Our training is available when and where you need it, through flexible delivery options and a global training capability. hp.com/learn/nonstop

References

SQL/MX Connectivity Service Manual

SQL/MX Connectivity Service Administrative Command Reference

ODBC/MX Driver for Windows

Linux ODBC/MX Client Driver

HP-UX Client Driver

HP NonStop Open System Services ODBC/MX Client Driver for SQL/MX

HP NonStop JDBC Type 4 Driver 3.0 Programmer's Reference

HP NonStop JDBC Type 2 Driver Programmer's Reference

HP Services

HP Technology Services offer flexible choices that span the entire technology lifecycle, and help build an infrastructure that is reliable, highly available, responsive and rooted in proven best practices. We offer a support experience that is proactive, personalized and simplified – delivering support when and how you need. HP recommends the following services

- HP Critical Service (Optimized Care) High performance reactive and proactive support designed to minimize downtime. It offers an assigned support team which includes an Account Support Manager (ASM). This service offers access to HP's Global Mission Critical Solution Center, 24x7 HW and SW support , 6-hour Call-to-Repair commitment, enhanced parts inventory and accelerated escalation management.
- HP Proactive 24 (Standard Care) Provides proactive and reactive support delivered under the direction of an ASM. It offers 24x7 HW support with 4 hour onsite response, 24x7 SW support with 2 hour response and flexible call submittal.
- HP Support Plus 24 (Basic Care) provides reactive HW and SW support with remote problem diagnosis, 4 hour onsite response, replacement parts. The SW support includes installation advisory support, software updates for HP and selected third party software products.
- HP Installation and Start-up Services This service provides efficient and effective deployment of HP hardware components.

For more information, visit hp.com/services/nonstop.

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