Part I: Product overview

IBM

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Product overview

IBM® Informix® is a fast and scalable database server that manages traditional relational, object-relational, and dimensional databases. Its small footprint and self-managing capabilities are suited to embedded data-management solutions.

The IBM Informix database server runs on UNIX, Linux, Mac OS X, and Windows operating systems.

All editions of Informix contain the following client tools in addition to the database server:

- includes the application-programming interfaces (APIs) for developing applications and providing client connectivity.
- Informix DataBlade Developers Kit (DBDK) contains tools to develop and package DataBlade modules, which are software packages that extend the functionality of the database server.

Other editions of Informix include extra functionality, such as warehousing tools or cloud capabilities.

The following descriptions summarize Informix capabilities in different functional areas.

Installation
> You install Informix and client tools with a simple installation program. After a typical installation, the server is created, configured, and started.
> You can also perform a silent or a custom installation of Informix.

Database design
> You can design relational databases that support online transaction processing (OLTP) applications.
> Informix supports ANSI databases and complies with industry standards for the SQL language.

Administration
> You configure the database server by setting configuration parameters in the onconfig file and by setting environment variables. You administer Informix with command-line utilities and SQL statements.
> You can tune the performance of Informix by configuring memory management, fragmentation, parallelization, and query optimization.
> You can back up and restore data.
> You can update the server configuration while the server is online.
> Many common administration tasks are scheduled to run automatically through the Scheduler. You can automate almost every other administrative task. You can configure alarms to alert you of problems.
> You can configure duplicate servers for continuous availability and load-balancing by setting up high-availability clusters.

Data replication
> You can replicate the data that you want between heterogeneous servers by configuring Enterprise Replication. You can also propagate SQL statements and files between servers.

Application development
> You can write applications with the ODBC, JDBC, .NET, ESQL/C, Object Interface for C++, or OLE/DB APIs that are included in . Language support includes, but is not limited to, SQL, SPL, C, C++, .NET, Java™, and PHP.
> You can write applications with the JSON-oriented query language and the MongoDB community drivers from MongoDB or the REST API.
> You can store and process multicultural data.
> You can buy IBM Informix Genero to write applications in the 4GL language.
> You can develop Informix applications with IBM Data Studio.

Embedding Informix

You can easily embed Informix in your application. You can use command-line utilities and SQL statements to script every aspect of database server administration.

You can create a fully configured snapshot of your database server environment and deploy it to many computers.

Extending Informix

You can use built-in extensions of Informix to handle specialized types of data and perform other functions that are not available in traditional relational databases.

You can also create user-defined data types, routines, access methods, and other objects. You can package your user-defined objects as a DataBlade module.

Security

You can encrypt data, secure connections, control user privileges and user access, and audit data security.

Data warehousing

You can design data marts or dimensional databases that support decision-support system applications.

You can speed warehousing queries with IBM Informix Warehouse Accelerator, which is available in some editions of Informix.

- What's new in Informix
  IBM Informix14.10 has new, changed, and removed features.
- tutorials and examples
  You can learn how to use some of the features and functionality of by using tutorials, examples, and recorded demonstrations.
- Product versions
  The IBM Informix family of products consists of the database server, administration tools, client products, and more. Informix database servers are certified to run with specific IBM Informix and non-IBM Informix products.
- Accessibility features for IBM Informix products
  strives to provide products with usable access for everyone, regardless of age or ability.
- Compliance with industry standards
  IBM Informix products are compliant with various standards.
- Java technology dependencies
  IBM Informix products and components have Java software requirements for you to use Java tools and to create and run Java applications, including user-defined functions.
- Assumptions about your locale
  IBM Informix products can support many languages, cultures, and code sets. All the information related to character set, collation and representation of numeric data, currency, date, and time that is used by a language within a given territory and encoding is brought together in a single environment, called a Global Language Support (GLS) locale.
- Demonstration databases
  Demonstration databases that contain sample data are provided with the IBM Informix database server.
- Education
  offers a comprehensive portfolio of technical training and education services that are designed for individuals, companies, and public organizations to acquire, maintain, and optimize their IT skills.
- Release information
  Review the release notes, documentation notes, and machine notes for essential information about an IBM Informix product or fix pack.

What's new in Informix

IBM® Informix®14.10 has new, changed, and removed features.

The following versions contain documentation updates:

What's new in IBM Informix version 14.10.xC6

- InformixHQ enhancements
- TLS 1.3 support added
- Auditing enhancement, support for Audit to Syslog (ASL) facility
- Distributed transactions and PAM authentication enhancement
- New High-availability cluster configuration parameter SEC_NONBLOCKING_CKPT
- TEMPTAB_NOLOG enhancement
- New replication utility **cdr check catalog**
- Enterprise replication performance enhancements
- **onstat -g laq** enhancement
- Limitations on admin() commands on read only secondary
- Backup and restore a Remote Secondary Server(RSS)
- DBSPACETEMP enhancement
- New SMI table syssessiontempspaceusage
- New session environment variable DBINFO_DBSPACE_RETURN_NULL_FOR_INVALID_PARTNUM
- New session environment option QUERY_TIMEOUT
- repl2spl now includes userid and session id
- Documentation updates: Wire listener
- Heads up: Removing support for Deployment Assist and SPWDCSM(from JDBC and server) in future releases
- CSDK install enhancement
- New ODBC DSN Advance Option UPDATE_DESCRIBE or UPDDESC

What's new in IBM Informix version 14.10.xC5

- Shard Join enhancements
- InformixHQ enhancements

What's new in IBM Informix version 14.10.xC4

- Informix .NET Core
- Wire Listener enhancements
- Spatio-temporal enhancement
- ODBC Connection Pooling enhancement
- Replication enhancements

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- [Solaris Certification](#)
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What's new in IBM Informix version 14.10.xC3

- [GSKit Upgrade](#)
- [Java(TM) SE Runtime Environment Upgrade](#)

What's new in IBM Informix version 14.10.xC2

- [InformixHQ enhancements](#)
- [Sharded Query enhancements](#)
- [New Java API for CDC data streaming](#)
- [Support for using direct strings in SQLs for clob columns](#)
- [Implementation of UUID keyword/function](#)
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What's new in IBM Informix version 14.10.xC1

Performance

- [J-foundation upgrade](#)
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Administration

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Security

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- [Remote Key Store for EAR](#)

Extensibility

- [TSTAMP data type for TimeSeries](#)

- Spatio-temporal enhancements

What's new in IBM Informix version 14.10.xC6

InformixHQ enhancements

- Schema manager has been enhanced with 'Create and Drop table' capability.
  For more information, see *Schema Manager*.

- InformixHQ server and agent logging behavior customization(change the logging level, log file location, enable rolling window logging) using server.log4j.xml and agent.log4j.xml .
  For more information, see Logging in InformixHQ .

- Provision is made for user to specify connection properties for InformixHQ agent separately.
  For more information, see *InformixHQ Agent Setup*.

- Documentation updates:
  For more information, see System Compatibility, Getting Started

TLS 1.3 support added.
  Informix server now supports TLS version 1.3 for network connections. TLS version 1.2 is enabled by default.

  For more information, see TLS_VERSION configuration parameter.

Auditing enhancement, support for Audit to Syslog (ASL) facility
  The audit subsystem of Informix server on Unix-based systems has been enhanced to support Audit to Syslog that is it now allows audit records to be sent to the syslog daemon, which can be configured to handle the audit messages in many different ways.

  For more information, see Secure-auditing facility, The ADTCFG file, The onaudit utility: Configure auditing, The onshowaudit utility.

Distributed transactions and PAM authentication enhancement
  Informix now provides an additional method to support distributed connection PAM authentication. On Linux/Unix platforms through OS rhosts PAM module, user can define PAM configuration file.

  For more information, see Distributed transactions and authentication modules.

New High-availability cluster configuration parameter SEC_NONBLOCKING_CKPT
  New configuration parameter SEC_NONBLOCKING_CKPT is introduced to enable non-blocking checkpoint at HDR and RS secondary server.

  For more information, see SEC_NONBLOCKING_CKPT configuration parameter.

TEMPTAB_NOLOG enhancement
  TEMPTAB_NOLOG can now have value 2(earlier supported values were 0 and 1). When set to 2, it enables logical logging on temporary table operations for primary server and disables logical logging on temporary table operations for secondary servers(HDR, RSS and SDS). On primary/standard server, same behavior as 0, on secondary servers, same behavior as 1. When server type changes, logging for temporary tables will be enabled/disabled depending on the current server role.

  For more information, see TEMPTAB_NOLOG configuration parameter

New replication utility **cdr check catalog**

New replication utility **cdr check catalog** added to verify metadata information across the servers. The **cdr check catalog** command compares the metadata information related to servers, replicates and replicate sets on replication servers for any inconsistency.

For more information, see [cdr check catalog](#)

Enterprise replication performance enhancements
> Improvements are made to end to end ER performance to improve replication throughput and reduce latency. Most of the changes are internal to the server related to reducing internal latch contention and improve apply parallelism. External visible changes include, Enterprise replication now uses SMX transport mechanism for data replication to peer ER server which allows usage of multiple network pipes(configured using SMX_NUMPIPES) to send data to peer server. Also as part of send queue optimization, smaller transactions with size less than 26KB are now spooled to in-row transaction header table in syscdr database(configured using CDR_DBSPACE) instead of to smartblob space configured using CDR_QDATA_SBSPACE.

> For SMX related information, see [Configure SMX connections](#)

> For CDR_DBSPACE configuration, see [CDR_DBSPACE Configuration Parameter](#)

onstat -g laq enhancement
> User can now use **onstat -g laq** command to print information about log recovery apply queues which includes logical log recovery on secondary servers as well as logical restore or logical recovery part of fast recovery. Log records from logical logs are assigned to replay worker threads according to the tablespace ID (partnum) associated with them; a subset of log records will be applied by the replay master thread.

> For more information, see [onstat -g laq command: Print log apply queues](#)

Limitations on admin() commands on read only secondary
> When connected to a secondary node, the admin() function is disabled and will always return a value of -1. In addition, the task() function will return an error for commands that involve modifying disk structures, since these administrative actions are meant to be executed only on primary or standalone nodes.

> For more information, see [SQL Administration API Overview](#), [admin() and task() Function Return Codes](#)

Backup and restore a Remote Secondary Server(RSS)
> It is now possible to take archives and log backups on a Remote Secondary Server (RSS) node using onbar or ontape. An archive taken locally on this node may be used to recreate the RSS node and may also be used to restore a primary node in the event that no preferable archive exists.

> For more information, see [Backup and restore a Remote Secondary Server(RSS)](#)

DBSPACETEMP enhancement
> DBSPACETEMP configuration parameter now allows spaces with mixed page sizes.

> For more information, see [DBSPACETEMP configuration parameter](#)

New SMI table syssessiontempspaceusage
> The new syssessiontempspaceusage SMI table contains information about each session's temp space usage. This includes both implicit and explicit temp tables.

> For more information, see [syssessiontempspaceusage](#)

New session environment variable DBINFO_DBSPACE_RETURN_NULL_FOR_INVALID_PARTNUM

Enhanced DBINFO function to return Null when partnum is invalid by adding a new session environment variable DBINFO_DBSPACE_RETURN_NULL_FOR_INVALID_PARTNUM.

For more information, see DBINFO_DBSPACE_RETURN_NULL_FOR_INVALID_PARTNUM environment variable

New session environment option QUERY_TIMEOUT
Use the QUERY_TIMEOUT environment option of the SET ENVIRONMENT statement to limit the amount of clock time a query may take before being interrupted internally.

For more information, see QUERY_TIMEOUT

repl2spl includes userid and session id
For the ASYNC trigger to replicate to the SPL either using --splname or --jsonsplname while defining a replicate, the server will also send the user id and session id along with the other data as it used to send before

For more information, see Replication to SPL routine, Push data feature

Time series enhancements
TimeSeries: CountIf() functionality is extended with three new functions, GetMatchingIf, GetElementsIf and GetNULLElementsIf.

For more information, see Time series SQL routines

Documentation updates: Wire listener
Updates done to remove some out of date information from wire listener.

For more information, see Configure the wire listener for the first time, Wire listener logging, Configuring MongoDB authentication, Preparing shard servers, Troubleshooting JSON compatibility

Heads up: Removing support in future releases

- End of life/Removal of Deployment Assist in future releases. Support for Deployment Assistant will be removed in the future releases of Informix Dynamic Server.
- End of life/Removal of SPWDCSM from JDBC and server in future releases. The simple password communication support module will be removed in the future releases of Informix Dynamic Server.

CSDK Install enhancement
CSDK Install now lists ".NET Core Provider" as a component installed.

For more information, see components

New ODBC DSN Advance Option UPDATE_DESCRIBE or UPDDESC
This new DSN option UPDATE_DESCRIBE or UPDDESC and Connection Property SQL_INFX_ATTR_UPDATE_DESCRIBE is required particularly for BLOB/CLOB data types, because these data types need special handling in the ODBC Driver for setting up BLOB/CLOB context in the driver and require details of these data types description from the server. By enabling this option Server will send the description of these data types which will be used by ODBC Driver.

For more information, see Configuring a new user DSN or system DSN, Data-source specification

What's new in IBM Informix version 14.10.xC5

Shard Join enhancements

- Enhanced to support fallback on local joins when multiple sharded-tables have incompatible shard expressions.
- Support IN clause in Shard definition.
- SHMTOTAL and EXTSHMADD are dynamically tunable.
- RENAME TABLE statement will now accept IF EXISTS clause.

For more information, see *Sharded Query*.

InformixHQ enhancements

- Informix HQ UI framework is upgraded to Angular 8.
- Enhanced to support stronger hash algorithm for passwords by adding a new config property **user.password.algorithm**.
- Allows you to save dashboard preferences in Custom Dashboard Page.
- Script to start or stop the server has been enhanced to support AIX platform.

For more information, see *InformixHQ Server Configuration*, *Custom Dashboards* and *Getting Started*.

What's new in IBM Informix version 14.10.xC4

Informix .NET Core

- Starting with CSDK 4.50.xC4, Informix .NET Core Provider compatible with .NET Core SDK/Runtime v3.1 is shipped for Windows x64 and Linux x86_64 platforms.

  For more information, see *Informix .NET Core Provider*.

Wire Listener enhancements

- Support for Mongo API versions 3.2, 3.4, 3.6, 4.0, and 4.2. Set mongo.api.version to enable compatibility with newer Mongo API versions.
- Support for Informix authentication in the REST and MQTT listeners. Authenticate through REST with your Informix database users and passwords. For more information, see *User authentication with the wire listener*.

Spatio-temporal enhancement

Informix Spatial data types now conform to the OpenGIS Simple Features Specification for SQL Revision 1.1 and the ISO/IEC 13249-3 SQL/MM Part 3: Spatial. The Informix Spatial solution is based on the ESRI SDE 10.8 Shape and Projection Engine (PE) libraries.

For more information, see *Spatiotemporal Search for Moving Objects User's Guide*.

ODBC enhancement

- **ODBC Connection Pooling enhancement**
  - Informix ODBC driver supports new Connection Pool Manager properties:
    - MinPoolSize: open as many number of connections during first request of connection.
    - MaxConnLimit: restrict number of connections to the value set by this parameter.
    For more information, see Tuning the Connection Pool Manager
- **CLIENT_LABEL support in ODBC and Setnet32**
  You can use this variable to distinguish one database session from the other.

  For more information, see *Application tracking in ODBC*.

Replication enhancements

- Support to display flow control delay statistics for RSS and SDS.

  For more information, see *Administrator's Reference Guide*.

- Support for skipping building of RI constraints during schema and data load phase and building RI constraints at the end of migration with its own phase.
  For more information, see *Administrator's Reference Guide*.

- Added new **add_replcheck** phase for 'cdr migrate server'.
  For more information, see *Administrator's Reference Guide*.

- Smart trigger session survival enhancement to reset log position and recapture changes after failover or after bouncing the server.
  For more information, see *Administrator's Reference Guide*.

Onstat Command enhancement

- Added new monitoring utility **onstat -g top** command to display information about top consumers of various resources.

  For more information, see *Administrator's Reference Guide*.

InfromixHQ enhancements

- The **Schema Manager** page has been enhanced to:
  - Browse and view detailed information about database information like Stored Procedures, Sequences, User Defined Types, Data Blades
  - Browse and view detailed information about table information like Indexes, References, Constraints, Triggers
  - Create Database and Drop Database
  - Create Demo Database and Drop Demo Database
  - Create, Enable, Disable and Drop Index with advanced options

  For more information, see *Schema Manager*.

- The **Connection Manager** page allows you to visualize and manage CM unit, SLA and FOC for any CM.
  For more information, see *Connection Manager*.

Solaris Certification

- Certified on Solaris 11.4

MSG_Date Parameter enhancement

- **MSG_DATE** configuration parameter is enhanced to support insertion of a date in different formats at the beginning of each message printed to the online log.

J/Foundation enhancement

- The new getExplain utility allows you to run query plans and retrieve them as LVARCHAR, eliminating the need for access to the server box.

  For more information, see *Guide to SQL: Syntax*.

Conversion Support for HDR and RSS Secondary Server

Migration utility is enhanced to support secondary server conversion from 11.70, 12.10 to 14.10 version.

For more information, see *Migrating an offline cluster to a new major version* and *High-availability cluster migration*.

Client SDK 4.50.xC4W1 enhancement

Stand-alone installations of Client SDK 4.50.xC4W1 (and newer) is enhanced to use OpenSSL instead of GSKit as an encryption library. If your database clients uses SSL/TLS connections, their keystores need to be migrated.

For more information, see *Configuring a client for SSL connections* and *Using SSL/TLS database connections*.

What's new in IBM Informix version 14.10.xC3

GSKit Upgrade

- Upgraded to version 8.0.55.9.

Java(TM) SE Runtime Environment Upgrade

- Upgraded to version 8.0.5.35 for Solaris and HP.
- Upgraded to version 8.0.5.37 for other platforms.

What's new in IBM Informix version 14.10.xC2

InfromixHQ enhancements

- The **Task Scheduler** pages allows you to manage and customize tasks for your database server.
- The **High Availability** page makes it easy to visualize and monitor the functioning of your high availability cluster.
- The **Enterprise Replication** page visualizes and provides details drill-down statistics about each Informix node participating in replication.
- The **Memory Manager** page allow you to visualize and monitor your database server's memory usage as well as configure its Low Memory Manager configuration.
- The **Auto Update Statistics** pages allows you to manage your automatic update statistics policies, ensuring your queries continue to run efficiently as your data changes over time.
- Customization enhancements like custom dashboards, custom SQL sensors, alerting incident.

For more information, see *What's new in InformixHQ*.

Sharded Query enhancements

- Eliminate the need to setup Enterprise Replication across all edge servers.
- Support survival from node failures.
- Support joins with multiple sharded tables.

For more information, see *Sharded Query*.

New Java API for CDC data streaming

The Informix Change Streams client API allows you to easily stream changes made from a logged database in Informix into your Java application.

For more information, see *Informix Change Streams API for Java*.

Support for using direct strings in SQLs for clob columns

CLOB types supports direct strings in place of FILETOCLOB function.

For more information, see *Guide to SQL:Tutorial*.

Implementation of UUID keyword/function

The extended character utility support functions run as Java UDR's to provide common functions.

For more information, see *Built-in routines*.

Partial Index

Partial Index is an index which has some condition applied to it so that it includes a subset of rows in the table.

For more information, see *Partial Index in Fragment Expressions*.

cdr list replicate command enhancement

cdr list replicate command supports replicate id as input both in decimal and hex format.

For more information, see *cdr utility*.

cdr migrate server command enhancement

cdr migrate server command supports data migration of larger databases with parallel data load using raw tables and parallel index builds.

For more information, see *cdr utility*.

Statement Cache enhancements

- New sysmaster:syssscelem pseudo table to coincide with onstat -g ssc.
  For more information, see *The sysmaster database*.

- Invalidate specific statement(s) in the Statement Cache.
  For more information, see *Monitoring usage of the SQL statement cache*.

- Lock query plan(s) in the Statement Cache.
  For more information, see *Monitoring usage of the SQL statement cache*.

CSDK Connection Pooling

The applications directly using the Informix ODBC driver can optimize the connection resource in highly OLTP nature of applications where number of connections opened and closed are in large numbers.

For more information, see *ODBC Connection Pooling*.

What's new in IBM Informix version 14.10.xC1

J-foundation upgrade

- J/Foundation now supports additional mechanisms for easier deployment of Java UDR's into the Informix server.

  For more information, see *Enhanced Class Deployment*.

- JDBC driver used with J/Foundation has been updated to 4.50.JC1.
  The enhancements and performance improvements added in JDBC make J/Foundation faster and more feature rich. In particular, Large Object access is quicker and general SQL connection performance between the Java UDR and the database system is more efficient. The server caches the JDBC connection structures more efficiently and is more memory efficient than prior versions.

  For more information, see *What's new in JDBC 4.50*.

- J/Foundation has a new logging framework.
  It is more customizable than before and is twice as fast as the old logging system.

  For more information, see *Generating Log Messages*.

Log replay performance improvements

- Sending and applying transactions to secondary (RSS, SDS, HDR) instances has been optimized for performance under the most trying conditions. Performance tests show a significant increase in throughput when compared to Informix v.12.10, benefiting all customers large or small. Similar improvement is observed in crash recovery performance.
- Added new config parameters for performance tuning and updated 'onstat –g laq' output to show replication latency, and log replay rate.

For more information, see *Administrator's Reference Guide*.

New Enterprise Replication command to automate setting up replication between Informix servers

- New 'cdr migrate server' command automates setting up of Enterprise Replication between two Informix server instances. This command automates tasks such as:
    1. Define Enterprise Replication domain between the two servers.
    2. Add ERKEY columns for the tables that does not have primary key or unique index columns. Note that adding ERKEY is a slow alter may require downtime to applications.
    3. Create required storage spaces for the databases.
    4. Apply database schema from source server to target server.
    5. Create replicate definitions.
    6. Synchronize data between source and target server instances.

For more information, see *Enterprise Replication Guide*.

InformixHQ

Informix HQ is a new web-based tool which replaces Informix Open Admin Tool (OAT) and provides many requested features:

- Modernized web console for monitoring, alerting, and administering Informix database servers.
- Provides critical performance management capabilities, monitoring how key performance metrics are changing over time and tracking how efficiently Informix is running your workload even when you've stepped away from your screen.
- Customizable alerting system so you can be immediately alerted through modern IT infrastructures like Pager Duty, Twilio, and email.
- Purpose built for scaling out and optimizing DevOps needs.
- Accessible from any desktop, laptop, or mobile device.

For more information, see *InformixHQ Guide*.

Integrated Encryption

The Informix Backup and Restore utilities (On-Bar, ontape, archecker, onlog) now have the capability to internally encrypt and decrypt dbspace, blobspace, smart blobspace and logical log backup data, using Remote Key Store servers that provide access to state of the art resources (entropy sources, key generators, centralized key management and rotation, etc.) which are difficult to simulate in a stand-alone machine.

The same utilities also offer a simple way to encrypt and decrypt data using a locally provided static encryption key.

For more information, see *Backup and Restore Guide*.

Remote Key Store for EAR

The encryption-at-rest (EAR) feature now supports the storage of encryption keys in an Amazon Web Services (AWS) account.

For more information, see *The onkstore Utility*.

TSTAMP data type for TimeSeries

A new TSTAMP distinct type can be used when defining fields or parameters in TimeSeries.

For more information, see *TimeSeries Data User's Guide* .

Spatio-temporal enhancements

- Support for projection systems other than World Geodetic System (WGS) 84.
- Support for new ESRI Shape and Projection Engine (PE) libraries.
- Added a "count" operation to return the number of times a moving object has passed a given location.

For more information, see *Spatiotemporal Search for Moving Objects User's Guide*.

REGEX: rtrim flag and overloaded functions

The new flag, *rtrim* will trim trailing white space on the input string. It is applied by adding the trim option to the *copts* or *copts_string* parameter when invoking the various *regex_<xxx>()* functions.

For more information, see *Database Extensions User's Guide*.

Backup to S3 cloud servers using V4 authentication

The onpsm utility has been updated to support V4 authentication for the S3 protocol. We achieve this by allowing the utility to create devices with a new parameter ("–region") which will automatically enable V4 authentication in that device.

For more information, see *Backup and Restore Guide*.

Common Table Expression

A Common Table Expression (CTE) is a named temporary result set derived from a simple query and defined within the execution scope of a SELECT, INSERT, UPDATE, or DELETE statement. The CTE can be referred to later within that same statement, possibly multiple times. CTEs can be used recursively to simplify complex queries.

For more information, see *WITH statement (Common Table Expressions)*.

Atomic replacement of stored procedure

New SQL functionality provides "atomic" replacement of stored procedures (only). CREATE OR REPLACE PROCEDURE works differently than CREATE PROCEDURE IF NOT EXISTS, as CREATE OR REPLACE PROCEDUREwill replacean existing function with the newer version of the procedure. CREATE OR REPLACE preserves existing schema dependencies.

For more information, see *OR REPLACE Clause*.

Replication to SPL routine

Replication to SPL enables to apply data to a stored procedure instead of to a target table. SPL routine can be written using Informix stored procedure language, C or JAVA UDR.

The feature include:

- Realtime streaming analytics on OLTP data. Examples include:Asynchronously calculate per store sales report and Realtime leaderboard calculation for an online game.
- Data transformations. Example: While replicating data from retail stores to central home office, dynamically include data for store id column at home office server.
- Asynchronously update external systems like message queues, graph databases, and Hadoop file systems.
- Replicate data for tables that do not have primary key, ER key or unique index.

Asynchronous post commit triggers can be created using combination of "replication to SPL" and "loopback replication" functionality.

For more information, see *Enterprise Replication Guide*.

ODBC Smart Trigger

A smart trigger is a set of commands issued to the database, that sets up a push notification when certain changes happen to data in a table. These changes are detected by a SQL query, that is run after INSERT, UPDATE, or DELETE commands are executed. ODBC's APIs can be used to get the real time Push Data notification from Informix server in ODBC applications. It is available across all ODBC supported platforms.

For more information, see *Informix ODBC Driver Guide*.

tutorials and examples

You can learn how to use some of the features and functionality of by using tutorials, examples, and recorded demonstrations.

Administration
    Optimize data storage with the SQL administration API: This example shows how to estimate how much space you can save by compressing data, how to create a compression dictionary, and how to compress data. It also shows how to decompress data and remove the compression dictionary.
    Manage storage devices with IBM® Informix® Primary Storage Manager: Learn how to set up and use IBM Informix Primary Storage Manager to manage storage devices that the **onbar** utility uses for backing up and restoring instances. Each example shows a specific backup strategy:

- Storing backups for an instance.
- Storing backups for two instances.

- Exporting backups to, and restoring them from, a directory.
- Exporting backups from one server, and importing them to another server.

Replication

Enterprise Replication examples: These examples show how to set up replication systems with the **cdr** command-line utility. They do not require a Connection Manager. Each example builds on the previous example to set up the following replication systems:

- Primary-target replication
- Update-anywhere replication
- High-availability clusters in a hierarchical tree topology

Connection Manager configuration examples: These examples show how to configure connection management, using Connection Manager technology, for high-availability clusters and replication systems.

Set up a replication system with a grid: This example shows how to set up a replication domain, create a grid, create a database, create a replicated table, and load data.

Roll out schema changes in a grid: This example shows how to alter the data types of columns in five tables, and to roll out schema changes without application downtime.

Server deployment

Deploy Informix: This tutorial shows how to deploy a snapshot of the Informix database server by using the deployment utility.

Informix extensions

TimeSeries extension: These examples show how to configure database objects for specific types of time series data.

- Create and load a regular time series
- Create and load a hertz data time series
- Create and load a compressed data time series
- Create and load a time series with JSON data

JSON compatibility

Create a time series through the wire listener: This example shows how to create, load, and query a time series with the REST API or the MongoDB API through the wire listener.

Warehousing

Informix Warehouse Accelerator: These examples show how to use Informix Warehouse Accelerator for in-memory acceleration of data mart queries:

- Create a data mart from the command line
- Create a data mart for time series data
- Continuously refresh accelerated time series data
- Accelerate data from JSON collections

To find or share software examples or how-to examples with other members of the IBM developerWorks® community, go to Informix Exchange.

Product versions

The IBM® Informix® family of products consists of the database server, administration tools, client products, and more. Informix database servers are certified to run with specific IBM Informix and non-IBM Informix

products.

For information about the kind of support available for your product version, go to the *IBM Informix Product Lifecycle* page at http://www.ibm.com/software/data/support/lifecycle/.

Informix servers

- IBM Informix 14.10.xC1

Client products

- IBM Informix Client Software Development Kit 4.50.FC1
- IBM Informix JDBC Driver, 4.50.JC1

Globalization components

- IBM Informix GLS, Version 7.00.xC1

Informix solutions

- IBM Informix Warehouse Accelerator, 14.10.xC1

For more information about some products that can operate with database products, go to http://www.ibm.com/developerworks/connect/informixinterop.

Related information:
Fix pack naming conventions

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Accessibility features for IBM Informix products

strives to provide products with usable access for everyone, regardless of age or ability.

Accessibility features help users who have a physical disability, such as restricted mobility or limited vision, to use information technology products successfully.

Accessibility features

The following list includes the major accessibility features in IBM® Informix® products. These features support:

- Keyboard-only operation.
- Interfaces that are commonly used by screen readers.
- The attachment of alternative input and output devices.

Keyboard navigation

This product uses standard Microsoft Windows navigation keys.

Related accessibility information

You can view the publications in Adobe Portable Document Format (PDF) using the Adobe Acrobat Reader.

The documentation includes accessibility-compliant syntax diagrams in dotted-decimal format, which are described in Dotted decimal syntax diagrams.

and accessibility

See the Accessibility Center for more information about the commitment that has to accessibility.

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Compliance with industry standards

products are compliant with various standards.

SQL-based products are fully compliant with SQL-92 Entry Level (published as ANSI X3.135-1992), which is identical to ISO 9075:1992. In addition, many features of database servers comply with the SQL-92 Intermediate and Full Level and X/Open SQL Common Applications Environment (CAE) standards.

Java technology dependencies

IBM® Informix® software supports Java™ Platform Standard Edition (Java SE) to create and run Java applications, including user-defined routines (UDRs). Java SE 8 is supported as of 14.10.xC1.

Important:

- Check the machine notes to learn about Java technology exceptions and other requirements for specific operating system platforms. The machine notes are available on the product media and in the online release information.
- In general, any application that ran correctly with earlier versions of Java technology will run correctly with this version. If you encounter problems, recompile the application with the next available fix pack or version. However, because there are frequent Java fixes and updates, not all of them are tested.
- To develop Java UDRs for the database server, use the supported Java software development kit or an earlier version according to Java compatibility guidelines. The supported version provides a known and reliable Java environment for UDRs in this database server release.

For details about Java requirements, check the following sections:

- Java runtime environment
- Software development kit for Java
- Java Database Connectivity (JDBC) specification

Java runtime environment

On most supported operating system platforms, the installation application bundles a Java runtime environment that it requires. However, check the machine notes for your operating system platform to determine whether the installation application requires a particular Java runtime environment to be preinstalled.

Also, IBM Runtime Environment, Java Technology Edition is supported for general use of the database server. It is installed on most operating system platforms by default in the following directory: $INFORMIXDIR/extend/krakatoa/jre/.

MongoDB API and REST API access supports Java™ Platform Standard Edition (Java SE) version 8.

Software development kit for Java

The following products and components require a software development kit for Java, but one is not installed:

- Informix DataBlade Developers Kit (DBDK)
- IBM Informix JDBC Driver
- J/Foundation component
- Spatial Java API
- TimeSeries Java API

The software development kit that you use must be compatible with the supported Java runtime environment. does not support OpenJDK. You can download a development kit from the following web sites:

- **Recommended for AIX and Linux:** IBM SDK, Java Technology Edition (http://www.ibm.com/developerworks/java/jdk/)
- **Recommended for HP-UX:** HP-UX 11i Java Development Kit for the Java 2 Platform Standard Edition (https://h20392.www2.hpe.com/portal/swdepot/displayProductInfo.do?productNumber=HPUXJDKJRE80)
- Oracle Java Platform, Standard Edition Development Kit (JDK) (http://www.oracle.com/technetwork/java/javase/downloads/index.html)

Java Database Connectivity (JDBC) specification

products and components are compliant with the Java Database Connectivity (JDBC) 4.0 specification.

Assumptions about your locale

IBM® Informix® products can support many languages, cultures, and code sets. All the information related to character set, collation and representation of numeric data, currency, date, and time that is used by a language within a given territory and encoding is brought together in a single environment, called a Global Language Support (GLS) locale.

The IBM Informix OLE DB Provider follows the ISO string formats for date, time, and money, as defined by the Microsoft OLE DB standards. You can override that default by setting an environment variable or registry entry, such as GL_DATE.

If you use Simple Network Management Protocol (SNMP) in your environment, note that the protocols (SNMPv1 and SNMPv2) recognize only English code sets. For more information, see the topic about GLS and SNMP in the *IBM Informix SNMP Subagent Guide*.

The examples in this publication are written with the assumption that you are using one of these locales: en_us.8859-1 (ISO 8859-1) on UNIX platforms or en_us.1252 (Microsoft 1252) in Windows environments. These locales support U.S. English format conventions for displaying and entering date, time, number, and currency values. They also support the ISO 8859-1 code set (on UNIX and Linux) or the Microsoft 1252 code set (on Windows), which includes the ASCII code set plus many 8-bit characters such as é and ñ.

You can specify another locale if you plan to use characters from other locales in your data or your SQL identifiers, or if you want to conform to other collation rules for character data.

For instructions about how to specify locales, additional syntax, and other considerations related to GLS locales, see the *IBM Informix GLS User's Guide*.

Demonstration databases

The DB-Access utility, which is provided with your IBM® Informix® database server products, includes one or more of the following demonstration databases:

- The **stores_demo** database illustrates a relational schema with information about a fictitious wholesale sporting-goods distributor. Many examples in IBM Informix publications are based on the **stores_demo** database.
- The **superstores_demo** database illustrates an object-relational schema. The **superstores_demo** database contains examples of extended data types, type and table inheritance, and user-defined routines.

For information about how to create and populate the demonstration databases, see the *IBM Informix DB-Access User's Guide*. For descriptions of the databases and their contents, see the *IBM Informix Guide to SQL: Reference*.

The scripts that you use to install the demonstration databases are in the $INFORMIXDIR/bin directory on UNIX platforms and in the %INFORMIXDIR%\bin directory in Windows environments.

Education

offers a comprehensive portfolio of technical training and education services that are designed for individuals, companies, and public organizations to acquire, maintain, and optimize their IT skills.

The training website provides a student center where you can view enrollments, training plans, and even directions to your classroom. From the website, you can find information about special offers and discounts on training such as promotions by mail or the Education pack. In addition, you can subscribe to newsletters, RSS feeds, perspectives on training series, and information about new courses.

This section provides you a central location of links about training information specific to IBM® Informix®. You can browse, view, and search online for training courses such as classroom and e-learning courses. You can view training paths that help you find the right course to take. You can even search for conferences and public events that are happening near you.

To view the full list of IBM Informix training paths with associated courses, see Informix training.

You can also search for any courses from the Global training finder by entering the course code and specifying your search criteria.

Popular Informix courses

The course catalog provides you information about course details, skill levels, and enrollment. You can browse the course catalog by location, training categories, recommended order of courses, and popularity.

The following table lists popular IBM Informix courses.

Course code	Course title
IX480G, 2X480G	Fast Path to IBM Informix for Experienced Relational Database Administrators
IX222G, 2X222G	IBM Informix Database Administration
IX812G, 2X812G	IBM Informix System Administration
IX131G, 1X131G, 2X131G	IBM Informix Structured Query Language
IX711G, 1X711G, 2X711G	IBM Informix Stored Procedures and Triggers
IX101G, 2X101G	Developing Applications Using 4GL
IX110G	Implementing Web Services using 4GL
IXA60G, 2XA60G	Data Migration with IBM Informix
IX150G, 2X150G	Developing Applications Using IBM Informix ESQL/C

Authorized Training

Authorized Training complements your classroom training. You can view training that is based on your curriculum area or your preferred format.

To view training offerings, see Authorized Training.

Certification

Explore the certification program for information about IBM Informix certified roles, roadmaps, and the certification process. With the certification program, you can validate your skills and demonstrate your proficiency in the latest technology and solutions.

To learn more about the certification program, see Information Management Training and Certification.

- Certified roles
  This web page provides information about job role descriptions, recommended prerequisite skills, and requirements for IBM Informix certified roles.

- Certification Process
  This web page provides you a list of steps for certification, test preparation materials, test registration information, and the certification agreement.

Academic Initiative program

The Academic Initiative program provides professors and students access to the latest technologies in open source and software, hardware, course materials, training, technical support, and other resources.

Faculty members, research professionals, and students at accredited institutions all over the globe can join the Academic Initiative at no cost. There is no limit on the number of members from an institution that can

join. To learn more about the Academic Initiative or to join, see http://www.ibm.com/university/data.

Conferences and public events

Conferences and public events let you explore current and emerging technical topics, meet respected industry leaders, and network with peers from around the globe.

For information about conferences or public events near you, see the following web pages:

- Conferences & events
  This web page provides information about upcoming global conferences and events.

- Events
  This web page features information about conferences or seminars, teleconferences, technical briefings, and webcasts.

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Release information

Review the release notes, documentation notes, and machine notes for essential information about an IBM® Informix® product or fix pack.

- Release notes include important information about installation and other issues. For some products, this file also contains information about known problems and their workarounds.
- Documentation notes contain important information and corrections that supplement the information in the product publications.
- Known and fixed customer-reported defects include descriptions of Authorized Program Analysis Reports (APARs) and resolutions.
- Machine notes describe platform-specific actions that you must take to configure and use IBM Informix products.

For information about which Informix products are available on which platforms, see Platform availability.

For information about which Informix products are out of service and out of support, see Lifecycle news.

- Release, documentation, and machine notes for IBM Informix
  These are the release, documentation, and machine notes for IBM Informix. Information about fixed and known defects is included in the release notes.
- Release, documentation, and machine notes for IBM Informix Client SDK
  These are the release, documentation, and machine notes for Client Software Development Kit . Information about fixed and known defects is included in the release notes.
- Release notes for IBM Informix JDBC Driver
  These are the release notes for IBM Informix JDBC Driver. Information about fixed and known defects is included in the release notes.
- Release notes for IBM Informix Warehouse Accelerator
  These are the release notes for IBM Informix Warehouse Accelerator.

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Release, documentation, and machine notes for IBM Informix

These are the release, documentation, and machine notes for IBM® Informix®. Information about fixed and known defects is included in the release notes.

- [Release documentation and machine notes for IBM Informix, v14.10.xC6](#)
  These are the release, documentation, and machine notes for IBM Informix version 14.10.xC6.
- [Release documentation and machine notes for IBM Informix, v14.10.xC5](#)
  These are the release, documentation, and machine notes for IBM Informix version 14.10.xC5.
- [Release documentation and machine notes for IBM Informix, v14.10.xC4W1](#)
  These are the release, documentation, and machine notes for IBM Informix version 14.10.xC4W1.
- [Release documentation and machine notes for IBM Informix, v14.10.xC3](#)
  These are the release, documentation, and machine notes for IBM Informix version 14.10.xC3.
- [Release documentation and machine notes for IBM Informix , v14.10.xC2](#)
  These are the release, documentation, and machine notes for IBM Informix version 14.10.xC2.
- [Release documentation and machine notes for IBM Informix, v14.10.xC1](#)
  These are the release, documentation, and machine notes for IBM Informix version 14.10.xC1.

Release documentation and machine notes for IBM Informix, v14.10.xC6

These are the release, documentation, and machine notes for IBM® Informix® version 14.10.xC6.

- [Release notes for IBM Informix for Windows Operating Systems, 14.10.xC6](#)
  The Release notes provide a list of useful topics and links for when you install IBM Informix database product or fix pack.
- [Release notes for IBM Informix for UNIX and Linux, 14.10.xC6](#)
  The Release notes provide a list of useful topics and links for when you install an IBM Informix database product or fix pack.
- [Machine notes for IBM Informix, version 14.10](#)
  These are the machine notes for IBM Informix version 14.10.

Release notes for IBM Informix for Windows Operating Systems, 14.10.xC6

The Release notes provide a list of useful topics and links for when you install IBM® Informix® database product or fix pack.

Contents

Description

IBM Informix 14.10 is available in several different editions, and each offers different features and function.

For a complete list of what's new and changed in this release, go to
http://www.ibm.com/support/knowledgecenter/SSGU8G/welcomeIfxServers.html.

Information about the fixed defects for IBM Informix 14.10.xC6 is available at:
https://www.ibm.com/support/pages/node/6245770.

Announcement

The product announcement letters are available at http://www.ibm.com/common/ssi/index.wss. Search for Informix 14.10 and select Announcement letters. See the announcement for the following information:

- Detailed product description
- Product-positioning statement
- Packaging and ordering details
- International compatibility information

System requirements

For information about hardware and software compatibility, see the detailed system requirements document at http://www.ibm.com/support/docview.wss?uid=swg27013343..

Installing IBM Informix 14.10.xC6

For step-by-step installation instructions, see Installing Informix..

The IBM Informix Installation Guide (ids_win_installg_14.10.pdf) is also available in the product build in PDF format.

If you are migrating from another version of Informix, make sure that you understand all migration requirements and restrictions before you install the product. For migration information, see
http://www.ibm.com/support/knowledgecenter/SSGU8G/welcomeIfxServers.html .

Known problems

At the time of publication, the following problems were known:

- If you uninstall Informix version 11.50, restart the computer before you install another version of Informix

- Windows firewall exception is needed before installation
  Before you install Informix on Windows operating systems, make a Windows firewall exception for the TCP listening port that is used by Informix. By default, the Informix port is 9088; however, you can specify a different port number during installation.

- Removing users when you uninstall the database server
  If there are multiple installations of the product on the computer, and you are uninstalling one of the products, be careful when you use the Remove users and groups option. Do not remove users or groups that are required by the other installations of the product. If you remove users or groups that are required by the other products, the other products will not start or they will be inoperable.

- Starting Informix instances
  To start an Informix instance, use the instance shortcut that is in the Informix program group.

Related information

- Notice of deprecation:
  The Backup to Amazon Simple Storage Services (AWS S3) provided in the ontape utility is considered deprecated and will be removed in an upcoming release. This feature will be replaced with the same REST based technology used in the Informix Primary Storage Manager, to expand coverage to other cloud providers and enhance functionality.

  The onconfig parameter RSS_NONBLOCKING_CKPT will be deprecated in 14.10.xC7 and later versions. This is replaced with SEC_NONBLOCKING_CKPT for both HDR & RSS from 14.10.xC6 version onwards.

- End of support:
  The Informix Storage Manager is not a valid storage manager anymore for the ON-Bar utilities. Usage of the old XBSA library with 14.10 is not supported and can lead to unpredictable results including loss of data or inability to restore.

- Features not supported:
  Rolling upgrades are not supported in IDS version 14.10.xC2 and 14.10.xC6. Migration to these versions from a previous version require changes to disk structures, and the conversion process is incompatible with a rolling upgrade. When upgrading HDR and RSS secondary servers to version 14.10.xC2 or 14.10.xC6, you must follow the steps listed in the on-line documentation under "Migrating an offline cluster to a new major version."

- Latest open source drivers for Informix: http://github.com/OpenInformix.
- IBM Support Portal: http://www.ibm.com/support/entry/portal/
- International Informix Users Group (IIUG): http://www.iiug.org

Release notes for IBM Informix for UNIX and Linux, 14.10.xC6

The Release notes provide a list of useful topics and links for when you install an IBM® Informix® database product or fix pack.

Contents

Description

IBM Informix 14.10 is available in several different editions, and each offers different features and function.

For a complete list of what's new and changed in this release, go to .
http://www.ibm.com/support/knowledgecenter/SSGU8G/welcomeIfxServers.html.

Information about the fixed defects for IBM Informix 14.10.xC6 is available at:
https://www.ibm.com/support/pages/node/6245770.

Announcement

The product announcement letters are available at http://www.ibm.com/common/ssi/index.wss. Search for Informix 14.10 and select Announcement letters. See the announcement for the following information:

- Detailed product description
- Product-positioning statement
- Packaging and ordering details
- International compatibility information

System requirements

For information about hardware and software compatibility, see the detailed system requirements document at http://www.ibm.com/support/docview.wss?uid=swg27013343.

Installing IBM Informix 14.10.xC6

For step-by-step installation instructions, see at Installing Informix..

If you are migrating from another version of , make sure that you understand all migration requirements and restrictions before you install the product. For migration information, see http://www.ibm.com/support/knowledgecenter/SSGU8G/welcomeIfxServers.html.

Known problems

At the time of publication, the following problems were known:

- Removing users when you uninstall the database server
  If there are multiple installations of the product on the computer, and you are uninstalling one of the products, be careful when you use the Remove users and groups option. Do not remove users or groups that are required by the other installations of the product. If you remove users or groups that are required by the other products, the other products will not start or they will be inoperable.

Related information

- Notice of deprecation:
  The Backup to Amazon Simple Storage Services (AWS S3) provided in the ontape utility is considered deprecated and will be removed in an upcoming release. This feature will be replaced with the same REST based technology used in the Informix Primary Storage Manager, to expand coverage to other cloud providers and enhance functionality.

  The onconfig parameter RSS_NONBLOCKING_CKPT will be deprecated in 14.10.xC7 and later versions. This is replaced with SEC_NONBLOCKING_CKPT for both HDR & RSS from 14.10.xC6 version onwards.

- End of support:
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- Latest open source drivers for Informix: http://github.com/OpenInformix.
- IBM Support Portal: http://www.ibm.com/support/entry/portal/
- International Informix Users Group (IIUG): http://www.iiug.org

Machine notes for IBM Informix, version 14.10

These are the machine notes for IBM® Informix® version 14.10.

To view the notes, expand the categories in the contents pane in the Release information subtopic under the Product overview topic.

- IBM AIX 7.2 64
- HEWLETT PACKARD HP-UX Itanium
- Raspbian 9 armv71
- openSUSE aarch64
- Linux x86_64
- Linux Power Series (little endian)
- Linux zSeries
- SOLARIS 64
- Windows x64

IBM AIX 7.2 64

```
                    ================================
                           MACHINE SPECIFIC NOTES
                                    FOR
                IBM Informix Database Server 14.10.FC6 PRODUCT RELEASE
                             ON IBM AIX 7.2 64bit
                             DATE: 27 May 2021
                    ================================
```

OS Information : Built on AIX 7.2 Technology.

System Requirements
===================

1. This product was built on AIX 7.2 Technology using the following
    compilers:

    IBM XL C/C++ for AIX, V11.1 (5724-X13)
    XL C/C++ Runtime   13.1.3

2. AIX patch requirement:

        TL2 (7200-02-02-1810)

3. The UNIX graphical tools provided with this release require X Window
    system X11R6 and Motif 2.3.4 or later runtime libraries.

4. The High Performance Loader utilities, onpload and ipload, require a
    minimum of 35 MB of memory and 70 MB of swap space in order to run.

5. If you are using Java(TM) UDRs, please refer to "AIX Loader Domains" under
    J/Foundation section for details.

6. IBM Informix Database Server uses the libraries and utilities provided by
    the IBM Global Security Kit (GSKit) for data encryption and Secure Sockets
    Layer (SSL) communication. The GSKit is bundled with the server and will
    be installed on your machine as part of the server installation process.
    Here are more details on the GSKit:

        a. The GSKit is also bundled with other IBM products and might
            already be present on your machine. If GSKit 8.0.55.22 is not
            installed, Informix server will install GSKit in /usr/opt/ibm/gsk8_64
            directory on your machine.

        b. The GSKit installation directory must have 35 MB of free disk space.

        c. Sometimes, a new version of Informix 14.10 (such as 14.10.xC6) also
            installs a new version of GSKit on AIX. If the new version of the
            database server fails to start with an error about not being able to
            load libisi.so.2 and one or more older versions of the Informix
            database server are still running on the machine, then you must stop
            all those older Informix versions and then restart them (and start
            the new version). This loads the new GSKit version libraries for all
            Informix instances and thus also allows the new version to start
            correctly.

Check the following web site for the latest AIX system requirements
for IBM Informix Database Server:

    http://www-01.ibm.com/support/docview.wss?rs=630&uid=swg27013343

System Configuration
===================

1. Location of Shared Memory

    The ONCONFIG variable SHMBASE should be set to the following:

        SHMBASE 0x700000010000000

    If you are using Java UDRs, refer to the J/Foundation section for setting
    the SHMBASE value.

2. Environment Variables

    a. It is recommended that the environment variable INFORMIXSTACKSIZE be set
       to 128 (the default is 64) if the application involves operations which
       would require the IBM Informix Database Server to perform recursive
       database tasks (for example, cascading deletes).

    b. If you are using Java UDRs, set environment variable LDR_CNTRL to
       include the value "USERREGS" and "LOADPUBLIC" before starting IBM
       Informix Database Server.
       export LDR_CNTRL=LOADPUBLIC@USERREGS

Feature Notes   (alphabetized by feature)
=============

1. High Performance Loader

    User-defined conversion routines must be provided in a dynamic, shared
    library called ipldd11a_64.so. This library is installed in the
    $INFORMIXDIR/lib directory. You can set the location of this file with
    the HPL_DYNAMIC_LIB_PATH configuration parameter in file pointed to by
    PLCONFIG environment variable. For more details, refer the manual
    "High-Performance Loader User's Guide".

    To create a 64-bit shared library, the environment variable OBJECT_MODE
    should be set to 64 to convey to the compiler that a 64-bit object is to
    be generated. The "-q64" flag for cc can also be used to indicate to the
    compiler that 64-bit object is to be generated.

2. IPv6 Support

    The Informix database server supports Internet Protocol Version 6 (128 Bit
    Internet Addresses) as well as IPv4 (32 Bit Addresses).

    In order for the machine name that is specified in the SQLHOSTS file to
    resolve to the correct IP address, the name services files on the operating
    system must be configured correctly. If the machine has an IPv6 address
    configured, and the listener thread is bound to an IPv6 address, then the
    name resolution file /etc/netsvc.conf must be configured to fetch an IPv6
    address. Also any local machine settings must be set correctly in the
    /etc/hosts file.

    For compatibility with earlier version of Informix client and server
    products, assign each host name with both an IPv4 address and an IPv6
    address. If the listener needs to be bound to an IPv4 address, and the
    name services resolve the name in the order of the IPv6 address followed
    by the IPv4 address, then an explicit IPv4 address needs to be put in the
    host name field of SQLHOSTS file. Client applications should also use the
    same setting.

3. J/Foundation (Java in the Server)

    The IBM Runtime Environment, Java Technology Edition, Version 8.0
    release is installed in $INFORMIXDIR/extend/krakatoa/jre and should be

used with the J/Foundation component.

A Java user-defined routine (UDR) runs in a Java virtual processor. Use
the VPCLASS configuration parameter to specify the number of virtual
processors for the server. You configure Java virtual processors in
the "Java configuration parameters" section of the onconfig configuration
file. The default onconfig.std file is in the $INFORMIXDIR/etc directory.

To develop Java UDRs for the server on this platform, use the 64-bit
IBM SDK, Java Technology Edition, Version 8 or an earlier version
according to Java compatibility guidelines. Java SDK 8 contains the
latest virtual machine technology from IBM and can be downloaded from
http://www.ibm.com/java/jdk/.

Location of Shared Memory

When using IBM Informix Server with J/Foundation, the ONCONFIG parameter
SHMBASE should be set to the following:

       SHMBASE 0x700000030000000

AIX Loader Domains

If multiple shared libraries are loaded onto two VPs, one of which is
a Java VP, and the libraries are not loaded in the same order on each
VP, executing a function from the libraries can cause the IBM Informix
Database Server to core dump with the following message in online.log:

       09:35:58   Assert Failed: Exception Caught. Type: MT_EX_OS, Context: ill
       09:35:58   Who: Session(15, informix@ibms70, 46918, 1075033896)
                         Thread(41, sqlexec, 4010c7d8, 3)
                         File: mtex.c Line: 372
       09:35:58   Action: Please notify Technical Support.

You would typically encounter this error if your application is using
both C UDRs and Java UDRs.

To resolve this problem, the AIX loader domains concept is used. The
loader domain provides a means of loading shared libraries at the same
virtual address in a set of processes. The loader domain file is created
during the installation of the IBM Informix Database Server. This is
installed as "/var/adm/ifx_loader_domain".

IBM Informix Database Server with J/Foundation on AIX requires the loader
domain file "/var/adm/ifx_loader_domain" to exist at all times. If the
file does not exist, create it as superuser using the following commands:

       touch /var/adm/ifx_loader_domain
       chgrp informix /var/adm/ifx_loader_domain
       chmod 660 /var/adm/ifx_loader_domain

4. Kernel Asynchronous I/O (KAIO)

    KAIO is enabled by default on this platform.

    The AIO subsystem is loaded by default but not activated. No AIO
    server is started at AIX startup. The AIO server is automatically
    started when applications are initiating AIO I/O requests. It stays
    active as long as it services AIO I/O requests.

    To disable KAIO, set the environment variable KAIOOFF:

        KAIOOFF=1 ; export KAIOOFF   (for Bourne or Korn shell)
        setenv KAIOOFF 1   (for C shell)

Limit the number of resident memory segments allocated to Informix.
If you allocate a lot of resident memory segments to Informix and
Informix uses a lot of KAIO and direct I/O, KAIO read or write calls
might fail with errno 22 (EINVAL). EINVAL errors can lead to down dbspaces
or system aborts. The following error typically appears in the server log:

```
04:30:40   KAIO: error in kaio_WRITE, kaiocbp = 0x22b620d0, errno = 22
04:30:40   fildes = 258 (gfd 3), buf = 0x700000122b64000, nbytes = 4096,
           offset = 130785280
```

The usual reason for these EINVAL errors is that the OS is running low
on resident memory pages because the Informix server has too many shared
memory segments allocated as "resident," as well as pinned OS kernel
memory and KAIO resources.

You can prevent these errors by setting fewer, or no, Informix server
shared memory segments as resident. Set the RESIDENT configuration
parameter in the onconfig file to 1 or 0.

5. Large Memory Addressability (LMA)

IBM Informix LMA provides the ability to support system configurations
with greater than 4GB of RAM. Most UNIX systems are limited to 4GB of
RAM based on the memory addressing limitations of 32-bit architectures.

The values for the following ONCONFIG parameters are increased from
32-bit to 64-bit platform by LMA support:

- The maximum number of buffers in BUFFERPOOL is 2147483647.

- The maximum of LRU queues for lrus field in BUFFERPOOL is 512.

- The DS_TOTAL_MEMORY, which is the total memory available for
  decision support memory, is only limited by the amount of virtual
  memory available. The sort memory comes out of the DS_TOTAL_MEMORY
  memory and hence there is no explicit limit on the amount of sort
  memory.

- The read ahead parameter RA_PAGES is only limited by the number of
  buffers and therefore can be any value less than 2147483647. The
  "chunk" write algorithm is not dependent on the amount of buffers
  or shared memory and can write as many pages in a single I/O as
  possible.

- The maximum size of any shared memory segment is 68719460352 bytes.

- The value for SHMADD is 67108848 kilobytes.

6. Network Protocols

The following protocols and interfaces are supported on this platform:

SOCKETS using TCP/IP
IPC using stream pipe (implemented using UNIX Domain Sockets)

To use SOCKETS with TCP/IP:

a. The NETTYPE entry in the ONCONFIG file and the nettype field in
   the sqlhosts file entry must contain "onsoctcp".

b. To enable an IBM Data Server Client to connect to the database
   Server, the NETTYPE entry in the ONCONFIG file and the protocal
   value in the sqlhosts file entry must contain "drsoctcp"

If a CLI or JCC client wants to connect to the database server through DRDA while supporting SQLI connections, you must add a DBSERVERALIASES entry to the ONCONFIG file that corresponds to the sqlhosts file entry.

To use IPC (interprocess communication) with stream pipe:

a. The NETTYPE entry in the ONCONFIG file and the nettype field in the sqlhosts file entry must contain "onipcstr".

Fast poll is supported with TCP/IP and stream pipe interfaces. To disable fast poll, set the FASTPOLL parameter to 0 in the ONCONFIG file. By default the fast poll is enabled (value is 1).

Remote 32-bit applications and tools (example: ESQL/C, 4GL, ISQL) can only connect to the IBM Informix Database Server using the TCP/IP protocol.

Local 32-bit applications and tools can connect to the 64-bit server using either the TCP/IP sockets or the IPC stream pipe protocols.

The protocol for supporting IBM Informix MaxConnect on this platform is "onsocimc".

7. No Age (Disable Priority Aging)

The no aging feature that disables priority aging of CPU virtual processors by the operating system can be activated by setting the noage option of the VPCLASS configuration parameter for the CPU virtual processors. For example, the following ONCONFIG entry specifies that there are 8 CPU VPs, each without aging:

VPCLASS cpu,num=8,noage

When the noage option is used, all oninit processes will run at priority 60 with fixed priority round robin type scheduling.

To override the default priority value for CPU VP class, set the environment variable INFX_CPUVP_PRIORITY to the desired priority, within limits (50 to 90) before starting the server.

The server checks and sets the CPU VP process to the defined priority if the defined value is within the above range.

8. OnLine Backup and Restore (ON-Bar)

ON-Bar uses the XBSA interface. Some of the functions invoked by ON-Bar are in a shared library supplied by third party storage management vendors. For ON-Bar to access these functions, set the BAR_BSALIB_PATH parameter in $INFORMIXDIR/etc/$ONCONFIG to the full pathname of the library.

Using $INFORMIXDIR/lib/ibsad001_64.so as a symbolic link to the library is deprecated and shall be discontinued.

Informix Interface for Tivoli Storage Manager (TSM) is supported on this platform. The interface is built with TSM API Client version 5.3.2.

9. OnSNMP

The SNMP agent for OnSNMP is based on SNMP Research (SNMPR).

10. Pluggable Authentication Module (PAM)

PAM functionality is supported on AIX operating system. The PAM is
dependent on the libpam.so library supplied by the Operating System
vendor.

Use of PAM can be enabled or disabled by the system administrator. By
default, IBM Informix server will use the traditional authentication
mechanism in order to avoid widespread changes required by the users.

The PAM modules typically resides in /usr/lib/security/64. The PAM
services are defined in /etc/pam.conf.

11. Processor Affinity

The processor affinity feature, which allows the pinning of a CPU
virtual processor to a physical processor in a multi-CPU configuration,
is supported on this platform.

12. Secure Sockets Layer

IBM Informix Database Server uses the libraries and utilities provided by
the IBM Global Security Kit (GSKit) for Secure Sockets Layer (SSL)
communication.

   a. Before uninstalling GSKit, verify that it is not needed on your
      system. It is possible that software other than Informix Database
      Server requires GSKit. Uninstalling entails removing GSKit
      packages as follows:

      To remove package, as root user run the following
      installp -u -g -V2 GSKit8.gskcrypt64.ppc.rte GSKit8.gskssl64.ppc.rte

   b. If you want to restore Secure Sockets Layer capability after you
      have uninstalled GSKit, see the readme file in $INFORMIXDIR/gskit
      for how to install GSKit.

13. Shared Memory Residency

Shared Memory Residency is supported. This feature can be enabled by
setting ONCONFIG parameter RESIDENT to a non-zero value.

Please read the KAIO section in this file if you are using
Shared Memory Residency together with KAIO or DIRECT_IO, as this
combination may cause problems.

See APAR IC76872 for further information.

14. Simple Password Communications Support Module

The name of the IBM Informix shared library for Simple Password CSM on
on AIX is libixspw.so.

15. Single Sign On (SSO)

This feature requires AIX system library libgssapi_krb5 to be installed
on the system. This library is included in krb5.toolkit.adt (Network
Authentication Service App. Dev. Toolkit).

Features not Supported
======================

1. Rolling upgrades to IDS version 14.10.xC2 and 14.10.xC6 are not supported.

    Rolling upgrades are not supported in IDS version 14.10.xC2 and 14.10.xC6.

Migration to these versions from a previous version require changes to disk structures, and the conversion process is incompatible with a rolling upgrade. When upgrading HDR and RSS secondary servers to version 14.10.xC2 or 14.10.xC6, you must follow the steps listed in the on-line documentation under "Migrating an offline cluster to a new major version."

2.   Concurrent I/O on Shared Disk Secondary Servers.

Defects Fixed in this release
===========================

For information about defects fixed in this release, see:
http://www.ibm.com/support/docview.wss?uid=ibm10870226

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HEWLETT PACKARD HP-UX Itanium

```
================================
        MACHINE SPECIFIC NOTES
                FOR
   IBM Informix Database Server 14.10.FC6 PRODUCT RELEASE
        ON HEWLETT PACKARD HP-UX Itanium
              DATE: 27 May 2021
================================
```

OS Information : Built on HP-UX 11i V3 (aka 11.31) Itanium.

System Requirements
===================

1.   This product was built on HP-UX 11i V3 (aka 11.31) Itanium using the following compilers:

      HP C/aC++ B3910B A.06.26 [Apr 12 2011]

      and with the following packages:

      Bundle Name   Description
      -----------   -----------
      B9007AA   C.11.31.06   HP C/aC++ Developer's Bundle
      FEATURE11i   B.11.31.1209.383a Feature Enablement Patches for
                                          HP-UX 11i v3, September 2012
      BUNDLE   B.2018.09.06   Patch Bundle

2.   The UNIX graphical tools provided with this release require X Windows System X11R6 and Motif 2.1 or later runtime libraries.

      If these tools cannot find the location of the X and Motif shared libraries, the environment variable LD_LIBRARY_PATH may need to be set to include these locations.

3.   The High Performance Loader utilities, onpload and ipload, require a minimum of 35 MB of memory and 70 MB of swap space in order to run.

4.   IBM Informix Database Server uses the libraries and utilities provided by

the IBM Global Security Kit (GSKit) for data encryption and Secure Sockets
Layer (SSL) communication. The GSKit is bundled with the server and will
be installed on your machine as part of the server installation process.
Here are more details on the GSKit:

    a. The GSKit is also bundled with other IBM products and might
       already be present on your machine. If GSKit8 is not
       installed, Informix server will install GSKit in /opt/ibm/gsk8_64
       directory on your machine.

    b. The GSKit installation directory must have 80 MB of free disk space.

5.   Expanded Node and Host Name sizes on HP-UX

   Current version of IBM Informix Database Server does not support the
   use of Expanded Node and Host Name Sizes. If the tunable kernel parameter
   expanded_node_host_names is set to 1, and the Database Server is on a
   system with a node name greater than 8 bytes or host name greater than
   64 bytes, then the Database Server will fail to initialize.

   You may be able to work around the issue by setting the tunable kernel
   parameter uname_eoverflow to 0. Consult HP documentation for more
   information on the tunable kernel parameters uname_eoverflow and
   expanded_node_host_names.

Check the following web site for the latest HP Itanium system
requirements for IBM Informix Database Server:

   http://www-01.ibm.com/support/docview.wss?rs=630&uid=swg27013343

System Configuration
====================

1.   Kernel Parameters

   The values of the kernel parameters that were used for testing this
   product are given below. These values might need to be tuned depending
   on the application and availability of system resources.

   shmseg: 512
   shmmni: 512
   shmmax: 4398046511104
   semmnu: 1400
   semmns: 4096
   semmni: 4096
   nfile: 5000

   - The value of the kernel parameter "semmnu" should be set to at least
     the maximum number of open ipcshm connections, plus the number of
     semaphore undo structures required by other processes in the system.
     The recommended value of "semmnu" is between 2K and 4K for larger
     systems.

   - The value of the kernel parameter "shmmax" should be set to the
     maximum allowable on the system. Setting "shmmax" to a high value
     will prevent the OS from creating multiple shared memory segments
     which can degrade performance.

   - This server release is built to take advantage of the Large File
     Descriptor support provided by HP-UX, which increases the number of
     simultaneous user connections per server instance from 2000 to
     60000.

To take advantage of this feature, the following kernel parameters
might need to be increased depending on the application:

    maxfiles_lim - Maximum number of files that can be opened by a process
                        simultaneously.
    nfile - Maximum number of files that can be opened system-wide.

2. Location of Shared Memory

    The ONCONFIG variable SHMBASE should be set to the following

        SHMBASE 0x0L

3. Environment Variables

    It is recommended that the environment variable INFORMIXSTACKSIZE be set
    to 256 (the default is 96) if the application involves operations which
    would require the IBM Informix Database Server to perform recursive
    database tasks (for example, cascading deletes).

Feature Notes   (alphabetized by feature)
=============

1. Greater Than 2GB Chunk & File Support

    Please refer to the man page for fsadm(1M) and fsadm_hfs(1M) for how to
    enable large file support on your system. This is essential to use the
    greater than 2 GB Chunk & File Support features for cooked files.

2. High Performance Loader

    User-defined conversion routines must be provided in a dynamic, shared
    library called ipldd11a.so. This library is installed in the
    $INFORMIXDIR/lib directory. You can set the location of this file with
    the HPL_DYNAMIC_LIB_PATH configuration parameter in file pointed to by
    PLCONFIG environment variable. For more details, refer the manual
    "High-Performance Loader User's Guide".

    This shared library must be compiled in 64-bit mode on HP-UX Itanium.

3. IPv6 Support

    The Informix database server supports Internet Protocol Version 6 (128 Bit
    Internet Addresses) as well as IPv4 (32 Bit Addresses).

    In order for the machine name that is specified in the SQLHOSTS file to
    resolve to the correct IP address, the name services files on the operating
    system must be configured correctly. If the machine has an IPv6 address
    configured, and the listener thread is bound to an IPv6 address, then the
    name service switch files /etc/nsswitch.conf must be configured to fetch
    an IPv6 address. Also any local machine settings must be set correctly in
    the /etc/hosts file.

    For compatibility with earlier version of Informix client and server
    products, assign each host name with both an IPv4 address and an IPv6
    address. If the listener needs to be bound to an IPv4 address, and the
    name services resolve the name in the order of the IPv6 address followed
    by the IPv4 address, then an explicit IPv4 address needs to be put in the
    host name field of SQLHOSTS file. Client applications should also use the
    same setting.

4. J/Foundation (Java in the Server)

The IBM Runtime Environment, Java(TM) Technology Edition, Version 8.0 release is installed in $INFORMIXDIR/extend/krakatoa/jre and should be used with the J/Foundation component.

A Java user-defined routine (UDR) runs in a Java virtual processor. Use the VPCLASS configuration parameter to specify the number of virtual processors for the server. You configure Java virtual processors in the "Java configuration parameters" section of the onconfig configuration file. The default onconfig.std file is in the $INFORMIXDIR/etc directory.

To develop Java UDRs for the server on this platform, use HP-UX 11i Java Development Kit for the Java 2 Platform Standard Edition 8 or an earlier version according to Java compatibility guidelines. That kit can be downloaded from https://h20392.www2.hpe.com/portal/swdepot/displayProductInfo.do?productNumber=HPUXJDKJRE80

5. Kernel Asynchronous I/O (KAIO)

KAIO is DISABLED by default on this platform. To enable KAIO, set the environment variable KAIOON.

    KAIOON=1; export KAIOON   (for Bourne or Korn Shell)

    setenv KAIOON 1   (for C Shell)

The following is a prerequisite for using KAIO:

    a. The HP KAIO driver "asyncdsk" is installed and linked into the kernel.

    b. Ensure that the KAIO driver is up and running. Check if /dev/async exists. If not, follow these steps:

        1) su root
        2) If using HP hardware/OS redundancy or mirroring, create the async device as follows:

            /usr/sbin/mknod /dev/async c 101 0

            Otherwise, if using IBM Informix mirroring or no hardware/OS mirroring, or no mirroring at all, create the async device as follows:
            /usr/sbin/mknod /dev/async c 101 4

        3) chmod 0666 /dev/async

        4) Make sure the following entry exists in the /etc/privgroup file

            informix MLOCK

            After adding this entry, execute the following command

            /sbin/rc1.d/S400set_prvgrp start

An environment variable IFMX_HPKAIO_NUM_REQ is provided to specify the number of simultaneous KAIO requests that are processed by the server at one time. The value can be set in the range of 10 to 5000, the default being 1000. If the following error occurs:

    "KAIO: out of OS resources, errno = %d, pid = %d"

consider increasing the value of IFMX_HPKAIO_NUM_REQ.

For example:

```
IFMX_HPKAIO_NUM_REQ=2300; export IFMX_HPKAIO_NUM_REQ
(for Bourne or Korn Shell)

setenv IFMX_HPKAIO_NUM_REQ 2300   (for C Shell)
```

6. Large Memory Addressability (LMA)

    IBM Informix LMA provides the ability to support system configurations
    with greater than 4GB of RAM. Most UNIX systems are limited to 4GB of
    RAM based on the memory addressing limitations of 32-bit architectures.

    The values for the following ONCONFIG parameters are increased from
    32-bit to 64-bit platform by LMA support:

    -   The maximum number of buffers in BUFFERPOOL is 2147483647.

    -   The maximum of LRU queues for lrus field in BUFFERPOOL is 512.

    -   The DS_TOTAL_MEMORY, which is the total memory available for
        decision support memory, is only limited by the amount of virtual
        memory available. The sort memory comes out of the DS_TOTAL_MEMORY
        memory and hence there is no explicit limit on the amount of sort
        memory.

    -   The read ahead parameter RA_PAGES is only limited by the number of
        buffers and therefore can be any value less than 2147483647. The
        "chunk" write algorithm is not dependent on the amount of buffers
        or shared memory and can write as many pages in a single I/O as
        possible.

    -   The maximum size of any shared memory segment is 4398046511104 bytes.

    -   The value for SHMADD is 4294967296 kilobytes.

    Refer to IBM Informix Administrator's Reference manual for the
    information about the related configuration parameters setting.

7. Network Protocols

    The following protocols and interfaces are supported on this platform:

    SOCKETS using TCP/IP
    IPC using stream pipe (implemented using UNIX Domain Sockets)

    To use SOCKETS with TCP/IP:

    a. The NETTYPE entry in the ONCONFIG file and the nettype field in
        the sqlhosts file entry must contain "onsoctcp".

    b. To enable an IBM Data Server Client to connect to the database
        Server, the NETTYPE entry in the ONCONFIG file and the protocal
        value in the sqlhosts file entry must contain "drsoctcp"

        If a CLI or JCC client wants to connect to the database server
        through DRDA while supporting SQLI connections, you must add a
        DBSERVERALIASES entry to the ONCONFIG file that corresponds to
        the sqlhosts file entry.

    To use IPC (interprocess communication) with stream pipe:

    a.   The NETTYPE entry in the ONCONFIG file and the nettype field in

the sqlhosts file entry must contain "onipcstr".

Fast poll is supported with TCP/IP and stream pipe interfaces. To disable fast poll, set the FASTPOLL parameter to 0 in the ONCONFIG file. By default the fast poll is enabled (value is 1).

Remote 32-bit applications and tools (example: ESQL/C, 4GL, ISQL) can only connect to the IBM Informix Database Server using the TCP/IP protocol.

Local 32-bit applications and tools can connect to the 64-bit server using either the TCP/IP sockets or the IPC stream pipe protocols.

The protocol for supporting IBM Informix MaxConnect on this platform is "onsocimc".

8. No Age (Disable Priority Aging)

The no aging feature that disables priority aging of CPU virtual processors by the operating system can be activated by setting the noage option of the VPCLASS configuration parameter for the CPU virtual processors. For example, the following ONCONFIG entry specifies that there are 8 CPU VPs, each without aging:

VPCLASS cpu,num=8,noage

When the noage option is used, all oninit processes will run at priority 180 with SCHED_NOAGE type scheduling. When idle, oninit processes will have the priority of 154, which is the highest idle priority. This priority level will prevent oninit processes from being aged when idle.

To override the default priority value for CPU VP class, set the environment variable IFMX_CPUVP_PRIORITY to the desired priority, within limits (154 to 190) before starting the engine.

If IFMX_CPUVP_PRIORITY is not within the limits, the priority will be set to the default value of 180.

9. OnLine Backup and Restore (ON-Bar)

ON-Bar uses the XBSA interface. Some of the functions invoked by ON-Bar are in a shared library supplied by third party storage management vendors. For ON-Bar to access these functions, set the BAR_BSALIB_PATH parameter in $INFORMIXDIR/etc/$ONCONFIG to the full pathname of the library.

This shared library must be compiled in 64-bit mode on HP-UX Itanium.

Using $INFORMIXDIR/lib/ibsad001.so as a symbolic link to the library is deprecated and shall be discontinued.

Informix Interface for Tivoli Storage Manager (TSM) is supported on this platform. The interface is built with TSM API version 5.3.2.

10. Pluggable Authentication Module (PAM)

PAM functionality is supported on HPUX 11i V3 operating systems. PAM requires the libpam.so library that is supplied by the Operating System vendor.

Use of PAM can be enabled or disabled by the system administrator. By default, the Informix server will use the traditional authentication mechanism to avoid changes for the users.

The PAM modules are usually located in /usr/lib/security/hpux64. The PAM

services are defined in /etc/pam.conf.

11. Processor Affinity

   The processor affinity feature, which allows the pinning of a CPU
   virtual processor to a physical processor in a multi-CPU configuration,
   is supported on this platform.

12. Secure Sockets Layer

   IBM Informix Database Server uses the libraries and utilities provided by
   the IBM Global Security Kit (GSKit) for Secure Sockets Layer (SSL)
   communication.

      a. Before uninstalling GSKit, verify that it is not needed on your
         system. It is possible that software other than Informix Database
         Server requires GSKit. Uninstalling involves running the swremove
         command to remove packages as needed. For example, the following
         command when run as root user removes the GSKit SSL and GSKit Crypt
         packages:

         swremove gskssl64 gskcrypt64

      b. If you want to restore Secure Sockets Layer capability after you
         have uninstalled GSKit, see the readme file in $INFORMIXDIR/gskit
         for how to install GSKit.

13. Simple Password Communications Support Module

   The name of the IBM Informix shared library for Simple Password CSM on
   HP-UX is libixspw.so.

14. Unicode

   The version of the International Components for Unicode (ICU) library
   selected for the 14.10 release, 60.2, requires a newer C++ compiler than
   what is supported by HEWLETT PACKARD for this version of HP-UX. Because
   of this, ICU 4.8.1 is included with Informix 14.10 on the HP-UX Itanium
   platform.

Features not Supported
======================

1. Rolling upgrades to IDS version 14.10.xC2 and 14.10.xC6 are not supported.

   Rolling upgrades are not supported in IDS version 14.10.xC2 and 14.10.xC6.
   Migration to these versions from a previous version require changes to
   disk structures, and the conversion process is incompatible with a rolling
   upgrade. When upgrading HDR and RSS secondary servers to version 14.10.xC2
   or 14.10.xC6, you must follow the steps listed in the on-line documentation
   under "Migrating an offline cluster to a new major version."

2. TERMINFO

3. OnSNMP

Defects Fixed in this release
=============================

For information about defects fixed in this release, see:
http://www.ibm.com/support/docview.wss?uid=ibm10870226

Raspbian 9 armv71

```
================================
         MACHINE SPECIFIC NOTES
                FOR
     IBM Informix Database Server 14.10.UC6 PRODUCT RELEASE
              On Raspbian 9 armv7l (armhf)
                DATE: 27 May 2021
================================
OS Information: Built on Raspbian 9 (stretch) armhf


System Requirements
===================

1.   IBM(R) Informix(R) 14.10 was built on  Raspbian 9 (stretch)
     (Kernel: 4.14.79-v7+, Glibc: 2.24-11+deb9u3) for armv7l compatible
     processors. The following compilers were used:

          gcc and c++ compiler 6.3.0 (Raspbian 9 6.3.0-18)

     The following packages are required on your Linux system:

          libc6
          libgcc1
          libstdc++6
          libncurses5
          libaudit1
          zlib1g
          pam
          ksh
          krb5
          libcomerr2
          libkeyutils1
          libpcre3
          libselinux1
          libelf1 0.152

2.   The Korn shell is required for the Informix server alarmprogram
     scripts. Install it as /bin/ksh.

3.   If a suitable library libaio.so.1 is found, the Informix Database Server
     enables Kernel Asynchronous I/O (KAIO) automatically. Otherwise KAIO is
     disabled.

4.   Java JDK version 8 or later package on your system. We tested the
     product with java version "1.8.0_181".

5.   IBM Informix Database Server uses the libraries and utilities provided by
     the IBM Global Security Kit (GSKit) for data encryption and Secure Sockets
     Layer (SSL) communication. The GSKit is bundled with the server and must
     be installed on your machine as part of the server installation process.

     Here are more details on the GSKit:
```

a. The GSKit is also bundled with other IBM products and might already be present on your machine. If GSKit8 is not installed, the script $INFORMIXDIR/gskit/installgskit will install GSKit in /usr/local/ibm/gsk8 directory on your machine.

b. The GSKit installation directory must have 25 MB of free disk space.

c. The RPM or Debian Package Manager is required to be installed on the system.

d. Kernel Performance Events and Counters must be enabled and working on the specific ARM platform. Use this C program to verify:

```
#include <sys/syscall.h>
#include <linux/perf_event.h>
#include <errno.h>
#include <stdio.h>
#include <string.h>
int main(int argc, const char **argv)
{
  int fddev = 0;
  static struct perf_event_attr attr;
  attr.type = PERF_TYPE_HARDWARE;
  attr.config = PERF_COUNT_HW_CPU_CYCLES;
  fddev = syscall(__NR_perf_event_open, &attr, 0, -1, -1, 0);
  printf("syscall __NR_perf_event_open: %s\n", strerror(errno));
}
```

e. If you are using Encryption At Rest (EAR) using IBM GSKit. The system must allow the use of Kernel Performance Events and Counters by users without CAP_SYS_ADMIN capability. This is needed to get access to a faster, higher quality entropy source.

This can be accomplished by setting the "perf_event_paranoid" kernel tunable to a value equal or lower to 1.

To set the parameter, run the following command as user root:
sh -c 'echo 1 >/proc/sys/kernel/perf_event_paranoid'

System Configuration
====================

1. Kernel Parameters

    The values of the kernel parameters that were used for testing this product are given below. You can tune these parameter values depending on the application and availability of system resources. The values can be changed dynamically in the /proc file system or, if they are defined in the kernel sources, they can be changed by rebuilding the kernel.

    SHMMAX: 33554432
    SHMMNI: 4096
    SHMALL: 2097152
    SEMMNI: 128
    SEMMSL: 250
    SEMMNS: 32000
    SEMOPM: 32

    - The value of the kernel parameter "SEMMSL" must be set to at least 100. This value is the maximum number of semaphores per set.

2. Location of Shared Memory

In the ONCONFIG file, SHMBASE is set to the following value:

    SHMBASE 0x44000000L

  - SHMBASE can also be set to start above the shared library addresses.
    When doing so, ensure that the dynamically loaded shared libraries
    do not collide with the shared memory segments.
    You can check the address space layout with the following command:
    $ cat /proc/<pid of oninit process>/maps

Feature Notes   (alphabetized by feature)
=============

1. High Performance Loader

    User-defined conversion routines must be provided in a dynamic,
    shared library called ipldd11a.so. This library is installed in the
    $INFORMIXDIR/lib directory. You can set the location of this file with
    the HPL_DYNAMIC_LIB_PATH configuration parameter in file pointed to by
    PLCONFIG environment variable. For more details, refer the manual
    "High-Performance Loader User's Guide".

    Depending on the location of the shared libraries, OS stack etc., a
    suitable location of pload shared memory spaces needs to be determined.
    Linux system administrator is the best person to find the correct values
    for PLOAD_SHMBASE for his particular system. The suggestive values for
    PLOAD_SHMBASE could be 0x10000000L, or 0x44000000L.

2. IPv6 Support

    The Informix database server supports Internet Protocol Version 6 (128 Bit
    Internet Addresses) as well as IPv4 (32 Bit Addresses).

    In order for the machine name that is specified in the SQLHOSTS file to
    resolve to the correct IP address, the name services files on the operating
    system must be configured correctly. If the machine has an IPv6 address
    configured, and the listener thread is bound to an IPv6 address, then the
    name service switch files /etc/nsswitch.conf must be configured to fetch
    an IPv6 address. Also any local machine settings must be set correctly in
    the /etc/hosts file.

    For compatibility with earlier version of Informix client and server
    products, assign each host name with both an IPv4 address and an IPv6
    address. If the listener needs to be bound to an IPv4 address, and the
    name services resolve the name in the order of the IPv6 address followed
    by the IPv4 address, then an explicit IPv4 address needs to be put in the
    host name field of SQLHOSTS file. Client applications should also use the
    same setting.

3. Kernel Asynchronous I/O (KAIO)

    KAIO is enabled by default on this platform. It can be disabled by setting
    the environment variable KAIOOFF=1 in the environment of the process that
    started the server.

    When using KAIO, run poll threads on separate virtual processors by
    specifying NET as the VP class in the NETTYPE configuration parameter.
    Examples:

        NETTYPE ipcshm,...,...,NET
        NETTYPE soctcp,...,...,NET

    On Linux, there is a system wide limit of the maximum number of parallel

KAIO requests. The limit is set in the /proc/sys/fs/aio-max-nr file.
A Linux system administrator can increase the value by using the echo
command. For example:

    # echo new_value > /proc/sys/fs/aio-max-nr

The current number of allocated requests of all operating system processes
is visible in the /proc/sys/fs/aio-nr file.

By default, the Informix server allocates half of the maximum number of
requests, and assigns them equally to the number of configured CPU virtual
processors. You can control the number of requests allocated per CPU
virtual processor by setting the environment variable KAIOON. Set the
variable to the required value before starting the database server. The
minimum value for KAIOON is 100. If Linux is about to run out of KAIO
resources, for example, when dynamically adding many CPU virtual processors,
warnings are printed to the database server message log file. In this case,
the Linux system administrator must add KAIO resources as described
previously.

4. Network Protocols

The following protocols and interfaces are supported on this platform:

    SOCKETS using TCP/IP
    IPC using stream pipe (implemented using UNIX Domain Sockets)

To use SOCKETS with TCP/IP:

    a. The NETTYPE entry in the ONCONFIG file and the nettype field in
       the sqlhosts file entry must contain "onsoctcp".

    b. To enable an IBM Data Server Client to connect to the database
       Server, the NETTYPE entry in the ONCONFIG file and the protocal
       value in the sqlhosts file entry must contain "drsoctcp"

       If a CLI or JCC client wants to connect to the database server
       through DRDA while supporting SQLI connections, you must add a
       DBSERVERALIASES entry to the ONCONFIG file that corresponds to
       the sqlhosts file entry.

To use IPC (interprocess communication) with stream pipe:

    a. The NETTYPE entry in the ONCONFIG file and the nettype field in
        the sqlhosts file entry must contain "onipcstr".

Fast poll is supported with TCP/IP and stream pipe interfaces. To disable
fast poll, set the FASTPOLL parameter to 0 in the ONCONFIG file. By default
the fast poll is enabled (value is 1).

The protocol for supporting IBM Informix MaxConnect on this platform
is "onsocimc".

5. Online Backup and Restore (ON-Bar)

ON-Bar uses the XBSA interface. Some of the functions invoked by ON-Bar
are in a shared library supplied by third party storage management vendors.
For ON-Bar to access the functions, set the BAR_BSALIB_PATH parameter in
$INFORMIXDIR/etc/$ONCONFIG to the full pathname of the library.

6. Pluggable Authentication Module (PAM)

PAM functionality is supported on Linux operating systems. PAM requires
the libpam.so library that is supplied by the Operating System vendor.

Use of PAM can be enabled or disabled by the system administrator. By
default, the Informix server will use the traditional authentication
mechanism to avoid changes for the users.

The PAM service identifies the PAM module. This PAM module usually is
located in /usr/lib/arm-linux-gnueabihf and its parameters are listed
in /etc/pam.conf.

7. Processor Affinity

The processor affinity feature, which allows the pinning of a CPU
virtual processor to a physical processor in a multi-CPU configuration,
is supported on this platform.

8. Raw Character Devices

Some Linux distributions support binding a raw character device to a
block device. Any block device can be used. The Informix database server
supports using raw character devices.

9. Secure Sockets Layer

IBM Informix Database Server uses the libraries and utilities provided by
the IBM Global Security Kit (GSKit) for Secure Sockets Layer (SSL)
communication.

    a. Before uninstalling GSKit, verify that it is not needed on your
       system. It is possible that software other than Informix Database
       Server requires GSKit. Uninstall by identifying and removing GSKit
       packages using the command-line interface:

       Run rpm command with the -qa option to obtain a list of installed
       GSKit RPM packages with their exact names.
       For example:
       rpm -qa | grep gsk

       As root user run the rpm command to remove each package as needed.
       For example:
       rpm -ev gskssl32-8.0.55.22 gskcrypt32-8.0.55.22

       Run dpkg command with the -l option to obtain a list of installed
       GSKit Debian packages with their exact names.
       For example:
       dpkg -l | grep gsk

       As root user run the dpkg command to remove each package as needed.
       For example:
       dpkg -r gskssl32 gskcrypt32

    b. If you want to restore Secure Sockets Layer capability after you
       have uninstalled GSKit, see the readme file in $INFORMIXDIR/gskit
       for how to install GSKit.

10. Simple Password Communications Support Module

The name of the IBM Informix shared library for Simple Password CSM
on Linux is libixspw.so.

Features not supported
======================

1. Rolling upgrades to IDS version 14.10.xC2 and 14.10.xC6 are not supported.

> Rolling upgrades are not supported in IDS version 14.10.xC2 and 14.10.xC6.
> Migration to these versions from a previous version require changes to
> disk structures, and the conversion process is incompatible with a rolling
> upgrade. When upgrading HDR and RSS secondary servers to version 14.10.xC2
> or 14.10.xC6, you must follow the steps listed in the on-line documentation
> under "Migrating an offline cluster to a new major version."

2. Informix Interface for Tivoli Storage Manager (TSM)

3. OnSNMP

4. Deployment assistant and utility

5. J/Foundation (Java in the Server)

6. MQ Messaging Database Extension

7. Informix web feature service for Geospatial Data

8. The UNIX graphical tools ipload, onperf and xtree

9. Label-based access control (LBAC)

10. Shared-disk secondary server (SDS)

11. XML Publishing

12. Private server installation

Defects Fixed in this release
=============================

For information about defects fixed in this release, see:
http://www.ibm.com/support/docview.wss?uid=swg27049835

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openSUSE aarch64

```
                    ================================
                        MACHINE  SPECIFIC  NOTES
                                  FOR
            IBM Informix Database Server 14.10.FC6 PRODUCT RELEASE
                        On openSUSE aarch64
                        DATE: 27 May 2021
                    ================================
```

OS Information: Built on openSUSE Leap 42.3

System Requirements
===================

1. This product was built on openSUSE Leap 42.3

(Kernel: 4.4.162-78-default, Glibc: 2.22) for aarch64 compatible
        processors. The following compilers were used:

                gcc/g++ (SUSE Linux) 4.8.5

        The following packages are required on your Linux system:

                glibc
                libgcc_s1
                libstdc++6
                libncurses5
                libaudit1
                libz1
                pam
                ksh
                krb5
                libcom_err2
                libkeyutils1
                libpcre1
                libselinux1
                libelf1-0.158

2.   The Korn shell is required for the Informix server alarmprogram
     scripts. Install it as /bin/ksh.

3.   If a suitable library libaio.so.1 is found, the Informix Database Server
     enables Kernel Asynchronous I/O (KAIO) automatically. Otherwise KAIO is
     disabled.

4.   Java JDK version 8 or later package on your system. We tested the
     product with java version "1.8.0_181".

5.   IBM Informix Database Server uses the libraries and utilities provided by
     the IBM Global Security Kit (GSKit) for data encryption and Secure Sockets
     Layer (SSL) communication. The GSKit is bundled with the server and must
     be installed on your machine as part of the server installation process.

     Here are more details on the GSKit:

        a. The GSKit is also bundled with other IBM products and might
           already be present on your machine. If GSKit8 is not installed,
           the script $INFORMIXDIR/gskit/installgskit will install GSKit in
           /usr/local/ibm/gsk8 directory on your machine.

        b. The GSKit installation directory must have 35 MB of free disk space.

        c. The RPM or Debian Package Manager is required to be installed on the
           system.

        d. The GSKit for this platform has no FIPS certification.

System Configuration
====================

1.   Kernel Parameters

     The values of the kernel parameters that were used for testing this
     product are given below. You can tune these parameter values depending
     on the application and availability of system resources. The values can
     be changed dynamically in the /proc file system or, if they are defined
     in the kernel sources, they can be changed by rebuilding the kernel.

     SHMMAX: 33554432

```
SHMMNI:   4096
SHMALL:   2097152
SEMMNI:   128
SEMMSL:   250
SEMMNS:   32000
SEMOPM:   32
```

- The value of the kernel parameter "SEMMSL" must be set to at least
  100. This value is the maximum number of semaphores per set.

2. Location of Shared Memory

    In the ONCONFIG file, SHMBASE is set to the following value:

        SHMBASE 0x44000000L

    - SHMBASE can also be set to start above the shared library addresses.
      When doing so, ensure that the dynamically loaded shared libraries
      do not collide with the shared memory segments.
      You can check the address space layout with the following command:
      $ cat /proc/<pid of oninit process>/maps

Feature Notes   (alphabetized by feature)
=============

1. High Performance Loader

    User-defined conversion routines must be provided in a dynamic,
    shared library called ipldd11a.so. This library is installed in the
    $INFORMIXDIR/lib directory. You can set the location of this file with
    the HPL_DYNAMIC_LIB_PATH configuration parameter in file pointed to by
    PLCONFIG environment variable. For more details, refer the manual
    "High-Performance Loader User's Guide".

2. IPv6 Support

    The Informix database server supports Internet Protocol Version 6 (128 Bit
    Internet Addresses) as well as IPv4 (32 Bit Addresses).

    In order for the machine name that is specified in the SQLHOSTS file to
    resolve to the correct IP address, the name services files on the operating
    system must be configured correctly. If the machine has an IPv6 address
    configured, and the listener thread is bound to an IPv6 address, then the
    name service switch files /etc/nsswitch.conf must be configured to fetch
    an IPv6 address. Also any local machine settings must be set correctly in
    the /etc/hosts file.

    For compatibility with earlier version of Informix client and server
    products, assign each host name with both an IPv4 address and an IPv6
    address. If the listener needs to be bound to an IPv4 address, and the
    name services resolve the name in the order of the IPv6 address followed
    by the IPv4 address, then an explicit IPv4 address needs to be put in the
    host name field of SQLHOSTS file. Client applications should also use the
    same setting.

3. Kernel Asynchronous I/O (KAIO)

    KAIO is enabled by default on this platform. It can be disabled by setting
    the environment variable KAIOOFF=1 in the environment of the process that
    started the server.

    When using KAIO, run poll threads on separate virtual processors by
    specifying NET as the VP class in the NETTYPE configuration parameter.

Examples:

```
NETTYPE ipcshm,...,...,NET
NETTYPE soctcp,...,...,NET
```

On Linux, there is a system wide limit of the maximum number of parallel KAIO requests. The limit is set in the /proc/sys/fs/aio-max-nr file. A Linux system administrator can increase the value by using the echo command. For example:

```
# echo new_value > /proc/sys/fs/aio-max-nr
```

The current number of allocated requests of all operating system processes is visible in the /proc/sys/fs/aio-nr file.

By default, the Informix server allocates half of the maximum number of requests, and assigns them equally to the number of configured CPU virtual processors. You can control the number of requests allocated per CPU virtual processor by setting the environment variable KAIOON. Set the variable to the required value before starting the database server. The minimum value for KAIOON is 100. If Linux is about to run out of KAIO resources, for example, when dynamically adding many CPU virtual processors, warnings are printed to the database server message log file. In this case, the Linux system administrator must add KAIO resources as described previously.

4. Network Protocols

The following protocols and interfaces are supported on this platform:

```
SOCKETS using TCP/IP
IPC using stream pipe (implemented using UNIX Domain Sockets)
```

To use SOCKETS with TCP/IP:

a. The NETTYPE entry in the ONCONFIG file and the nettype field in the sqlhosts file entry must contain "onsoctcp".

b. To enable an IBM Informix Data Server Client to connect to the database Server, the NETTYPE entry in the ONCONFIG file and the protocal value in the sqlhosts file entry must contain "drsoctcp"

   If a CLI or JCC client wants to connect to the database server through DRDA while supporting SQLI connections, you must add a DBSERVERALIASES entry to the ONCONFIG file that corresponds to the sqlhosts file entry.

To use IPC (interprocess communication) with stream pipe:

a. The NETTYPE entry in the ONCONFIG file and the nettype field in the sqlhosts file entry must contain "onipcstr".

Fast poll is supported with TCP/IP and stream pipe interfaces. To disable fast poll, set the FASTPOLL parameter to 0 in the ONCONFIG file. By default the fast poll is enabled (value is 1).

The protocol for supporting IBM Informix MaxConnect on this platform is "onsocimc".

5. Online Backup and Restore (ON-Bar)

ON-Bar uses the XBSA interface. Some of the functions invoked by ON-Bar are in a shared library supplied by third party storage management vendors. For ON-Bar to access the functions, set the BAR_BSALIB_PATH parameter in

$INFORMIXDIR/etc/$ONCONFIG to the full pathname of the library.

6. Pluggable Authentication Module (PAM)

    PAM functionality is supported on Linux operating systems. PAM requires
    the libpam.so library that is supplied by the Operating System vendor.

    Use of PAM can be enabled or disabled by the system administrator. By
    default, the Informix server will use the traditional authentication
    mechanism to avoid changes for the users.

    The PAM service identifies the PAM module. This PAM module usually is
    located in /usr/lib/arm-linux-gnueabihf and its parameters are listed
    in /etc/pam.conf.

7. Processor Affinity

    The processor affinity feature, which allows the pinning of a CPU
    virtual processor to a physical processor in a multi-CPU configuration,
    is supported on this platform.

8. Raw Character Devices

    Some Linux distributions support binding a raw character device to a
    block device. Any block device can be used. The Informix database server
    supports using raw character devices.

9. Secure Sockets Layer

    IBM Informix Database Server uses the libraries and utilities provided by
    the IBM Global Security Kit (GSKit) for Secure Sockets Layer (SSL)
    communication.

        a. Before uninstalling GSKit, verify that it is not needed on your
           system. It is possible that software other than Informix Database
           Server requires GSKit. Uninstall by identifying and removing GSKit
           packages using the command-line interface:

           Run rpm command with the -qa option to obtain a list of installed
           GSKit RPM packages with their exact names.
           For example:
           rpm -qa | grep gsk

           As root user run the rpm command to remove each package as needed.
           For example:
           rpm -ev gskssl64-8.0.55.22 gskcrypt64-8.0.55.22

           Run dpkg command with the -l option to obtain a list of installed
           GSKit Debian packages with their exact names.
           For example:
           dpkg -l | grep gsk

           As root user run the dpkg command to remove each package as needed.
           For example:
           dpkg -r gskssl64 gskcrypt64

        b. If you want to restore Secure Sockets Layer capability after you
           have uninstalled GSKit, see the readme file in $INFORMIXDIR/gskit
           for how to install GSKit.

10. Simple Password Communications Support Module

    The name of the IBM Informix shared library for Simple Password CSM
    on Linux is libixspw.so.

Features not supported
=====================

1. Rolling upgrades to IDS version 14.10.xC2 and 14.10.xC6 are not supported.

   Rolling upgrades are not supported in IDS version 14.10.xC2 and 14.10.xC6.
   Migration to these versions from a previous version require changes to
   disk structures, and the conversion process is incompatible with a rolling
   upgrade. When upgrading HDR and RSS secondary servers to version 14.10.xC2
   or 14.10.xC6, you must follow the steps listed in the on-line documentation
   under "Migrating an offline cluster to a new major version."

2. Informix Interface for Tivoli Storage Manager (TSM)

3. OnSNMP

4. Deployment assistant and utility

5. J/Foundation (Java in the Server)

6. MQ Messaging Database Extension

7. Informix web feature service for Geospatial Data

8. Onperf utility

9. Label-based access control (LBAC)

10. Shared-disk secondary server (SDS)

11. XML Publishing

12. Private server installation

Defects Fixed in this release
=============================

For information about defects fixed in this release, see:
http://www.ibm.com/support/docview.wss?uid=ibm10870226

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Linux x86_64

```
                    =================================
                          MACHINE SPECIFIC NOTES
                                  FOR
              IBM Informix Database Server 14.10.FC6 PRODUCT RELEASE
                              On Linux x86_64
                            DATE: 27 May 2021
                    =================================
```

OS Information : Built on Red Hat Enterprise Linux ES release 7.4 (Maipo).

```
System Requirements
===================


1.  This product was built on Red Hat Enterprise Linux ES release 7.4
    (Kernel: 3.10.0-693, Glibc: 2.17) for x86_64 compatible processors.
    The following compilers were used:

        gcc and c++ compiler 4.8.5 20150623 (Red Hat 4.8.5-16) for GLS and ICU
        gcc and c++ compiler 7.3.1 20180303 (Red Hat Devtoolset-7) for the server

    The following package have to be installed on your Linux system:

        libaio-0.3.109
        libgcc-4.8.5
        libstdc++-4.8.5
        ncurses-5.9
        pam-1.1.8
        elfutils-libelf-0.168

    Please note that this version of Informix does not support Linux
    environments with kernel version lower than 3.10.0-693

    For Informix Blade development GNU linker may need to be updated to
    GNU ld version 2.28-11.el7 or newer

    Update is not needed for install and operation of Informix

    This product has been certified on:

        - Red Hat Enterprise Linux ES release 8.0 (Kernel: 4.18.0-80,
          Glibc: 2.28-42). The following packages have to be installed:

        libaio-0.3.110
        libgcc_s1-8.2.1
        libstdc++6-8.2.1
        ncurses-utils-6.1-7
        pam-1.3.1-4
        elfutils-libelf-0.174-6

        - SUSE SLES 12.3 (Kernel: 4.4.73-51, Glibc: 2.22-61). The following
          packages have to be installed:

        libaio-0.3.109
        libgcc_s1-6.2.1
        libstdc++6-6.2.1
        ncurses-utils-5.9-40
        pam-1.1.8-23
        libelf1-0.158-6

        - SUSE SLES 15 (Kernel: 4.12.14-25, Glibc: 2.26-13). The following
              packages have to be installed:

        libaio-0.3.109
        libgcc_s1-8.2.1
        libstdc++6-8.2.1
        ncurses-utils-6.1.3
        pam-1.3.0-6.3.1
        libelf1-0.168-2

        - Ubuntu Server Edition 16.04 LTS (Kernel: 4.4.0-142, Glibc: 2.23).
          The following packages have to be installed:

        libgcc       5.4.0
        libstdc++6   5.4.0
```

```
                       libncurses5  6.0
                       libpam       1.1.8
                       libelf1-0.165-3


             - Ubuntu Server Edition 17.10 (Kernel: 4.13.0-21, Glibc: 2.26).
               The following packages have to be installed:

               libgcc       7.2.0
               libstdc++6   7.2.0
               libncurses5  6.0
               libpam       1.1.8
               libelf1-0.170-0


             - Ubuntu Server Edition 18.04 LTS (Kernel: 4.15, Glibc: 2.27).
               The following packages have to be installed:

               libgcc       7.5.0
               libstdc++6   7.5.0
               libncurses5  6.1
               libpam       1.1.8
               libelf1-0.170-0


             - Ubuntu Server Edition 20.04 LTS (Kernel: 5.4.0, Glibc: 2.31).
               The following packages have to be installed:

               libgcc       10.2.0
               libstdc++6   10.2.0
               libncurses5  6.2
               libpam       1.3.1
               libelf1-0.176-1


        On Ubuntu 20.04 LTS the kernel setting 'fs.protected_regular' defaults
        to '2'. This could cause initialization errors on instances configured
        with a SHM listener. To support SHM connections this parameter needs
        to be set to '0' (e.g., 'sudo sysctl fs.protected_regular=0')

     The bc utility is required by the product installer, and needs to be
     installed on Ubuntu.

2.   The UNIX graphical tools iload, onperf and xtree only require
     Motif runtime libraries version 2.3.x. The minimum version is
     2.3.4, i.e. motif-devel-2.3.4-14.el7_5.x86_64

3.   The Korn shell is required for the Informix server alarmprogram
     scripts. Install it as /bin/ksh. On Ubuntu Server Edition, pdksh needs
     to be installed.

4.   If a suitable library libaio.so.1 is found, IBM Informix Database Server
     enables Kernel Asynchronous I/O (KAIO) automatically. Otherwise KAIO is
     disabled.

5.   IBM Informix Database Server uses the libraries and utilities provided by
     the IBM Global Security Kit (GSKit) for data encryption and Secure Sockets
     Layer (SSL) communication. The GSKit is bundled with the server and will
     be installed on your machine as part of the server installation process.

     Here are more details on the GSKit:

        a. The GSKit is also bundled with other IBM products and might
           already be present on your machine. If GSKit is not installed,
           the script $INFORMIXDIR/gskit/installgskit will install GSKit in
           /usr/local/ibm/gsk8_64 directory on your machine.

        b. The GSKit installation directory must have 25 MB of free disk space.
```

       c. The RPM or Debian Package Manager is required to be installed on the
          system.

6. The Informix product installer may fail to start correctly. When it aborts
    the following two messages are displayed:

       Installer User Interface Mode Not Supported
       Unable to load and to prepare the installer in console or silent mode.

    This can happen due to a known problem in the Java Virtual Machine that
    is internal to the installer. This problem is known as
    "JDK-8188030 : AWT java apps fail to start when some minimal fonts
    are present".
    It may appear when only minimal fonts of the CFF format are installed on
    the machine.

    On a Linux system with Intel x86 64-bit architecture, this problem can be
    worked around by installing an additional font with a format different than
    CFF. For example fonts from the font package "gnu-free-mono-fonts" are
    known to allow the Informix product installer to start and operate
    correctly. This font package can be installed on RedHat distributions by
    executing the following command as user root:

System Configuration
====================

1. Kernel Parameters

    The values of the kernel parameters that were used for testing this
    product are given below. These values might need to be tuned depending
    on the application and availability of system resources. They
    can either be dynamically changed in the /proc file system or are defined
    in the kernel sources and can be changed by rebuilding the kernel.

    SHMMAX: 4398046511104
    SHMMNI: 4096
    SHMALL: 4194304
    SEMMNI: 4096
    SEMMSL: 250
    SEMMNS: 32000
    SEMOPM: 32

    - The value of the kernel parameter "SEMMSL" should be set to at least
      100. This is the maximum number of semaphores per set.

2. Location of Shared Memory

    The ONCONFIG variable SHMBASE is set to the following:

      SHMBASE 0x44000000L

3. Environment Variables

    It is recommended that the environment variable INFORMIXSTACKSIZE be
    set to 128 (the default is 64) if the application involves operations
    which would require the IBM Informix Database Server to perform recursive
    database tasks (for example, cascading deletes).

Feature Notes (alphabetized by feature)
=============

1. High Performance Loader

User-defined conversion routines must be provided in a dynamic, shared 64-bit library called ipldd11a.so. This library is installed in the $INFORMIXDIR/lib directory. You can set the location of this file with the HPL_DYNAMIC_LIB_PATH configuration parameter in file pointed to by PLCONFIG environment variable. For more details, refer the manual "High-Performance Loader User's Guide".

The following two environment variables are required to be set as:

```
PLOAD_SHMBASE=0x000004000000000
IFX_XFER_SHMBASE=0x000005000000000
```

Onload will use shared memory during its execution. It will allocate memory beyond the address for the server, leaving room for server shared memory expansion.

2. IPv6 Support

The Informix database server supports Internet Protocol Version 6 (128 Bit Internet Addresses) as well as IPv4 (32 Bit Addresses).

In order for the machine name that is specified in the SQLHOSTS file to resolve to the correct IP address, the name services files on the operating system must be configured correctly. If the machine has an IPv6 address configured, and the listener thread is bound to an IPv6 address, then the name service switch files /etc/nsswitch.conf must be configured to fetch an IPv6 address. Also any local machine settings must be set correctly in the /etc/hosts file.

For compatibility with earlier version of Informix client and server products, assign each host name with both an IPv4 address and an IPv6 address. If the listener needs to be bound to an IPv4 address, and the name services resolve the name in the order of the IPv6 address followed by the IPv4 address, then an explicit IPv4 address needs to be put in the host name field of SQLHOSTS file. Client applications should also use the same setting.

3. J/Foundation (Java in the Server):

The IBM Runtime Environment, Java Technology Edition, Version 8.0 release is installed in $INFORMIXDIR/extend/krakatoa/jre and should be used with the J/Foundation component.

A Java user-defined routine (UDR) runs in a Java virtual processor. Use the VPCLASS configuration parameter to specify the number of virtual processors for the server. You configure Java virtual processors in the "Java configuration parameters" section of the onconfig configuration file. The default onconfig.std file is in the $INFORMIXDIR/etc directory.

To develop Java UDRs for the server on this platform, use the 64-bit IBM SDK, Java Technology Edition, Version 8 or an earlier version according to Java compatibility guidelines. Java SDK 8 contains the latest virtual machine technology from IBM and can be downloaded from http://www.ibm.com/java/jdk/.

4. Kernel Asynchronous I/O (KAIO)

KAIO is enabled by default on this platform. It can be disabled by setting the environment variable KAIOOFF=1 in the environment of the process that starting the server.

When using KAIO, it is recommended to run poll threads on separate VPs by specifying NET as VP class in the NETTYPE onconfig parameter, e.g.

```
NETTYPE ipcshm,...,...,NET or
NETTYPE soctcp,...,...,NET
```

On Linux, there is a system wide limit of the maximum number of parallel KAIO requests. The file /proc/sys/fs/aio-max-nr is containing this value. It can be increased by the Linux system administrator, e.g. by

```
# echo new_value > /proc/sys/fs/aio-max-nr
```

The current number of allocated requests of all OS processes is visible in /proc/sys/fs/aio-nr.

By default, IBM Informix Database Server is allocating half of the maximum number of requests, and assigns them equally to the number of configured CPU VPs. The number of requests allocated per CPU VP can be controlled by the environment variable KAIOON, by setting it to the required value before starting the server. The minimum value for KAIOON is 100. If Linux is about to run out of KAIO resources, e.g. when dynamically adding many CPU VPs, warnings will be printed to the online.log file. In this case, the Linux system administrator should add KAIO resources as described above.

5. Large Memory Addressability (LMA)

    IBM Informix LMA provides the ability to support system configurations with greater than 4GB of RAM. Most UNIX systems are limited to 4GB of RAM based on the memory addressing limitations of 32-bit architectures.

    The values for the following ONCONFIG parameters are increased from 32-bit to 64-bit platform by LMA support:

    - The maximum number of buffers in BUFFERPOOL is 2147483647.

    - The maximum of LRU queues for lrus field in BUFFERPOOL is 512.

    - The DS_TOTAL_MEMORY, which is the total memory available for decision support memory, is only limited by the amount of virtual memory available. The sort memory comes out of the DS_TOTAL_MEMORY memory and hence there is no explicit limit on the amount of sort memory.

    - The read ahead parameter RA_PAGES is only limited by the number of buffers and therefore can be any value less than 2147483647. The "chunk" write algorithm is not dependent on the amount of buffers or shared memory and can write as many pages in a single I/O as possible.

    - The maximum size of any shared memory segment is 4398046511104 bytes.

    - The value for SHMADD is 4294967296 kilobytes.

    Refer to IBM Informix Administrator's Reference manual for the information about the related configuration parameters setting.

6. Locking large pages in memory

    The Informix database server can use large pages in memory when queries require more memory. (On Linux operating systems, large pages are called huge pages.) However, after you initialize Informix on Linux operating systems, the database server is unable to lock large pages in memory when queries require more memory. If you want to take advantage of the large-page support, you must use the onmode utility to add memory segments, and then run the queries.

7. Network Protocols

The following protocols and interfaces are supported on this platform:

SOCKETS using TCP/IP
IPC using stream pipe (implemented using UNIX Domain Sockets)

To use SOCKETS with TCP/IP:

a. The NETTYPE entry in the ONCONFIG file and the nettype field in the sqlhosts file entry must contain "onsoctcp".

b. To enable an IBM Data Server Client to connect to the database Server, the NETTYPE entry in the ONCONFIG file and the protocal value in the sqlhosts file entry must contain "drsoctcp"

If a CLI or JCC client wants to connect to the database server through DRDA while supporting SQLI connections, you must add a DBSERVERALIASES entry to the ONCONFIG file that corresponds to the sqlhosts file entry.

To use IPC (interprocess communication) with stream pipe:

a. The NETTYPE entry in the ONCONFIG file and the nettype field in the sqlhosts file entry must contain "onipcstr".

Fast poll is supported with TCP/IP and stream pipe interfaces. To disable fast poll, set the FASTPOLL parameter to 0 in the ONCONFIG file. By default the fast poll is enabled (value is 1).

Remote 32-bit or 64-bit applications and tools (example: ESQL/C, 4GL, ISQL) can only connect to the IBM Informix Database Server using the TCP/IP protocol.

Local 32-bit applications and tools can connect to the 64-bit server using either the TCP/IP sockets or the IPC stream pipe protocols.

The protocol for supporting IBM Informix MaxConnect on this platform is "onsocimc".

8. Online Backup and Restore (ON-Bar)

ON-Bar uses the XBSA interface. Some of the functions invoked by ON-Bar are in a shared library supplied by third party storage management vendors. For ON-Bar to access the functions, set the BAR_BSALIB_PATH parameter in $INFORMIXDIR/etc/$ONCONFIG to the full pathname of the library.

This shared library must be compiled in 64-bit mode.

Using $INFORMIXDIR/lib/ibsad001.so as a symbolic link to the library is deprecated and shall be discontinued.

Informix Interface for Tivoli Storage Manager (TSM) is supported on this platform. The interface is built with TSM API version 5.3.2.

9. OnSNMP

The SNMP agent for OnSNMP is based on SNMP Research (SNMPR).

10. Pluggable Authentication Module (PAM)

PAM functionality is supported on Linux operating systems. PAM requires the libpam.so library that is supplied by the Operating System vendor.

Use of PAM can be enabled or disabled by the system administrator. By

default, the Informix server will use the traditional authentication
mechanism to avoid changes for the users.

The PAM modules are usually located in /lib64/security. The PAM services
are defined in /etc/pam.d.

11. Processor Affinity

The processor affinity feature, which allows the pinning of a CPU
virtual processor to a physical processor in a multi-CPU configuration,
is supported on this platform.

12. Raw Character Devices

Some Linux distributions support binding a raw character device to a
block device. Any block device may be used. IBM Informix Database Server
supports using raw character devices.

13. Secure Sockets Layer

IBM Informix Database Server uses the libraries and utilities provided by
the IBM Global Security Kit (GSKit) for Secure Sockets Layer (SSL)
communication.

a. Before uninstalling GSKit, verify that it is not needed on your
   system. It is possible that software other than Informix Database
   Server requires GSKit. Uninstall by identifying and removing GSKit
   packages using the command-line interface:

   Run rpm command with the -qa option to obtain a list of installed
   GSKit packages with their exact names.
   For example:
   rpm -qa | grep gsk

   As root user run the rpm command to remove each package as needed.
   For example:
   rpm -ev gskssl64-8.0.55.22 gskcrypt64-8.0.55.22

   Run dpkg command with the -l option to obtain a list of installed
   GSKit Debian packages with their exact names.
   For example:
   dpkg -l | grep gsk

   As root user run the dpkg command to remove each package as needed.
   For example:
   dpkg -r gskssl64 gskcrypt64

b. If you want to restore Secure Sockets Layer capability after you
   have uninstalled GSKit, see the readme file in $INFORMIXDIR/gskit
   for how to install GSKit.

14. Simple Password Communications Support Module

The name of the IBM Informix shared library for Simple Password CSM on
Linux is libixspw.so.

Features not supported
======================

1. Rolling upgrades to IDS version 14.10.xC2 and 14.10.xC6 are not supported.

    Rolling upgrades are not supported in IDS version 14.10.xC2 and 14.10.xC6.
    Migration to these versions from a previous version require changes to

```
        disk structures, and the conversion process is incompatible with a rolling
        upgrade. When upgrading HDR and RSS secondary servers to version 14.10.xC2
        or 14.10.xC6, you must follow the steps listed in the on-line documentation
        under "Migrating an offline cluster to a new major version."


Defects Fixed in this release
=============================

For information about defects fixed in this release, see:
http://www.ibm.com/support/docview.wss?uid=ibm10870226

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```

Linux Power Series (little endian)

```
                    ================================
                          MACHINE SPECIFIC NOTES
                                   FOR
                IBM Informix Database Server 14.10.FC6 PRODUCT RELEASE
                        On Linux Power Series (little endian)
                              DATE: 27 May 2021
                    ================================
```

```
 OS Information : Built on Red Hat Enterprise Linux ES release 7.4.
```

```
System Requirements
===================
```

```
1.   This product was built on Red Hat Enterprise Linux ES release 7.4
     for 64-Bit Little Endian Power Series Architecture with
     Kernel version 3.10.0-693.21.1.el7.ppc64le and glibc 2.17
     using the following compilers:

         gcc/g++ 4.8.5 20150623

     The following packages have to be installed on your Linux system:

         libaio-0.3.109
         libgcc-4.8.3
         libstdc++-4.8.3
         ncurses-libs-5.9
         pam-1.1.8
         xerces-c-3.1.1
         elfutils-libelf-0.168


     This product has been certified on:

         - SUSE SLES 12.3 (Kernel: 4.4.73-51, Glibc: 2.22-61). The following
           packages have to be installed:

             libaio-0.3.109
             libgcc_s1-6.2.1
             libstdc++6-6.2.1
             ncurses-utils-5.9-40
             pam-1.1.8-23
```

```
              libxerces-c-3_1
              libelf1-0158-6

            - SUSE SLES 15 (Kernel: 4.12.14-25, Glibc: 2.26-13). The following
              packages have to be installed:
              libaio-0.3.109
              libgcc_s1-8.2.1
              libstdc++6-8.2.1
              ncurses-utils-6.1.3
              pam-1.3.0-6.3.1
              libelf1-0.168-2
```

2. The UNIX graphical tools ipload, onperf and xtree only require
    Motif runtime libraries version 2.3.x. The minimum version is
    2.3.4, i.e. motif-devel-2.3.4-14.el7_5.x86_64

3. The Korn shell is required for the Informix server alarmprogram
    scripts. Install it as /bin/ksh.

4. If a suitable library libaio.so.1 is found, IBM Informix Database Server
    enables Kernel Asynchronous I/O (KAIO) automatically. Otherwise KAIO is
    disabled.

5. The High Performance Loader utilities, onpload and onpladm, require a
    minimum of 35 MB of memory and 70 MB of swap space in order to run.

6. IBM Informix Database Server uses the libraries and utilities provided by
    the IBM Global Security Kit (GSKit) for data encryption and Secure Sockets
    Layer (SSL) communication. The GSKit is bundled with the server and will
    be installed on your machine as part of the server installation process.

    Here are more details on the GSKit:

        a. The GSKit is also bundled with other IBM products and might
           already be present on your machine. If GSKit is not installed,
           the script $INFORMIXDIR/gskit/installgskit will install GSKit in
           /usr/local/ibm/gsk8_64 directory on your machine.

        b. The GSKit installation directory must have 30 MB of free disk space.

        c. The RPM or Debian Package Manager is required to be installed on the
           system.

        d. The GSKit for this platform has no FIPS certification.

7. The Informix product installer may fail to start correctly. When it
    aborts the following two messages are displayed:

        Installer User Interface Mode Not Supported
        Unable to load and to prepare the installer in console or silent mode.

    This can happen due to a known problem in the Java Virtual Machine that
    is internal to the installer. This problem is known as
    "JDK-8188030 : AWT java apps fail to start when some minimal fonts are
    present".
    It may appear when only minimal fonts of the CFF format are installed on
    the machine.

    On a Linux system with POWER8 Little Endian architecture, this problem
    can be worked around by installing an additional font with a format
    different than CFF. For example fonts from the font package
    "gnu-free-mono-fonts" are known to allow the Informix product installer
    to start and operate correctly. This font package can be installed on
    RedHat distributions by executing the following command as user root:

```
        yum install gnu-free-mono-fonts

    (On different Linux distributions it may be necessary to use a different
    installation utility instead of "yum".)
```

Check the following web site for the latest Linux system requirements
for IBM Informix Database Server:

```
    http://www-01.ibm.com/support/docview.wss?rs=630&uid=swg27013343
```

System Configuration
====================

1. Kernel Parameters

    The values of the kernel parameters that were used for testing this
    product are given below. These values might need to be tuned depending
    on the application and availability of system resources. They
    can either be dynamically changed in the /proc file system or are defined
    in the kernel sources and can be changed by rebuilding the kernel.

```
    SHMMAX:    4398046511104
    SHMMNI:    4096
    SHMALL:    4194304
    SEMMNI:    128
    SEMMSL:    250
    SEMMNS:    32000
    SEMOPM:    32
```

    - The value of the kernel parameter "SEMMSL" should be set to at least
      100. This is the maximum number of semaphores per set.

2. Location of Shared Memory

    The ONCONFIG variable SHMBASE should be set to the following:

```
        SHMBASE 0x100000000
```

Feature Notes   (alphabetized by feature)
=============

1. High Performance Loader

    User-defined conversion routines must be provided in a dynamic, shared
    64-bit library called ipldd11a.so. This library is installed in the
    $INFORMIXDIR/lib directory. You can set the location of this file with
    the HPL_DYNAMIC_LIB_PATH configuration parameter in file pointed to by
    PLCONFIG environment variable. For more details, refer the manual
    "High-Performance Loader User's Guide".

    The following two environment variables are required to be set as:

```
        PLOAD_SHMBASE=0x000004000000000
        IFX_XFER_SHMBASE=0x000005000000000
```

    Onpload will use shared memory during its execution. It will allocate
    memory beyond the address for the server, leaving room for server shared
    memory expansion.

2. IPv6 Support

The Informix database server supports Internet Protocol Version 6 (128 Bit Internet Addresses) as well as IPv4 (32 Bit Addresses).

In order for the machine name that is specified in the SQLHOSTS file to resolve to the correct IP address, the name services files on the operating system must be configured correctly. If the machine has an IPv6 address configured, and the listener thread is bound to an IPv6 address, then the name service switch files /etc/nsswitch.conf must be configured to fetch an IPv6 address. Also any local machine settings must be set correctly in the /etc/hosts file.

For compatibility with earlier version of Informix client and server products, assign each host name with both an IPv4 address and an IPv6 address. If the listener needs to be bound to an IPv4 address, and the name services resolve the name in the order of the IPv6 address followed by the IPv4 address, then an explicit IPv4 address needs to be put in the host name field of SQLHOSTS file. Client applications should also use the same setting.

3. Kernel Asynchronous I/O (KAIO)

KAIO is enabled by default on this platform. It can be disabled by setting the environment variable KAIOOFF=1 in the environment of the process that starting the server.

When using KAIO, it is recommended to run poll threads on separate VPs by specifying NET as VP class in the NETTYPE onconfig parameter, e.g.
NETTYPE ipcshm,...,...,NET or
NETTYPE soctcp,...,...,NET

On Linux, there is a system wide limit of the maximum number of parallel KAIO requests. The file /proc/sys/fs/aio-max-nr is containing this value. It can be increased by the Linux system administrator, e.g. by

echo new_value > /proc/sys/fs/aio-max-nr

The current number of allocated requests of all OS processes is visible in /proc/sys/fs/aio-nr.

By default, IBM Informix Database server is allocating half of the maximum number of requests, and assigns them equally to the number of configured CPU VPs. The number of requests allocated per CPU VP can be controlled by the environment variable KAIOON, by setting it to the required value before starting the server. The minimum value for KAIOON is 100. If Linux is about to run out of KAIO resources, e.g. when dynamically adding many CPU VPs, warnings will be printed to the online.log file. In this case, the Linux system administrator should add KAIO resources as described above.

4. Large Memory Addressability (LMA)

IBM Informix LMA provides the ability to support system configurations with greater than 4GB of RAM. Most UNIX systems are limited to 4GB of RAM based on the memory addressing limitations of 32-bit architectures.

The values for the following ONCONFIG parameters are increased from 32-bit to 64-bit platform by LMA support:

- The maximum number of buffers in BUFFERPOOL is 2147483647.

- The maximum of LRU queues for lrus field in BUFFERPOOL is 512.

- The DS_TOTAL_MEMORY, which is the total memory available for decision support memory, is only limited by the amount of virtual memory available. The sort memory comes out of the DS_TOTAL_MEMORY

memory and hence there is no explicit limit on the amount of sort memory.

- The read ahead parameter RA_PAGES is only limited by the number of buffers and therefore can be any value less than 2147483647. The "chunk" write algorithm is not dependent on the amount of buffers or shared memory and can write as many pages in a single I/O as possible.

- The maximum size of any shared memory segment is 4398046511104 bytes.

- The value for SHMADD is 4294967296 kilobytes.

Refer to IBM Informix Administrator's Reference manual for the information about the related configuration parameters setting.

5. Network Protocols

The following protocols and interfaces are supported on this platform:

SOCKETS using TCP/IP
IPC using stream pipe (implemented using UNIX Domain Sockets)

To use SOCKETS with TCP/IP:

a. The NETTYPE entry in the ONCONFIG file and the nettype field in the sqlhosts file entry must contain "onsoctcp".

b. To enable an IBM Data Server Client to connect to the database Server, the NETTYPE entry in the ONCONFIG file and the protocal value in the sqlhosts file entry must contain "drsoctcp"

If a CLI or JCC client wants to connect to the database server through DRDA while supporting SQLI connections, you must add a DBSERVERALIASES entry to the ONCONFIG file that corresponds to the sqlhosts file entry.

To use IPC (interprocess communication) with stream pipe:

a. The NETTYPE entry in the ONCONFIG file and the nettype field in the sqlhosts file entry must contain "onipcstr".

Fast poll is supported with TCP/IP and stream pipe interfaces. To disable fast poll, set the FASTPOLL parameter to 0 in the ONCONFIG file. By default the fast poll is enabled (value is 1).

Remote 32-bit applications and tools (example: ESQL/C, 4GL, ISQL) can only connect to the IBM Informix Database Server using the TCP/IP protocol.

Local 32-bit applications and tools can connect to the 64-bit server using either the TCP/IP sockets or the IPC stream pipe protocols.

The protocol for supporting IBM Informix MaxConnect on this platform is "onsocimc".

6. Online Backup and Restore (ON-Bar)

ON-Bar uses the XBSA interface. Some of the functions invoked by ON-Bar are in a shared library supplied by third party storage management vendors. For ON-Bar to access the functions, set the BAR_BSALIB_PATH parameter in $INFORMIXDIR/etc/$ONCONFIG to the full pathname of the library.

Using $INFORMIXDIR/lib/ibsad001.so as a symbolic link to the library is deprecated and shall be discontinued.

Informix Interface for Tivoli Storage Manager (TSM) is supported on this platform. The interface is built with TSM API version 5.3.2.

7. Pluggable Authentication Module (PAM)

PAM functionality is supported on Linux operating systems. PAM requires the libpam.so library that is supplied by the Operating System vendor.

Use of PAM can be enabled or disabled by the system administrator. By default, the Informix server will use the traditional authentication mechanism to avoid changes for the users.

The PAM modules are usually located in /lib64/security. The PAM services are defined in /etc/pam.d.

8. Processor Affinity

The processor affinity feature, which allows the pinning of a CPU virtual processor to a physical processor in a multi-CPU configuration, is supported on this platform.

9. Secure Sockets Layer

IBM Informix Database Server uses the libraries and utilities provided by the IBM Global Security Kit (GSKit) for Secure Sockets Layer (SSL) communication.

a. Before uninstalling GSKit, verify that it is not needed on your system. It is possible that software other than Informix Database Server requires GSKit. Uninstall by identifying and removing GSKit packages using the command-line interface:

Run rpm command with the -qa option to obtain a list of installed GSKit packages with their exact names.
For example:
rpm -qa | grep gsk

As root user run the rpm command to remove each package as needed.
For example:
rpm -ev gskssl64-8.0.55.22 gskcrypt64-8.0.55.22

Run dpkg command with the -l option to obtain a list of installed GSKit Debian packages with their exact names.
For example:
dpkg -l | grep gsk

As root user run the dpkg command to remove each package as needed.
For example:
dpkg -r gskssl64 gskcrypt64

b. If you want to restore Secure Sockets Layer capability after you have uninstalled GSKit, see the readme file in $INFORMIXDIR/gskit for how to install GSKit.

10. Simple Password Communications Support Module

The name of the IBM Informix shared library for Simple Password CSM on Linux is libixspw.so.

Features not supported
======================

```
1.  Rolling upgrades to IDS version 14.10.xC2 and 14.10.xC6 are not supported.

    Rolling upgrades are not supported in IDS version 14.10.xC2 and 14.10.xC6.
    Migration to these versions from a previous version require changes to
    disk structures, and the conversion process is incompatible with a rolling
    upgrade. When upgrading HDR and RSS secondary servers to version 14.10.xC2
    or 14.10.xC6, you must follow the steps listed in the on-line documentation
    under "Migrating an offline cluster to a new major version."

2.  OnSNMP

3.  Deployment Assistant


Defects Fixed in this release
=============================

For information about defects fixed in this release, see:
http://www.ibm.com/support/docview.wss?uid=ibm10870226

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```

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Linux zSeries

```
                    ================================
                         MACHINE SPECIFIC NOTES
                                  FOR
                IBM Informix Database Server 14.10.FC6 PRODUCT RELEASE
                             On Linux zSeries
                             DATE: 27 May 2021
                    ================================
```

```
OS Information : Built on Red Hat Enterprise Linux ES release 7.4 (Maipo).

System Requirements
===================

1.  This product was built on Red Hat Enterprise Linux ES release 7.4
    for zSeries mainframe with 64-bit Kernel  3.10.0-957.21.3.el7 and glibc
    glibc 2.17-307, using the following compilers:

        gcc version 4.8.5 20150623 (Red Hat 4.8.5-39)

    The following packages have to be installed on your Linux system:

        libaio-0.3.109
        libgcc-4.8.5
        libstdc++-6.0.19
        ncurses-5.9
        pam-1.1.8
        elfutils-libelf-0.176

    This product has been certified on:

        - SUSE SLES 12.3 (Kernel: 4.4.73-51, Glibc: 2.22-61). The following
          packages have to be installed:
```

```
                libaio-0.3.109
                libgcc_s1-6.2.1
                libstdc++6-6.2.1
                ncurses-utils-5.9-40
                pam-1.1.8-23
                libelf1-0.158-6
```

2. The UNIX graphical tools ipload, onperf and xtree only require
    OpenMotif runtime libraries version 2.3.x. The minimum version is
    2.3.1, i.e. openmotif-2.3.1-2.el5.

3. The Korn shell is required for the Informix server alarmprogram
    scripts. Install it as /bin/ksh.

4. If a suitable library libaio.so.1 is found, IBM Informix Database Server
    enables Kernel Asynchronous I/O (KAIO) automatically. Otherwise KAIO is
    disabled.

5. The High Performance Loader utilities, onpload, ipload and onpladm, require
    a minimum of 35 MB of memory and 70 MB of swap space in order to run.

6. IBM Informix Database Server uses the libraries and utilities provided by
    the IBM Global Security Kit (GSKit) for data encryption and Secure Sockets
    Layer (SSL) communication. The GSKit is bundled with the server and will
    be installed on your machine as part of the server installation process.

    Here are more details on the GSKit:

    a. The GSKit is also bundled with other IBM products and might
        already be present on your machine. If GSKit is not installed,
        Informix server will install GSKit in /usr/local/ibm/gsk8_64
        directory on your machine.

    b. The GSKit installation directory must have 30 MB of free disk space.

    c. One of the following packages must be installed on your system:
        RHEL 5 - compat-libstdc++-33-3.2.3-61 or later

    d. The RPM Package Manager is required to be installed on the system.

Check the following web site for the latest Linux system requirements
for IBM Informix Database Server:

    http://www-01.ibm.com/support/docview.wss?rs=630&uid=swg27013343

System Configuration
====================

1. Kernel Parameters

    The values of the kernel parameters that were used for testing this
    product are given below. These values might need to be tuned depending
    on the application and availability of system resources. They can either
    be dynamically changed in the /proc file system or are defined in the
    kernel sources and can be changed by rebuilding the kernel.

    SHMMAX: 4398046511104
    SHMMNI: 128
    SHMALL: 4194304
    SEMMNI: 128
    SEMMSL: 250
    SEMMNS: 32000
```

```
       SEMOPM:    32

     - The value of the kernel parameter "SEMMSL" should be set to at least
       100. This is the maximum number of semaphores per set.

2.   Location of Shared Memory

     The ONCONFIG variable SHMBASE should be set to the following:

         SHMBASE 0x100000000L


Feature Notes    (alphabetized by feature)
=============

1.   High Performance Loader

     User-defined conversion routines must be provided in a dynamic, shared
     64-bit library called ipldd11a.so. This library is installed in the
     $INFORMIXDIR/lib directory. You can set the location of this file with
     the HPL_DYNAMIC_LIB_PATH configuration parameter in file pointed to by
     PLCONFIG environment variable. For more details, refer the manual
     "High-Performance Loader User's Guide".

     The following two environment variables are required to be set as:

         PLOAD_SHMBASE=0x000004000000000
         IFX_XFER_SHMBASE=0x000005000000000

     Onpload will use shared memory during its execution. It will allocate
     memory beyond the address for the server, leaving room for server shared
     memory expansion.

2.   IPv6 Support

     The Informix database server supports Internet Protocol Version 6 (128 Bit
     Internet Addresses) as well as IPv4 (32 Bit Addresses).

     In order for the machine name that is specified in the SQLHOSTS file to
     resolve to the correct IP address, the name services files on the operating
     system must be configured correctly. If the machine has an IPv6 address
     configured, and the listener thread is bound to an IPv6 address, then the
     name service switch files /etc/nsswitch.conf must be configured to fetch
     an IPv6 address. Also any local machine settings must be set correctly in
     the /etc/hosts file.

     For compatibility with earlier version of Informix client and server
     products, assign each host name with both an IPv4 address and an IPv6
     address. If the listener needs to be bound to an IPv4 address, and the
     name services resolve the name in the order of the IPv6 address followed
     by the IPv4 address, then an explicit IPv4 address needs to be put in the
     host name field of SQLHOSTS file. Client applications should also use the
     same setting.

3.   Kernel Asynchronous I/O (KAIO)

     KAIO is enabled by default on this platform. It can be disabled by setting
     the environment variable KAIOOFF=1 in the environment of the process that
     starting the server.

     When using KAIO, it is recommended to run poll threads on separate VPs by
     specifying NET as VP class in the NETTYPE onconfig parameter, e.g.
     NETTYPE ipcshm,...,...,NET or
     NETTYPE soctcp,...,...,NET
```

On Linux, there is a system wide limit of the maximum number of parallel KAIO requests. The file /proc/sys/fs/aio-max-nr is containing this value. It can be increased by the Linux system administrator, e.g. by

```
# echo new_value > /proc/sys/fs/aio-max-nr
```

The current number of allocated requests of all OS processes is visible in /proc/sys/fs/aio-nr.

By default, IBM Informix Database server is allocating half of the maximum number of requests, and assigns them equally to the number of configured CPU VPs. The number of requests allocated per CPU VP can be controlled by the environment variable KAIOON, by setting it to the required value before bringing up the server. The minimum value for KAIOON is 100. If Linux is about to run out of KAIO resources, e.g. when dynamically adding many CPU VPs, warnings will be printed to the online.log file. In this case, the Linux system administrator should add KAIO resources as described above. Note that the libaio.so library is required, regardless of the distribution or kernel level.

4. **Large Memory Addressability (LMA)**

    IBM Informix LMA provides the ability to support system configurations with greater than 4GB of RAM. Most UNIX systems are limited to 4GB of RAM based on the memory addressing limitations of 32-bit architectures.

    The values for the following ONCONFIG parameters are increased from 32-bit to 64-bit platform by LMA support:

    - The maximum number of buffers in BUFFERPOOL is 2147483647.

    - The maximum of LRU queues for lrus field in BUFFERPOOL is 512.

    - The DS_TOTAL_MEMORY, which is the total memory available for decision support memory, is only limited by the amount of virtual memory available. The sort memory comes out of the DS_TOTAL_MEMORY memory and hence there is no explicit limit on the amount of sort memory.

    - The read ahead parameter RA_PAGES is only limited by the number of buffers and therefore can be any value less than 2147483647. The "chunk" write algorithm is not dependent on the amount of buffers or shared memory and can write as many pages in a single I/O as possible.

    - The maximum size of any shared memory segment is 4398046511104 bytes.

    - The value for SHMADD is 4294967296 kilobytes.

    Refer to IBM Informix Administrator's Reference manual for the information about the related configuration parameters setting.

5. **MQ Messaging Database Extension**

    The MQ extension provides mechanism for data exchange between Informix server and queues managed by Websphere MQ.

    Note: MQ Messaging Extension expects Websphere MQ libraries installed in the default location /opt/mqm. Otherwise create symbolic links from /opt/mqm/lib64 to the 64-bit Websphere MQ libraries.

6. **Network Protocols**

    The following protocols and interfaces are supported on this platform:

```
        SOCKETS using TCP/IP
        IPC using stream pipe (implemented using UNIX Domain Sockets)
```

To use SOCKETS with TCP/IP:

    a. The NETTYPE entry in the ONCONFIG file and the nettype field in
       the sqlhosts file entry must contain "onsoctcp".

    b. To enable an IBM Data Server Client to connect to the database
       Server, the NETTYPE entry in the ONCONFIG file and the protocal
       value in the sqlhosts file entry must contain "drsoctcp"

       If a CLI or JCC client wants to connect to the database server
       through DRDA while supporting SQLI connections, you must add a
       DBSERVERALIASES entry to the ONCONFIG file that corresponds to
       the sqlhosts file entry.

To use IPC (interprocess communication) with stream pipe:

    a. The NETTYPE entry in the ONCONFIG file and the nettype field in
        the sqlhosts file entry must contain "onipcstr".

Fast poll is supported with TCP/IP and stream pipe interfaces. To disable
fast poll, set the FASTPOLL parameter to 0 in the ONCONFIG file. By default
the fast poll is enabled (value is 1).

Remote 32-bit applications and tools (example: ESQL/C, 4GL, ISQL) can
only connect to the IBM Informix Database Server using the TCP/IP
protocol.

Local 32-bit applications and tools can connect to the 64-bit server
using either the TCP/IP sockets or the IPC stream pipe protocols.

The protocol for supporting IBM Informix MaxConnect on this platform
is "onsocimc".

7. Online Backup and Restore (ON-Bar)

ON-Bar uses the XBSA interface. Some of the functions invoked by ON-Bar
are in a shared library supplied by third party storage management vendors.
For ON-Bar to access the functions, set the BAR_BSALIB_PATH parameter in
$INFORMIXDIR/etc/$ONCONFIG to the full pathname of the library.

Using $INFORMIXDIR/lib/ibsad001.so as a symbolic link to the library is
deprecated and shall be discontinued.

Informix Interface for Tivoli Storage Manager (TSM) is supported on this
platform. The interface is built with TSM API version 5.3.2.

8. Optical

As of 2020-04-10, even the stubs of support for OnLine/Optical are gone.

9. Pluggable Authentication Module (PAM)

PAM functionality is supported on Linux operating systems. PAM requires
the libpam.so library that is supplied by the Operating System vendor.

Use of PAM can be enabled or disabled by the system administrator. By
default, the Informix server will use the traditional authentication
mechanism to avoid changes for the users.

The PAM service identifies the PAM module. This PAM module usually is

located in /usr/lib/security and its parameters are listed in
/etc/pam.conf.

10. Processor Affinity

The processor affinity feature, which allows the pinning of a CPU
virtual processor to a physical processor in a multi-CPU configuration,
is supported on this platform.

11. Secure Sockets Layer

IBM Informix Database Server uses the libraries and utilities provided by
the IBM Global Security Kit (GSKit) for Secure Sockets Layer (SSL)
communication.

    a. Before uninstalling GSKit, verify that it is not needed on your
       system. It is possible that software other than Informix Database
       Server requires GSKit. Uninstall by identifying and removing GSKit
       packages using the command-line interface:

       Run rpm command with the -qa option to obtain a list of installed
       GSKit packages with their exact names.
       For example:
       rpm -qa | grep gsk

       As root user run the rpm command to remove each package as needed.
       For example:
       rpm -ev gskssl64-8.0.55.22 gskcrypt64-8.0.55.22

    b. If you want to restore Secure Sockets Layer capability after you
       have uninstalled GSKit, see the readme file in $INFORMIXDIR/gskit
       for how to install GSKit.

12. Simple Password Communications Support Module

The name of the IBM Informix shared library for Simple Password CSM
on Linux is libixspw.so.

Features not supported
======================

1. Rolling upgrades to IDS version 14.10.xC2 and 14.10.xC6 are not supported.

Rolling upgrades are not supported in IDS version 14.10.xC2 and 14.10.xC6.
Migration to these versions from a previous version require changes to
disk structures, and the conversion process is incompatible with a rolling
upgrade. When upgrading HDR and RSS secondary servers to version 14.10.xC2
or 14.10.xC6, you must follow the steps listed in the on-line documentation
under "Migrating an offline cluster to a new major version."

2. J/Foundation

3. OnSNMP

4. Spatiotemporal Search Database Extension

5. Web Feature Service Database Extension

6. XML Publishing

Defects Fixed in this release
=============================

For information about defects fixed in this release, see:
http://www.ibm.com/support/docview.wss?uid=swg27049835

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SOLARIS 64

```
================================
            MACHINE SPECIFIC NOTES
                  FOR
    IBM Informix Database Server 14.10.FC6 PRODUCT RELEASE
                ON SOLARIS 64bit
              DATE: 27 May 2021
================================
```

OS Information : Built on Solaris 11.3.

System Requirements
===================

1. This product was built on Solaris 11.3 using the following compilers
    from Oracle Developer Studio 12.6:

        Sun C 5.15 SunOS_sparc 2017/05/30
        Sun C++ 5.15 SunOS_sparc 2017/05/30

2. Solaris Support Repository Updates (SRUs) requirement.

        Solaris 11.3: SRU 34 or greater

3. IBM Informix Database Server is supported to work with and without Zones
    on Solaris 11. Read the following document for more information:

    ftp://ftp.software.ibm.com/software/data/informix/ids/IDS-SunSPARC-reqs.pdf

4. The UNIX graphical tools provided with this release require 64-bit
    X Windows System X11R6 and Motif 2.3.4 or later runtime libraries.

    If these tools cannot find the location of the X and Motif shared
    libraries, set the environment variable LD_LIBRARY_PATH to include
    these locations: /usr/openwin/lib/sparcv9 and /usr/dt/lib/sparcv9.

5. The High Performance Loader utilities, onload and ipload, require a
    minimum of 35 MB of memory and 70 MB of swap space in order to run.

6. IBM Informix Database Server uses the libraries and utilities provided by
    the IBM Global Security Kit (GSKit) for data encryption and Secure Sockets
    Layer (SSL) communication. The GSKit is bundled with the server and will
    be installed on your machine as part of the server installation process.
    Here are more details on the GSKit:

        a. The GSKit is also bundled with other IBM products and might
           already be present on your machine. If GSKit8 is not
           installed, Informix server will install GSKit in /opt/ibm/gsk8_64

directory on your machine.

b. The GSKit installation directory must have 35 MB of free disk space.

7. To install the product as root, a root login user must be present on the
    system. The Root Role feature provided by Solaris is not supported.

8. The Informix product installer may fail to start correctly. When it
    aborts the following two messages are displayed:

    Installer User Interface Mode Not Supported
    Unable to load and to prepare the installer in console or silent mode.

    This can happen due to a known problem in the Java Virtual Machine that
    is internal to the installer. This problem is known as
    "JDK-8188030 : AWT java apps fail to start when some minimal fonts are
    present".
    It may appear when only minimal fonts of the CFF format are installed on
    the machine.

    On a SunOS system with Sparc 64-bit architecture, this problem can be
    worked around by installing an additional font with a format different
    than CFF.

    An alternative is to remove the installed fonts of the CFF format.
    On SunOS systems with Sparc 64-bit architecture the Informix product
    installer is known to start and work correctly when no fonts are
    installed. In this case the system utility command "fc-match -sv" reports
    the message "No fonts installed on the system".

9. A feature which significantly reduces the time required to extend or create
    a chunk in a cooked file, exposed a defect in Solaris¿ 11.3 which may result
    in creation of corrupted file. This defect can occur if feature is enabled
    for Informix along with direct I/O and the file system supports direct I/O.
    One example of such file system is UFS. The issue does not affect ZFS or raw
    devices.

    The Solaris¿ defect number for this issue is 31306486. It has been fixed in
    Solaris 11.4 SRU27, but there is no fix for Solaris 11.3

    When using Informix in affected environment - Solaris 11.4 prior to SRU27
    or Solaris 11.3 and having dbspaces / chunks in a cooked files with a file
    system which supports direct I/O make sure both direct I/O and the feature
    are not enabled at the same time.

    The DIRECT_IO config parameter must be set to 0 (if needed) before the IDS
    instance is started or restarted, however direct I/O may still be used if
    the file system is mounted with the "forcedirectio" option.

    If use of direct I/O is desired in environment affected by Solaris¿ defect,
    then the feature can be disabled by setting USE_FALLOCATE to 0 as follows:

    onmode -wf USE_FALLOCATE=0

Check the following web site for the latest Solaris system requirements
for IBM Informix Database Server:

    http://www-01.ibm.com/support/docview.wss?rs=630&uid=swg27013343

System Configuration
====================

1. Kernel Parameters

On Solaris 11.3, all System V IPC facilities are either automatically configured or can be controlled by resource controls.

The resource controls have the following default values on Solaris 11.3:

```
process.max-sem-nsems     512
project.max-sem-ids       128
project.max-shm-memory    1/4 of physical memory
project.max-shm-ids       128
```

Check project.max-shm-memory on your system, IBM recommend the value of 4398046511104 for the IBM Informix Database Server.

On systems that have zones enabled, zone-wide resource controls are specified in the zone configuration.

Refer to the rctladm(1m) man page for more information about available resource controls.

Examples:

1) To display the current value of project.max-shm-memory set to the project and system wide, where Informix server is running under the default project, run this command:

```
# prctl -n project.max-shm-memory -i project default
```

2) To display the values of all the resource controls for a specific Informix server process, run this command:

```
# prctl <oninit pid>
```

3) To set the value of project.max-shm-memory for the project default to 4 TB without restarting the system, run this command:

```
# prctl -n project.max-shm-memory -r -v 4tb -i project default
```

4) To perform the same action as in example 3, but instead use the projmod command to modify the attribute value for project.max-shm-memory in /etc/project the local source of project information file, run this command:

```
# projmod -a -K 'project.max-shm-memory=(priv,4TB,deny)' default
```

2. Location of Shared Memory

The default value for SHMBASE configuration parameter in ONCONFIG is

```
SHMBASE 0x10A000000L
```

If the Informix server uses large pages, set the SHMBASE configuration parameter to align to the page size. For example:

```
SHMBASE 0x110000000L              # aligned to 256MB
```

or

```
SHMBASE 0x180000000L              # aligned to 2GB
```

3. Environment Variables

It is recommended that the environment variable INFORMIXSTACKSIZE be set to 128 (the default is 64) if the application involves operations

which would require the IBM Informix Database Server to perform recursive
database tasks (for example, cascading deletes).

Feature Notes   (alphabetized by feature)
=============

1.   **High Performance Loader**

User-defined conversion routines for the High Performance Loader must be
provided in a dynamic, shared library called ipldd11a.so. This shared
library is installed in the $INFORMIXDIR/lib directory. You can set the
location of this file with the HPL_DYNAMIC_LIB_PATH configuration
parameter in the file pointed to by PLCONFIG environment variable. For
more details see the "High-Performance Loader User's Guide".

To create a 64-bit shared library, the flags "-m64" can be used
to convey to the compiler that a 64-bit object is to be generated.

Onpload will use shared memory during its execution. It will allocate
memory beyond the address for the server, leaving room for server shared
memory expansion.

2.   **IPv6 Support**

The Informix database server supports Internet Protocol Version 6 (128 Bit
Internet Addresses) as well as IPv4 (32 Bit Addresses).

In order for the machine name that is specified in the SQLHOSTS file to
resolve to the correct IP address, the name services files on the operating
system must be configured correctly. If the machine has an IPv6 address
configured, and the listener thread is bound to an IPv6 address, then the
name service switch files /etc/nsswitch.conf must be configured to fetch
an IPv6 address. Also any local machine settings must be set correctly in
the /etc/hosts file.

For compatibility with earlier version of Informix client and server
products, assign each host name with both an IPv4 address and an IPv6
address. If the listener needs to be bound to an IPv4 address, and the
name services resolve the name in the order of the IPv6 address followed
by the IPv4 address, then an explicit IPv4 address needs to be put in the
host name field of SQLHOSTS file. Client applications should also use the
same setting.

3.   **J/Foundation (Java in the Server)**

The IBM Runtime Environment, Java(TM) Technology Edition, Version 8.0
release is installed in $INFORMIXDIR/extend/krakatoa/jre and should be
used with the J/Foundation component.

A Java user-defined routine (UDR) runs in a Java virtual processor. Use
the VPCLASS configuration parameter to specify the number of virtual
processors for the server. You configure Java virtual processors in
the "Java configuration parameters" section of the onconfig configuration
file. The default onconfig.std file is in the $INFORMIXDIR/etc directory.

To develop Java UDRs for the server on this platform, use Java Platform,
Standard Edition Development Kit (JDK) 8 or an earlier version according
to Java compatibility guidelines. That kit can be downloaded from
https://www.oracle.com/technetwork/java/javase/downloads/jdk8-downloads-
2133151.html

4.   **Large Memory Addressability (LMA)**

IBM Informix LMA provides the ability to support system configurations with greater than 4GB of RAM. Most UNIX systems are limited to 4GB of RAM based on the memory addressing limitations of 32-bit architectures.

The values for the following ONCONFIG parameters are increased from 32-bit to 64-bit platform by LMA support:

- The maximum number of buffers in BUFFERPOOL is 536870912.

- The maximum of LRU queues for lrus field in BUFFERPOOL is 512.

- The DS_TOTAL_MEMORY, which is the total memory available for decision support memory, is only limited by the amount of virtual memory available (2^40)/2 MB. The sort memory comes out of the DS_TOTAL_MEMORY memory and hence there is no explicit limit on the amount of sort memory.

- The read ahead parameter RA_PAGES is only limited by the number of buffers and therefore can be any value less than 536870912. The "chunk" write algorithm is not dependent on the amount of buffers or shared memory and can write as many pages in a single I/O as possible.

- The maximum size of any shared memory segment is 4398046511104 bytes.

- The value for SHMADD is 4294967296 kilobytes.

Refer to IBM Informix Administrator's Reference manual for the information about the related configuration parameters setting.

5.   Network Protocols

The following protocols and interfaces are supported on this platform:

    TLI using TCP/IP
    SOCKETS using TCP/IP
    IPC using stream pipe

To use TLI with TCP/IP:

    a. The NETTYPE entry in the ONCONFIG file and the nettype field in the sqlhosts file entry must contain "ontlitcp".

    b. To enable an IBM Data Server Client to connect to the database server, the NETTYPE entry in the ONCONFIG file and the protocol value in the sqlhosts file entry must contain "drtlitcp"

To use SOCKETS with TCP/IP:

    a. The NETTYPE entry in the ONCONFIG file and the nettype field in the sqlhosts file entry must contain "onsoctcp".

    b. To enable an IBM Data Server Client to connect to the database Server, the NETTYPE entry in the ONCONFIG file and the protocal value in the sqlhosts file entry must contain "drsoctcp"

If a CLI or JCC client wants to connect to the database server through DRDA while supporting SQLI connections, you must add a DBSERVERALIASES entry to the ONCONFIG file that corresponds to the sqlhosts file entry.

When using either TLI or SOCKETS, set the "connections" field in the ONCONFIG NETTYPE parameter and the kernel driver ndd parameter "tcp_conn_req_max_q" to the maximum number of expected concurrent connections.

If the "tcp_conn_req_max_q" is set too low, you will see a client error with sqlcode = -908 and isamcode = 13. If the NETTYPE "connections" field is set too low, you will see a server listener-thread error with err = -25571.

To use IPC (interprocess communication) with stream pipe:

   a. The NETTYPE entry in the ONCONFIG file and the nettype field in the sqlhosts file entry must contain "onipcstr".

Remote 32-bit or 64-bit applications and tools (example: ESQL/C, 4GL, ISQL) can only connect to the IBM Informix Database Server using the TCP/IP protocol.

Local 32-bit applications and tools can connect to the 64-bit server using either the TCP/IP or the IPC stream pipe protocols.

Fast poll is supported with TCP/IP and stream pipe interfaces. To disable fast poll, set the FASTPOLL parameter to 0 in the ONCONFIG file. By default the fast poll is enabled (value is 1).

The protocol for supporting IBM Informix MaxConnect on this platform is "ontliimc".

6.   OnLine Backup and Restore (ON-Bar)

ON-Bar uses the XBSA interface. Some of the functions invoked by ON-Bar are in a shared library supplied by third party storage management vendors. For ON-Bar to access these functions, set the BAR_BSALIB_PATH parameter in $INFORMIXDIR/etc/$ONCONFIG to the full pathname of the library.

This shared library must be compiled in 64-bit mode.

Using $INFORMIXDIR/lib/ibsad001.so as a symbolic link to the library is deprecated and shall be discontinued.

Informix Interface for Tivoli Storage Manager (TSM) is supported on this platform. The interface is built with TSM API version 5.3.2.

7.   OnSNMP

The SNMP agent for OnSNMP is based on SNMP Research (SNMPR).

8. Pluggable Authentication Module (PAM)

PAM functionality is supported on Solaris operating systems. PAM requires the libpam.so library that is supplied by the Operating System vendor.

Use of PAM can be enabled or disabled by the system administrator. By default, the Informix server will use the traditional authentication mechanism to avoid changes for the users.

The PAM modules are usually located in /usr/lib/security/64. The PAM services are defined in /etc/pam.conf.

9. Secure Sockets Layer

IBM Informix Database Server uses the libraries and utilities provided by the IBM Global Security Kit (GSKit) for Secure Sockets Layer (SSL) communication.

   a. Before uninstalling GSKit, verify that it is not needed on your system. It is possible that software other than Informix Database Server requires GSKit. Uninstalling entails removing the GSKit

```
        packages with the pkgrm command-line tool

        As root user run the pkgrm command to remove each package as
        needed. For example, the following command removes the GSKit
        SSL and GSKit Crypt packages:
        pkgrm gsk8ssl32 gsk8cry32

    b. If you want to restore Secure Sockets Layer capability after you
        have uninstalled GSKit, see the readme file in $INFORMIXDIR/gskit
        for how to install GSKit.

10. Simple Password Communications Support Module

    The name of the IBM Informix shared library for Simple Password CSM on
    Solaris is libixspw.so.


Features not supported
======================

1.  Rolling upgrades to IDS version 14.10.xC2 and 14.10.xC6 are not supported.

    Rolling upgrades are not supported in IDS version 14.10.xC2 and 14.10.xC6.
    Migration to these versions from a previous version require changes to
    disk structures, and the conversion process is incompatible with a rolling
    upgrade. When upgrading HDR and RSS secondary servers to version 14.10.xC2
    or 14.10.xC6, you must follow the steps listed in the on-line documentation
    under "Migrating an offline cluster to a new major version."

Defects Fixed in this release
=============================

For information about defects fixed in this release, see:
http://www.ibm.com/support/docview.wss?uid=ibm10870226

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```

Windows x64

```
        ================================
                MACHINE SPECIFIC NOTES
                        FOR
        IBM Informix Database Server 14.10.FC6 PRODUCT RELEASE
                    ON Windows x64
                    DATE: 27 May 2021
        ================================
```

```
OS Information : Built on Windows 2016 x64..
                Certified on Windows 2019.
```

```
System Requirements
===================
```

```
1.  This product is built on Windows 2016 using the following compiler from
    Microsoft Visual Studio 2017:
```

```
        Microsoft Visual C++ 2017
```

2.   Informix Dynamic Server uninstallation

     Due to an issue in installer tool, the registry entries created by
     installer will not be automatically removed after
     Informix Dynamic Server uninstall. The work around is to
     cleanup existing registry entries under HKLM->Software->Informix->DBMS.

3.   Installation Prerequisite on Windows 2016 or Later Versions

     User may need to temporarily turn off User Account Control(UAC) security
     before you install Informix Dynamic Server.

     For information about how to create groups, add users to groups, and
     turn off User Account Control, see your Windows documentation.

4.   Informix Dynamic Server uses the libraries and utilities provided by
     the IBM Global Security Kit (GSKit) for data encryption and Secure Sockets
     Layer (SSL) communication. The GSKit is bundled with the server and will
     be installed on your machine as part of the server installation process.
     Here are more details on the GSKit:

        a. The GSKit is also bundled with other IBM products and might
           already be present on your machine. If the GSKit was previously
           installed, but is older than version 8.0.55.24, the Informix
           server installation will upgrade the GSKit on your machine to
           version 8.0.55.24. If GSKit is not installed, the Informix
           server installation will install GSKit in the directory
           \Program Files\ibm\gsk8_64 on your machine.

        b. The GSKit installation directory must have 35 MB of free disk space.

Check the following web site for the latest Windows system requirements
for Informix Dynamic Server:

     http://www-01.ibm.com/support/docview.wss?rs=630&uid=swg27013343

System Configuration
====================

1.   Location of Shared Memory

     The ONCONFIG variable SHMBASE is recommended to be set to the following:

        SHMBASE 0x80000000L

2.   Administrator permission for running server utilities

     On Windows, you must run any server utility commands with administrator
     permission: for example, the 'oninit -iy' command to initialize the server.

     To run Informix utility commands as an administrator,
     from the Start menu, choose the Informix server name and
     then choose "Run as administrator". A command prompt with administrator
     permissions opens.

Feature Notes
=============

1.   Informix Interface for TSM

The Informix Interface DLL for TSM is installed as

        %INFORMIXDIR%\bin\libtxbsa.dll

    This interface is built with TSM API version 5.3.2.

    To use Tivoli Storage Manager with Informix databases,
    refer to the IBM Informix Backup and Restore Guide.

2. IPv6 Support

    The Informix Dynamic Server supports Internet Protocol Version 6
    (128 Bit Internet Addresses) as well as IPv4 (32 Bit Addresses).

    In order for the machine name that is specified in the SQLHOSTS registry
    to resolve to the correct IP address, the name services files on the
    Operating System should be correctly configured.

    For compatibility with earlier version of Informix client
    and server products, assign each host name with both an IPv4 address
    and an IPv6 address. If the listener needs to be bound to an IPv4
    address, and the name services resolve the name in the order of the
    IPv6 address followed by the IPv4 address, then an explicit IPv4
    address needs to be put in the nodename field of server registry.

3. J/Foundation (Java in the Server)

    The IBM Runtime Environment, Java(TM) Technology Edition, Version 8.0
    release is installed in $INFORMIXDIR/extend/krakatoa/jre and should be
    used with the J/Foundation component.

    A Java user-defined routine (UDR) runs in a Java virtual processor. Use
    the VPCLASS configuration parameter to specify the number of virtual
    processors for the server. You configure Java virtual processors in
    the "Java configuration parameters" section of the onconfig configuration
    file. The default onconfig.std file is in the $INFORMIXDIR/etc directory.

    To develop Java UDRs for the server on this platform, use Java Platform,
    Standard Edition Development Kit (JDK) 8 or an earlier version according
    to Java compatibility guidelines. That kit can be downloaded from
https://www.oracle.com/technetwork/java/javase/downloads/jdk8-downloads-
2133151.html.

4. Large Memory Addressability (LMA)

    IBM Informix LMA provides the ability to support system configurations
    with greater than 4GB of RAM.

    The values for the following ONCONFIG parameters are increased from
    32-bit limit by LMA support:

        - The maximum number of buffers in BUFFERPOOL is 2147483647.

        - The maximum of LRU queues for lrus field in BUFFERPOOL is 512.

        - The DS_TOTAL_MEMORY, which is the total memory available for
          decision support memory, is only limited by the amount of virtual
          memory available. The sort memory comes out of the DS_TOTAL_MEMORY
          memory and hence there is no explicit limit on the amount of sort
          memory.

        - The read ahead parameter RA_PAGES is only limited by the number of
          buffers and therefore can be any value less than 2147483647. The
          "chunk" write algorithm is not dependent on the amount of buffers

or shared memory and can write as many pages in a single I/O as
possible.

- The maximum size of any shared memory segment is 4398046511104 bytes.

- The maximum value for SHMADD is 4294967296 kilobytes.

Refer to IBM Informix Administrator's Reference manual for the information
about the related configuration parameters setting.

5. LDAP Authentication

This feature is set up and configured like the Pluggable Authentication
Module (PAM) that is used on UNIX and Linux. Use the LDAP Authentication
Support module when you want to use an LDAP server to authenticate your
system users.

The authentication module is a dynamic link library that resides in the
%INFORMIXDIR%\dbssodir\lib\security directory. The parameters of the module
are listed in the %INFORMIXDIR%\dbssodir\pam.conf file.

The source code for a fully functional LDAP Authentication Module and
samples of the required configuration files are included in the
%INFORMIXDIR%\demo\authentication directory. You can modify the code for
your specific LDAP Authentication Support module.

6. Network Protocols

The following protocol(s)/interface(s) are supported on this platform:

    SOCKETS using TCP/IP
    IPC using named pipe

    To use SOCKETS with TCP/IP:

        a. The NETTYPE entry in the ONCONFIG file and the value data of
            PROTOCOL in the SQLHOSTS registry entry must contain "onsoctcp"

        b. To enable an IBM Data Server Client to connect to the database
            server, the NETTYPE entry in the ONCONFIG file and the value
            data of PROTOCOL in the SQLHOSTS registry entry must contain
            "drsoctcp"

            If a CLI or JCC client wants to connect to the database server
            through DRDA while supporting SQLI connections, you must add a
            DBSERVERALIASES entry to the configuration file that corresponds
            to the SQLHOSTS registry entry.

    To use IPC (interprocess communication) with named pipe:

        a. The NETTYPE entry in the ONCONFIG file and the value data of
            PROTOCOL in the SQLHOSTS registry entry must contain "onipcnmp".

Remote 32-bit or 64-bit applications and tools (example: ESQL/C, 4GL, ISQL)
can only connect to the Informix Dynamic Server using the TCP/IP
protocol.

Local 32-bit applications and tools can connect to the 64-bit server using
either the TCP/IP or the IPC named pipe protocols.

7. OnLine Backup and Restore (ON-Bar)

ON-Bar uses the XBSA interface. Some of the functions invoked by ON-Bar
are in a dynamic link library supplied by third party storage management

vendors. For ON-Bar to access these functions, you must specify the library name and location in the BAR_BSALIB_PATH parameter in the ONCONFIG file.

For example, if you are using PSM:

    Set BAR_BSALIB_PATH to %INFORMIXDIR%\bin\libbsapsm.dll

For example, if you are using TSM:

    Set BAR_BSALIB_PATH to %INFORMIXDIR%\bin\libtxbsa.dll

8. XML User-Defined Routines

You cannot run XML UDRs at large memory segments (VX class) on this platform.

To avoid XML UDR execution failure, configue and adjust the following Informix Dynamic Server configuration parameters in the configuration file:

    PRELOAD_DLL_FILE -
        Specify the path name for a shared library file that is pre-loaded when the server is started.

    BUFFERPOOL -
        Adjust the memory field to a lower value.

    SHMVIRTSIZE -
        Adjust it to a lower value.

9. Secure Sockets Layer

Informix Dynamic Server uses the libraries and utilities provided by the IBM Global Security Kit (GSKit) for Secure Sockets Layer (SSL) communication.

10. Simple Password Communications Support Module

The name of the IBM Informix dynamic link library for Simple Password CSM on Windows is libixspw.dll. This dynamic link library is installed in %INFORMIXDIR%\bin.

Features not supported
======================

1. Web Feature Service Database Extension

2. Mapped users

3. Rolling upgrades to Informix Dynamic Server version 14.10.xC2 and 14.10.xC6 are not supported.

Rolling upgrades are not supported in Informix Dynamic Server version 14.10.xC2 and 14.10.xC6. Migration to this version from a previous version requires changes to disk structures, and the conversion process is incompatible with a rolling upgrade. When upgrading HDR and RSS secondary servers to version 14.10.xC2 or 14.10.xC6, you must follow the steps listed in the on-line documentation under "Migrating an offline cluster to a new major version."

Defects Fixed in this release
=============================

```
For information about defects fixed in this release, see:
http://www.ibm.com/support/docview.wss?uid=ibm10870226


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```

Release documentation and machine notes for IBM Informix, v14.10.xC5

These are the release, documentation, and machine notes for IBM® Informix® version 14.10.xC5.

- Release notes for IBM Informix for Windows Operating Systems, 14.10.xC5
  The Release notes provide a list of useful topics and links for when you install IBM Informix database product or fix pack.
- Release notes for IBM Informix for UNIX and Linux, 14.10.xC5
  The Release notes provide a list of useful topics and links for when you install an IBM Informix database product or fix pack.
- Machine notes for IBM Informix, version 14.10
  These are the machine notes for IBM Informix version 14.10.

Release notes for IBM Informix for Windows Operating Systems, 14.10.xC5

The Release notes provide a list of useful topics and links for when you install IBM® Informix® database product or fix pack.

Contents

- Description
- Announcement
- System requirements
- Installing IBM Informix 14.10.xC5
- Known problems
- Related information

Description

IBM Informix 14.10 is available in several different editions, and each offers different features and function.

For a complete list of what's new and changed in this release, go to
http://www.ibm.com/support/knowledgecenter/SSGU8G/welcomeIfxServers.html.

Information about the fixed defects for IBM Informix 14.10.xC5 is available at:
https://www.ibm.com/support/pages/node/6245770.

Announcement

The product announcement letters are available at http://www.ibm.com/common/ssi/index.wss. Search for
Informix 14.10 and select Announcement letters. See the announcement for the following information:

- Detailed product description
- Product-positioning statement
- Packaging and ordering details
- International compatibility information

System requirements

For information about hardware and software compatibility, see the detailed system requirements document
at http://www.ibm.com/support/docview.wss?uid=swg27013343..

Installing IBM Informix 14.10.xC5

For step-by-step installation instructions, see Installing Informix..

The IBM Informix Installation Guide (ids_win_installg_14.10.pdf) is also available in the product build in PDF
format.

If you are migrating from another version of Informix, make sure that you understand all migration
requirements and restrictions before you install the product. For migration information, see
http://www.ibm.com/support/knowledgecenter/SSGU8G/welcomeIfxServers.html .

Known problems

At the time of publication, the following problems were known:

- If you uninstall Informix version 11.50, restart the computer before you install another version of
  Informix
- Windows firewall exception is needed before installation
  Before you install Informix on Windows operating systems, make a Windows firewall exception for the
  TCP listening port that is used by Informix. By default, the Informix port is 9088; however, you can
  specify a different port number during installation.

- Removing users when you uninstall the database server
  If there are multiple installations of the product on the computer, and you are uninstalling one of the
  products, be careful when you use the Remove users and groups option. Do not remove users or groups
  that are required by the other installations of the product. If you remove users or groups that are
  required by the other products, the other products will not start or they will be inoperable.

- Starting Informix instances
  To start an Informix instance, use the instance shortcut that is in the Informix program group.

Related information

- Notice of deprecation:
The Backup to Amazon Simple Storage Services (AWS S3) provided in the ontape utility is considered deprecated and will be removed in an upcoming release. This feature will be replaced with the same REST based technology used in the Informix Primary Storage Manager, to expand coverage to other cloud providers and enhance functionality.

- End of support:
The Informix Storage Manager is not a valid storage manager anymore for the ON-Bar utilities. Usage of the old XBSA library with 14.10 is not supported and can lead to unpredictable results including loss of data or inability to restore.

- Latest open source drivers for Informix: http://github.com/OpenInformix.
- IBM Support Portal: http://www.ibm.com/support/entry/portal/
- International Informix Users Group (IIUG): http://www.iiug.org

Release notes for IBM Informix for UNIX and Linux, 14.10.xC5

The Release notes provide a list of useful topics and links for when you install an IBM® Informix® database product or fix pack.

Contents

- Description
- Announcement
- System requirements
- Installing IBM Informix 14.10.xC5
- Known problems
- Related information

Description

IBM Informix 14.10 is available in several different editions, and each offers different features and function.

For a complete list of what's new and changed in this release, go to .
http://www.ibm.com/support/knowledgecenter/SSGU8G/welcomeIfxServers.html.

Information about the fixed defects for IBM Informix 14.10.xC5 is available at:
https://www.ibm.com/support/pages/node/6245770.

Announcement

The product announcement letters are available at http://www.ibm.com/common/ssi/index.wss. Search for Informix 14.10 and select Announcement letters. See the announcement for the following information:

- Detailed product description
- Product-positioning statement
- Packaging and ordering details
- International compatibility information

System requirements

For information about hardware and software compatibility, see the detailed system requirements document at http://www.ibm.com/support/docview.wss?uid=swg27013343.

Installing IBM Informix 14.10.xC5

For step-by-step installation instructions, see Installing Informix at http://www.ibm.com/support/knowledgecenter/SSGU8G/welcomeIfxServers.html.

If you are migrating from another version of , make sure that you understand all migration requirements and restrictions before you install the product. For migration information, see http://www.ibm.com/support/knowledgecenter/SSGU8G/welcomeIfxServers.html.

Known problems

At the time of publication, the following problems were known:

- Removing users when you uninstall the database server
  If there are multiple installations of the product on the computer, and you are uninstalling one of the products, be careful when you use the Remove users and groups option. Do not remove users or groups that are required by the other installations of the product. If you remove users or groups that are required by the other products, the other products will not start or they will be inoperable.

Related information

- Notice of deprecation:
  The Backup to Amazon Simple Storage Services (AWS S3) provided in the ontape utility is considered deprecated and will be removed in an upcoming release. This feature will be replaced with the same REST based technology used in the Informix Primary Storage Manager, to expand coverage to other cloud providers and enhance functionality.

- End of support:
  The Informix Storage Manager is not a valid storage manager anymore for the ON-Bar utilities. Usage of the old XBSA library with 14.10 is not supported and can lead to unpredictable results including loss of data or inability to restore.

- Latest open source drivers for Informix: http://github.com/OpenInformix.
- IBM Support Portal: http://www.ibm.com/support/entry/portal/
- International Informix Users Group (IIUG): http://www.iiug.org

Machine notes for IBM Informix, version 14.10

These are the machine notes for IBM® Informix® version 14.10.

To view the notes, expand the categories in the contents pane in the Release information subtopic under the Product overview topic.

- [IBM AIX 7.2 64](#)
- [HEWLETT PACKARD HP-UX Itanium](#)
- [Raspbian 9 armv71](#)
- [openSUSE aarch64](#)
- [Linux x86_64](#)
- [Linux Power Series (little endian)](#)
- [Linux zSeries](#)
- [SOLARIS 64](#)
- [Windows x64](#)

IBM AIX 7.2 64

```
================================
          MACHINE  SPECIFIC  NOTES
                  FOR
   IBM Informix Database Server 14.10.FC5  PRODUCT RELEASE
                 ON IBM AIX 7.2 64bit
                 DATE: 17 Nov 2020
================================
```

OS Information : Built on AIX 7.2 Technology.

System Requirements
==================

1. **This product was built on AIX 7.2 Technology using the following compilers:**

    IBM XL C/C++ for AIX, V11.1 (5724-X13)
    XL C/C++ Runtime   13.1.3

2. **AIX patch requirement:**

        TL2 (7200-02-02-1810)

3. **The UNIX graphical tools provided with this release require X Window system X11R6 and Motif 2.3.4 or later runtime libraries.**

4. **The High Performance Loader utilities, onpload and ipload, require a minimum of 35 MB of memory and 70 MB of swap space in order to run.**

5. **If you are using Java(TM) UDRs, please refer to "AIX Loader Domains" under J/Foundation section for details.**

6. **IBM Informix Database Server uses the libraries and utilities provided by the IBM Global Security Kit (GSKit) for data encryption and Secure Sockets Layer (SSL) communication. The GSKit is bundled with the server and will be installed on your machine as part of the server installation process. Here are more details on the GSKit:**

a. The GSKit is also bundled with other IBM products and might
        already be present on your machine. If GSKit 8.0.55.17 is not
        installed, Informix server will install GSKit in /usr/opt/ibm/gsk8_64
        directory on your machine.

     b. The GSKit installation directory must have 35 MB of free disk space.

Check the following web site for the latest AIX system requirements
for IBM Informix Database Server:

     http://www-01.ibm.com/support/docview.wss?rs=630&uid=swg27013343

System Configuration
====================

1. Location of Shared Memory

    The ONCONFIG variable SHMBASE should be set to the following:

        SHMBASE 0x700000010000000

    If you are using Java UDRs, refer to the J/Foundation section for setting
    the SHMBASE value.

2. Environment Variables

    a. It is recommended that the environment variable INFORMIXSTACKSIZE be set
       to 128 (the default is 64) if the application involves operations which
       would require the IBM Informix Database Server to perform recursive
       database tasks (for example, cascading deletes).

    b. If you are using Java UDRs, set environment variable LDR_CNTRL to
       include the value "USERREGS" and "LOADPUBLIC" before starting IBM
       Informix Database Server.
       export LDR_CNTRL=LOADPUBLIC@USERREGS

Feature Notes   (alphabetized by feature)
=============

1. High Performance Loader

    User-defined conversion routines must be provided in a dynamic, shared
    library called ipldd11a_64.so. This library is installed in the
    $INFORMIXDIR/lib directory. You can set the location of this file with
    the HPL_DYNAMIC_LIB_PATH configuration parameter in file pointed to by
    PLCONFIG environment variable. For more details, refer the manual
    "High-Performance Loader User's Guide".

    To create a 64-bit shared library, the environment variable OBJECT_MODE
    should be set to 64 to convey to the compiler that a 64-bit object is to
    be generated. The "-q64" flag for cc can also be used to indicate to the
    compiler that 64-bit object is to be generated.

2. IPv6 Support

    The Informix database server supports Internet Protocol Version 6 (128 Bit
    Internet Addresses) as well as IPv4 (32 Bit Addresses).

    In order for the machine name that is specified in the SQLHOSTS file to
    resolve to the correct IP address, the name services files on the operating
    system must be configured correctly. If the machine has an IPv6 address
    configured, and the listener thread is bound to an IPv6 address, then the

name resolution file /etc/netsvc.conf must be configured to fetch an IPv6 address. Also any local machine settings must be set correctly in the /etc/hosts file.

For compatibility with earlier version of Informix client and server products, assign each host name with both an IPv4 address and an IPv6 address. If the listener needs to be bound to an IPv4 address, and the name services resolve the name in the order of the IPv6 address followed by the IPv4 address, then an explicit IPv4 address needs to be put in the host name field of SQLHOSTS file. Client applications should also use the same setting.

3. J/Foundation (Java in the Server)

The IBM Runtime Environment, Java Technology Edition, Version 8.0 release is installed in $INFORMIXDIR/extend/krakatoa/jre and should be used with the J/Foundation component.

A Java user-defined routine (UDR) runs in a Java virtual processor. Use the VPCLASS configuration parameter to specify the number of virtual processors for the server. You configure Java virtual processors in the "Java configuration parameters" section of the onconfig configuration file. The default onconfig.std file is in the $INFORMIXDIR/etc directory.

To develop Java UDRs for the server on this platform, use the 64-bit IBM SDK, Java Technology Edition, Version 8 or an earlier version according to Java compatibility guidelines. Java SDK 8 contains the latest virtual machine technology from IBM and can be downloaded from http://www.ibm.com/java/jdk/.

Location of Shared Memory

When using IBM Informix Server with J/Foundation, the ONCONFIG parameter SHMBASE should be set to the following:

    SHMBASE 0x700000030000000

AIX Loader Domains

If multiple shared libraries are loaded onto two VPs, one of which is a Java VP, and the libraries are not loaded in the same order on each VP, executing a function from the libraries can cause the IBM Informix Database Server to core dump with the following message in online.log:

    09:35:58   Assert Failed: Exception Caught. Type: MT_EX_OS, Context: ill
    09:35:58   Who: Session(15, informix@ibms70, 46918, 1075033896)
                     Thread(41, sqlexec, 4010c7d8, 3)
                     File: mtex.c Line: 372
    09:35:58   Action: Please notify Technical Support.

You would typically encounter this error if your application is using both C UDRs and Java UDRs.

To resolve this problem, the AIX loader domains concept is used. The loader domain provides a means of loading shared libraries at the same virtual address in a set of processes. The loader domain file is created during the installation of the IBM Informix Database Server. This is installed as "/var/adm/ifx_loader_domain".

IBM Informix Database Server with J/Foundation on AIX requires the loader domain file "/var/adm/ifx_loader_domain" to exist at all times. If the file does not exist, create it as superuser using the following commands:

    touch /var/adm/ifx_loader_domain

```
        chgrp informix /var/adm/ifx_loader_domain
        chmod 660 /var/adm/ifx_loader_domain
```

4. **Kernel Asynchronous I/O (KAIO)**

   KAIO is enabled by default on this platform.

   The AIO subsystem is loaded by default but not activated. No AIO
   server is started at AIX startup. The AIO server is automatically
   started when applications are initiating AIO I/O requests. It stays
   active as long as it services AIO I/O requests.

   To disable KAIO, set the environment variable KAIOOFF:

```
        KAIOOFF=1 ; export KAIOOFF        ( for Bourne or Korn shell )
        setenv KAIOOFF 1                  ( for C shell )
```

   Limit the number of resident memory segments allocated to Informix.
   If you allocate a lot of resident memory segments to Informix and
   Informix uses a lot of KAIO and direct I/O, KAIO read or write calls
   might fail with errno 22 (EINVAL). EINVAL errors can lead to down dbspaces
   or system aborts. The following error typically appears in the server log:

```
        04:30:40  KAIO: error in kaio_WRITE, kaiocbp = 0x22b620d0, errno = 22
        04:30:40  fildes = 258 (gfd 3), buf = 0x700000122b64000, nbytes = 4096,
                  offset = 130785280
```

   The usual reason for these EINVAL errors is that the OS is running low
   on resident memory pages because the Informix server has too many shared
   memory segments allocated as "resident," as well as pinned OS kernel
   memory and KAIO resources.

   You can prevent these errors by setting fewer, or no, Informix server
   shared memory segments as resident. Set the RESIDENT configuration
   parameter in the onconfig file to 1 or 0.

5. **Large Memory Addressability (LMA)**

   IBM Informix LMA provides the ability to support system configurations
   with greater than 4GB of RAM. Most UNIX systems are limited to 4GB of
   RAM based on the memory addressing limitations of 32-bit architectures.

   The values for the following ONCONFIG parameters are increased from
   32-bit to 64-bit platform by LMA support:

   - The maximum number of buffers in BUFFERPOOL is 2147483647.

   - The maximum of LRU queues for lrus field in BUFFERPOOL is 512.

   - The DS_TOTAL_MEMORY, which is the total memory available for
     decision support memory, is only limited by the amount of virtual
     memory available. The sort memory comes out of the DS_TOTAL_MEMORY
     memory and hence there is no explicit limit on the amount of sort
     memory.

   - The read ahead parameter RA_PAGES is only limited by the number of
     buffers and therefore can be any value less than 2147483647. The
     "chunk" write algorithm is not dependent on the amount of buffers
     or shared memory and can write as many pages in a single I/O as
     possible.

   - The maximum size of any shared memory segment is 68719460352 bytes.

   - The value for SHMADD is 67108848 kilobytes.

6. Network Protocols

    The following protocols and interfaces are supported on this platform:

        SOCKETS using TCP/IP
        IPC using stream pipe (implemented using UNIX Domain Sockets)

    To use SOCKETS with TCP/IP:

        a. The NETTYPE entry in the ONCONFIG file and the nettype field in
           the sqlhosts file entry must contain "onsoctcp".

        b. To enable an IBM Data Server Client to connect to the database
           Server, the NETTYPE entry in the ONCONFIG file and the protocal
           value in the sqlhosts file entry must contain "drsoctcp"

           If a CLI or JCC client wants to connect to the database server
           through DRDA while supporting SQLI connections, you must add a
           DBSERVERALIASES entry to the ONCONFIG file that corresponds to
           the sqlhosts file entry.

    To use IPC (interprocess communication) with stream pipe:

        a. The NETTYPE entry in the ONCONFIG file and the nettype field in
            the sqlhosts file entry must contain "onipcstr".

    Fast poll is supported with TCP/IP and stream pipe interfaces. To disable
    fast poll, set the FASTPOLL parameter to 0 in the ONCONFIG file. By default
    the fast poll is enabled (value is 1).

    Remote 32-bit applications and tools (example: ESQL/C, 4GL, ISQL) can
    only connect to the IBM Informix Database Server using the TCP/IP
    protocol.

    Local 32-bit applications and tools can connect to the 64-bit server
    using either the TCP/IP sockets or the IPC stream pipe protocols.

    The protocol for supporting IBM Informix MaxConnect on this platform
    is "onsocimc".

7. No Age (Disable Priority Aging)

    The no aging feature that disables priority aging of CPU virtual processors
    by the operating system can be activated by setting the noage option of the
    VPCLASS configuration parameter for the CPU virtual processors. For example,
    the following ONCONFIG entry specifies that there are 8 CPU VPs, each
    without aging:

    VPCLASS cpu,num=8,noage

    When the noage option is used, all oninit processes will run at priority
    60 with fixed priority round robin type scheduling.

    To override the default priority value for CPU VP class, set the
    environment variable INFX_CPUVP_PRIORITY to the desired priority,
    within limits (50 to 90) before starting the server.

    The server checks and sets the CPU VP process to the defined priority
    if the defined value is within the above range.

8. OnLine Backup and Restore (ON-Bar)

    ON-Bar uses the XBSA interface. Some of the functions invoked by ON-Bar

are in a shared library supplied by third party storage management vendors.
For ON-Bar to access these functions, set the BAR_BSALIB_PATH parameter in
$INFORMIXDIR/etc/$ONCONFIG to the full pathname of the library.

Using $INFORMIXDIR/lib/ibsad001_64.so as a symbolic link to the
library is deprecated and shall be discontinued.

Informix Interface for Tivoli Storage Manager (TSM) is supported on this
platform. The interface is built with TSM API Client version 5.3.2.

9. OnSNMP

The SNMP agent for OnSNMP is based on SNMP Research (SNMPR).

10. Pluggable Authentication Module (PAM)

PAM functionality is supported on AIX operating system. The PAM is
dependent on the libpam.so library supplied by the Operating System
vendor.

Use of PAM can be enabled or disabled by the system administrator. By
default, IBM Informix server will use the traditional authentication
mechanism in order to avoid widespread changes required by the users.

The PAM modules typically resides in /usr/lib/security/64. The PAM
services are defined in /etc/pam.conf.

11. Processor Affinity

The processor affinity feature, which allows the pinning of a CPU
virtual processor to a physical processor in a multi-CPU configuration,
is supported on this platform.

12. Secure Sockets Layer

IBM Informix Database Server uses the libraries and utilities provided by
the IBM Global Security Kit (GSKit) for Secure Sockets Layer (SSL)
communication.

    a. Before uninstalling GSKit, verify that it is not needed on your
       system. It is possible that software other than Informix Database
       Server requires GSKit. Uninstalling entails removing GSKit
       packages as follows:

       To remove package, as root user run the following
       installp -u -g -V2 GSKit8.gskcrypt64.ppc.rte GSKit8.gskssl64.ppc.rte

    b. If you want to restore Secure Sockets Layer capability after you
       have uninstalled GSKit, see the readme file in $INFORMIXDIR/gskit
       for how to install GSKit.

13. Shared Memory Residency

Shared Memory Residency is supported. This feature can be enabled by
setting ONCONFIG parameter RESIDENT to a non-zero value.

Please read the KAIO section in this file if you are using
Shared Memory Residency together with KAIO or DIRECT_IO, as this
combination may cause problems.

See APAR IC76872 for further information.

14. Simple Password Communications Support Module

The name of the IBM Informix shared library for Simple Password CSM on on AIX is libixspw.so.

15. Single Sign On (SSO)

This feature requires AIX system library libgssapi_krb5 to be installed on the system. This library is included in krb5.toolkit.adt (Network Authentication Service App. Dev. Toolkit).

Features not Supported
======================

1. Rolling upgrades to IDS version 14.10.xC2 are not supported.

Rolling upgrades are not supported in IDS version 14.10.xC2. Migration to this version from a previous version requires changes to disk structures, and the conversion process is incompatible with a rolling upgrade. When upgrading HDR and RSS secondary servers to version 14.10.xC2, you must follow the steps listed in the on-line documentation under "Migrating an offline cluster to a new major version."

2. Concurrent I/O on Shared Disk Secondary Servers.

Defects Fixed in this release
============================

For information about defects fixed in this release, see:
http://www.ibm.com/support/docview.wss?uid=ibm10870226

HEWLETT PACKARD HP-UX Itanium

```
================================
          MACHINE  SPECIFIC  NOTES
                  FOR
    IBM Informix Database Server 14.10.FC5 PRODUCT RELEASE
          ON HEWLETT PACKARD HP-UX Itanium
                DATE: 17 Nov 2020
================================
```

OS Information : Built on HP-UX 11i V3 (aka 11.31) Itanium.

System Requirements
===================

1. This product was built on HP-UX 11i V3 (aka 11.31) Itanium using the following compilers:

HP C/aC++ B3910B A.06.26 [Apr 12 2011]

and with the following packages:

Bundle Name   Description
----------   -----------

```
    B9007AA          C.11.31.06         HP C/aC++ Developer's Bundle
    FEATURE11i       B.11.31.1209.383a  Feature Enablement Patches for
                                        HP-UX 11i v3, September 2012
    BUNDLE           B.2018.09.06       Patch Bundle
```

2. The UNIX graphical tools provided with this release require X Windows
    System X11R6 and Motif 2.1 or later runtime libraries.

    If these tools cannot find the location of the X and Motif shared
    libraries, the environment variable LD_LIBRARY_PATH may need to be set
    to include these locations.

3. The High Performance Loader utilities, onpload and ipload, require a
    minimum of 35 MB of memory and 70 MB of swap space in order to run.

4. IBM Informix Database Server uses the libraries and utilities provided by
    the IBM Global Security Kit (GSKit) for data encryption and Secure Sockets
    Layer (SSL) communication. The GSKit is bundled with the server and will
    be installed on your machine as part of the server installation process.
    Here are more details on the GSKit:

        a. The GSKit is also bundled with other IBM products and might
            already be present on your machine. If GSKit8 is not
            installed, Informix server will install GSKit in /opt/ibm/gsk8_64
            directory on your machine.

        b. The GSKit installation directory must have 80 MB of free disk space.

5. Expanded Node and Host Name sizes on HP-UX

    Current version of IBM Informix Database Server does not support the
    use of Expanded Node and Host Name Sizes. If the tunable kernel parameter
    expanded_node_host_names is set to 1, and the Database Server is on a
    system with a node name greater than 8 bytes or host name greater than
    64 bytes, then the Database Server will fail to initialize.

    You may be able to work around the issue by setting the tunable kernel
    parameter uname_eoverflow to 0. Consult HP documentation for more
    information on the tunable kernel parameters uname_eoverflow and
    expanded_node_host_names.

Check the following web site for the latest HP Itanium system
requirements for IBM Informix Database Server:

    http://www-01.ibm.com/support/docview.wss?rs=630&uid=swg27013343

System Configuration
====================

1. Kernel Parameters

    The values of the kernel parameters that were used for testing this
    product are given below. These values might need to be tuned depending
    on the application and availability of system resources.

    shmseg: 512
    shmmni: 512
    shmmax: 4398046511104
    semmnu: 1400
    semmns: 4096
    semmni: 4096
    nfile: 5000

- The value of the kernel parameter "semmnu" should be set to at least
  the maximum number of open ipcshm connections, plus the number of
  semaphore undo structures required by other processes in the system.
  The recommended value of "semmnu" is between 2K and 4K for larger
  systems.

- The value of the kernel parameter "shmmax" should be set to the
  maximum allowable on the system. Setting "shmmax" to a high value
  will prevent the OS from creating multiple shared memory segments
  which can degrade performance.

- This server release is built to take advantage of the Large File
  Descriptor support provided by HP-UX, which increases the number of
  simultaneous user connections per server instance from 2000 to
  60000.

  To take advantage of this feature, the following kernel parameters
  might need to be increased depending on the application:

  maxfiles_lim - Maximum number of files that can be opened by a process
                 simultaneously.
  nfile - Maximum number of files that can be opened system-wide.

2. Location of Shared Memory

    The ONCONFIG variable SHMBASE should be set to the following

        SHMBASE 0x0L

3. Environment Variables

    It is recommended that the environment variable INFORMIXSTACKSIZE be set
    to 256 (the default is 96) if the application involves operations which
    would require the IBM Informix Database Server to perform recursive
    database tasks (for example, cascading deletes).

Feature Notes   (alphabetized by feature)
=============

1. Greater Than 2GB Chunk & File Support

    Please refer to the man page for fsadm(1M) and fsadm_hfs(1M) for how to
    enable large file support on your system. This is essential to use the
    greater than 2 GB Chunk & File Support features for cooked files.

2. High Performance Loader

    User-defined conversion routines must be provided in a dynamic, shared
    library called ipldd11a.so. This library is installed in the
    $INFORMIXDIR/lib directory. You can set the location of this file with
    the HPL_DYNAMIC_LIB_PATH configuration parameter in file pointed to by
    PLCONFIG environment variable. For more details, refer the manual
    "High-Performance Loader User's Guide".

    This shared library must be compiled in 64-bit mode on HP-UX Itanium.

3. IPv6 Support

    The Informix database server supports Internet Protocol Version 6 (128 Bit
    Internet Addresses) as well as IPv4 (32 Bit Addresses).

    In order for the machine name that is specified in the SQLHOSTS file to

resolve to the correct IP address, the name services files on the operating system must be configured correctly. If the machine has an IPv6 address configured, and the listener thread is bound to an IPv6 address, then the name service switch files /etc/nsswitch.conf must be configured to fetch an IPv6 address. Also any local machine settings must be set correctly in the /etc/hosts file.

For compatibility with earlier version of Informix client and server products, assign each host name with both an IPv4 address and an IPv6 address. If the listener needs to be bound to an IPv4 address, and the name services resolve the name in the order of the IPv6 address followed by the IPv4 address, then an explicit IPv4 address needs to be put in the host name field of SQLHOSTS file. Client applications should also use the same setting.

4. J/Foundation (Java in the Server)

The IBM Runtime Environment, Java(TM) Technology Edition, Version 8.0 release is installed in $INFORMIXDIR/extend/krakatoa/jre and should be used with the J/Foundation component.

A Java user-defined routine (UDR) runs in a Java virtual processor. Use the VPCLASS configuration parameter to specify the number of virtual processors for the server. You configure Java virtual processors in the "Java configuration parameters" section of the onconfig configuration file. The default onconfig.std file is in the $INFORMIXDIR/etc directory.

To develop Java UDRs for the server on this platform, use HP-UX 11i Java Development Kit for the Java 2 Platform Standard Edition 8 or an earlier version according to Java compatibility guidelines. That kit can be downloaded from https://h20392.www2.hpe.com/portal/swdepot/displayProductInfo.do?productNumber=HPUXJDKJRE80

5. Kernel Asynchronous I/O (KAIO)

KAIO is DISABLED by default on this platform. To enable KAIO, set the environment variable KAIOON.

    KAIOON=1; export KAIOON   (for Bourne or Korn Shell)

    setenv KAIOON 1   (for C Shell)

The following is a prerequisite for using KAIO:

    a. The HP KAIO driver "asyncdsk" is installed and linked into the kernel.

    b. Ensure that the KAIO driver is up and running. Check if /dev/async exists. If not, follow these steps:

        1) su root
        2) If using HP hardware/OS redundancy or mirroring, create the async device as follows:

            /usr/sbin/mknod /dev/async c 101 0

            Otherwise, if using IBM Informix mirroring or no hardware/OS mirroring, or no mirroring at all, create the async device as follows:
            /usr/sbin/mknod /dev/async c 101 4

        3) chmod 0666 /dev/async

4) Make sure the following entry exists in the /etc/privgroup file

                  informix MLOCK

            After adding this entry, execute the following command

                  /sbin/rc1.d/S400set_prvgrp start

    An environment variable IFMX_HPKAIO_NUM_REQ is provided to specify the
    number of simultaneous KAIO requests that are processed by the server at
    one time. The value can be set in the range of 10 to 5000, the default
    being 1000. If the following error occurs:

        "KAIO: out of OS resources, errno = %d, pid = %d"

    consider increasing the value of IFMX_HPKAIO_NUM_REQ.

    For example:

        IFMX_HPKAIO_NUM_REQ=2300; export IFMX_HPKAIO_NUM_REQ
        (for Bourne or Korn Shell)

        setenv IFMX_HPKAIO_NUM_REQ 2300   (for C Shell)

6. Large Memory Addressability (LMA)

    IBM Informix LMA provides the ability to support system configurations
    with greater than 4GB of RAM. Most UNIX systems are limited to 4GB of
    RAM based on the memory addressing limitations of 32-bit architectures.

    The values for the following ONCONFIG parameters are increased from
    32-bit to 64-bit platform by LMA support:

        - The maximum number of buffers in BUFFERPOOL is 2147483647.

        - The maximum of LRU queues for lrus field in BUFFERPOOL is 512.

        - The DS_TOTAL_MEMORY, which is the total memory available for
          decision support memory, is only limited by the amount of virtual
          memory available. The sort memory comes out of the DS_TOTAL_MEMORY
          memory and hence there is no explicit limit on the amount of sort
          memory.

        - The read ahead parameter RA_PAGES is only limited by the number of
          buffers and therefore can be any value less than 2147483647. The
          "chunk" write algorithm is not dependent on the amount of buffers
          or shared memory and can write as many pages in a single I/O as
          possible.

        - The maximum size of any shared memory segment is 4398046511104 bytes.

        - The value for SHMADD is 4294967296 kilobytes.

    Refer to IBM Informix Administrator's Reference manual for the
    information about the related configuration parameters setting.

7. Network Protocols

    The following protocols and interfaces are supported on this platform:

        SOCKETS using TCP/IP
        IPC using stream pipe (implemented using UNIX Domain Sockets)

    To use SOCKETS with TCP/IP:

a. The NETTYPE entry in the ONCONFIG file and the nettype field in
      the sqlhosts file entry must contain "onsoctcp".

   b. To enable an IBM Data Server Client to connect to the database
      Server, the NETTYPE entry in the ONCONFIG file and the protocal
      value in the sqlhosts file entry must contain "drsoctcp"

      If a CLI or JCC client wants to connect to the database server
      through DRDA while supporting SQLI connections, you must add a
      DBSERVERALIASES entry to the ONCONFIG file that corresponds to
      the sqlhosts file entry.

To use IPC (interprocess communication) with stream pipe:

   a. The NETTYPE entry in the ONCONFIG file and the nettype field in
       the sqlhosts file entry must contain "onipcstr".

Fast poll is supported with TCP/IP and stream pipe interfaces. To disable
fast poll, set the FASTPOLL parameter to 0 in the ONCONFIG file. By default
the fast poll is enabled (value is 1).

Remote 32-bit applications and tools (example: ESQL/C, 4GL, ISQL) can
only connect to the IBM Informix Database Server using the TCP/IP
protocol.

Local 32-bit applications and tools can connect to the 64-bit server
using either the TCP/IP sockets or the IPC stream pipe protocols.

The protocol for supporting IBM Informix MaxConnect on this platform
is "onsocimc".

8. No Age (Disable Priority Aging)

The no aging feature that disables priority aging of CPU virtual processors
by the operating system can be activated by setting the noage option of the
VPCLASS configuration parameter for the CPU virtual processors. For example,
the following ONCONFIG entry specifies that there are 8 CPU VPs, each
without aging:

VPCLASS cpu,num=8,noage

When the noage option is used, all oninit processes will run at priority 180
with SCHED_NOAGE type scheduling. When idle, oninit processes will have the
priority of 154, which is the highest idle priority. This priority level
will prevent oninit processes from being aged when idle.

To override the default priority value for CPU VP class, set the
environment variable IFMX_CPUVP_PRIORITY to the desired priority, within
limits (154 to 190) before starting the engine.

If IFMX_CPUVP_PRIORITY is not within the limits, the priority will be
set to the default value of 180.

9. OnLine Backup and Restore (ON-Bar)

ON-Bar uses the XBSA interface. Some of the functions invoked by ON-Bar
are in a shared library supplied by third party storage management vendors.
For ON-Bar to access these functions, set the BAR_BSALIB_PATH parameter
in $INFORMIXDIR/etc/$ONCONFIG to the full pathname of the library.

This shared library must be compiled in 64-bit mode on HP-UX Itanium.

Using $INFORMIXDIR/lib/ibsad001.so as a symbolic link to the library

is deprecated and shall be discontinued.

Informix Interface for Tivoli Storage Manager (TSM) is supported on this platform. The interface is built with TSM API version 5.3.2.

10. Pluggable Authentication Module (PAM)

PAM functionality is supported on HPUX 11i V3 operating systems. PAM requires the libpam.so library that is supplied by the Operating System vendor.

Use of PAM can be enabled or disabled by the system administrator. By default, the Informix server will use the traditional authentication mechanism to avoid changes for the users.

The PAM modules are usually located in /usr/lib/security/hpux64. The PAM services are defined in /etc/pam.conf.

11. Processor Affinity

The processor affinity feature, which allows the pinning of a CPU virtual processor to a physical processor in a multi-CPU configuration, is supported on this platform.

12. Secure Sockets Layer

IBM Informix Database Server uses the libraries and utilities provided by the IBM Global Security Kit (GSKit) for Secure Sockets Layer (SSL) communication.

a. Before uninstalling GSKit, verify that it is not needed on your system. It is possible that software other than Informix Database Server requires GSKit. Uninstalling involves running the swremove command to remove packages as needed. For example, the following command when run as root user removes the GSKit SSL and GSKit Crypt packages:

swremove gskssl64 gskcrypt64

b. If you want to restore Secure Sockets Layer capability after you have uninstalled GSKit, see the readme file in $INFORMIXDIR/gskit for how to install GSKit.

13. Simple Password Communications Support Module

The name of the IBM Informix shared library for Simple Password CSM on HP-UX is libixspw.so.

14. Unicode

The version of the International Components for Unicode (ICU) library selected for the 14.10 release, 60.2, requires a newer C++ compiler than what is supported by HEWLETT PACKARD for this version of HP-UX. Because of this, ICU 4.8.1 is included with Informix 14.10 on the HP-UX Itanium platform.

Features not Supported
======================

1. Rolling upgrades to IDS version 14.10.xC2 are not supported.

Rolling upgrades are not supported in IDS version 14.10.xC2. Migration to this version from a previous version requires changes to disk structures, and the conversion process is incompatible with a rolling upgrade. When

upgrading HDR and RSS secondary servers to version 14.10.xC2, you must
follow the steps listed in the on-line documentation under "Migrating
an offline cluster to a new major version."

2. TERMINFO

3. OnSNMP

Defects Fixed in this release
===========================

For information about defects fixed in this release, see:
http://www.ibm.com/support/docview.wss?uid=ibm10870226

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Raspbian 9 armv71

```
=================================
          MACHINE  SPECIFIC  NOTES
                    FOR
    IBM Informix Database Server 14.10.UC5 PRODUCT RELEASE
                On Raspbian 9 armv7l (armhf)
                 DATE: 17 Nov 2020
=================================
```

OS Information: Built on Raspbian 9 (stretch) armhf

System Requirements
==================

1. IBM(R) Informix(R) 14.10 was built on Raspbian 9 (stretch)
    (Kernel: 4.14.79-v7+, Glibc: 2.24-11+deb9u3) for armv7l compatible
    processors. The following compilers were used:

        gcc and c++ compiler 6.3.0 (Raspbian 9 6.3.0-18)

    The following packages are required on your Linux system:

        libc6
        libgcc1
        libstdc++6
        libncurses5
        libaudit1
        zlib1g
        pam
        ksh
        krb5
        libcomerr2
        libkeyutils1
        libpcre3
        libselinux1
        libelf1 0.152

2. The Korn shell is required for the Informix server alarmprogram
    scripts. Install it as /bin/ksh.

3. If a suitable library libaio.so.1 is found, the Informix Database Server
    enables Kernel Asynchronous I/O (KAIO) automatically. Otherwise KAIO is
    disabled.

4. Java JDK version 8 or later package on your system. We tested the
    product with java version "1.8.0_181".

5. IBM Informix Database Server uses the libraries and utilities provided by
    the IBM Global Security Kit (GSKit) for data encryption and Secure Sockets
    Layer (SSL) communication. The GSKit is bundled with the server and must
    be installed on your machine as part of the server installation process.

    Here are more details on the GSKit:

    a. The GSKit is also bundled with other IBM products and might
        already be present on your machine. If GSKit8 is not installed,
        the script $INFORMIXDIR/gskit/installgskit will install GSKit in
        /usr/local/ibm/gsk8 directory on your machine.

    b. The GSKit installation directory must have 25 MB of free disk space.

    c. The RPM or Debian Package Manager is required to be installed on the
        system.

    d. Kernel Performance Events and Counters must be enabled and working
        on the specific ARM platform. Use this C program to verify:

```
#include <sys/syscall.h>
#include <linux/perf_event.h>
#include <errno.h>
#include <stdio.h>
#include <string.h>
int main(int argc, const char **argv)
{
  int fddev = 0;
  static struct perf_event_attr attr;
  attr.type = PERF_TYPE_HARDWARE;
  attr.config = PERF_COUNT_HW_CPU_CYCLES;
  fddev = syscall(__NR_perf_event_open, &attr, 0, -1, -1, 0);
  printf("syscall __NR_perf_event_open: %s\n", strerror(errno));
}
```

    e. If you are using Encryption At Rest (EAR) using IBM GSKit. The system
        must allow the use of Kernel Performance Events and Counters by
        users without CAP_SYS_ADMIN capability. This is needed to get access
        to a faster, higher quality entropy source.

        This can be accomplished by setting the "perf_event_paranoid" kernel
        tunable to a value equal or lower to 1.

        To set the parameter, run the following command as user root:
        sh -c 'echo 1 >/proc/sys/kernel/perf_event_paranoid'

System Configuration
====================

1. Kernel Parameters

    The values of the kernel parameters that were used for testing this
    product are given below. You can tune these parameter values depending

on the application and availability of system resources. The values can
be changed dynamically in the /proc file system or, if they are defined
in the kernel sources, they can be changed by rebuilding the kernel.

```
SHMMAX:    33554432
SHMMNI:    4096
SHMALL:    2097152
SEMMNI:    128
SEMMSL:    250
SEMMNS:    32000
SEMOPM:    32
```

- The value of the kernel parameter "SEMMSL" must be set to at least
  100. This value is the maximum number of semaphores per set.

2. Location of Shared Memory

In the ONCONFIG file, SHMBASE is set to the following value:

```
    SHMBASE 0x44000000L
```

- SHMBASE can also be set to start above the shared library addresses.
  When doing so, ensure that the dynamically loaded shared libraries
  do not collide with the shared memory segments.
  You can check the address space layout with the following command:
  $ cat /proc/<pid of oninit process>/maps

Feature Notes   (alphabetized by feature)
=============

1. High Performance Loader

User-defined conversion routines must be provided in a dynamic,
shared library called iplddl1a.so. This library is installed in the
$INFORMIXDIR/lib directory. You can set the location of this file with
the HPL_DYNAMIC_LIB_PATH configuration parameter in file pointed to by
PLCONFIG environment variable. For more details, refer the manual
"High-Performance Loader User's Guide".

Depending on the location of the shared libraries, OS stack etc., a
suitable location of pload shared memory spaces needs to be determined.
Linux system administrator is the best person to find the correct values
for PLOAD_SHMBASE for his particular system. The suggestive values for
PLOAD_SHMBASE could be 0x10000000L, or 0x44000000L.

2. IPv6 Support

The Informix database server supports Internet Protocol Version 6 (128 Bit
Internet Addresses) as well as IPv4 (32 Bit Addresses).

In order for the machine name that is specified in the SQLHOSTS file to
resolve to the correct IP address, the name services files on the operating
system must be configured correctly. If the machine has an IPv6 address
configured, and the listener thread is bound to an IPv6 address, then the
name service switch files /etc/nsswitch.conf must be configured to fetch
an IPv6 address. Also any local machine settings must be set correctly in
the /etc/hosts file.

For compatibility with earlier version of Informix client and server
products, assign each host name with both an IPv4 address and an IPv6
address. If the listener needs to be bound to an IPv4 address, and the
name services resolve the name in the order of the IPv6 address followed
by the IPv4 address, then an explicit IPv4 address needs to be put in the

host name field of SQLHOSTS file. Client applications should also use the same setting.

3. Kernel Asynchronous I/O (KAIO)

    KAIO is enabled by default on this platform. It can be disabled by setting the environment variable KAIOOFF=1 in the environment of the process that started the server.

    When using KAIO, run poll threads on separate virtual processors by specifying NET as the VP class in the NETTYPE configuration parameter. Examples:

        NETTYPE ipcshm,...,...,NET
        NETTYPE soctcp,...,...,NET

    On Linux, there is a system wide limit of the maximum number of parallel KAIO requests. The limit is set in the /proc/sys/fs/aio-max-nr file. A Linux system administrator can increase the value by using the echo command. For example:

        # echo new_value > /proc/sys/fs/aio-max-nr

    The current number of allocated requests of all operating system processes is visible in the /proc/sys/fs/aio-nr file.

    By default, the Informix server allocates half of the maximum number of requests, and assigns them equally to the number of configured CPU virtual processors. You can control the number of requests allocated per CPU virtual processor by setting the environment variable KAIOON. Set the variable to the required value before starting the database server. The minimum value for KAIOON is 100. If Linux is about to run out of KAIO resources, for example, when dynamically adding many CPU virtual processors, warnings are printed to the database server message log file. In this case, the Linux system administrator must add KAIO resources as described previously.

4. Network Protocols

    The following protocols and interfaces are supported on this platform:

        SOCKETS using TCP/IP
        IPC using stream pipe (implemented using UNIX Domain Sockets)

    To use SOCKETS with TCP/IP:

    a. The NETTYPE entry in the ONCONFIG file and the nettype field in the sqlhosts file entry must contain "onsoctcp".

    b. To enable an IBM Data Server Client to connect to the database Server, the NETTYPE entry in the ONCONFIG file and the protocal value in the sqlhosts file entry must contain "drsoctcp"

        If a CLI or JCC client wants to connect to the database server through DRDA while supporting SQLI connections, you must add a DBSERVERALIASES entry to the ONCONFIG file that corresponds to the sqlhosts file entry.

    To use IPC (interprocess communication) with stream pipe:

    a.   The NETTYPE entry in the ONCONFIG file and the nettype field in the sqlhosts file entry must contain "onipcstr".

    Fast poll is supported with TCP/IP and stream pipe interfaces. To disable

fast poll, set the FASTPOLL parameter to 0 in the ONCONFIG file. By default the fast poll is enabled (value is 1).

The protocol for supporting IBM Informix MaxConnect on this platform is "onsocimc".

5. Online Backup and Restore (ON-Bar)

ON-Bar uses the XBSA interface. Some of the functions invoked by ON-Bar are in a shared library supplied by third party storage management vendors. For ON-Bar to access the functions, set the BAR_BSALIB_PATH parameter in $INFORMIXDIR/etc/$ONCONFIG to the full pathname of the library.

6. Pluggable Authentication Module (PAM)

PAM functionality is supported on Linux operating systems. PAM requires the libpam.so library that is supplied by the Operating System vendor.

Use of PAM can be enabled or disabled by the system administrator. By default, the Informix server will use the traditional authentication mechanism to avoid changes for the users.

The PAM service identifies the PAM module. This PAM module usually is located in /usr/lib/arm-linux-gnueabihf and its parameters are listed in /etc/pam.conf.

7. Processor Affinity

The processor affinity feature, which allows the pinning of a CPU virtual processor to a physical processor in a multi-CPU configuration, is supported on this platform.

8. Raw Character Devices

Some Linux distributions support binding a raw character device to a block device. Any block device can be used. The Informix database server supports using raw character devices.

9. Secure Sockets Layer

IBM Informix Database Server uses the libraries and utilities provided by the IBM Global Security Kit (GSKit) for Secure Sockets Layer (SSL) communication.

a. Before uninstalling GSKit, verify that it is not needed on your system. It is possible that software other than Informix Database Server requires GSKit. Uninstall by identifying and removing GSKit packages using the command-line interface:

Run rpm command with the -qa option to obtain a list of installed GSKit RPM packages with their exact names.
For example:
rpm -qa | grep gsk

As root user run the rpm command to remove each package as needed.
For example:
rpm -ev gskssl32-8.0.55.17 gskcrypt32-8.0.55.17

Run dpkg command with the -l option to obtain a list of installed GSKit Debian packages with their exact names.
For example:
dpkg -l | grep gsk

As root user run the dpkg command to remove each package as needed.

```
        For example:
        dpkg -r gskssl32 gskcrypt32
```

      b. If you want to restore Secure Sockets Layer capability after you
        have uninstalled GSKit, see the readme file in $INFORMIXDIR/gskit
        for how to install GSKit.

10. Simple Password Communications Support Module

    The name of the IBM Informix shared library for Simple Password CSM
    on Linux is libixspw.so.

Features not supported
=====================

1. Rolling upgrades to IDS version 14.10.xC2 are not supported.

    Rolling upgrades are not supported in IDS version 14.10.xC2. Migration to
    this version from a previous version requires changes to disk structures,
    and the conversion process is incompatible with a rolling upgrade. When
    upgrading HDR and RSS secondary servers to version 14.10.xC2, you must
    follow the steps listed in the on-line documentation under "Migrating
    an offline cluster to a new major version."

2. Informix Interface for Tivoli Storage Manager (TSM)

3. OnSNMP

4. Deployment assistant and utility

5. J/Foundation (Java in the Server)

6. MQ Messaging Database Extension

7. Informix web feature service for Geospatial Data

8. The UNIX graphical tools ipload, onperf and xtree

9. Label-based access control (LBAC)

10. Shared-disk secondary server (SDS)

11. XML Publishing

12. Private server installation

Defects Fixed in this release
============================

For information about defects fixed in this release, see:
http://www.ibm.com/support/docview.wss?uid=swg27049835

openSUSE aarch64

```
                    ================================
                          MACHINE SPECIFIC NOTES
                                   FOR
                IBM Informix Database Server 14.10.FC5 PRODUCT RELEASE
                             On openSUSE aarch64
                             DATE: 17 Nov 2020
                    ================================
```

OS Information: Built on openSUSE Leap 42.3

System Requirements
===================

1. This product was built on openSUSE Leap 42.3
    (Kernel: 4.4.162-78-default, Glibc: 2.22) for aarch64 compatible
    processors. The following compilers were used:

        gcc/g++ (SUSE Linux) 4.8.5

    The following packages are required on your Linux system:

        glibc
        libgcc_s1
        libstdc++6
        libncurses5
        libaudit1
        libz1
        pam
        ksh
        krb5
        libcom_err2
        libkeyutils1
        libpcre1
        libselinux1
        libelf1-0.158

2. The Korn shell is required for the Informix server alarmprogram
    scripts. Install it as /bin/ksh.

3. If a suitable library libaio.so.1 is found, the Informix Database Server
    enables Kernel Asynchronous I/O (KAIO) automatically. Otherwise KAIO is
    disabled.

4. Java JDK version 8 or later package on your system. We tested the
    product with java version "1.8.0_181".

5. IBM Informix Database Server uses the libraries and utilities provided by
    the IBM Global Security Kit (GSKit) for data encryption and Secure Sockets
    Layer (SSL) communication. The GSKit is bundled with the server and must
    be installed on your machine as part of the server installation process.

    Here are more details on the GSKit:

        a. The GSKit is also bundled with other IBM products and might
           already be present on your machine. If GSKit8 is not installed,
           the script $INFORMIXDIR/gskit/installgskit will install GSKit in
           /usr/local/ibm/gsk8 directory on your machine.

b. The GSKit installation directory must have 35 MB of free disk space.

   c. The RPM or Debian Package Manager is required to be installed on the system.

   d. The GSKit for this platform has no FIPS certification.

System Configuration
====================

1. **Kernel Parameters**

    The values of the kernel parameters that were used for testing this product are given below. You can tune these parameter values depending on the application and availability of system resources. The values can be changed dynamically in the /proc file system or, if they are defined in the kernel sources, they can be changed by rebuilding the kernel.

    SHMMAX: 33554432
    SHMMNI: 4096
    SHMALL: 2097152
    SEMMNI: 128
    SEMMSL: 250
    SEMMNS: 32000
    SEMOPM: 32

    - The value of the kernel parameter "SEMMSL" must be set to at least 100. This value is the maximum number of semaphores per set.

2. **Location of Shared Memory**

    In the ONCONFIG file, SHMBASE is set to the following value:

        SHMBASE 0x44000000L

    - SHMBASE can also be set to start above the shared library addresses. When doing so, ensure that the dynamically loaded shared libraries do not collide with the shared memory segments. You can check the address space layout with the following command:
      $ cat /proc/<pid of oninit process>/maps

Feature Notes   (alphabetized by feature)
=============

1. **High Performance Loader**

    User-defined conversion routines must be provided in a dynamic, shared library called ipldd11a.so. This library is installed in the $INFORMIXDIR/lib directory. You can set the location of this file with the HPL_DYNAMIC_LIB_PATH configuration parameter in file pointed to by PLCONFIG environment variable. For more details, refer the manual "High-Performance Loader User's Guide".

2. **IPv6 Support**

    The Informix database server supports Internet Protocol Version 6 (128 Bit Internet Addresses) as well as IPv4 (32 Bit Addresses).

    In order for the machine name that is specified in the SQLHOSTS file to resolve to the correct IP address, the name services files on the operating system must be configured correctly. If the machine has an IPv6 address configured, and the listener thread is bound to an IPv6 address, then the

name service switch files /etc/nsswitch.conf must be configured to fetch an IPv6 address. Also any local machine settings must be set correctly in the /etc/hosts file.

For compatibility with earlier version of Informix client and server products, assign each host name with both an IPv4 address and an IPv6 address. If the listener needs to be bound to an IPv4 address, and the name services resolve the name in the order of the IPv6 address followed by the IPv4 address, then an explicit IPv4 address needs to be put in the host name field of SQLHOSTS file. Client applications should also use the same setting.

3. Kernel Asynchronous I/O (KAIO)

KAIO is enabled by default on this platform. It can be disabled by setting the environment variable KAIOOFF=1 in the environment of the process that started the server.

When using KAIO, run poll threads on separate virtual processors by specifying NET as the VP class in the NETTYPE configuration parameter. Examples:

```
NETTYPE ipcshm,...,...,NET
NETTYPE soctcp,...,...,NET
```

On Linux, there is a system wide limit of the maximum number of parallel KAIO requests. The limit is set in the /proc/sys/fs/aio-max-nr file. A Linux system administrator can increase the value by using the echo command. For example:

```
# echo new_value > /proc/sys/fs/aio-max-nr
```

The current number of allocated requests of all operating system processes is visible in the /proc/sys/fs/aio-nr file.

By default, the Informix server allocates half of the maximum number of requests, and assigns them equally to the number of configured CPU virtual processors. You can control the number of requests allocated per CPU virtual processor by setting the environment variable KAIOON. Set the variable to the required value before starting the database server. The minimum value for KAIOON is 100. If Linux is about to run out of KAIO resources, for example, when dynamically adding many CPU virtual processors, warnings are printed to the database server message log file. In this case, the Linux system administrator must add KAIO resources as described previously.

4. Network Protocols

The following protocols and interfaces are supported on this platform:

```
SOCKETS using TCP/IP
IPC using stream pipe (implemented using UNIX Domain Sockets)
```

To use SOCKETS with TCP/IP:

a. The NETTYPE entry in the ONCONFIG file and the nettype field in the sqlhosts file entry must contain "onsoctcp".

b. To enable an IBM Informix Data Server Client to connect to the database Server, the NETTYPE entry in the ONCONFIG file and the protocal value in the sqlhosts file entry must contain "drsoctcp"

If a CLI or JCC client wants to connect to the database server through DRDA while supporting SQLI connections, you must add a

DBSERVERALIASES entry to the ONCONFIG file that corresponds to the sqlhosts file entry.

To use IPC (interprocess communication) with stream pipe:

  a. The NETTYPE entry in the ONCONFIG file and the nettype field in the sqlhosts file entry must contain "onipcstr".

Fast poll is supported with TCP/IP and stream pipe interfaces. To disable fast poll, set the FASTPOLL parameter to 0 in the ONCONFIG file. By default the fast poll is enabled (value is 1).

The protocol for supporting IBM Informix MaxConnect on this platform is "onsocimc".

5. Online Backup and Restore (ON-Bar)

ON-Bar uses the XBSA interface. Some of the functions invoked by ON-Bar are in a shared library supplied by third party storage management vendors. For ON-Bar to access the functions, set the BAR_BSALIB_PATH parameter in $INFORMIXDIR/etc/$ONCONFIG to the full pathname of the library.

6. Pluggable Authentication Module (PAM)

PAM functionality is supported on Linux operating systems. PAM requires the libpam.so library that is supplied by the Operating System vendor.

Use of PAM can be enabled or disabled by the system administrator. By default, the Informix server will use the traditional authentication mechanism to avoid changes for the users.

The PAM service identifies the PAM module. This PAM module usually is located in /usr/lib/arm-linux-gnueabihf and its parameters are listed in /etc/pam.conf.

7. Processor Affinity

The processor affinity feature, which allows the pinning of a CPU virtual processor to a physical processor in a multi-CPU configuration, is supported on this platform.

8. Raw Character Devices

Some Linux distributions support binding a raw character device to a block device. Any block device can be used. The Informix database server supports using raw character devices.

9. Secure Sockets Layer

IBM Informix Database Server uses the libraries and utilities provided by the IBM Global Security Kit (GSKit) for Secure Sockets Layer (SSL) communication.

  a. Before uninstalling GSKit, verify that it is not needed on your system. It is possible that software other than Informix Database Server requires GSKit. Uninstall by identifying and removing GSKit packages using the command-line interface:

     Run rpm command with the -qa option to obtain a list of installed GSKit RPM packages with their exact names.
     For example:
     rpm -qa | grep gsk

     As root user run the rpm command to remove each package as needed.

```
        For example:
        rpm -ev gskssl64-8.0.55.17 gskcrypt64-8.0.55.17

        Run dpkg command with the -l option to obtain a list of installed
        GSKit Debian packages with their exact names.
        For example:
        dpkg -l | grep gsk

        As root user run the dpkg command to remove each package as needed.
        For example:
        dpkg -r gskssl64 gskcrypt64
```

    b. If you want to restore Secure Sockets Layer capability after you
       have uninstalled GSKit, see the readme file in $INFORMIXDIR/gskit
       for how to install GSKit.

10. Simple Password Communications Support Module

    The name of the IBM Informix shared library for Simple Password CSM
    on Linux is libixspw.so.

Features not supported
=====================

1. Rolling upgrades to IDS version 14.10.xC2 are not supported.

    Rolling upgrades are not supported in IDS version 14.10.xC2. Migration to
    this version from a previous version requires changes to disk structures,
    and the conversion process is incompatible with a rolling upgrade. When
    upgrading HDR and RSS secondary servers to version 14.10.xC2, you must
    follow the steps listed in the on-line documentation under "Migrating
    an offline cluster to a new major version."

2. Informix Interface for Tivoli Storage Manager (TSM)

3. OnSNMP

4. Deployment assistant and utility

5. J/Foundation (Java in the Server)

6. MQ Messaging Database Extension

7. Informix web feature service for Geospatial Data

8. Onperf utility

9. Label-based access control (LBAC)

10. Shared-disk secondary server (SDS)

11. XML Publishing

12. Private server installation

Defects Fixed in this release
==============================

For information about defects fixed in this release, see:
http://www.ibm.com/support/docview.wss?uid=ibm10870226

Linux x86_64

```
================================
           MACHINE SPECIFIC NOTES
                    FOR
    IBM Informix Database Server 14.10.FC5 PRODUCT RELEASE
                 On Linux x86_64
                DATE: 17 Nov 2020
================================
```

OS Information : Built on Red Hat Enterprise Linux ES release 7.4 (Maipo).

System Requirements
===================

1. **This product was built on Red Hat Enterprise Linux ES release 7.4**
    (Kernel: 3.10.0-693, Glibc: 2.17) for x86_64 compatible processors.
    The following compilers were used:

        gcc and c++ compiler 4.8.5 20150623 (Red Hat 4.8.5-16) for GLS and ICU
        gcc and c++ compiler 7.3.1 20180303 (Red Hat Devtoolset-7) for the server

    The following package have to be installed on your Linux system:

        libaio-0.3.109
        libgcc-4.8.5
        libstdc++-4.8.5
        ncurses-5.9
        pam-1.1.8
        elfutils-libelf-0.168

    Please note that this version of Informix does not support Linux
    environments with kernel version lower than 3.10.0-693

    For Informix Blade development GNU linker may need to be updated to

        GNU ld version 2.28-11.el7 or newer

    Update is not needed for install and operation of Informix

    This product has been certified on:

        - Red Hat Enterprise Linux ES release 8.0 (Kernel: 4.18.0-80,
          Glibc: 2.28-42). The following packages have to be installed:

        libaio-0.3.110
        libgcc_s1-8.2.1
        libstdc++6-8.2.1
        ncurses-utils-6.1-7
        pam-1.3.1-4
        elfutils-libelf-0.174-6

        - SUSE SLES 12.3 (Kernel: 4.4.73-51, Glibc: 2.22-61). The following
          packages have to be installed:

        libaio-0.3.109
        libgcc_s1-6.2.1

```
              libstdc++6-6.2.1
              ncurses-utils-5.9-40
              pam-1.1.8-23
              libelf1-0.158-6


        - SUSE SLES 15 (Kernel: 4.12.14-25, Glibc: 2.26-13). The following
          packages have to be installed:

          libaio-0.3.109
          libgcc_s1-8.2.1
          libstdc++6-8.2.1
          ncurses-utils-6.1.3
          pam-1.3.0-6.3.1
          libelf1-0.168-2


        - Ubuntu Server Edition 16.04 LTS (Kernel: 4.4.0-142, Glibc: 2.23).
          The following packages have to be installed:

          libgcc      5.4.0
          libstdc++6  5.4.0
          libncurses5 6.0
          libpam      1.1.8
          libelf1-0.165-3


        - Ubuntu Server Edition 17.10 (Kernel: 4.13.0-21, Glibc: 2.26).
          The following packages have to be installed:

          libgcc      7.2.0
          libstdc++6  7.2.0
          libncurses5 6.0
          libpam      1.1.8
          libelf1-0.170-0
          libelf1-0.170-0
```

The bc utility is required by the product installer, and needs to be installed on Ubuntu.

2. The UNIX graphical tools ipload, onperf and xtree only require Motif runtime libraries version 2.3.x. The minimum version is 2.3.4, i.e. motif-devel-2.3.4-14.el7_5.x86_64

3. The Korn shell is required for the Informix server alarmprogram scripts. Install it as /bin/ksh. On Ubuntu Server Edition, pdksh needs to be installed.

4. If a suitable library libaio.so.1 is found, IBM Informix Database Server enables Kernel Asynchronous I/O (KAIO) automatically. Otherwise KAIO is disabled.

5. IBM Informix Database Server uses the libraries and utilities provided by the IBM Global Security Kit (GSKit) for data encryption and Secure Sockets Layer (SSL) communication. The GSKit is bundled with the server and will be installed on your machine as part of the server installation process.

    Here are more details on the GSKit:

    a. The GSKit is also bundled with other IBM products and might already be present on your machine. If GSKit is not installed, the script $INFORMIXDIR/gskit/installgskit will install GSKit in /usr/local/ibm/gsk8_64 directory on your machine.

    b. The GSKit installation directory must have 25 MB of free disk space.

    c. The RPM or Debian Package Manager is required to be installed on the

system.

6.   The Informix product installer may fail to start correctly. When it aborts
     the following two messages are displayed:

         Installer User Interface Mode Not Supported
         Unable to load and to prepare the installer in console or silent mode.

     This can happen due to a known problem in the Java Virtual Machine that
     is internal to the installer. This problem is known as
     "JDK-8188030 : AWT java apps fail to start when some minimal fonts
     are present".
     It may appear when only minimal fonts of the CFF format are installed on
     the machine.

     On a Linux system with Intel x86 64-bit architecture, this problem can be
     worked around by installing an additional font with a format different than
     CFF. For example fonts from the font package "gnu-free-mono-fonts" are
     known to allow the Informix product installer to start and operate
     correctly. This font package can be installed on RedHat distributions by
     executing the following command as user root:

System Configuration
====================

1.   Kernel Parameters

     The values of the kernel parameters that were used for testing this
     product are given below. These values might need to be tuned depending
     on the application and availability of system resources. They
     can either be dynamically changed in the /proc file system or are defined
     in the kernel sources and can be changed by rebuilding the kernel.

     SHMMAX: 4398046511104
     SHMMNI: 4096
     SHMALL: 4194304
     SEMMNI: 4096
     SEMMSL: 250
     SEMMNS: 32000
     SEMOPM: 32

       - The value of the kernel parameter "SEMMSL" should be set to at least
         100. This is the maximum number of semaphores per set.

2.   Location of Shared Memory

     The ONCONFIG variable SHMBASE is set to the following:

         SHMBASE 0x44000000L

3.   Environment Variables

     It is recommended that the environment variable INFORMIXSTACKSIZE be
     set to 128 (the default is 64) if the application involves operations
     which would require the IBM Informix Database Server to perform recursive
     database tasks (for example, cascading deletes).

Feature Notes   (alphabetized by feature)
=============

1.   High Performance Loader

     User-defined conversion routines must be provided in a dynamic, shared

64-bit library called ipldd11a.so. This library is installed in the $INFORMIXDIR/lib directory. You can set the location of this file with the HPL_DYNAMIC_LIB_PATH configuration parameter in file pointed to by PLCONFIG environment variable. For more details, refer the manual "High-Performance Loader User's Guide".

The following two environment variables are required to be set as:

```
PLOAD_SHMBASE=0x000004000000000
IFX_XFER_SHMBASE=0x000005000000000
```

Onload will use shared memory during its execution. It will allocate memory beyond the address for the server, leaving room for server shared memory expansion.

2. IPv6 Support

The Informix database server supports Internet Protocol Version 6 (128 Bit Internet Addresses) as well as IPv4 (32 Bit Addresses).

In order for the machine name that is specified in the SQLHOSTS file to resolve to the correct IP address, the name services files on the operating system must be configured correctly. If the machine has an IPv6 address configured, and the listener thread is bound to an IPv6 address, then the name service switch files /etc/nsswitch.conf must be configured to fetch an IPv6 address. Also any local machine settings must be set correctly in the /etc/hosts file.

For compatibility with earlier version of Informix client and server products, assign each host name with both an IPv4 address and an IPv6 address. If the listener needs to be bound to an IPv4 address, and the name services resolve the name in the order of the IPv6 address followed by the IPv4 address, then an explicit IPv4 address needs to be put in the host name field of SQLHOSTS file. Client applications should also use the same setting.

3. J/Foundation (Java in the Server):

The IBM Runtime Environment, Java Technology Edition, Version 8.0 release is installed in $INFORMIXDIR/extend/krakatoa/jre and should be used with the J/Foundation component.

A Java user-defined routine (UDR) runs in a Java virtual processor. Use the VPCLASS configuration parameter to specify the number of virtual processors for the server. You configure Java virtual processors in the "Java configuration parameters" section of the onconfig configuration file. The default onconfig.std file is in the $INFORMIXDIR/etc directory.

To develop Java UDRs for the server on this platform, use the 64-bit IBM SDK, Java Technology Edition, Version 8 or an earlier version according to Java compatibility guidelines. Java SDK 8 contains the latest virtual machine technology from IBM and can be downloaded from http://www.ibm.com/java/jdk/.

4. Kernel Asynchronous I/O (KAIO)

KAIO is enabled by default on this platform. It can be disabled by setting the environment variable KAIOOFF=1 in the environment of the process that starting the server.

When using KAIO, it is recommended to run poll threads on separate VPs by specifying NET as VP class in the NETTYPE onconfig parameter, e.g.
NETTYPE ipcshm,...,...,NET or
NETTYPE soctcp,...,...,NET

On Linux, there is a system wide limit of the maximum number of parallel
KAIO requests. The file /proc/sys/fs/aio-max-nr is containing this value.
It can be increased by the Linux system administrator, e.g. by

```
# echo new_value > /proc/sys/fs/aio-max-nr
```

The current number of allocated requests of all OS processes is visible
in /proc/sys/fs/aio-nr.

By default, IBM Informix Database Server is allocating half of the maximum
number of requests, and assigns them equally to the number of configured
CPU VPs. The number of requests allocated per CPU VP can be controlled by
the environment variable KAIOON, by setting it to the required value before
starting the server. The minimum value for KAIOON is 100. If Linux is
about to run out of KAIO resources, e.g. when dynamically adding many CPU
VPs, warnings will be printed to the online.log file. In this case, the
Linux system administrator should add KAIO resources as described above.

5. Large Memory Addressability (LMA)

IBM Informix LMA provides the ability to support system configurations
with greater than 4GB of RAM. Most UNIX systems are limited to 4GB of
RAM based on the memory addressing limitations of 32-bit architectures.

The values for the following ONCONFIG parameters are increased from
32-bit to 64-bit platform by LMA support:

   - The maximum number of buffers in BUFFERPOOL is 2147483647.

   - The maximum of LRU queues for lrus field in BUFFERPOOL is 512.

   - The DS_TOTAL_MEMORY, which is the total memory available for
     decision support memory, is only limited by the amount of virtual
     memory available. The sort memory comes out of the DS_TOTAL_MEMORY
     memory and hence there is no explicit limit on the amount of sort
     memory.

   - The read ahead parameter RA_PAGES is only limited by the number of
     buffers and therefore can be any value less than 2147483647. The
     "chunk" write algorithm is not dependent on the amount of buffers
     or shared memory and can write as many pages in a single I/O as
     possible.

   - The maximum size of any shared memory segment is 4398046511104 bytes.

   - The value for SHMADD is 4294967296 kilobytes.

Refer to IBM Informix Administrator's Reference manual for the
information about the related configuration parameters setting.

6. Locking large pages in memory

The Informix database server can use large pages in memory when queries
require more memory. (On Linux operating systems, large pages are called
huge pages.) However, after you initialize Informix on Linux operating
systems, the database server is unable to lock large pages in memory when
queries require more memory. If you want to take advantage of the large-page
support, you must use the onmode utility to add memory segments, and then
run the queries.

7. Network Protocols

The following protocols and interfaces are supported on this platform:

SOCKETS using TCP/IP
IPC using stream pipe (implemented using UNIX Domain Sockets)

To use SOCKETS with TCP/IP:

a. The NETTYPE entry in the ONCONFIG file and the nettype field in
   the sqlhosts file entry must contain "onsoctcp".

b. To enable an IBM Data Server Client to connect to the database
   Server, the NETTYPE entry in the ONCONFIG file and the protocal
   value in the sqlhosts file entry must contain "drsoctcp"

   If a CLI or JCC client wants to connect to the database server
   through DRDA while supporting SQLI connections, you must add a
   DBSERVERALIASES entry to the ONCONFIG file that corresponds to
   the sqlhosts file entry.

To use IPC (interprocess communication) with stream pipe:

a. The NETTYPE entry in the ONCONFIG file and the nettype field in
    the sqlhosts file entry must contain "onipcstr".

Fast poll is supported with TCP/IP and stream pipe interfaces. To disable
fast poll, set the FASTPOLL parameter to 0 in the ONCONFIG file. By default
the fast poll is enabled (value is 1).

Remote 32-bit or 64-bit applications and tools (example: ESQL/C, 4GL, ISQL)
can only connect to the IBM Informix Database Server using the TCP/IP
protocol.

Local 32-bit applications and tools can connect to the 64-bit server
using either the TCP/IP sockets or the IPC stream pipe protocols.

The protocol for supporting IBM Informix MaxConnect on this platform
is "onsocimc".

8. Online Backup and Restore (ON-Bar)

ON-Bar uses the XBSA interface. Some of the functions invoked by ON-Bar
are in a shared library supplied by third party storage management vendors.
For ON-Bar to access the functions, set the BAR_BSALIB_PATH parameter in
$INFORMIXDIR/etc/$ONCONFIG to the full pathname of the library.

This shared library must be compiled in 64-bit mode.

Using $INFORMIXDIR/lib/ibsad001.so as a symbolic link to the library is
deprecated and shall be discontinued.

Informix Interface for Tivoli Storage Manager (TSM) is supported on this
platform. The interface is built with TSM API version 5.3.2.

9. OnSNMP

The SNMP agent for OnSNMP is based on SNMP Research (SNMPR).

10. Pluggable Authentication Module (PAM)

PAM functionality is supported on Linux operating systems. PAM requires
the libpam.so library that is supplied by the Operating System vendor.

Use of PAM can be enabled or disabled by the system administrator. By
default, the Informix server will use the traditional authentication
mechanism to avoid changes for the users.

The PAM modules are usually located in /lib64/security. The PAM services
are defined in /etc/pam.d.

11. Processor Affinity

The processor affinity feature, which allows the pinning of a CPU
virtual processor to a physical processor in a multi-CPU configuration,
is supported on this platform.

12. Raw Character Devices

Some Linux distributions support binding a raw character device to a
block device. Any block device may be used. IBM Informix Database Server
supports using raw character devices.

13. Secure Sockets Layer

IBM Informix Database Server uses the libraries and utilities provided by
the IBM Global Security Kit (GSKit) for Secure Sockets Layer (SSL)
communication.

   a. Before uninstalling GSKit, verify that it is not needed on your
      system. It is possible that software other than Informix Database
      Server requires GSKit. Uninstall by identifying and removing GSKit
      packages using the command-line interface:

      Run rpm command with the -qa option to obtain a list of installed
      GSKit packages with their exact names.
      For example:
      rpm -qa | grep gsk

      As root user run the rpm command to remove each package as needed.
      For example:
      rpm -ev gskssl64-8.0.55.17 gskcrypt64-8.0.55.17

      Run dpkg command with the -l option to obtain a list of installed
      GSKit Debian packages with their exact names.
      For example:
      dpkg -l | grep gsk

      As root user run the dpkg command to remove each package as needed.
      For example:
      dpkg -r gskssl64 gskcrypt64

   b. If you want to restore Secure Sockets Layer capability after you
      have uninstalled GSKit, see the readme file in $INFORMIXDIR/gskit
      for how to install GSKit.

14. Simple Password Communications Support Module

The name of the IBM Informix shared library for Simple Password CSM on
Linux is libixspw.so.

Features not supported
======================

1. Rolling upgrades to IDS version 14.10.xC2 are not supported.

Rolling upgrades are not supported in IDS version 14.10.xC2. Migration to
this version from a previous version requires changes to disk structures,
and the conversion process is incompatible with a rolling upgrade. When
upgrading HDR and RSS secondary servers to version 14.10.xC2, you must

```
      follow the steps listed in the on-line documentation under "Migrating
      an offline cluster to a new major version."


Defects Fixed in this release
=============================


For information about defects fixed in this release, see:
http://www.ibm.com/support/docview.wss?uid=ibm10870226


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```

Linux Power Series (little endian)

```
                    ================================
                         MACHINE SPECIFIC NOTES
                                   FOR
                 IBM Informix Database Server 14.10.FC5 PRODUCT RELEASE
                       On Linux Power Series (little endian)
                              DATE: 17 Nov 2020
                    ================================
```

```
OS Information : Built on Red Hat Enterprise Linux ES release 7.4.


System Requirements
===================


1.  This product was built on Red Hat Enterprise Linux ES release 7.4
    for 64-Bit Little Endian Power Series Architecture with
    Kernel version 3.10.0-693.21.1.el7.ppc64le and glibc 2.17
    using the following compilers:

        gcc/g++ 4.8.5 20150623


    The following packages have to be installed on your Linux system:

        libaio-0.3.109
        libgcc-4.8.3
        libstdc++-4.8.3
        ncurses-libs-5.9
        pam-1.1.8
        xerces-c-3.1.1
        elfutils-libelf-0.168


    This product has been certified on:

        - SUSE SLES 12.3 (Kernel: 4.4.73-51, Glibc: 2.22-61). The following
          packages have to be installed:

        libaio-0.3.109
        libgcc_s1-6.2.1
        libstdc++6-6.2.1
        ncurses-utils-5.9-40
        pam-1.1.8-23
        libxerces-c-3_1
        libelf1-0158-6
```

- SUSE SLES 15 (Kernel: 4.12.14-25, Glibc: 2.26-13). The following
  packages have to be installed:
  libaio-0.3.109
  libgcc_s1-8.2.1
  libstdc++6-8.2.1
  ncurses-utils-6.1.3
  pam-1.3.0-6.3.1
  libelf1-0.168-2

2. The UNIX graphical tools ipload, onperf and xtree only require
   Motif runtime libraries version 2.3.x. The minimum version is
   2.3.4, i.e. motif-devel-2.3.4-14.el7_5.x86_64

3. The Korn shell is required for the Informix server alarmprogram
   scripts. Install it as /bin/ksh.

4. If a suitable library libaio.so.1 is found, IBM Informix Database Server
   enables Kernel Asynchronous I/O (KAIO) automatically. Otherwise KAIO is
   disabled.

5. The High Performance Loader utilities, onpload and onpladm, require a
   minimum of 35 MB of memory and 70 MB of swap space in order to run.

6. IBM Informix Database Server uses the libraries and utilities provided by
   the IBM Global Security Kit (GSKit) for data encryption and Secure Sockets
   Layer (SSL) communication. The GSKit is bundled with the server and will
   be installed on your machine as part of the server installation process.

   Here are more details on the GSKit:

   a. The GSKit is also bundled with other IBM products and might
      already be present on your machine. If GSKit is not installed,
      the script $INFORMIXDIR/gskit/installgskit will install GSKit in
      /usr/local/ibm/gsk8_64 directory on your machine.

   b. The GSKit installation directory must have 30 MB of free disk space.

   c. The RPM or Debian Package Manager is required to be installed on the
      system.

   d. The GSKit for this platform has no FIPS certification.

7. The Informix product installer may fail to start correctly. When it
   aborts the following two messages are displayed:

   Installer User Interface Mode Not Supported
   Unable to load and to prepare the installer in console or silent mode.

   This can happen due to a known problem in the Java Virtual Machine that
   is internal to the installer. This problem is known as
   "JDK-8188030 : AWT java apps fail to start when some minimal fonts are
   present".
   It may appear when only minimal fonts of the CFF format are installed on
   the machine.

   On a Linux system with POWER8 Little Endian architecture, this problem
   can be worked around by installing an additional font with a format
   different than CFF. For example fonts from the font package
   "gnu-free-mono-fonts" are known to allow the Informix product installer
   to start and operate correctly. This font package can be installed on
   RedHat distributions by executing the following command as user root:

   yum install gnu-free-mono-fonts

(On different Linux distributions it may be necessary to use a different
installation utility instead of "yum".)

Check the following web site for the latest Linux system requirements
for IBM Informix Database Server:

    http://www-01.ibm.com/support/docview.wss?rs=630&uid=swg27013343

System Configuration
====================

1. Kernel Parameters

    The values of the kernel parameters that were used for testing this
    product are given below. These values might need to be tuned depending
    on the application and availability of system resources. They
    can either be dynamically changed in the /proc file system or are defined
    in the kernel sources and can be changed by rebuilding the kernel.

    SHMMAX: 4398046511104
    SHMMNI: 4096
    SHMALL: 4194304
    SEMMNI: 128
    SEMMSL: 250
    SEMMNS: 32000
    SEMOPM: 32

    - The value of the kernel parameter "SEMMSL" should be set to at least
      100. This is the maximum number of semaphores per set.

2. Location of Shared Memory

    The ONCONFIG variable SHMBASE should be set to the following:

        SHMBASE 0x100000000

Feature Notes   (alphabetized by feature)
=============

1. High Performance Loader

    User-defined conversion routines must be provided in a dynamic, shared
    64-bit library called ipldd11a.so. This library is installed in the
    $INFORMIXDIR/lib directory. You can set the location of this file with
    the HPL_DYNAMIC_LIB_PATH configuration parameter in file pointed to by
    PLCONFIG environment variable. For more details, refer the manual
    "High-Performance Loader User's Guide".

    The following two environment variables are required to be set as:

        PLOAD_SHMBASE=0x000004000000000
        IFX_XFER_SHMBASE=0x000005000000000

    Onpload will use shared memory during its execution. It will allocate
    memory beyond the address for the server, leaving room for server shared
    memory expansion.

2. IPv6 Support

    The Informix database server supports Internet Protocol Version 6 (128 Bit
    Internet Addresses) as well as IPv4 (32 Bit Addresses).

In order for the machine name that is specified in the SQLHOSTS file to resolve to the correct IP address, the name services files on the operating system must be configured correctly. If the machine has an IPv6 address configured, and the listener thread is bound to an IPv6 address, then the name service switch files /etc/nsswitch.conf must be configured to fetch an IPv6 address. Also any local machine settings must be set correctly in the /etc/hosts file.

For compatibility with earlier version of Informix client and server products, assign each host name with both an IPv4 address and an IPv6 address. If the listener needs to be bound to an IPv4 address, and the name services resolve the name in the order of the IPv6 address followed by the IPv4 address, then an explicit IPv4 address needs to be put in the host name field of SQLHOSTS file. Client applications should also use the same setting.

3. **Kernel Asynchronous I/O (KAIO)**

KAIO is enabled by default on this platform. It can be disabled by setting the environment variable KAIOOFF=1 in the environment of the process that starting the server.

When using KAIO, it is recommended to run poll threads on separate VPs by specifying NET as VP class in the NETTYPE onconfig parameter, e.g.
NETTYPE ipcshm,...,...,NET or
NETTYPE soctcp,...,...,NET

On Linux, there is a system wide limit of the maximum number of parallel KAIO requests. The file /proc/sys/fs/aio-max-nr is containing this value. It can be increased by the Linux system administrator, e.g. by

    # echo new_value > /proc/sys/fs/aio-max-nr

The current number of allocated requests of all OS processes is visible in /proc/sys/fs/aio-nr.

By default, IBM Informix Database server is allocating half of the maximum number of requests, and assigns them equally to the number of configured CPU VPs. The number of requests allocated per CPU VP can be controlled by the environment variable KAIOON, by setting it to the required value before starting the server. The minimum value for KAIOON is 100. If Linux is about to run out of KAIO resources, e.g. when dynamically adding many CPU VPs, warnings will be printed to the online.log file. In this case, the Linux system administrator should add KAIO resources as described above.

4. **Large Memory Addressability (LMA)**

IBM Informix LMA provides the ability to support system configurations with greater than 4GB of RAM. Most UNIX systems are limited to 4GB of RAM based on the memory addressing limitations of 32-bit architectures.

The values for the following ONCONFIG parameters are increased from 32-bit to 64-bit platform by LMA support:

- The maximum number of buffers in BUFFERPOOL is 2147483647.

- The maximum of LRU queues for lrus field in BUFFERPOOL is 512.

- The DS_TOTAL_MEMORY, which is the total memory available for decision support memory, is only limited by the amount of virtual memory available. The sort memory comes out of the DS_TOTAL_MEMORY memory and hence there is no explicit limit on the amount of sort memory.

- The read ahead parameter RA_PAGES is only limited by the number of buffers and therefore can be any value less than 2147483647. The "chunk" write algorithm is not dependent on the amount of buffers or shared memory and can write as many pages in a single I/O as possible.

- The maximum size of any shared memory segment is 4398046511104 bytes.

- The value for SHMADD is 4294967296 kilobytes.

Refer to IBM Informix Administrator's Reference manual for the information about the related configuration parameters setting.

5. Network Protocols

The following protocols and interfaces are supported on this platform:

SOCKETS using TCP/IP
IPC using stream pipe (implemented using UNIX Domain Sockets)

To use SOCKETS with TCP/IP:

a. The NETTYPE entry in the ONCONFIG file and the nettype field in the sqlhosts file entry must contain "onsoctcp".

b. To enable an IBM Data Server Client to connect to the database Server, the NETTYPE entry in the ONCONFIG file and the protocal value in the sqlhosts file entry must contain "drsoctcp"

If a CLI or JCC client wants to connect to the database server through DRDA while supporting SQLI connections, you must add a DBSERVERALIASES entry to the ONCONFIG file that corresponds to the sqlhosts file entry.

To use IPC (interprocess communication) with stream pipe:

a. The NETTYPE entry in the ONCONFIG file and the nettype field in the sqlhosts file entry must contain "onipcstr".

Fast poll is supported with TCP/IP and stream pipe interfaces. To disable fast poll, set the FASTPOLL parameter to 0 in the ONCONFIG file. By default the fast poll is enabled (value is 1).

Remote 32-bit applications and tools (example: ESQL/C, 4GL, ISQL) can only connect to the IBM Informix Database Server using the TCP/IP protocol.

Local 32-bit applications and tools can connect to the 64-bit server using either the TCP/IP sockets or the IPC stream pipe protocols.

The protocol for supporting IBM Informix MaxConnect on this platform is "onsocimc".

6. Online Backup and Restore (ON-Bar)

ON-Bar uses the XBSA interface. Some of the functions invoked by ON-Bar are in a shared library supplied by third party storage management vendors. For ON-Bar to access the functions, set the BAR_BSALIB_PATH parameter in $INFORMIXDIR/etc/$ONCONFIG to the full pathname of the library.

Using $INFORMIXDIR/lib/ibsad001.so as a symbolic link to the library is deprecated and shall be discontinued.

Informix Interface for Tivoli Storage Manager (TSM) is supported on this platform. The interface is built with TSM API version 5.3.2.

7. Pluggable Authentication Module (PAM)

    PAM functionality is supported on Linux operating systems. PAM requires
    the libpam.so library that is supplied by the Operating System vendor.

    Use of PAM can be enabled or disabled by the system administrator. By
    default, the Informix server will use the traditional authentication
    mechanism to avoid changes for the users.

    The PAM modules are usually located in /lib64/security. The PAM
    services are defined in /etc/pam.d.

8. Processor Affinity

    The processor affinity feature, which allows the pinning of a CPU
    virtual processor to a physical processor in a multi-CPU configuration,
    is supported on this platform.

9. Secure Sockets Layer

    IBM Informix Database Server uses the libraries and utilities provided by
    the IBM Global Security Kit (GSKit) for Secure Sockets Layer (SSL)
    communication.

    a. Before uninstalling GSKit, verify that it is not needed on your
        system. It is possible that software other than Informix Database
        Server requires GSKit. Uninstall by identifying and removing GSKit
        packages using the command-line interface:

        Run rpm command with the -qa option to obtain a list of installed
        GSKit packages with their exact names.
        For example:
        rpm -qa | grep gsk

        As root user run the rpm command to remove each package as needed.
        For example:
        rpm -ev gskssl64-8.0.55.17 gskcrypt64-8.0.55.17

        Run dpkg command with the -l option to obtain a list of installed
        GSKit Debian packages with their exact names.
        For example:
        dpkg -l | grep gsk

        As root user run the dpkg command to remove each package as needed.
        For example:
        dpkg -r gskssl64 gskcrypt64

    b. If you want to restore Secure Sockets Layer capability after you
        have uninstalled GSKit, see the readme file in $INFORMIXDIR/gskit
        for how to install GSKit.

10. Simple Password Communications Support Module

    The name of the IBM Informix shared library for Simple Password CSM
    on Linux is libixspw.so.

Features not supported
======================

1. Rolling upgrades to IDS version 14.10.xC2 are not supported.

    Rolling upgrades are not supported in IDS version 14.10.xC2. Migration to

this version from a previous version requires changes to disk structures,
          and the conversion process is incompatible with a rolling upgrade. When
          upgrading HDR and RSS secondary servers to version 14.10.xC2, you must
          follow the steps listed in the on-line documentation under "Migrating
          an offline cluster to a new major version."

2.   OnSNMP

3.   Deployment Assistant

Defects Fixed in this release
============================

For information about defects fixed in this release, see:
http://www.ibm.com/support/docview.wss?uid=ibm10870226

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Linux zSeries

                    ================================
                         MACHINE SPECIFIC NOTES
                                    FOR
              IBM Informix Database Server 14.10.FC5 PRODUCT RELEASE
                             On Linux zSeries
                             DATE: 17 Nov 2020
                    ================================

OS Information : Built on Red Hat Enterprise Linux ES release 7.4 (Maipo).

System Requirements
===================

1.   This product was built on Red Hat Enterprise Linux ES release 7.4
     for zSeries mainframe with 64-bit Kernel 3.10.0-957.21.3.el7 and glibc
     glibc 2.17-307, using the following compilers:

        gcc version 4.8.5 20150623 (Red Hat 4.8.5-39)

     The following packages have to be installed on your Linux system:

        libaio-0.3.109
        libgcc-4.8.5
        libstdc++-6.0.19
        ncurses-5.9
        pam-1.1.8
        elfutils-libelf-0.176

     This product has been certified on:

        - SUSE SLES 12.3 (Kernel: 4.4.73-51, Glibc: 2.22-61). The following
          packages have to be installed:

        libaio-0.3.109
        libgcc_s1-6.2.1

```
        libstdc++6-6.2.1
        ncurses-utils-5.9-40
        pam-1.1.8-23
        libelf1-0.158-6
```

2. The UNIX graphical tools ipload, onperf and xtree only require
    OpenMotif runtime libraries version 2.3.x. The minimum version is
    2.3.1, i.e. openmotif-2.3.1-2.el5.

3. The Korn shell is required for the Informix server alarmprogram
    scripts. Install it as /bin/ksh.

4. If a suitable library libaio.so.1 is found, IBM Informix Database Server
    enables Kernel Asynchronous I/O (KAIO) automatically. Otherwise KAIO is
    disabled.

5. The High Performance Loader utilities, onpload, ipload and onpladm, require
    a minimum of 35 MB of memory and 70 MB of swap space in order to run.

6. IBM Informix Database Server uses the libraries and utilities provided by
    the IBM Global Security Kit (GSKit) for data encryption and Secure Sockets
    Layer (SSL) communication. The GSKit is bundled with the server and will
    be installed on your machine as part of the server installation process.

    Here are more details on the GSKit:

        a. The GSKit is also bundled with other IBM products and might
            already be present on your machine. If GSKit is not installed,
            Informix server will install GSKit in /usr/local/ibm/gsk8_64
            directory on your machine.

        b. The GSKit installation directory must have 30 MB of free disk space.

        c. One of the following packages must be installed on your system:
            RHEL 5 - compat-libstdc++-33-3.2.3-61 or later

        d. The RPM Package Manager is required to be installed on the system.

Check the following web site for the latest Linux system requirements
for IBM Informix Database Server:

    http://www-01.ibm.com/support/docview.wss?rs=630&uid=swg27013343

System Configuration
====================

1. Kernel Parameters

    The values of the kernel parameters that were used for testing this
    product are given below. These values might need to be tuned depending
    on the application and availability of system resources. They can either
    be dynamically changed in the /proc file system or are defined in the
    kernel sources and can be changed by rebuilding the kernel.

    SHMMAX: 4398046511104
    SHMMNI: 128
    SHMALL: 4194304
    SEMMNI: 128
    SEMMSL: 250
    SEMMNS: 32000
    SEMOPM: 32

    - The value of the kernel parameter "SEMMSL" should be set to at least
```

100. This is the maximum number of semaphores per set.

2.   Location of Shared Memory

     The ONCONFIG variable SHMBASE should be set to the following:

         SHMBASE 0x100000000L

Feature Notes   (alphabetized by feature)
=============

1.   High Performance Loader

     User-defined conversion routines must be provided in a dynamic, shared
     64-bit library called ipldd11a.so. This library is installed in the
     $INFORMIXDIR/lib directory. You can set the location of this file with
     the HPL_DYNAMIC_LIB_PATH configuration parameter in file pointed to by
     PLCONFIG environment variable. For more details, refer the manual
     "High-Performance Loader User's Guide".

     The following two environment variables are required to be set as:

         PLOAD_SHMBASE=0x000004000000000
         IFX_XFER_SHMBASE=0x000005000000000

     Onpload will use shared memory during its execution. It will allocate
     memory beyond the address for the server, leaving room for server shared
     memory expansion.

2.   IPv6 Support

     The Informix database server supports Internet Protocol Version 6 (128 Bit
     Internet Addresses) as well as IPv4 (32 Bit Addresses).

     In order for the machine name that is specified in the SQLHOSTS file to
     resolve to the correct IP address, the name services files on the operating
     system must be configured correctly. If the machine has an IPv6 address
     configured, and the listener thread is bound to an IPv6 address, then the
     name service switch files /etc/nsswitch.conf must be configured to fetch
     an IPv6 address. Also any local machine settings must be set correctly in
     the /etc/hosts file.

     For compatibility with earlier version of Informix client and server
     products, assign each host name with both an IPv4 address and an IPv6
     address. If the listener needs to be bound to an IPv4 address, and the
     name services resolve the name in the order of the IPv6 address followed
     by the IPv4 address, then an explicit IPv4 address needs to be put in the
     host name field of SQLHOSTS file. Client applications should also use the
     same setting.

3.   Kernel Asynchronous I/O (KAIO)

     KAIO is enabled by default on this platform. It can be disabled by setting
     the environment variable KAIOOFF=1 in the environment of the process that
     starting the server.

     When using KAIO, it is recommended to run poll threads on separate VPs by
     specifying NET as VP class in the NETTYPE onconfig parameter, e.g.
     NETTYPE ipcshm,...,...,NET or
     NETTYPE soctcp,...,...,NET

     On Linux, there is a system wide limit of the maximum number of parallel
     KAIO requests. The file /proc/sys/fs/aio-max-nr is containing this value.

It can be increased by the Linux system administrator, e.g. by

    # echo new_value > /proc/sys/fs/aio-max-nr

The current number of allocated requests of all OS processes is visible in /proc/sys/fs/aio-nr.

By default, IBM Informix Database server is allocating half of the maximum number of requests, and assigns them equally to the number of configured CPU VPs. The number of requests allocated per CPU VP can be controlled by the environment variable KAIOON, by setting it to the required value before bringing up the server. The minimum value for KAIOON is 100. If Linux is about to run out of KAIO resources, e.g. when dynamically adding many CPU VPs, warnings will be printed to the online.log file. In this case, the Linux system administrator should add KAIO resources as described above. Note that the libaio.so library is required, regardless of the distribution or kernel level.

4. Large Memory Addressability (LMA)

IBM Informix LMA provides the ability to support system configurations with greater than 4GB of RAM. Most UNIX systems are limited to 4GB of RAM based on the memory addressing limitations of 32-bit architectures.

The values for the following ONCONFIG parameters are increased from 32-bit to 64-bit platform by LMA support:

    - The maximum number of buffers in BUFFERPOOL is 2147483647.

    - The maximum of LRU queues for lrus field in BUFFERPOOL is 512.

    - The DS_TOTAL_MEMORY, which is the total memory available for decision support memory, is only limited by the amount of virtual memory available. The sort memory comes out of the DS_TOTAL_MEMORY memory and hence there is no explicit limit on the amount of sort memory.

    - The read ahead parameter RA_PAGES is only limited by the number of buffers and therefore can be any value less than 2147483647. The "chunk" write algorithm is not dependent on the amount of buffers or shared memory and can write as many pages in a single I/O as possible.

    - The maximum size of any shared memory segment is 4398046511104 bytes.

    - The value for SHMADD is 4294967296 kilobytes.

Refer to IBM Informix Administrator's Reference manual for the information about the related configuration parameters setting.

5. MQ Messaging Database Extension

The MQ extension provides mechanism for data exchange between Informix server and queues managed by Websphere MQ.

Note: MQ Messaging Extension expects Websphere MQ libraries installed in the default location /opt/mqm. Otherwise create symbolic links from /opt/mqm/lib64 to the 64-bit Websphere MQ libraries.

6. Network Protocols

The following protocols and interfaces are supported on this platform:

    SOCKETS using TCP/IP
    IPC using stream pipe (implemented using UNIX Domain Sockets)

To use SOCKETS with TCP/IP:

    a. The NETTYPE entry in the ONCONFIG file and the nettype field in
       the sqlhosts file entry must contain "onsoctcp".

    b. To enable an IBM Data Server Client to connect to the database
       Server, the NETTYPE entry in the ONCONFIG file and the protocal
       value in the sqlhosts file entry must contain "drsoctcp"

       If a CLI or JCC client wants to connect to the database server
       through DRDA while supporting SQLI connections, you must add a
       DBSERVERALIASES entry to the ONCONFIG file that corresponds to
       the sqlhosts file entry.

To use IPC (interprocess communication) with stream pipe:

    a. The NETTYPE entry in the ONCONFIG file and the nettype field in
       the sqlhosts file entry must contain "onipcstr".

Fast poll is supported with TCP/IP and stream pipe interfaces. To disable
fast poll, set the FASTPOLL parameter to 0 in the ONCONFIG file. By default
the fast poll is enabled (value is 1).

Remote 32-bit applications and tools (example: ESQL/C, 4GL, ISQL) can
only connect to the IBM Informix Database Server using the TCP/IP
protocol.

Local 32-bit applications and tools can connect to the 64-bit server
using either the TCP/IP sockets or the IPC stream pipe protocols.

The protocol for supporting IBM Informix MaxConnect on this platform
is "onsocimc".

7.   Online Backup and Restore (ON-Bar)

ON-Bar uses the XBSA interface. Some of the functions invoked by ON-Bar
are in a shared library supplied by third party storage management vendors.
For ON-Bar to access the functions, set the BAR_BSALIB_PATH parameter in
$INFORMIXDIR/etc/$ONCONFIG to the full pathname of the library.

Using $INFORMIXDIR/lib/ibsad001.so as a symbolic link to the library is
deprecated and shall be discontinued.

Informix Interface for Tivoli Storage Manager (TSM) is supported on this
platform. The interface is built with TSM API version 5.3.2.

8.   Optical

As of 2020-04-10, even the stubs of support for OnLine/Optical are gone.

9.   Pluggable Authentication Module (PAM)

PAM functionality is supported on Linux operating systems. PAM requires
the libpam.so library that is supplied by the Operating System vendor.

Use of PAM can be enabled or disabled by the system administrator. By
default, the Informix server will use the traditional authentication
mechanism to avoid changes for the users.

The PAM service identifies the PAM module. This PAM module usually is
located in /usr/lib/security and its parameters are listed in
/etc/pam.conf.

10. Processor Affinity

     The processor affinity feature, which allows the pinning of a CPU
     virtual processor to a physical processor in a multi-CPU configuration,
     is supported on this platform.

11. Secure Sockets Layer

     IBM Informix Database Server uses the libraries and utilities provided by
     the IBM Global Security Kit (GSKit) for Secure Sockets Layer (SSL)
     communication.

        a. Before uninstalling GSKit, verify that it is not needed on your
            system. It is possible that software other than Informix Database
            Server requires GSKit. Uninstall by identifying and removing GSKit
            packages using the command-line interface:

            Run rpm command with the -qa option to obtain a list of installed
            GSKit packages with their exact names.
            For example:
            rpm -qa | grep gsk

            As root user run the rpm command to remove each package as needed.
            For example:
            rpm -ev gskssl64-8.0.55.17 gskcrypt64-8.0.55.17

        b. If you want to restore Secure Sockets Layer capability after you
            have uninstalled GSKit, see the readme file in $INFORMIXDIR/gskit
            for how to install GSKit.

12. Simple Password Communications Support Module

     The name of the IBM Informix shared library for Simple Password CSM
     on Linux is libixspw.so.

Features not supported
======================

1. Rolling upgrades to this IDS version are supported from version 12.10.xC8
    or higher.

    Rolling upgrades are not supported in this IDS version from versions
    older than 12.10.xC8. Such a migration requires changes to disk structures
    and the conversion process is incompatible with a rolling upgrade. In such
    cases, when upgrading HDR and RSS secondary servers, you must follow the
    steps listed in the on-line documentation under "Migrating an offline
    cluster to a new major version."

2. J/Foundation

3. OnSNMP

4. Spatiotemporal Search Database Extension

5. Web Feature Service Database Extension

6. XML Publishing

Defects Fixed in this release
=============================

For information about defects fixed in this release, see:

SOLARIS 64

```
                    ===============================
                          MACHINE SPECIFIC NOTES
                                    FOR
            IBM Informix Database Server 14.10.FC5 PRODUCT RELEASE
                              ON SOLARIS 64bit
                              DATE: 17 Nov 2020
                    ===============================
```

OS Information : Built on Solaris 11.3.

System Requirements
===================

1. This product was built on Solaris 11.3 using the following compilers
    from Oracle Developer Studio 12.6:

        Sun C 5.15 SunOS_sparc 2017/05/30
        Sun C++ 5.15 SunOS_sparc 2017/05/30

2. Solaris Support Repository Updates (SRUs) requirement.

        Solaris 11.3: SRU 34 or greater

3. IBM Informix Database Server is supported to work with and without Zones
    on Solaris 11. Read the following document for more information:

    ftp://ftp.software.ibm.com/software/data/informix/ids/IDS-SunSPARC-reqs.pdf

4. The UNIX graphical tools provided with this release require 64-bit
    X Windows System X11R6 and Motif 2.3.4 or later runtime libraries.

    If these tools cannot find the location of the X and Motif shared
    libraries, set the environment variable LD_LIBRARY_PATH to include
    these locations: /usr/openwin/lib/sparcv9 and /usr/dt/lib/sparcv9.

5. The High Performance Loader utilities, onpload and ipload, require a
    minimum of 35 MB of memory and 70 MB of swap space in order to run.

6. IBM Informix Database Server uses the libraries and utilities provided by
    the IBM Global Security Kit (GSKit) for data encryption and Secure Sockets
    Layer (SSL) communication. The GSKit is bundled with the server and will
    be installed on your machine as part of the server installation process.
    Here are more details on the GSKit:

        a. The GSKit is also bundled with other IBM products and might
           already be present on your machine. If GSKit8 is not
           installed, Informix server will install GSKit in /opt/ibm/gsk8_64
           directory on your machine.

b. The GSKit installation directory must have 35 MB of free disk space.

7. To install the product as root, a root login user must be present on the
    system. The Root Role feature provided by Solaris is not supported.

8. The Informix product installer may fail to start correctly. When it
    aborts the following two messages are displayed:

        Installer User Interface Mode Not Supported
        Unable to load and to prepare the installer in console or silent mode.

    This can happen due to a known problem in the Java Virtual Machine that
    is internal to the installer. This problem is known as
    "JDK-8188030 : AWT java apps fail to start when some minimal fonts are
    present".
    It may appear when only minimal fonts of the CFF format are installed on
    the machine.

    On a SunOS system with Sparc 64-bit architecture, this problem can be
    worked around by installing an additional font with a format different
    than CFF.

    An alternative is to remove the installed fonts of the CFF format.
    On SunOS systems with Sparc 64-bit architecture the Informix product
    installer is known to start and work correctly when no fonts are
    installed. In this case the system utility command "fc-match -sv" reports
    the message "No fonts installed on the system".

Check the following web site for the latest Solaris system requirements
for IBM Informix Database Server:

    http://www-01.ibm.com/support/docview.wss?rs=630&uid=swg27013343

System Configuration
====================

1. Kernel Parameters

    On Solaris 11.3, all System V IPC facilities are either automatically
    configured or can be controlled by resource controls.

    The resource controls have the following default values on Solaris 11.3:

            process.max-sem-nsems   512
            project.max-sem-ids   128
            project.max-shm-memory   1/4 of physical memory
            project.max-shm-ids   128

    Check project.max-shm-memory on your system, IBM recommend the value
    of 4398046511104 for the IBM Informix Database Server.

    On systems that have zones enabled, zone-wide resource controls are
    specified in the zone configuration.

    Refer to the rctladm(1m) man page for more information about available
    resource controls.

    Examples:

    1) To display the current value of project.max-shm-memory set to the
       project and system wide, where Informix server is running under the
       default project, run this command:

```
           # prctl -n project.max-shm-memory -i project default

    2) To display the values of all the resource controls for a specific
       Informix server process, run this command:

       # prctl <oninit pid>

    3) To set the value of project.max-shm-memory for the project default
       to 4 TB without restarting the system, run this command:

       # prctl -n project.max-shm-memory -r -v 4tb -i project default

    4) To perform the same action as in example 3, but instead use
       the projmod command to modify the attribute value for
       project.max-shm-memory in /etc/project the local source of
       project information file, run this command:

       # projmod -a -K 'project.max-shm-memory=(priv,4TB,deny)' default
```

2.   Location of Shared Memory

```
    The default value for SHMBASE configuration parameter in ONCONFIG is

        SHMBASE 0x10A000000L

    If the Informix server uses large pages, set the SHMBASE configuration
    parameter to align to the page size. For example:

        SHMBASE 0x110000000L              # aligned to 256MB

    or

        SHMBASE 0x180000000L              # aligned to 2GB
```

3.   Environment Variables

```
    It is recommended that the environment variable INFORMIXSTACKSIZE be
    set to 128 (the default is 64) if the application involves operations
    which would require the IBM Informix Database Server to perform recursive
    database tasks (for example, cascading deletes).
```

```
Feature Notes   (alphabetized by feature)
=============
```

1.   High Performance Loader

```
    User-defined conversion routines for the High Performance Loader must be
    provided in a dynamic, shared library called ipldd11a.so. This shared
    library is installed in the $INFORMIXDIR/lib directory. You can set the
    location of this file with the HPL_DYNAMIC_LIB_PATH configuration
    parameter in the file pointed to by PLCONFIG environment variable. For
    more details see the "High-Performance Loader User's Guide".

    To create a 64-bit shared library, the flags "-m64" can be used
    to convey to the compiler that a 64-bit object is to be generated.

    Onpload will use shared memory during its execution. It will allocate
    memory beyond the address for the server, leaving room for server shared
    memory expansion.
```

2.   IPv6 Support

```
    The Informix database server supports Internet Protocol Version 6 (128 Bit
```

Internet Addresses) as well as IPv4 (32 Bit Addresses).

In order for the machine name that is specified in the SQLHOSTS file to resolve to the correct IP address, the name services files on the operating system must be configured correctly. If the machine has an IPv6 address configured, and the listener thread is bound to an IPv6 address, then the name service switch files /etc/nsswitch.conf must be configured to fetch an IPv6 address. Also any local machine settings must be set correctly in the /etc/hosts file.

For compatibility with earlier version of Informix client and server products, assign each host name with both an IPv4 address and an IPv6 address. If the listener needs to be bound to an IPv4 address, and the name services resolve the name in the order of the IPv6 address followed by the IPv4 address, then an explicit IPv4 address needs to be put in the host name field of SQLHOSTS file. Client applications should also use the same setting.

3.   J/Foundation (Java in the Server)

The IBM Runtime Environment, Java(TM) Technology Edition, Version 8.0 release is installed in $INFORMIXDIR/extend/krakatoa/jre and should be used with the J/Foundation component.

A Java user-defined routine (UDR) runs in a Java virtual processor. Use the VPCLASS configuration parameter to specify the number of virtual processors for the server. You configure Java virtual processors in the "Java configuration parameters" section of the onconfig configuration file. The default onconfig.std file is in the $INFORMIXDIR/etc directory.

To develop Java UDRs for the server on this platform, use Java Platform, Standard Edition Development Kit (JDK) 8 or an earlier version according to Java compatibility guidelines. That kit can be downloaded from https://www.oracle.com/technetwork/java/javase/downloads/jdk8-downloads-2133151.html

4.   Large Memory Addressability (LMA)

IBM Informix LMA provides the ability to support system configurations with greater than 4GB of RAM. Most UNIX systems are limited to 4GB of RAM based on the memory addressing limitations of 32-bit architectures.

The values for the following ONCONFIG parameters are increased from 32-bit to 64-bit platform by LMA support:

- The maximum number of buffers in BUFFERPOOL is 536870912.

- The maximum of LRU queues for lrus field in BUFFERPOOL is 512.

- The DS_TOTAL_MEMORY, which is the total memory available for decision support memory, is only limited by the amount of virtual memory available (2^40)/2 MB. The sort memory comes out of the DS_TOTAL_MEMORY memory and hence there is no explicit limit on the amount of sort memory.

- The read ahead parameter RA_PAGES is only limited by the number of buffers and therefore can be any value less than 536870912. The "chunk" write algorithm is not dependent on the amount of buffers or shared memory and can write as many pages in a single I/O as possible.

- The maximum size of any shared memory segment is 4398046511104 bytes.

- The value for SHMADD is 4294967296 kilobytes.

Refer to IBM Informix Administrator's Reference manual for the
information about the related configuration parameters setting.

5. Network Protocols

The following protocols and interfaces are supported on this platform:

TLI using TCP/IP
SOCKETS using TCP/IP
IPC using stream pipe

To use TLI with TCP/IP:

a. The NETTYPE entry in the ONCONFIG file and the nettype field in
    the sqlhosts file entry must contain "ontlitcp".

b. To enable an IBM Data Server Client to connect to the database
    server, the NETTYPE entry in the ONCONFIG file and the protocol
    value in the sqlhosts file entry must contain "drtlitcp"

To use SOCKETS with TCP/IP:

a. The NETTYPE entry in the ONCONFIG file and the nettype field in
    the sqlhosts file entry must contain "onsoctcp".

b. To enable an IBM Data Server Client to connect to the database
    Server, the NETTYPE entry in the ONCONFIG file and the protocal
    value in the sqlhosts file entry must contain "drsoctcp"

If a CLI or JCC client wants to connect to the database server through
DRDA while supporting SQLI connections, you must add a DBSERVERALIASES
entry to the ONCONFIG file that corresponds to the sqlhosts file entry.

When using either TLI or SOCKETS, set the "connections" field in
the ONCONFIG NETTYPE parameter and the kernel driver ndd parameter
"tcp_conn_req_max_q" to the maximum number of expected concurrent
connections.

If the "tcp_conn_req_max_q" is set too low, you will see a client
error with sqlcode = -908 and isamcode = 13. If the NETTYPE
"connections" field is set too low, you will see a server
listener-thread error with err = -25571.

To use IPC (interprocess communication) with stream pipe:

a. The NETTYPE entry in the ONCONFIG file and the nettype field in
    the sqlhosts file entry must contain "onipcstr".

Remote 32-bit or 64-bit applications and tools (example: ESQL/C, 4GL, ISQL)
can only connect to the IBM Informix Database Server using the TCP/IP
protocol.

Local 32-bit applications and tools can connect to the 64-bit server using
either the TCP/IP or the IPC stream pipe protocols.

Fast poll is supported with TCP/IP and stream pipe interfaces. To disable
fast poll, set the FASTPOLL parameter to 0 in the ONCONFIG file. By default
the fast poll is enabled (value is 1).

The protocol for supporting IBM Informix MaxConnect on this platform
is "ontliimc".

6. OnLine Backup and Restore (ON-Bar)

ON-Bar uses the XBSA interface. Some of the functions invoked by ON-Bar are in a shared library supplied by third party storage management vendors. For ON-Bar to access these functions, set the BAR_BSALIB_PATH parameter in $INFORMIXDIR/etc/$ONCONFIG to the full pathname of the library.

This shared library must be compiled in 64-bit mode.

Using $INFORMIXDIR/lib/ibsad001.so as a symbolic link to the library is deprecated and shall be discontinued.

Informix Interface for Tivoli Storage Manager (TSM) is supported on this platform. The interface is built with TSM API version 5.3.2.

7. OnSNMP

The SNMP agent for OnSNMP is based on SNMP Research (SNMPR).

8. Pluggable Authentication Module (PAM)

PAM functionality is supported on Solaris operating systems. PAM requires the libpam.so library that is supplied by the Operating System vendor.

Use of PAM can be enabled or disabled by the system administrator. By default, the Informix server will use the traditional authentication mechanism to avoid changes for the users.

The PAM modules are usually located in /usr/lib/security/64. The PAM services are defined in /etc/pam.conf.

9. Secure Sockets Layer

IBM Informix Database Server uses the libraries and utilities provided by the IBM Global Security Kit (GSKit) for Secure Sockets Layer (SSL) communication.

a. Before uninstalling GSKit, verify that it is not needed on your system. It is possible that software other than Informix Database Server requires GSKit. Uninstalling entails removing the GSKit packages with the pkgrm command-line tool

As root user run the pkgrm command to remove each package as needed. For example, the following command removes the GSKit SSL and GSKit Crypt packages:
pkgrm gsk8ssl32 gsk8cry32

b. If you want to restore Secure Sockets Layer capability after you have uninstalled GSKit, see the readme file in $INFORMIXDIR/gskit for how to install GSKit.

10. Simple Password Communications Support Module

The name of the IBM Informix shared library for Simple Password CSM on Solaris is libixspw.so.

Features not supported
======================

1. Rolling upgrades to IDS version 14.10.xC2 are not supported.

Rolling upgrades are not supported in IDS version 14.10.xC2. Migration to this version from a previous version requires changes to disk structures, and the conversion process is incompatible with a rolling upgrade. When upgrading HDR and RSS secondary servers to version 14.10.xC2, you must

```
         follow the steps listed in the on-line documentation under "Migrating
         an offline cluster to a new major version."

    Defects Fixed in this release
    =============================


    For information about defects fixed in this release, see:
    http://www.ibm.com/support/docview.wss?uid=ibm10870226

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```

Windows x64

```
                    ================================
                           MACHINE SPECIFIC NOTES
                                    FOR
                    IBM Informix Database Server 14.10.FC5 PRODUCT RELEASE
                                 ON Windows x64
                                 DATE: 17 Nov 2020
                    ================================

    OS Information : Built on Windows 2016 x64.. Certified on
                     Windows 2019.

    System Requirements
    ===================

    1.  This product is built on Windows 2016 using the following compiler from
        Microsoft Visual Studio 2017:

            Microsoft Visual C++ 2017

    2.  Informix Server uninstallation

        Due to an issue in installer tool, the registry entries created by
        installer will not be automatically removed after Informix server
        uninstall. The work around is to cleanup existing registry entries under
        HKLM->Software->Informix->DBMS.

    3.  IBM Informix Database Server uses the libraries and utilities provided by
        the IBM Global Security Kit (GSKit) for data encryption and Secure Sockets
        Layer (SSL) communication. The GSKit is bundled with the server and will
        be installed on your machine as part of the server installation process.
        Here are more details on the GSKit:

            a. The GSKit is also bundled with other IBM products and might
               already be present on your machine. If the GSKit was previously
               installed, but is older than version 8.0.55.17, Informix server
               will upgrade the GSKit on your machine to version 8.0.55.17. If
               GSKit is not installed, Informix server will install GSKit in
               \Program Files\ibm\gsk8_64 directory on your machine.

            b. The GSKit installation directory must have 35 MB of free disk space.


    4.  Installation Prerequisite on Windows 2016 or Later Versions
```

User may need to temporarily turn off User Account Control(UAC) security
before you install IBM Informix.

For information about how to create groups, add users to groups, and
turn off User Account Control, see your Windows documentation.

Check the following web site for the latest Windows system requirements
for IBM Informix Database Server:

http://www-01.ibm.com/support/docview.wss?rs=630&uid=swg27013343

System Configuration
====================

1.   Location of Shared Memory

The ONCONFIG variable SHMBASE is recommended to be set to the following:

SHMBASE 0x80000000L

2.   Administrator permission for running server utilities

On Windows, you must run any server utility commands with administrator
permission: for example, the 'oninit -iy' command to initialize the server.

To run Informix utility commands as an administrator, from the Start menu,
choose the Informix server name and then choose "Run as administrator".
A command prompt with administrator permissions opens.

Feature Notes   (alphabetized by feature)
=============

1.   Informix Interface for TSM

The Informix Interface DLL for TSM is installed as

%INFORMIXDIR%\bin\libtxbsa.dll

This interface is built with TSM API version 5.3.2.

To use Tivoli Storage Manager with Informix databases, refer to IBM Informix
Backup and Restore Guide.

2.   IPv6 Support

The Informix database server supports Internet Protocol Version 6 (128 Bit
Internet Addresses) as well as IPv4 (32 Bit Addresses).

In order for the machine name that is specified in the SQLHOSTS registry
to resolve to the correct IP address, the name services files on the
Operating System should be correctly configured.

For compatibility with earlier version of Informix client and server
products, assign each host name with both an IPv4 address and an IPv6
address. If the listener needs to be bound to an IPv4 address, and the
name services resolve the name in the order of the IPv6 address followed
by the IPv4 address, then an explicit IPv4 address needs to be put in the
nodename field of server registry.

3.   J/Foundation (Java in the Server)

The IBM Runtime Environment, Java(TM) Technology Edition, Version 8.0
release is installed in $INFORMIXDIR/extend/krakatoa/jre and should be
used with the J/Foundation component.

A Java user-defined routine (UDR) runs in a Java virtual processor. Use
the VPCLASS configuration parameter to specify the number of virtual
processors for the server. You configure Java virtual processors in
the "Java configuration parameters" section of the onconfig configuration
file. The default onconfig.std file is in the $INFORMIXDIR/etc directory.

To develop Java UDRs for the server on this platform, use Java Platform,
Standard Edition Development Kit (JDK) 8 or an earlier version according
to Java compatibility guidelines. That kit can be downloaded from
https://www.oracle.com/technetwork/java/javase/downloads/jdk8-downloads-
2133151.html.

4. Large Memory Addressability (LMA)

IBM Informix LMA provides the ability to support system configurations
with greater than 4GB of RAM.

The values for the following ONCONFIG parameters are increased from
32-bit limit by LMA support:

    - The maximum number of buffers in BUFFERPOOL is 2147483647.

    - The maximum of LRU queues for lrus field in BUFFERPOOL is 512.

    - The DS_TOTAL_MEMORY, which is the total memory available for
      decision support memory, is only limited by the amount of virtual
      memory available. The sort memory comes out of the DS_TOTAL_MEMORY
      memory and hence there is no explicit limit on the amount of sort
      memory.

    - The read ahead parameter RA_PAGES is only limited by the number of
      buffers and therefore can be any value less than 2147483647. The
      "chunk" write algorithm is not dependent on the amount of buffers
      or shared memory and can write as many pages in a single I/O as
      possible.

    - The maximum size of any shared memory segment is 4398046511104 bytes.

    - The maximum value for SHMADD is 4294967296 kilobytes.

Refer to IBM Informix Administrator's Reference manual for the information
about the related configuration parameters setting.

5. LDAP Authentication

This feature is set up and configured like the Pluggable Authentication
Module (PAM) that is used on UNIX and Linux. Use the LDAP Authentication
Support module when you want to use an LDAP server to authenticate your
system users.

The authentication module is a dynamic link library that resides in the
%INFORMIXDIR%\dbssodir\lib\security directory. The parameters of the module
are listed in the %INFORMIXDIR%\dbssodir\pam.conf file.

The source code for a fully functional LDAP Authentication Module and
samples of the required configuration files are included in the
%INFORMIXDIR%\demo\authentication directory. You can modify the code for
your specific LDAP Authentication Support module.

6. Network Protocols

    The following protocol(s)/interface(s) are supported on this platform:

        SOCKETS using TCP/IP
        IPC using named pipe

        To use SOCKETS with TCP/IP:

            a. The NETTYPE entry in the ONCONFIG file and the value data of
               PROTOCOL in the SQLHOSTS registry entry must contain "onsoctcp"

            b. To enable an IBM Informix Data Server Client to connect to the
database
               server, the NETTYPE entry in the ONCONFIG file and the value
               data of PROTOCOL in the SQLHOSTS registry entry must contain
               "drsoctcp"

               If a CLI or JCC client wants to connect to the database server
               through DRDA while supporting SQLI connections, you must add a
               DBSERVERALIASES entry to the ONCONFIG file that corresponds to
               the SQLHOSTS registry entry.

        To use IPC (interprocess communication) with named pipe:

            a. The NETTYPE entry in the ONCONFIG file and the value data of
               PROTOCOL in the SQLHOSTS registry entry must contain "onipcnmp".

    Remote 32-bit or 64-bit applications and tools (example: ESQL/C, 4GL, ISQL)
    can only connect to the IBM Informix Database Server using the TCP/IP
    protocol.

    Local 32-bit applications and tools can connect to the 64-bit server using
    either the TCP/IP or the IPC named pipe protocols.

7. OnLine Backup and Restore (ON-Bar)

    ON-Bar uses the XBSA interface. Some of the functions invoked by ON-Bar
    are in a dynamic link library supplied by third party storage management
    vendors. For ON-Bar to access these functions, you must specify the library
    name and location in the BAR_BSALIB_PATH parameter in the ONCONFIG file.

    For example, if you are using PSM:

        Set BAR_BSALIB_PATH to %INFORMIXDIR%\bin\libbsapsm.dll

    For example, if you are using TSM:

        Set BAR_BSALIB_PATH to %INFORMIXDIR%\bin\libtxbsa.dll

8. Secure Sockets Layer

    IBM Informix Database Server uses the libraries and utilities provided by
    the IBM Global Security Kit (GSKit) for Secure Sockets Layer (SSL)
    communication.

9. Simple Password Communications Support Module

    The name of the IBM Informix dynamic link library for Simple Password CSM
    on Windows is libixspw.dll. This dynamic link library is installed in
    %INFORMIXDIR%\bin.

10. XML User-Defined Routines

```
        You cannot run XML UDRs at large memory segments (VX class) on this
        platform.

        To avoid XML UDR execution failure, configue and adjust the following
        Informix server configuration parameters in the onconfig file:

            PRELOAD_DLL_FILE -
                Specify the path name for a shared library file that is
                pre-loaded when the server is started.

            BUFFERPOOL -
                Adjust the memory field to a lower value.

            SHMVIRTSIZE -
                Adjust it to a lower value.


Features not supported
======================

1.  Rolling upgrades to IDS version 14.10.xC2 are not supported.

    Rolling upgrades are not supported in IDS version 14.10.xC2. Migration to
    this version from a previous version requires changes to disk structures,
    and the conversion process is incompatible with a rolling upgrade. When
    upgrading HDR and RSS secondary servers to version 14.10.xC2, you must
    follow the steps listed in the on-line documentation under "Migrating
    an offline cluster to a new major version."

2.  Web Feature Service Database Extension

3.  Mapped users

Defects Fixed in this release
=============================

For information about defects fixed in this release, see:
http://www.ibm.com/support/docview.wss?uid=ibm10870226

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Release documentation and machine notes for IBM Informix, v14.10.xC4W1

These are the release, documentation, and machine notes for IBM® Informix® version 14.10.xC4W1.

- Release notes for IBM Informix for Windows Operating Systems, 14.10.xC4W1
  The Release notes provide a list of useful topics and links for when you install IBM Informix database product or fix pack.
- Release notes for IBM Informix for UNIX and Linux, 14.10.xC4W1
  The Release notes provide a list of useful topics and links for when you install an IBM Informix database product or fix pack.

- [Machine notes for IBM Informix, version 14.10](#)
  These are the machine notes for IBM Informix version 14.10.

Release notes for IBM Informix for Windows Operating Systems, 14.10.xC4W1

The Release notes provide a list of useful topics and links for when you install IBM® Informix® database product or fix pack.

Contents

- [Description](#)
- [Announcement](#)
- [System requirements](#)
- [Installing IBM Informix 14.10.xC4W1](#)
- [Known problems](#)
- [Related information](#)

Description

IBM Informix 14.10 is available in several different editions, and each offers different features and function.

For a complete list of what's new and changed in this release, go to [http://www.ibm.com/support/knowledgecenter/SSGU8G/welcomeIfxServers.html.](http://www.ibm.com/support/knowledgecenter/SSGU8G/welcomeIfxServers.html)

Information about the fixed defects for IBM Informix 14.10.xC4 is available at: [http://www.ibm.com/support/docview.wss?uid=ibm10870226.](http://www.ibm.com/support/docview.wss?uid=ibm10870226).

Announcement

The product announcement letters are available at [http://www.ibm.com/common/ssi/index.wss.](http://www.ibm.com/common/ssi/index.wss) Search for Informix 14.10 and select Announcement letters. See the announcement for the following information:

- Detailed product description
- Product-positioning statement
- Packaging and ordering details
- International compatibility information

System requirements

For information about hardware and software compatibility, see the detailed system requirements document at [http://www.ibm.com/support/docview.wss?uid=swg27013343.](http://www.ibm.com/support/docview.wss?uid=swg27013343).

Installing IBM Informix 14.10.xC4W1

For step-by-step installation instructions, see [Installing Informix.](#).

The IBM Informix Installation Guide (ids_win_installg_14.10.pdf) is also available in the product build in PDF format.

If you are migrating from another version of Informix, make sure that you understand all migration requirements and restrictions before you install the product. For migration information, see http://www.ibm.com/support/knowledgecenter/SSGU8G/welcomeIfxServers.html .

Known problems

At the time of publication, the following problems were known:

- If you uninstall Informix version 11.50, restart the computer before you install another version of Informix
- Windows firewall exception is needed before installation
  Before you install Informix on Windows operating systems, make a Windows firewall exception for the TCP listening port that is used by Informix. By default, the Informix port is 9088; however, you can specify a different port number during installation.

- Removing users when you uninstall the database server
  If there are multiple installations of the product on the computer, and you are uninstalling one of the products, be careful when you use the Remove users and groups option. Do not remove users or groups that are required by the other installations of the product. If you remove users or groups that are required by the other products, the other products will not start or they will be inoperable.

- Starting Informix instances
  To start an Informix instance, use the instance shortcut that is in the Informix program group.

Related information

- Notice of deprecation:
  The Backup to Amazon Simple Storage Services (AWS S3) provided in the ontape utility is considered deprecated and will be removed in an upcoming release. This feature will be replaced with the same REST based technology used in the Informix Primary Storage Manager, to expand coverage to other cloud providers and enhance functionality.

- End of support:
  The Informix Storage Manager is not a valid storage manager anymore for the ON-Bar utilities. Usage of the old XBSA library with 14.10 is not supported and can lead to unpredictable results including loss of data or inability to restore.

- Latest open source drivers for Informix: http://github.com/OpenInformix.
- IBM Support Portal: http://www.ibm.com/support/entry/portal/
- International Informix Users Group (IIUG): http://www.iiug.org

Release notes for IBM Informix for UNIX and Linux, 14.10.xC4W1

The Release notes provide a list of useful topics and links for when you install an IBM® Informix® database product or fix pack.

Contents

- [Description](#)
- [Announcement](#)
- [System requirements](#)
- [Installing IBM Informix 14.10.xC4W1](#)
- [Known problems](#)
- [Related information](#)

Description

IBM Informix 14.10 is available in several different editions, and each offers different features and function.

For a complete list of what's new and changed in this release, go to .
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Information about the fixed defects for IBM Informix 14.10.xC4W1 is available at:
http://www.ibm.com/support/docview.wss?uid=ibm10870226..

Announcement

The product announcement letters are available at http://www.ibm.com/common/ssi/index.wss. Search for Informix 14.10 and select Announcement letters. See the announcement for the following information:

- Detailed product description
- Product-positioning statement
- Packaging and ordering details
- International compatibility information

System requirements

For information about hardware and software compatibility, see the detailed system requirements document at http://www.ibm.com/support/docview.wss?uid=swg27013343.

Installing IBM Informix 14.10.xC4W1

For step-by-step installation instructions, see Installing Informix at
http://www.ibm.com/support/knowledgecenter/SSGU8G/welcomeIfxServers.html.

If you are migrating from another version of , make sure that you understand all migration requirements and restrictions before you install the product. For migration information, see
http://www.ibm.com/support/knowledgecenter/SSGU8G/welcomeIfxServers.html.

Known problems

At the time of publication, the following problems were known:

- Removing users when you uninstall the database server
If there are multiple installations of the product on the computer, and you are uninstalling one of the products, be careful when you use the Remove users and groups option. Do not remove users or groups that are required by the other installations of the product. If you remove users or groups that are required by the other products, the other products will not start or they will be inoperable.

Related information

- Notice of deprecation:
The Backup to Amazon Simple Storage Services (AWS S3) provided in the ontape utility is considered deprecated and will be removed in an upcoming release. This feature will be replaced with the same REST based technology used in the Informix Primary Storage Manager, to expand coverage to other cloud providers and enhance functionality.

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The Informix Storage Manager is not a valid storage manager anymore for the ON-Bar utilities. Usage of the old XBSA library with 14.10 is not supported and can lead to unpredictable results including loss of data or inability to restore.

- Latest open source drivers for Informix: http://github.com/OpenInformix.
- IBM Support Portal: http://www.ibm.com/support/entry/portal/
- International Informix Users Group (IIUG): http://www.iiug.org

Machine notes for IBM Informix, version 14.10

These are the machine notes for IBM® Informix® version 14.10.

To view the notes, expand the categories in the contents pane in the Release information subtopic under the Product overview topic.

- IBM AIX 7.2 64
- HEWLETT PACKARD HP-UX Itanium
- openSUSE aarch64
- Raspbian 9 armv71
- Linux Power Series (little endian)
- Linux x86_64
- Linux zSeries
- SOLARIS 64
- Windows x64

IBM AIX 7.2 64

```
================================
        MACHINE SPECIFIC NOTES
```

```
                              FOR
          IBM Informix Database Server 14.10.FC4W1 PRODUCT RELEASE
                        ON IBM AIX 7.2 64bit
                        DATE: 16 June 2020
                  ==================================
```

OS Information : Built on AIX 7.2 Technology.

System Requirements
===================

1. This product was built on AIX 7.2 Technology using the following
    compilers:

    IBM XL C/C++ for AIX, V11.1 (5724-X13)
    XL C/C++ Runtime   13.1.3

2. AIX patch requirement:

        TL2 (7200-02-02-1810)

3. The UNIX graphical tools provided with this release require X Window
    system X11R6 and Motif 2.3.4 or later runtime libraries.

4. The High Performance Loader utilities, onpload and ipload, require a
    minimum of 35 MB of memory and 70 MB of swap space in order to run.

5. If you are using Java(TM) UDRs, please refer to "AIX Loader Domains" under
    J/Foundation section for details.

6. IBM Informix Database Server uses the libraries and utilities provided by
    the IBM Global Security Kit (GSKit) for data encryption and Secure Sockets
    Layer (SSL) communication. The GSKit is bundled with the server and will
    be installed on your machine as part of the server installation process.
    Here are more details on the GSKit:

        a. The GSKit is also bundled with other IBM products and might
            already be present on your machine. If GSKit 8.0.55.12 is not
            installed, Informix server will install GSKit in /usr/opt/ibm/gsk8_64
            directory on your machine.

        b. The GSKit installation directory must have 35 MB of free disk space.

Check the following web site for the latest AIX system requirements
for IBM Informix Database Server:

    http://www-01.ibm.com/support/docview.wss?rs=630&uid=swg27013343

System Configuration
===================

1. Location of Shared Memory

    The ONCONFIG variable SHMBASE should be set to the following:

        SHMBASE 0x700000010000000

    If you are using Java UDRs, refer to the J/Foundation section for setting
    the SHMBASE value.

2. Environment Variables

    a. It is recommended that the environment variable INFORMIXSTACKSIZE be set

to 128 (the default is 64) if the application involves operations which
        would require the IBM Informix Database Server to perform recursive
        database tasks (for example, cascading deletes).

    b. If you are using Java UDRs, set environment variable LDR_CNTRL to
        include the value "USERREGS" and "LOADPUBLIC" before starting IBM
        Informix Database Server.
        export LDR_CNTRL=LOADPUBLIC@USERREGS

Feature Notes   (alphabetized by feature)
=============

1. High Performance Loader

    User-defined conversion routines must be provided in a dynamic, shared
    library called ipldd11a_64.so. This library is installed in the
    $INFORMIXDIR/lib directory. You can set the location of this file with
    the HPL_DYNAMIC_LIB_PATH configuration parameter in file pointed to by
    PLCONFIG environment variable. For more details, refer the manual
    "High-Performance Loader User's Guide".

    To create a 64-bit shared library, the environment variable OBJECT_MODE
    should be set to 64 to convey to the compiler that a 64-bit object is to
    be generated. The "-q64" flag for cc can also be used to indicate to the
    compiler that 64-bit object is to be generated.

2. IPv6 Support

    The Informix database server supports Internet Protocol Version 6 (128 Bit
    Internet Addresses) as well as IPv4 (32 Bit Addresses).

    In order for the machine name that is specified in the SQLHOSTS file to
    resolve to the correct IP address, the name services files on the operating
    system must be configured correctly. If the machine has an IPv6 address
    configured, and the listener thread is bound to an IPv6 address, then the
    name resolution file /etc/netsvc.conf must be configured to fetch an IPv6
    address. Also any local machine settings must be set correctly in the
    /etc/hosts file.

    For compatibility with earlier version of Informix client and server
    products, assign each host name with both an IPv4 address and an IPv6
    address. If the listener needs to be bound to an IPv4 address, and the
    name services resolve the name in the order of the IPv6 address followed
    by the IPv4 address, then an explicit IPv4 address needs to be put in the
    host name field of SQLHOSTS file. Client applications should also use the
    same setting.

3. J/Foundation (Java in the Server)

    The IBM Runtime Environment, Java Technology Edition, Version 8.0
    release is installed in $INFORMIXDIR/extend/krakatoa/jre and should be
    used with the J/Foundation component.

    A Java user-defined routine (UDR) runs in a Java virtual processor. Use
    the VPCLASS configuration parameter to specify the number of virtual
    processors for the server. You configure Java virtual processors in
    the "Java configuration parameters" section of the onconfig configuration
    file. The default onconfig.std file is in the $INFORMIXDIR/etc directory.

    To develop Java UDRs for the server on this platform, use the 64-bit
    IBM SDK, Java Technology Edition, Version 8 or an earlier version
    according to Java compatibility guidelines. Java SDK 8 contains the
    latest virtual machine technology from IBM and can be downloaded from

```
      http://www.ibm.com/java/jdk/.


      Location of Shared Memory
      -------------------------
      When using IBM Informix Server with J/Foundation, the ONCONFIG parameter
      SHMBASE should be set to the following:


          SHMBASE 0x700000030000000


      AIX Loader Domains
      ------------------
      If multiple shared libraries are loaded onto two VPs, one of which is
      a Java VP, and the libraries are not loaded in the same order on each
      VP, executing a function from the libraries can cause the IBM Informix
      Database Server to core dump with the following message in online.log:


          09:35:58   Assert Failed: Exception Caught. Type: MT_EX_OS, Context: ill
          09:35:58    Who: Session(15, informix@ibms70, 46918, 1075033896)
                          Thread(41, sqlexec, 4010c7d8, 3)
                          File: mtex.c Line: 372
          09:35:58    Action: Please notify Technical Support.


      You would typically encounter this error if your application is using
      both C UDRs and Java UDRs.


      To resolve this problem, the AIX loader domains concept is used. The
      loader domain provides a means of loading shared libraries at the same
      virtual address in a set of processes. The loader domain file is created
      during the installation of the IBM Informix Database Server. This is
      installed as "/var/adm/ifx_loader_domain".


      IBM Informix Database Server with J/Foundation on AIX requires the loader
      domain file "/var/adm/ifx_loader_domain" to exist at all times. If the
      file does not exist, create it as superuser using the following commands:


          touch /var/adm/ifx_loader_domain
          chgrp informix /var/adm/ifx_loader_domain
          chmod 660 /var/adm/ifx_loader_domain

4.   Kernel Asynchronous I/O (KAIO)


      KAIO is enabled by default on this platform.


      The AIO subsystem is loaded by default but not activated. No AIO
      server is started at AIX startup. The AIO server is automatically
      started when applications are initiating AIO I/O requests. It stays
      active as long as it services AIO I/O requests.


      To disable KAIO, set the environment variable KAIOOFF:


          KAIOOFF=1 ; export KAIOOFF        ( for Bourne or Korn shell )
          setenv KAIOOFF 1                  ( for C shell )


      Limit the number of resident memory segments allocated to Informix.
      If you allocate a lot of resident memory segments to Informix and
      Informix uses a lot of KAIO and direct I/O, KAIO read or write calls
      might fail with errno 22 (EINVAL). EINVAL errors can lead to down dbspaces
      or system aborts. The following error typically appears in the server log:


          04:30:40   KAIO: error in kaio_WRITE, kaiocbp = 0x22b620d0, errno = 22
          04:30:40   fildes = 258 (gfd 3), buf = 0x700000122b64000, nbytes = 4096,
                          offset = 130785280


      The usual reason for these EINVAL errors is that the OS is running low
```

on resident memory pages because the Informix server has too many shared memory segments allocated as "resident," as well as pinned OS kernel memory and KAIO resources.

You can prevent these errors by setting fewer, or no, Informix server shared memory segments as resident. Set the RESIDENT configuration parameter in the onconfig file to 1 or 0.

5. Large Memory Addressability (LMA)

IBM Informix LMA provides the ability to support system configurations with greater than 4GB of RAM. Most UNIX systems are limited to 4GB of RAM based on the memory addressing limitations of 32-bit architectures.

The values for the following ONCONFIG parameters are increased from 32-bit to 64-bit platform by LMA support:

- The maximum number of buffers in BUFFERPOOL is 2147483647.

- The maximum of LRU queues for lrus field in BUFFERPOOL is 512.

- The DS_TOTAL_MEMORY, which is the total memory available for decision support memory, is only limited by the amount of virtual memory available. The sort memory comes out of the DS_TOTAL_MEMORY memory and hence there is no explicit limit on the amount of sort memory.

- The read ahead parameter RA_PAGES is only limited by the number of buffers and therefore can be any value less than 2147483647. The "chunk" write algorithm is not dependent on the amount of buffers or shared memory and can write as many pages in a single I/O as possible.

- The maximum size of any shared memory segment is 68719460352 bytes.

- The value for SHMADD is 67108848 kilobytes.

6. Network Protocols

The following protocols and interfaces are supported on this platform:

SOCKETS using TCP/IP
IPC using stream pipe (implemented using UNIX Domain Sockets)

To use SOCKETS with TCP/IP:

a. The NETTYPE entry in the ONCONFIG file and the nettype field in the sqlhosts file entry must contain "onsoctcp".

b. To enable an IBM Data Server Client to connect to the database Server, the NETTYPE entry in the ONCONFIG file and the protocal value in the sqlhosts file entry must contain "drsoctcp"

If a CLI or JCC client wants to connect to the database server through DRDA while supporting SQLI connections, you must add a DBSERVERALIASES entry to the ONCONFIG file that corresponds to the sqlhosts file entry.

To use IPC (interprocess communication) with stream pipe:

a. The NETTYPE entry in the ONCONFIG file and the nettype field in the sqlhosts file entry must contain "onipcstr".

Fast poll is supported with TCP/IP and stream pipe interfaces. To disable

fast poll, set the FASTPOLL parameter to 0 in the ONCONFIG file. By default the fast poll is enabled (value is 1).

Remote 32-bit applications and tools (example: ESQL/C, 4GL, ISQL) can only connect to the IBM Informix Database Server using the TCP/IP protocol.

Local 32-bit applications and tools can connect to the 64-bit server using either the TCP/IP sockets or the IPC stream pipe protocols.

The protocol for supporting IBM Informix MaxConnect on this platform is "onsocimc".

7. No Age (Disable Priority Aging)

The no aging feature that disables priority aging of CPU virtual processors by the operating system can be activated by setting the noage option of the VPCLASS configuration parameter for the CPU virtual processors. For example, the following ONCONFIG entry specifies that there are 8 CPU VPs, each without aging:

VPCLASS cpu,num=8,noage

When the noage option is used, all oninit processes will run at priority 60 with fixed priority round robin type scheduling.

To override the default priority value for CPU VP class, set the environment variable INFX_CPUVP_PRIORITY to the desired priority, within limits (50 to 90) before starting the server.

The server checks and sets the CPU VP process to the defined priority if the defined value is within the above range.

8. OnLine Backup and Restore (ON-Bar)

ON-Bar uses the XBSA interface. Some of the functions invoked by ON-Bar are in a shared library supplied by third party storage management vendors. For ON-Bar to access these functions, set the BAR_BSALIB_PATH parameter in $INFORMIXDIR/etc/$ONCONFIG to the full pathname of the library.

Using $INFORMIXDIR/lib/ibsad001_64.so as a symbolic link to the library is deprecated and shall be discontinued.

Informix Interface for Tivoli Storage Manager (TSM) is supported on this platform. The interface is built with TSM API Client version 5.3.2.

9. OnSNMP

The SNMP agent for OnSNMP is based on SNMP Research (SNMPR).

10. Pluggable Authentication Module (PAM)

PAM functionality is supported on AIX operating system. The PAM is dependent on the libpam.so library supplied by the Operating System vendor.

Use of PAM can be enabled or disabled by the system administrator. By default, IBM Informix server will use the traditional authentication mechanism in order to avoid widespread changes required by the users.

The PAM modules typically resides in /usr/lib/security/64. The PAM services are defined in /etc/pam.conf.

11. Processor Affinity

The processor affinity feature, which allows the pinning of a CPU
virtual processor to a physical processor in a multi-CPU configuration,
is supported on this platform.

12. Secure Sockets Layer

IBM Informix Database Server uses the libraries and utilities provided by
the IBM Global Security Kit (GSKit) for Secure Sockets Layer (SSL)
communication.

   a. Before uninstalling GSKit, verify that it is not needed on your
      system. It is possible that software other than Informix Database
      Server requires GSKit. Uninstalling entails removing GSKit
      packages as follows:

      To remove package, as root user run the following
      installp -u -g -V2 GSKit8.gskcrypt64.ppc.rte GSKit8.gskssl64.ppc.rte

   b. If you want to restore Secure Sockets Layer capability after you
      have uninstalled GSKit, see the readme file in $INFORMIXDIR/gskit
      for how to install GSKit.

13. Shared Memory Residency

Shared Memory Residency is supported. This feature can be enabled by
setting ONCONFIG parameter RESIDENT to a non-zero value.

Please read the KAIO section in this file if you are using
Shared Memory Residency together with KAIO or DIRECT_IO, as this
combination may cause problems.

See APAR IC76872 for further information.

14. Simple Password Communications Support Module

The name of the IBM Informix shared library for Simple Password CSM on
on AIX is libixspw.so.

15. Single Sign On (SSO)

This feature requires AIX system library libgssapi_krb5 to be installed
on the system. This library is included in krb5.toolkit.adt (Network
Authentication Service App. Dev. Toolkit).

Features not Supported
======================

1. Rolling upgrades to IDS version 14.10.xC2 are not supported.

Rolling upgrades are not supported in IDS version 14.10.xC2. Migration to
this version from a previous version requires changes to disk structures,
and the conversion process is incompatible with a rolling upgrade. When
upgrading HDR and RSS secondary servers to version 14.10.xC2, you must
follow the steps listed in the on-line documentation under "Migrating
an offline cluster to a new major version."

2. Concurrent I/O on Shared Disk Secondary Servers.

Defects Fixed in this release
=============================

For information about defects fixed in this release, see:

HEWLETT PACKARD HP-UX Itanium

```
                       ================================
                             MACHINE SPECIFIC NOTES
                                      FOR
                  IBM Informix Database Server 14.10.FC4W1 PRODUCT RELEASE
                         ON HEWLETT PACKARD HP-UX Itanium
                               DATE: 16 June 2020
                       ================================
```

OS Information : Built on HP-UX 11i V3 (aka 11.31) Itanium.

System Requirements
===================

1. This product was built on HP-UX 11i V3 (aka 11.31) Itanium using the
    following compilers:

    HP C/aC++ B3910B A.06.26 [Apr 12 2011]

    and with the following packages:

    Bundle Name   Description
    -----------   -----------
    B9007AA   C.11.31.06   HP C/aC++ Developer's Bundle
    FEATURE11i   B.11.31.1209.383a   Feature Enablement Patches for
                                         HP-UX 11i v3, September 2012
    BUNDLE   B.2018.09.06   Patch Bundle

2. The UNIX graphical tools provided with this release require X Windows
    System X11R6 and Motif 2.1 or later runtime libraries.

    If these tools cannot find the location of the X and Motif shared
    libraries, the environment variable LD_LIBRARY_PATH may need to be set
    to include these locations.

3. The High Performance Loader utilities, onpload and ipload, require a
    minimum of 35 MB of memory and 70 MB of swap space in order to run.

4. IBM Informix Database Server uses the libraries and utilities provided by
    the IBM Global Security Kit (GSKit) for data encryption and Secure Sockets
    Layer (SSL) communication. The GSKit is bundled with the server and will
    be installed on your machine as part of the server installation process.
    Here are more details on the GSKit:

        a. The GSKit is also bundled with other IBM products and might
           already be present on your machine. If GSKit8 is not
           installed, Informix server will install GSKit in /opt/ibm/gsk8_64
           directory on your machine.

        b. The GSKit installation directory must have 80 MB of free disk space.

5. Expanded Node and Host Name sizes on HP-UX

   Current version of IBM Informix Database Server does not support the
   use of Expanded Node and Host Name Sizes. If the tunable kernel parameter
   expanded_node_host_names is set to 1, and the Database Server is on a
   system with a node name greater than 8 bytes or host name greater than
   64 bytes, then the Database Server will fail to initialize.

   You may be able to work around the issue by setting the tunable kernel
   parameter uname_eoverflow to 0. Consult HP documentation for more
   information on the tunable kernel parameters uname_eoverflow and
   expanded_node_host_names.

Check the following web site for the latest HP Itanium system
requirements for IBM Informix Database Server:

   http://www-01.ibm.com/support/docview.wss?rs=630&uid=swg27013343

System Configuration
====================

1. Kernel Parameters

   The values of the kernel parameters that were used for testing this
   product are given below. These values might need to be tuned depending
   on the application and availability of system resources.

   shmseg: 512
   shmmni: 512
   shmmax: 4398046511104
   semmnu: 1400
   semmns: 4096
   semmni: 4096
   nfile: 5000

     - The value of the kernel parameter "semmnu" should be set to at least
       the maximum number of open ipcshm connections, plus the number of
       semaphore undo structures required by other processes in the system.
       The recommended value of "semmnu" is between 2K and 4K for larger
       systems.

     - The value of the kernel parameter "shmmax" should be set to the
       maximum allowable on the system. Setting "shmmax" to a high value
       will prevent the OS from creating multiple shared memory segments
       which can degrade performance.

     - This server release is built to take advantage of the Large File
       Descriptor support provided by HP-UX, which increases the number of
       simultaneous user connections per server instance from 2000 to
       60000.

       To take advantage of this feature, the following kernel parameters
       might need to be increased depending on the application:

       maxfiles_lim - Maximum number of files that can be opened by a process
                      simultaneously.
       nfile - Maximum number of files that can be opened system-wide.

2. Location of Shared Memory

   The ONCONFIG variable SHMBASE should be set to the following

```
        SHMBASE 0x0L
```

3. **Environment Variables**

It is recommended that the environment variable INFORMIXSTACKSIZE be set
to 256 (the default is 96) if the application involves operations which
would require the IBM Informix Database Server to perform recursive
database tasks (for example, cascading deletes).

Feature Notes   (alphabetized by feature)
==============

1. **Greater Than 2GB Chunk & File Support**

Please refer to the man page for fsadm(1M) and fsadm_hfs(1M) for how to
enable large file support on your system. This is essential to use the
greater than 2 GB Chunk & File Support features for cooked files.

2. **High Performance Loader**

User-defined conversion routines must be provided in a dynamic, shared
library called ipldd11a.so. This library is installed in the
$INFORMIXDIR/lib directory. You can set the location of this file with
the HPL_DYNAMIC_LIB_PATH configuration parameter in file pointed to by
PLCONFIG environment variable. For more details, refer the manual
"High-Performance Loader User's Guide".

This shared library must be compiled in 64-bit mode on HP-UX Itanium.

3. **IPv6 Support**

The Informix database server supports Internet Protocol Version 6 (128 Bit
Internet Addresses) as well as IPv4 (32 Bit Addresses).

In order for the machine name that is specified in the SQLHOSTS file to
resolve to the correct IP address, the name services files on the operating
system must be configured correctly. If the machine has an IPv6 address
configured, and the listener thread is bound to an IPv6 address, then the
name service switch files /etc/nsswitch.conf must be configured to fetch
an IPv6 address. Also any local machine settings must be set correctly in
the /etc/hosts file.

For compatibility with earlier version of Informix client and server
products, assign each host name with both an IPv4 address and an IPv6
address. If the listener needs to be bound to an IPv4 address, and the
name services resolve the name in the order of the IPv6 address followed
by the IPv4 address, then an explicit IPv4 address needs to be put in the
host name field of SQLHOSTS file. Client applications should also use the
same setting.

4. **J/Foundation (Java in the Server)**

The IBM Runtime Environment, Java(TM) Technology Edition, Version 8.0
release is installed in $INFORMIXDIR/extend/krakatoa/jre and should be
used with the J/Foundation component.

A Java user-defined routine (UDR) runs in a Java virtual processor. Use
the VPCLASS configuration parameter to specify the number of virtual
processors for the server. You configure Java virtual processors in
the "Java configuration parameters" section of the onconfig configuration
file. The default onconfig.std file is in the $INFORMIXDIR/etc directory.

To develop Java UDRs for the server on this platform, use HP-UX 11i Java

Development Kit for the Java 2 Platform Standard Edition 8 or an earlier version according to Java compatibility guidelines. That kit can be downloaded from https://h20392.www2.hpe.com/portal/swdepot/displayProductInfo.do?productNumber=HPUXJDKJRE80

5. Kernel Asynchronous I/O (KAIO)

KAIO is DISABLED by default on this platform. To enable KAIO, set the environment variable KAIOON.

KAIOON=1; export KAIOON   (for Bourne or Korn Shell)

setenv KAIOON 1   (for C Shell)

The following is a prerequisite for using KAIO:

a. The HP KAIO driver "asyncdsk" is installed and linked into the kernel.

b. Ensure that the KAIO driver is up and running. Check if /dev/async exists. If not, follow these steps:

1) su root
2) If using HP hardware/OS redundancy or mirroring, create the async device as follows:

/usr/sbin/mknod /dev/async c 101 0

Otherwise, if using IBM Informix mirroring or no hardware/OS mirroring, or no mirroring at all, create the async device as follows:
/usr/sbin/mknod /dev/async c 101 4

3) chmod 0666 /dev/async

4) Make sure the following entry exists in the /etc/privgroup file

informix MLOCK

After adding this entry, execute the following command

/sbin/rc1.d/S400set_prvgrp start

An environment variable IFMX_HPKAIO_NUM_REQ is provided to specify the number of simultaneous KAIO requests that are processed by the server at one time. The value can be set in the range of 10 to 5000, the default being 1000. If the following error occurs:

"KAIO: out of OS resources, errno = %d, pid = %d"

consider increasing the value of IFMX_HPKAIO_NUM_REQ.

For example:

IFMX_HPKAIO_NUM_REQ=2300; export IFMX_HPKAIO_NUM_REQ
(for Bourne or Korn Shell)

setenv IFMX_HPKAIO_NUM_REQ 2300   (for C Shell)

6. Large Memory Addressability (LMA)

IBM Informix LMA provides the ability to support system configurations with greater than 4GB of RAM. Most UNIX systems are limited to 4GB of

RAM based on the memory addressing limitations of 32-bit architectures.

The values for the following ONCONFIG parameters are increased from 32-bit to 64-bit platform by LMA support:

- The maximum number of buffers in BUFFERPOOL is 2147483647.

- The maximum of LRU queues for lrus field in BUFFERPOOL is 512.

- The DS_TOTAL_MEMORY, which is the total memory available for decision support memory, is only limited by the amount of virtual memory available. The sort memory comes out of the DS_TOTAL_MEMORY memory and hence there is no explicit limit on the amount of sort memory.

- The read ahead parameter RA_PAGES is only limited by the number of buffers and therefore can be any value less than 2147483647. The "chunk" write algorithm is not dependent on the amount of buffers or shared memory and can write as many pages in a single I/O as possible.

- The maximum size of any shared memory segment is 4398046511104 bytes.

- The value for SHMADD is 4294967296 kilobytes.

Refer to IBM Informix Administrator's Reference manual for the information about the related configuration parameters setting.

7.   Network Protocols

The following protocols and interfaces are supported on this platform:

    SOCKETS using TCP/IP
    IPC using stream pipe (implemented using UNIX Domain Sockets)

To use SOCKETS with TCP/IP:

a. The NETTYPE entry in the ONCONFIG file and the nettype field in the sqlhosts file entry must contain "onsoctcp".

b. To enable an IBM Data Server Client to connect to the database Server, the NETTYPE entry in the ONCONFIG file and the protocal value in the sqlhosts file entry must contain "drsoctcp"

   If a CLI or JCC client wants to connect to the database server through DRDA while supporting SQLI connections, you must add a DBSERVERALIASES entry to the ONCONFIG file that corresponds to the sqlhosts file entry.

To use IPC (interprocess communication) with stream pipe:

a.   The NETTYPE entry in the ONCONFIG file and the nettype field in the sqlhosts file entry must contain "onipcstr".

Fast poll is supported with TCP/IP and stream pipe interfaces. To disable fast poll, set the FASTPOLL parameter to 0 in the ONCONFIG file. By default the fast poll is enabled (value is 1).

Remote 32-bit applications and tools (example: ESQL/C, 4GL, ISQL) can only connect to the IBM Informix Database Server using the TCP/IP protocol.

Local 32-bit applications and tools can connect to the 64-bit server using either the TCP/IP sockets or the IPC stream pipe protocols.

The protocol for supporting IBM Informix MaxConnect on this platform
is "onsocimc".

8. No Age (Disable Priority Aging)

    The no aging feature that disables priority aging of CPU virtual processors
    by the operating system can be activated by setting the noage option of the
    VPCLASS configuration parameter for the CPU virtual processors. For example,
    the following ONCONFIG entry specifies that there are 8 CPU VPs, each
    without aging:

    VPCLASS cpu,num=8,noage

    When the noage option is used, all oninit processes will run at priority 180
    with SCHED_NOAGE type scheduling. When idle, oninit processes will have the
    priority of 154, which is the highest idle priority. This priority level
    will prevent oninit processes from being aged when idle.

    To override the default priority value for CPU VP class, set the
    environment variable IFMX_CPUVP_PRIORITY to the desired priority, within
    limits (154 to 190) before starting the engine.

    If IFMX_CPUVP_PRIORITY is not within the limits, the priority will be
    set to the default value of 180.

9. OnLine Backup and Restore (ON-Bar)

    ON-Bar uses the XBSA interface. Some of the functions invoked by ON-Bar
    are in a shared library supplied by third party storage management vendors.
    For ON-Bar to access these functions, set the BAR_BSALIB_PATH parameter
    in $INFORMIXDIR/etc/$ONCONFIG to the full pathname of the library.

    This shared library must be compiled in 64-bit mode on HP-UX Itanium.

    Using $INFORMIXDIR/lib/ibsad001.so as a symbolic link to the library
    is deprecated and shall be discontinued.

    Informix Interface for Tivoli Storage Manager (TSM) is supported on this
    platform. The interface is built with TSM API version 5.3.2.

10. Pluggable Authentication Module (PAM)

    PAM functionality is supported on HPUX 11i V3 operating systems. PAM
    requires the libpam.so library that is supplied by the Operating System
    vendor.

    Use of PAM can be enabled or disabled by the system administrator. By
    default, the Informix server will use the traditional authentication
    mechanism to avoid changes for the users.

    The PAM modules are usually located in /usr/lib/security/hpux64. The PAM
    services are defined in /etc/pam.conf.

11. Processor Affinity

    The processor affinity feature, which allows the pinning of a CPU
    virtual processor to a physical processor in a multi-CPU configuration,
    is supported on this platform.

12. Secure Sockets Layer

    IBM Informix Database Server uses the libraries and utilities provided by
    the IBM Global Security Kit (GSKit) for Secure Sockets Layer (SSL)

communication.

    a. Before uninstalling GSKit, verify that it is not needed on your
       system. It is possible that software other than Informix Database
       Server requires GSKit. Uninstalling involves running the swremove
       command to remove packages as needed. For example, the following
       command when run as root user removes the GSKit SSL and GSKit Crypt
       packages:

       swremove gskssl64 gskcrypt64

    b. If you want to restore Secure Sockets Layer capability after you
       have uninstalled GSKit, see the readme file in $INFORMIXDIR/gskit
       for how to install GSKit.

13. Simple Password Communications Support Module

    The name of the IBM Informix shared library for Simple Password CSM on
    HP-UX is libixspw.so.

14. Unicode

    The version of the International Components for Unicode (ICU) library
    selected for the 14.10 release, 60.2, requires a newer C++ compiler than
    what is supported by HEWLETT PACKARD for this version of HP-UX. Because
    of this, ICU 4.8.1 is included with Informix 14.10 on the HP-UX Itanium
    platform.

Features not Supported
======================

1. Rolling upgrades to IDS version 14.10.xC2 are not supported.

    Rolling upgrades are not supported in IDS version 14.10.xC2. Migration to
    this version from a previous version requires changes to disk structures,
    and the conversion process is incompatible with a rolling upgrade. When
    upgrading HDR and RSS secondary servers to version 14.10.xC2, you must
    follow the steps listed in the on-line documentation under "Migrating
    an offline cluster to a new major version."

2. TERMINFO

3. OnSNMP

Defects Fixed in this release
=============================

For information about defects fixed in this release, see:
http://www.ibm.com/support/docview.wss?uid=ibm10870226

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openSUSE aarch64

```
                    ================================
                          MACHINE SPECIFIC NOTES
                                   FOR
                IBM Informix Database Server 14.10.FC4W1 PRODUCT RELEASE
                             On openSUSE aarch64
                             DATE: 16 June 2020
                    ================================
```

OS Information: Built on openSUSE Leap 42.3

System Requirements
==================

1. This product was built on openSUSE Leap 42.3
    (Kernel: 4.4.162-78-default, Glibc: 2.22) for aarch64 compatible
    processors. The following compilers were used:

        gcc/g++ (SUSE Linux) 4.8.5

    The following packages are required on your Linux system:

        glibc
        libgcc_s1
        libstdc++6
        libncurses5
        libaudit1
        libz1
        pam
        ksh
        krb5
        libcom_err2
        libkeyutils1
        libpcre1
        libselinux1
        libelf1-0.158

2. The Korn shell is required for the Informix server alarmprogram
    scripts. Install it as /bin/ksh.

3. If a suitable library libaio.so.1 is found, the Informix Database Server
    enables Kernel Asynchronous I/O (KAIO) automatically. Otherwise KAIO is
    disabled.

4. Java JDK version 8 or later package on your system. We tested the
    product with java version "1.8.0_181".

5. IBM Informix Database Server uses the libraries and utilities provided by
    the IBM Global Security Kit (GSKit) for data encryption and Secure Sockets
    Layer (SSL) communication. The GSKit is bundled with the server and must
    be installed on your machine as part of the server installation process.

    Here are more details on the GSKit:

        a. The GSKit is also bundled with other IBM products and might
           already be present on your machine. If GSKit8 is not installed,
           the script $INFORMIXDIR/gskit/installgskit will install GSKit in
           /usr/local/ibm/gsk8 directory on your machine.

        b. The GSKit installation directory must have 35 MB of free disk space.

        c. The RPM or Debian Package Manager is required to be installed on the
           system.

        d. The GSKit for this platform has no FIPS certification.

```
System Configuration
====================


1.  Kernel Parameters

    The values of the kernel parameters that were used for testing this
    product are given below. You can tune these parameter values depending
    on the application and availability of system resources. The values can
    be changed dynamically in the /proc file system or, if they are defined
    in the kernel sources, they can be changed by rebuilding the kernel.

    SHMMAX:    33554432
    SHMMNI:    4096
    SHMALL:    2097152
    SEMMNI:    128
    SEMMSL:    250
    SEMMNS:    32000
    SEMOPM:    32


    - The value of the kernel parameter "SEMMSL" must be set to at least
      100. This value is the maximum number of semaphores per set.

2.  Location of Shared Memory

    In the ONCONFIG file, SHMBASE is set to the following value:

        SHMBASE 0x44000000L

    - SHMBASE can also be set to start above the shared library addresses.
      When doing so, ensure that the dynamically loaded shared libraries
      do not collide with the shared memory segments.
      You can check the address space layout with the following command:
      $ cat /proc/<pid of oninit process>/maps


Feature Notes   (alphabetized by feature)
=============

1.  High Performance Loader

    User-defined conversion routines must be provided in a dynamic,
    shared library called ipldd11a.so. This library is installed in the
    $INFORMIXDIR/lib directory. You can set the location of this file with
    the HPL_DYNAMIC_LIB_PATH configuration parameter in file pointed to by
    PLCONFIG environment variable. For more details, refer the manual
    "High-Performance Loader User's Guide".

2.  IPv6 Support

    The Informix database server supports Internet Protocol Version 6 (128 Bit
    Internet Addresses) as well as IPv4 (32 Bit Addresses).

    In order for the machine name that is specified in the SQLHOSTS file to
    resolve to the correct IP address, the name services files on the operating
    system must be configured correctly. If the machine has an IPv6 address
    configured, and the listener thread is bound to an IPv6 address, then the
    name service switch files /etc/nsswitch.conf must be configured to fetch
    an IPv6 address. Also any local machine settings must be set correctly in
    the /etc/hosts file.

    For compatibility with earlier version of Informix client and server
    products, assign each host name with both an IPv4 address and an IPv6
```

address. If the listener needs to be bound to an IPv4 address, and the name services resolve the name in the order of the IPv6 address followed by the IPv4 address, then an explicit IPv4 address needs to be put in the host name field of SQLHOSTS file. Client applications should also use the same setting.

3. Kernel Asynchronous I/O (KAIO)

    KAIO is enabled by default on this platform. It can be disabled by setting the environment variable KAIOOFF=1 in the environment of the process that started the server.

    When using KAIO, run poll threads on separate virtual processors by specifying NET as the VP class in the NETTYPE configuration parameter. Examples:

        NETTYPE ipcshm,...,...,NET
        NETTYPE soctcp,...,...,NET

    On Linux, there is a system wide limit of the maximum number of parallel KAIO requests. The limit is set in the /proc/sys/fs/aio-max-nr file. A Linux system administrator can increase the value by using the echo command. For example:

        # echo new_value > /proc/sys/fs/aio-max-nr

    The current number of allocated requests of all operating system processes is visible in the /proc/sys/fs/aio-nr file.

    By default, the Informix server allocates half of the maximum number of requests, and assigns them equally to the number of configured CPU virtual processors. You can control the number of requests allocated per CPU virtual processor by setting the environment variable KAIOON. Set the variable to the required value before starting the database server. The minimum value for KAIOON is 100. If Linux is about to run out of KAIO resources, for example, when dynamically adding many CPU virtual processors, warnings are printed to the database server message log file. In this case, the Linux system administrator must add KAIO resources as described previously.

4. Network Protocols

    The following protocols and interfaces are supported on this platform:

        SOCKETS using TCP/IP
        IPC using stream pipe (implemented using UNIX Domain Sockets)

    To use SOCKETS with TCP/IP:

        a. The NETTYPE entry in the ONCONFIG file and the nettype field in the sqlhosts file entry must contain "onsoctcp".

        b. To enable an IBM Informix Data Server Client to connect to the database Server, the NETTYPE entry in the ONCONFIG file and the protocal value in the sqlhosts file entry must contain "drsoctcp"

            If a CLI or JCC client wants to connect to the database server through DRDA while supporting SQLI connections, you must add a DBSERVERALIASES entry to the ONCONFIG file that corresponds to the sqlhosts file entry.

    To use IPC (interprocess communication) with stream pipe:

        a. The NETTYPE entry in the ONCONFIG file and the nettype field in

the sqlhosts file entry must contain "onipcstr".

Fast poll is supported with TCP/IP and stream pipe interfaces. To disable
fast poll, set the FASTPOLL parameter to 0 in the ONCONFIG file. By default
the fast poll is enabled (value is 1).

The protocol for supporting IBM Informix MaxConnect on this platform
is "onsocimc".

5. Online Backup and Restore (ON-Bar)

ON-Bar uses the XBSA interface. Some of the functions invoked by ON-Bar
are in a shared library supplied by third party storage management vendors.
For ON-Bar to access the functions, set the BAR_BSALIB_PATH parameter in
$INFORMIXDIR/etc/$ONCONFIG to the full pathname of the library.

6. Pluggable Authentication Module (PAM)

PAM functionality is supported on Linux operating systems. PAM requires
the libpam.so library that is supplied by the Operating System vendor.

Use of PAM can be enabled or disabled by the system administrator. By
default, the Informix server will use the traditional authentication
mechanism to avoid changes for the users.

The PAM service identifies the PAM module. This PAM module usually is
located in /usr/lib/arm-linux-gnueabihf and its parameters are listed
in /etc/pam.conf.

7. Processor Affinity

The processor affinity feature, which allows the pinning of a CPU
virtual processor to a physical processor in a multi-CPU configuration,
is supported on this platform.

8. Raw Character Devices

Some Linux distributions support binding a raw character device to a
block device. Any block device can be used. The Informix database server
supports using raw character devices.

9. Secure Sockets Layer

IBM Informix Database Server uses the libraries and utilities provided by
the IBM Global Security Kit (GSKit) for Secure Sockets Layer (SSL)
communication.

a. Before uninstalling GSKit, verify that it is not needed on your
    system. It is possible that software other than Informix Database
    Server requires GSKit. Uninstall by identifying and removing GSKit
    packages using the command-line interface:

    Run rpm command with the -qa option to obtain a list of installed
    GSKit RPM packages with their exact names.
    For example:
    rpm -qa | grep gsk

    As root user run the rpm command to remove each package as needed.
    For example:
    rpm -ev gskssl64-8.0.55.12 gskcrypt64-8.0.55.12

    Run dpkg command with the -l option to obtain a list of installed
    GSKit Debian packages with their exact names.
    For example:

```
        dpkg -l | grep gsk

        As root user run the dpkg command to remove each package as needed.
        For example:
        dpkg -r gskssl64 gskcrypt64
```

   b. If you want to restore Secure Sockets Layer capability after you
      have uninstalled GSKit, see the readme file in $INFORMIXDIR/gskit
      for how to install GSKit.

10. Simple Password Communications Support Module

    The name of the IBM Informix shared library for Simple Password CSM
    on Linux is libixspw.so.

Features not supported
======================

1. Rolling upgrades to IDS version 14.10.xC2 are not supported.

    Rolling upgrades are not supported in IDS version 14.10.xC2. Migration to
    this version from a previous version requires changes to disk structures,
    and the conversion process is incompatible with a rolling upgrade. When
    upgrading HDR and RSS secondary servers to version 14.10.xC2, you must
    follow the steps listed in the on-line documentation under "Migrating
    an offline cluster to a new major version."

2. Informix Interface for Tivoli Storage Manager (TSM)

3. OnSNMP

4. Deployment assistant and utility

5. J/Foundation (Java in the Server)

6. MQ Messaging Database Extension

7. Informix web feature service for Geospatial Data

8. Onperf utility

9. Label-based access control (LBAC)

10. Shared-disk secondary server (SDS)

11. XML Publishing

12. Private server installation

Defects Fixed in this release
=============================

For information about defects fixed in this release, see:
http://www.ibm.com/support/docview.wss?uid=ibm10870226

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Raspbian 9 armv71

```
================================
          MACHINE SPECIFIC NOTES
                  FOR
    IBM Informix Database Server 14.10.UC4 PRODUCT RELEASE
              On Raspbian 9 armv7l (armhf)
              DATE: 15 May 2020
================================
```

OS Information: Built on Raspbian 9 (stretch) armhf

System Requirements
===================

1. IBM(R) Informix(R) 14.10 was built on Raspbian 9 (stretch)
    (Kernel: 4.14.79-v7+, Glibc: 2.24-11+deb9u3) for armv7l compatible
    processors. The following compilers were used:

        gcc and c++ compiler 6.3.0 (Raspbian 9 6.3.0-18)

    The following packages are required on your Linux system:

        libc6
        libgcc1
        libstdc++6
        libncurses5
        libaudit1
        zlib1g
        pam
        ksh
        krb5
        libcomerr2
        libkeyutils1
        libpcre3
        libselinux1
        libelf1 0.152

2. The Korn shell is required for the Informix server alarmprogram
    scripts. Install it as /bin/ksh.

3. If a suitable library libaio.so.1 is found, the Informix Database Server
    enables Kernel Asynchronous I/O (KAIO) automatically. Otherwise KAIO is
    disabled.

4. Java JDK version 8 or later package on your system. We tested the
    product with java version "1.8.0_181".

5. IBM Informix Database Server uses the libraries and utilities provided by
    the IBM Global Security Kit (GSKit) for data encryption and Secure Sockets
    Layer (SSL) communication. The GSKit is bundled with the server and must
    be installed on your machine as part of the server installation process.

    Here are more details on the GSKit:

        a. The GSKit is also bundled with other IBM products and might
           already be present on your machine. If GSKit8 is not installed,
           the script $INFORMIXDIR/gskit/installgskit will install GSKit in
           /usr/local/ibm/gsk8 directory on your machine.

b. The GSKit installation directory must have 25 MB of free disk space.

c. The RPM or Debian Package Manager is required to be installed on the system.

d. Kernel Performance Events and Counters must be enabled and working on the specific ARM platform. Use this C program to verify:

```c
#include <sys/syscall.h>
#include <linux/perf_event.h>
#include <errno.h>
#include <stdio.h>
#include <string.h>
int main(int argc, const char **argv)
{
  int fddev = 0;
  static struct perf_event_attr attr;
  attr.type = PERF_TYPE_HARDWARE;
  attr.config = PERF_COUNT_HW_CPU_CYCLES;
  fddev = syscall(__NR_perf_event_open, &attr, 0, -1, -1, 0);
  printf("syscall __NR_perf_event_open: %s\n", strerror(errno));
}
```

e. If you are using Encryption At Rest (EAR) using IBM GSKit. The system must allow the use of Kernel Performance Events and Counters by users without CAP_SYS_ADMIN capability. This is needed to get access to a faster, higher quality entropy source.

This can be accomplished by setting the "perf_event_paranoid" kernel tunable to a value equal or lower to 1.

To set the parameter, run the following command as user root:
sh -c 'echo 1 >/proc/sys/kernel/perf_event_paranoid'

System Configuration
====================

1. **Kernel Parameters**

    The values of the kernel parameters that were used for testing this product are given below. You can tune these parameter values depending on the application and availability of system resources. The values can be changed dynamically in the /proc file system or, if they are defined in the kernel sources, they can be changed by rebuilding the kernel.

    SHMMAX: 33554432
    SHMMNI: 4096
    SHMALL: 2097152
    SEMMNI: 128
    SEMMSL: 250
    SEMMNS: 32000
    SEMOPM: 32

    - The value of the kernel parameter "SEMMSL" must be set to at least 100. This value is the maximum number of semaphores per set.

2. **Location of Shared Memory**

    In the ONCONFIG file, SHMBASE is set to the following value:

        SHMBASE 0x44000000L

    - SHMBASE can also be set to start above the shared library addresses.

When doing so, ensure that the dynamically loaded shared libraries
do not collide with the shared memory segments.
You can check the address space layout with the following command:
$ cat /proc/<pid of oninit process>/maps

Feature Notes   (alphabetized by feature)
=============

1. High Performance Loader

    User-defined conversion routines must be provided in a dynamic,
    shared library called ipldd11a.so. This library is installed in the
    $INFORMIXDIR/lib directory. You can set the location of this file with
    the HPL_DYNAMIC_LIB_PATH configuration parameter in file pointed to by
    PLCONFIG environment variable. For more details, refer the manual
    "High-Performance Loader User's Guide".

    Depending on the location of the shared libraries, OS stack etc., a
    suitable location of pload shared memory spaces needs to be determined.
    Linux system administrator is the best person to find the correct values
    for PLOAD_SHMBASE for his particular system. The suggestive values for
    PLOAD_SHMBASE could be 0x10000000L, or 0x44000000L.

2. IPv6 Support

    The Informix database server supports Internet Protocol Version 6 (128 Bit
    Internet Addresses) as well as IPv4 (32 Bit Addresses).

    In order for the machine name that is specified in the SQLHOSTS file to
    resolve to the correct IP address, the name services files on the operating
    system must be configured correctly. If the machine has an IPv6 address
    configured, and the listener thread is bound to an IPv6 address, then the
    name service switch files /etc/nsswitch.conf must be configured to fetch
    an IPv6 address. Also any local machine settings must be set correctly in
    the /etc/hosts file.

    For compatibility with earlier version of Informix client and server
    products, assign each host name with both an IPv4 address and an IPv6
    address. If the listener needs to be bound to an IPv4 address, and the
    name services resolve the name in the order of the IPv6 address followed
    by the IPv4 address, then an explicit IPv4 address needs to be put in the
    host name field of SQLHOSTS file. Client applications should also use the
    same setting.

3. Kernel Asynchronous I/O (KAIO)

    KAIO is enabled by default on this platform. It can be disabled by setting
    the environment variable KAIOOFF=1 in the environment of the process that
    started the server.

    When using KAIO, run poll threads on separate virtual processors by
    specifying NET as the VP class in the NETTYPE configuration parameter.
    Examples:

        NETTYPE ipcshm,...,...,NET
        NETTYPE soctcp,...,...,NET

    On Linux, there is a system wide limit of the maximum number of parallel
    KAIO requests. The limit is set in the /proc/sys/fs/aio-max-nr file.
    A Linux system administrator can increase the value by using the echo
    command. For example:

        # echo new_value > /proc/sys/fs/aio-max-nr

The current number of allocated requests of all operating system processes is visible in the /proc/sys/fs/aio-nr file.

By default, the Informix server allocates half of the maximum number of requests, and assigns them equally to the number of configured CPU virtual processors. You can control the number of requests allocated per CPU virtual processor by setting the environment variable KAIOON. Set the variable to the required value before starting the database server. The minimum value for KAIOON is 100. If Linux is about to run out of KAIO resources, for example, when dynamically adding many CPU virtual processors, warnings are printed to the database server message log file. In this case, the Linux system administrator must add KAIO resources as described previously.

4. Network Protocols

   The following protocols and interfaces are supported on this platform:

      SOCKETS using TCP/IP
      IPC using stream pipe (implemented using UNIX Domain Sockets)

   To use SOCKETS with TCP/IP:

      a. The NETTYPE entry in the ONCONFIG file and the nettype field in the sqlhosts file entry must contain "onsoctcp".

      b. To enable an IBM Data Server Client to connect to the database Server, the NETTYPE entry in the ONCONFIG file and the protocal value in the sqlhosts file entry must contain "drsoctcp"

         If a CLI or JCC client wants to connect to the database server through DRDA while supporting SQLI connections, you must add a DBSERVERALIASES entry to the ONCONFIG file that corresponds to the sqlhosts file entry.

   To use IPC (interprocess communication) with stream pipe:

      a. The NETTYPE entry in the ONCONFIG file and the nettype field in the sqlhosts file entry must contain "onipcstr".

   Fast poll is supported with TCP/IP and stream pipe interfaces. To disable fast poll, set the FASTPOLL parameter to 0 in the ONCONFIG file. By default the fast poll is enabled (value is 1).

   The protocol for supporting IBM Informix MaxConnect on this platform is "onsocimc".

5. Online Backup and Restore (ON-Bar)

   ON-Bar uses the XBSA interface. Some of the functions invoked by ON-Bar are in a shared library supplied by third party storage management vendors. For ON-Bar to access the functions, set the BAR_BSALIB_PATH parameter in $INFORMIXDIR/etc/$ONCONFIG to the full pathname of the library.

6. Pluggable Authentication Module (PAM)

   PAM functionality is supported on Linux operating systems. PAM requires the libpam.so library that is supplied by the Operating System vendor.

   Use of PAM can be enabled or disabled by the system administrator. By default, the Informix server will use the traditional authentication mechanism to avoid changes for the users.

The PAM service identifies the PAM module. This PAM module usually is
located in /usr/lib/arm-linux-gnueabihf and its parameters are listed
in /etc/pam.conf.

7. Processor Affinity

    The processor affinity feature, which allows the pinning of a CPU
    virtual processor to a physical processor in a multi-CPU configuration,
    is supported on this platform.

8. Raw Character Devices

    Some Linux distributions support binding a raw character device to a
    block device. Any block device can be used. The Informix database server
    supports using raw character devices.

9. Secure Sockets Layer

    IBM Informix Database Server uses the libraries and utilities provided by
    the IBM Global Security Kit (GSKit) for Secure Sockets Layer (SSL)
    communication.

        a. Before uninstalling GSKit, verify that it is not needed on your
           system. It is possible that software other than Informix Database
           Server requires GSKit. Uninstall by identifying and removing GSKit
           packages using the command-line interface:

           Run rpm command with the -qa option to obtain a list of installed
           GSKit RPM packages with their exact names.
           For example:
           rpm -qa | grep gsk

           As root user run the rpm command to remove each package as needed.
           For example:
           rpm -ev gskssl32-8.0.55.12 gskcrypt32-8.0.55.12

           Run dpkg command with the -l option to obtain a list of installed
           GSKit Debian packages with their exact names.
           For example:
           dpkg -l | grep gsk

           As root user run the dpkg command to remove each package as needed.
           For example:
           dpkg -r gskssl32 gskcrypt32

        b. If you want to restore Secure Sockets Layer capability after you
           have uninstalled GSKit, see the readme file in $INFORMIXDIR/gskit
           for how to install GSKit.

10. Simple Password Communications Support Module

    The name of the IBM Informix shared library for Simple Password CSM
    on Linux is libixspw.so.

Features not supported
======================

1. Rolling upgrades to IDS version 14.10.xC2 are not supported.

    Rolling upgrades are not supported in IDS version 14.10.xC2. Migration to
    this version from a previous version requires changes to disk structures,
    and the conversion process is incompatible with a rolling upgrade. When
    upgrading HDR and RSS secondary servers to version 14.10.xC2, you must

```
    follow the steps listed in the on-line documentation under "Migrating
    an offline cluster to a new major version."

2.   Informix Interface for Tivoli Storage Manager (TSM)

3.   OnSNMP

4.   Deployment assistant and utility

5.   J/Foundation (Java in the Server)

6.   MQ Messaging Database Extension

7.   Informix web feature service for Geospatial Data

8.   The UNIX graphical tools ipload, onperf and xtree

9.   Label-based access control (LBAC)

10.  Shared-disk secondary server (SDS)

11.  XML Publishing

12.  Private server installation


Defects Fixed in this release
============================

For information about defects fixed in this release, see:
http://www.ibm.com/support/docview.wss?uid=swg27049835


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```

Linux Power Series (little endian)

```
                    ================================
                           MACHINE  SPECIFIC  NOTES
                                      FOR
            IBM Informix Database Server 14.10.FC4 PRODUCT RELEASE
                       On Linux Power Series (little endian)
                             DATE: 14 May 2020
                    ================================

OS Information : Built on Red Hat Enterprise Linux ES release 7.4.

System Requirements
===================

1.   This product was built on Red Hat Enterprise Linux ES release 7.4
     for 64-Bit Little Endian Power Series Architecture with
     Kernel version 3.10.0-693.21.1.el7.ppc64le and glibc 2.17
     using the following compilers:

         gcc/g++ 4.8.5 20150623
```

The following packages have to be installed on your Linux system:

```
libaio-0.3.109
libgcc-4.8.3
libstdc++-4.8.3
ncurses-libs-5.9
pam-1.1.8
xerces-c-3.1.1
elfutils-libelf-0.168
```

This product has been certified on:

- SUSE SLES 12 (Kernel: 3.12.28, Glibc: 2.19). The following packages have to be installed:

```
libaio1-0.3.109
libgcc_s1-4.8.3
libstdc++6-4.8.3
libncurses5-5.9
pam-1.1.8
libxerces-c-3_1
libelf1-0158-6
```

- SUSE SLES 15 (Kernel: 4.12.14-25, Glibc: 2.26-13). The following packages have to be installed:

```
libaio-0.3.109
libgcc_s1-8.2.1
libstdc++6-8.2.1
ncurses-utils-6.1.3
pam-1.3.0-6.3.1
libelf1-0.168-2
```

2. The UNIX graphical tools ipload, onperf and xtree only require Motif runtime libraries version 2.3.x. The minimum version is 2.3.4, i.e. motif-devel-2.3.4-14.el7_5.x86_64

3. The Korn shell is required for the Informix server alarmprogram scripts. Install it as /bin/ksh.

4. If a suitable library libaio.so.1 is found, IBM Informix Database Server enables Kernel Asynchronous I/O (KAIO) automatically. Otherwise KAIO is disabled.

5. The High Performance Loader utilities, onpload and onpladm, require a minimum of 35 MB of memory and 70 MB of swap space in order to run.

6. IBM Informix Database Server uses the libraries and utilities provided by the IBM Global Security Kit (GSKit) for data encryption and Secure Sockets Layer (SSL) communication. The GSKit is bundled with the server and will be installed on your machine as part of the server installation process.

Here are more details on the GSKit:

a. The GSKit is also bundled with other IBM products and might already be present on your machine. If GSKit is not installed, the script $INFORMIXDIR/gskit/installgskit will install GSKit in /usr/local/ibm/gsk8_64 directory on your machine.

b. The GSKit installation directory must have 30 MB of free disk space.

c. The RPM or Debian Package Manager is required to be installed on the system.

d. The GSKit for this platform has no FIPS certification.

7. The Informix product installer may fail to start correctly. When it
    aborts the following two messages are displayed:

        Installer User Interface Mode Not Supported
        Unable to load and to prepare the installer in console or silent mode.

    This can happen due to a known problem in the Java Virtual Machine that
    is internal to the installer. This problem is known as
    "JDK-8188030 : AWT java apps fail to start when some minimal fonts are
    present".
    It may appear when only minimal fonts of the CFF format are installed on
    the machine.

    On a Linux system with POWER8 Little Endian architecture, this problem
    can be worked around by installing an additional font with a format
    different than CFF. For example fonts from the font package
    "gnu-free-mono-fonts" are known to allow the Informix product installer
    to start and operate correctly. This font package can be installed on
    RedHat distributions by executing the following command as user root:

        yum install gnu-free-mono-fonts

    (On different Linux distributions it may be necessary to use a different
    installation utility instead of "yum".)

Check the following web site for the latest Linux system requirements
for IBM Informix Database Server:

    http://www-01.ibm.com/support/docview.wss?rs=630&uid=swg27013343

System Configuration
====================

1. Kernel Parameters

    The values of the kernel parameters that were used for testing this
    product are given below. These values might need to be tuned depending
    on the application and availability of system resources. They
    can either be dynamically changed in the /proc file system or are defined
    in the kernel sources and can be changed by rebuilding the kernel.

    SHMMAX: 4398046511104
    SHMMNI: 4096
    SHMALL: 4194304
    SEMMNI: 128
    SEMMSL: 250
    SEMMNS: 32000
    SEMOPM: 32

    - The value of the kernel parameter "SEMMSL" should be set to at least
      100. This is the maximum number of semaphores per set.

2. Location of Shared Memory

    The ONCONFIG variable SHMBASE should be set to the following:

        SHMBASE 0x100000000

Feature Notes   (alphabetized by feature)

=============

1. High Performance Loader

    User-defined conversion routines must be provided in a dynamic, shared
    64-bit library called ipldd11a.so. This library is installed in the
    $INFORMIXDIR/lib directory. You can set the location of this file with
    the HPL_DYNAMIC_LIB_PATH configuration parameter in file pointed to by
    PLCONFIG environment variable. For more details, refer the manual
    "High-Performance Loader User's Guide".

    The following two environment variables are required to be set as:

        PLOAD_SHMBASE=0x000004000000000
        IFX_XFER_SHMBASE=0x000005000000000

    Onpload will use shared memory during its execution. It will allocate
    memory beyond the address for the server, leaving room for server shared
    memory expansion.

2. IPv6 Support

    The Informix database server supports Internet Protocol Version 6 (128 Bit
    Internet Addresses) as well as IPv4 (32 Bit Addresses).

    In order for the machine name that is specified in the SQLHOSTS file to
    resolve to the correct IP address, the name services files on the operating
    system must be configured correctly. If the machine has an IPv6 address
    configured, and the listener thread is bound to an IPv6 address, then the
    name service switch files /etc/nsswitch.conf must be configured to fetch
    an IPv6 address. Also any local machine settings must be set correctly in
    the /etc/hosts file.

    For compatibility with earlier version of Informix client and server
    products, assign each host name with both an IPv4 address and an IPv6
    address. If the listener needs to be bound to an IPv4 address, and the
    name services resolve the name in the order of the IPv6 address followed
    by the IPv4 address, then an explicit IPv4 address needs to be put in the
    host name field of SQLHOSTS file. Client applications should also use the
    same setting.

3. Kernel Asynchronous I/O (KAIO)

    KAIO is enabled by default on this platform. It can be disabled by setting
    the environment variable KAIOOFF=1 in the environment of the process that
    starting the server.

    When using KAIO, it is recommended to run poll threads on separate VPs by
    specifying NET as VP class in the NETTYPE onconfig parameter, e.g.
    NETTYPE ipcshm,...,...,NET or
    NETTYPE soctcp,...,...,NET

    On Linux, there is a system wide limit of the maximum number of parallel
    KAIO requests. The file /proc/sys/fs/aio-max-nr is containing this value.
    It can be increased by the Linux system administrator, e.g. by

    # echo new_value > /proc/sys/fs/aio-max-nr

    The current number of allocated requests of all OS processes is visible
    in /proc/sys/fs/aio-nr.

    By default, IBM Informix Database server is allocating half of the maximum
    number of requests, and assigns them equally to the number of configured
    CPU VPs. The number of requests allocated per CPU VP can be controlled by

the environment variable KAIOON, by setting it to the required value before starting the server. The minimum value for KAIOON is 100. If Linux is about to run out of KAIO resources, e.g. when dynamically adding many CPU VPs, warnings will be printed to the online.log file. In this case, the Linux system administrator should add KAIO resources as described above.

4. Large Memory Addressability (LMA)

    IBM Informix LMA provides the ability to support system configurations with greater than 4GB of RAM. Most UNIX systems are limited to 4GB of RAM based on the memory addressing limitations of 32-bit architectures.

    The values for the following ONCONFIG parameters are increased from 32-bit to 64-bit platform by LMA support:

    - The maximum number of buffers in BUFFERPOOL is 2147483647.

    - The maximum of LRU queues for lrus field in BUFFERPOOL is 512.

    - The DS_TOTAL_MEMORY, which is the total memory available for decision support memory, is only limited by the amount of virtual memory available. The sort memory comes out of the DS_TOTAL_MEMORY memory and hence there is no explicit limit on the amount of sort memory.

    - The read ahead parameter RA_PAGES is only limited by the number of buffers and therefore can be any value less than 2147483647. The "chunk" write algorithm is not dependent on the amount of buffers or shared memory and can write as many pages in a single I/O as possible.

    - The maximum size of any shared memory segment is 4398046511104 bytes.

    - The value for SHMADD is 4294967296 kilobytes.

    Refer to IBM Informix Administrator's Reference manual for the information about the related configuration parameters setting.

5. Network Protocols

    The following protocols and interfaces are supported on this platform:

        SOCKETS using TCP/IP
        IPC using stream pipe (implemented using UNIX Domain Sockets)

    To use SOCKETS with TCP/IP:

    a. The NETTYPE entry in the ONCONFIG file and the nettype field in the sqlhosts file entry must contain "onsoctcp".

    b. To enable an IBM Data Server Client to connect to the database Server, the NETTYPE entry in the ONCONFIG file and the protocal value in the sqlhosts file entry must contain "drsoctcp"

        If a CLI or JCC client wants to connect to the database server through DRDA while supporting SQLI connections, you must add a DBSERVERALIASES entry to the ONCONFIG file that corresponds to the sqlhosts file entry.

    To use IPC (interprocess communication) with stream pipe:

    a. The NETTYPE entry in the ONCONFIG file and the nettype field in the sqlhosts file entry must contain "onipcstr".

    Fast poll is supported with TCP/IP and stream pipe interfaces. To disable

fast poll, set the FASTPOLL parameter to 0 in the ONCONFIG file. By default the fast poll is enabled (value is 1).

Remote 32-bit applications and tools (example: ESQL/C, 4GL, ISQL) can only connect to the IBM Informix Database Server using the TCP/IP protocol.

Local 32-bit applications and tools can connect to the 64-bit server using either the TCP/IP sockets or the IPC stream pipe protocols.

The protocol for supporting IBM Informix MaxConnect on this platform is "onsocimc".

6. Online Backup and Restore (ON-Bar)

ON-Bar uses the XBSA interface. Some of the functions invoked by ON-Bar are in a shared library supplied by third party storage management vendors. For ON-Bar to access the functions, set the BAR_BSALIB_PATH parameter in $INFORMIXDIR/etc/$ONCONFIG to the full pathname of the library.

Using $INFORMIXDIR/lib/ibsad001.so as a symbolic link to the library is deprecated and shall be discontinued.

Informix Interface for Tivoli Storage Manager (TSM) is supported on this platform. The interface is built with TSM API version 5.3.2.

7. Pluggable Authentication Module (PAM)

PAM functionality is supported on Linux operating systems. PAM requires the libpam.so library that is supplied by the Operating System vendor.

Use of PAM can be enabled or disabled by the system administrator. By default, the Informix server will use the traditional authentication mechanism to avoid changes for the users.

The PAM modules are usually located in /lib64/security. The PAM services are defined in /etc/pam.d.

8. Processor Affinity

The processor affinity feature, which allows the pinning of a CPU virtual processor to a physical processor in a multi-CPU configuration, is supported on this platform.

9. Secure Sockets Layer

IBM Informix Database Server uses the libraries and utilities provided by the IBM Global Security Kit (GSKit) for Secure Sockets Layer (SSL) communication.

a. Before uninstalling GSKit, verify that it is not needed on your system. It is possible that software other than Informix Database Server requires GSKit. Uninstall by identifying and removing GSKit packages using the command-line interface:

Run rpm command with the -qa option to obtain a list of installed GSKit packages with their exact names.
For example:
rpm -qa | grep gsk

As root user run the rpm command to remove each package as needed.
For example:
rpm -ev gskssl64-8.0.55.12 gskcrypt64-8.0.55.12

```
        Run dpkg command with the -l option to obtain a list of installed
        GSKit Debian packages with their exact names.
        For example:
        dpkg -l | grep gsk

        As root user run the dpkg command to remove each package as needed.
        For example:
        dpkg -r gskssl64 gskcrypt64

    b. If you want to restore Secure Sockets Layer capability after you
       have uninstalled GSKit, see the readme file in $INFORMIXDIR/gskit
       for how to install GSKit.
```

10. Simple Password Communications Support Module

    The name of the IBM Informix shared library for Simple Password CSM
    on Linux is libixspw.so.

Features not supported
======================

1. Rolling upgrades to IDS version 14.10.xC2 are not supported.

    Rolling upgrades are not supported in IDS version 14.10.xC2. Migration to
    this version from a previous version requires changes to disk structures,
    and the conversion process is incompatible with a rolling upgrade. When
    upgrading HDR and RSS secondary servers to version 14.10.xC2, you must
    follow the steps listed in the on-line documentation under "Migrating
    an offline cluster to a new major version."

2. OnSNMP

3. Deployment Assistant

Defects Fixed in this release
=============================

For information about defects fixed in this release, see:
http://www.ibm.com/support/docview.wss?uid=ibm10870226

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Linux x86_64

```
        ================================
              MACHINE SPECIFIC NOTES
                      FOR
        HCL Informix Database Server 14.10.FC4W1 PRODUCT RELEASE
                 On Linux x86_64
                 DATE: 16 June 2020
        ================================
```

OS Information : Built on Red Hat Enterprise Linux ES release 7.4 (Maipo).

```
System Requirements
===================

1.  This product was built on Red Hat Enterprise Linux ES release 7.4
    (Kernel: 3.10.0-693, Glibc: 2.17) for x86_64 compatible processors.
    The following compilers were used:

        gcc and c++ compiler 4.8.5 20150623 (Red Hat 4.8.5-16) for GLS and ICU
        gcc and c++ compiler 7.3.1 20180303 (Red Hat Devtoolset-7) for the server

    The following package have to be installed on your Linux system:

        libaio-0.3.109
        libgcc-4.8.5
        libstdc++-4.8.5
        ncurses-5.9
        pam-1.1.8
        elfutils-libelf-0.168

    Please note that this version of Informix does not support Linux
    environments with kernel version lower than 3.10.0-693

    For Informix Blade development GNU linker may need to be updated to

        GNU ld version 2.28-11.el7 or newer

    Update is not needed for install and operation of Informix

    This product has been certified on:

        - Red Hat Enterprise Linux ES release 8.0 (Kernel: 4.18.0-80, Glibc: 2.28-
42).
          The following packages have to be installed:

        libaio-0.3.110
        libgcc_s1-8.2.1
        libstdc++6-8.2.1
        ncurses-utils-6.1-7
        pam-1.3.1-4
        elfutils-libelf-0.174-6

        - SUSE SLES 12.3 (Kernel: 4.4.73-51, Glibc: 2.22-61). The following
          packages have to be installed:

        libaio-0.3.109
        libgcc_s1-6.2.1
        libstdc++6-6.2.1
        ncurses-utils-5.9-40
        pam-1.1.8-23
        libelf1-0.158-6

        - SUSE SLES 15 (Kernel: 4.12.14-25, Glibc: 2.26-13). The following
          packages have to be installed:

        libaio-0.3.109
        libgcc_s1-8.2.1
        libstdc++6-8.2.1
        ncurses-utils-6.1.3
        pam-1.3.0-6.3.1
        libelf1-0.168-2

        - Ubuntu Server Edition 16.04 LTS (Kernel: 4.4.0-142, Glibc: 2.23).
          The following packages have to be installed:
```

```
                 libgcc       5.4.0
                 libstdc++6   5.4.0
                 libncurses5  6.0
                 libpam       1.1.8
                 libelf1-0.165-3


           - Ubuntu Server Edition 17.10 (Kernel: 4.13.0-21, Glibc: 2.26).
             The following packages have to be installed:


                 libgcc       7.2.0
                 libstdc++6   7.2.0
                 libncurses5  6.0
                 libpam       1.1.8
                 libelf1-0.170-0
```

The bc utility is required by the product installer, and needs to be installed on Ubuntu.

2. The UNIX graphical tools ipload, onperf and xtree only require Motif runtime libraries version 2.3.x. The minimum version is 2.3.4, i.e. motif-devel-2.3.4-14.el7_5.x86_64

3. The Korn shell is required for the Informix server alarmprogram scripts. Install it as /bin/ksh. On Ubuntu Server Edition, pdksh needs to be installed.

4. If a suitable library libaio.so.1 is found, HCL Informix Database Server enables Kernel Asynchronous I/O (KAIO) automatically. Otherwise KAIO is disabled.

5. HCL Informix Database Server uses the libraries and utilities provided by the IBM Global Security Kit (GSKit) for data encryption and Secure Sockets Layer (SSL) communication. The GSKit is bundled with the server and will be installed on your machine as part of the server installation process.

    Here are more details on the GSKit:

    a. The GSKit is also bundled with other IBM products and might already be present on your machine. If GSKit is not installed, the script $INFORMIXDIR/gskit/installgskit will install GSKit in /usr/local/ibm/gsk8_64 directory on your machine.

    b. The GSKit installation directory must have 25 MB of free disk space.

    c. The RPM or Debian Package Manager is required to be installed on the system.

6. The Informix product installer may fail to start correctly. When it aborts the following two messages are displayed:

        Installer User Interface Mode Not Supported
        Unable to load and to prepare the installer in console or silent mode.

    This can happen due to a known problem in the Java Virtual Machine that is internal to the installer. This problem is known as "JDK-8188030 : AWT java apps fail to start when some minimal fonts are present".
    It may appear when only minimal fonts of the CFF format are installed on the machine.

    On a Linux system with Intel x86 64-bit architecture, this problem can be worked around by installing an additional font with a format different than CFF. For example fonts from the font package "gnu-free-mono-fonts" are known to allow the Informix product installer to start and operate

correctly. This font package can be installed on RedHat distributions by
executing the following command as user root:

System Configuration
====================

1. **Kernel Parameters**

    The values of the kernel parameters that were used for testing this
    product are given below. These values might need to be tuned depending
    on the application and availability of system resources. They
    can either be dynamically changed in the /proc file system or are defined
    in the kernel sources and can be changed by rebuilding the kernel.

    SHMMAX: 4398046511104
    SHMMNI: 4096
    SHMALL: 4194304
    SEMMNI: 4096
    SEMMSL: 250
    SEMMNS: 32000
    SEMOPM: 32

    - The value of the kernel parameter "SEMMSL" should be set to at least
      100. This is the maximum number of semaphores per set.

2. **Location of Shared Memory**

    The ONCONFIG variable SHMBASE is set to the following:

        SHMBASE 0x44000000L

3. **Environment Variables**

    It is recommended that the environment variable INFORMIXSTACKSIZE be
    set to 128 (the default is 64) if the application involves operations
    which would require the HCL Informix Database Server to perform recursive
    database tasks (for example, cascading deletes).

Feature Notes   (alphabetized by feature)
=============

1. **High Performance Loader**

    User-defined conversion routines must be provided in a dynamic, shared
    64-bit library called ipldd11a.so. This library is installed in the
    $INFORMIXDIR/lib directory. You can set the location of this file with
    the HPL_DYNAMIC_LIB_PATH configuration parameter in file pointed to by
    PLCONFIG environment variable. For more details, refer the manual
    "High-Performance Loader User's Guide".

    The following two environment variables are required to be set as:

        PLOAD_SHMBASE=0x000004000000000
        IFX_XFER_SHMBASE=0x000005000000000

    Onpload will use shared memory during its execution. It will allocate
    memory beyond the address for the server, leaving room for server shared
    memory expansion.

2. **IPv6 Support**

    The Informix database server supports Internet Protocol Version 6 (128 Bit
    Internet Addresses) as well as IPv4 (32 Bit Addresses).

In order for the machine name that is specified in the SQLHOSTS file to resolve to the correct IP address, the name services files on the operating system must be configured correctly. If the machine has an IPv6 address configured, and the listener thread is bound to an IPv6 address, then the name service switch files /etc/nsswitch.conf must be configured to fetch an IPv6 address. Also any local machine settings must be set correctly in the /etc/hosts file.

For compatibility with earlier version of Informix client and server products, assign each host name with both an IPv4 address and an IPv6 address. If the listener needs to be bound to an IPv4 address, and the name services resolve the name in the order of the IPv6 address followed by the IPv4 address, then an explicit IPv4 address needs to be put in the host name field of SQLHOSTS file. Client applications should also use the same setting.

3. J/Foundation (Java in the Server):

The IBM Runtime Environment, Java Technology Edition, Version 8.0 release is installed in $INFORMIXDIR/extend/krakatoa/jre and should be used with the J/Foundation component.

A Java user-defined routine (UDR) runs in a Java virtual processor. Use the VPCLASS configuration parameter to specify the number of virtual processors for the server. You configure Java virtual processors in the "Java configuration parameters" section of the onconfig configuration file. The default onconfig.std file is in the $INFORMIXDIR/etc directory.

To develop Java UDRs for the server on this platform, use the 64-bit IBM SDK, Java Technology Edition, Version 8 or an earlier version according to Java compatibility guidelines. Java SDK 8 contains the latest virtual machine technology from IBM and can be downloaded from http://www.ibm.com/java/jdk/.

4. Kernel Asynchronous I/O (KAIO)

KAIO is enabled by default on this platform. It can be disabled by setting the environment variable KAIOOFF=1 in the environment of the process that starting the server.

When using KAIO, it is recommended to run poll threads on separate VPs by specifying NET as VP class in the NETTYPE onconfig parameter, e.g.
NETTYPE ipcshm,...,...,NET or
NETTYPE soctcp,...,...,NET

On Linux, there is a system wide limit of the maximum number of parallel KAIO requests. The file /proc/sys/fs/aio-max-nr is containing this value. It can be increased by the Linux system administrator, e.g. by

echo new_value > /proc/sys/fs/aio-max-nr

The current number of allocated requests of all OS processes is visible in /proc/sys/fs/aio-nr.

By default, HCL Informix Database Server is allocating half of the maximum number of requests, and assigns them equally to the number of configured CPU VPs. The number of requests allocated per CPU VP can be controlled by the environment variable KAIOON, by setting it to the required value before starting the server. The minimum value for KAIOON is 100. If Linux is about to run out of KAIO resources, e.g. when dynamically adding many CPU VPs, warnings will be printed to the online.log file. In this case, the Linux system administrator should add KAIO resources as described above.

5. Large Memory Addressability (LMA)

    HCL Informix LMA provides the ability to support system configurations
    with greater than 4GB of RAM. Most UNIX systems are limited to 4GB of
    RAM based on the memory addressing limitations of 32-bit architectures.

    The values for the following ONCONFIG parameters are increased from
    32-bit to 64-bit platform by LMA support:

        - The maximum number of buffers in BUFFERPOOL is 2147483647.

        - The maximum of LRU queues for lrus field in BUFFERPOOL is 512.

        - The DS_TOTAL_MEMORY, which is the total memory available for
          decision support memory, is only limited by the amount of virtual
          memory available. The sort memory comes out of the DS_TOTAL_MEMORY
          memory and hence there is no explicit limit on the amount of sort
          memory.

        - The read ahead parameter RA_PAGES is only limited by the number of
          buffers and therefore can be any value less than 2147483647. The
          "chunk" write algorithm is not dependent on the amount of buffers
          or shared memory and can write as many pages in a single I/O as
          possible.

        - The maximum size of any shared memory segment is 4398046511104 bytes.

        - The value for SHMADD is 4294967296 kilobytes.

    Refer to HCL Informix Administrator's Reference manual for the
    information about the related configuration parameters setting.

6. Locking large pages in memory

    The Informix database server can use large pages in memory when queries
    require more memory. (On Linux operating systems, large pages are called
    huge pages.) However, after you initialize Informix on Linux operating
    systems, the database server is unable to lock large pages in memory when
    queries require more memory. If you want to take advantage of the large-page
    support, you must use the onmode utility to add memory segments, and then
    run the queries.

7. Network Protocols

    The following protocols and interfaces are supported on this platform:

        SOCKETS using TCP/IP
        IPC using stream pipe (implemented using UNIX Domain Sockets)

    To use SOCKETS with TCP/IP:

        a. The NETTYPE entry in the ONCONFIG file and the nettype field in
            the sqlhosts file entry must contain "onsoctcp".

        b. To enable an IBM Data Server Client to connect to the database
            Server, the NETTYPE entry in the ONCONFIG file and the protocal
            value in the sqlhosts file entry must contain "drsoctcp"

            If a CLI or JCC client wants to connect to the database server
            through DRDA while supporting SQLI connections, you must add a
            DBSERVERALIASES entry to the ONCONFIG file that corresponds to
            the sqlhosts file entry.

    To use IPC (interprocess communication) with stream pipe:

a. The NETTYPE entry in the ONCONFIG file and the nettype field in the sqlhosts file entry must contain "onipcstr".

Fast poll is supported with TCP/IP and stream pipe interfaces. To disable fast poll, set the FASTPOLL parameter to 0 in the ONCONFIG file. By default the fast poll is enabled (value is 1).

Remote 32-bit or 64-bit applications and tools (example: ESQL/C, 4GL, ISQL) can only connect to the HCL Informix Database Server using the TCP/IP protocol.

Local 32-bit applications and tools can connect to the 64-bit server using either the TCP/IP sockets or the IPC stream pipe protocols.

The protocol for supporting IBM Informix MaxConnect on this platform is "onsocimc".

8. Online Backup and Restore (ON-Bar)

ON-Bar uses the XBSA interface. Some of the functions invoked by ON-Bar are in a shared library supplied by third party storage management vendors. For ON-Bar to access the functions, set the BAR_BSALIB_PATH parameter in $INFORMIXDIR/etc/$ONCONFIG to the full pathname of the library.

This shared library must be compiled in 64-bit mode.

Using $INFORMIXDIR/lib/ibsad001.so as a symbolic link to the library is deprecated and shall be discontinued.

Informix Interface for Tivoli Storage Manager (TSM) is supported on this platform. The interface is built with TSM API version 5.3.2.

9. OnSNMP

The SNMP agent for OnSNMP is based on SNMP Research (SNMPR).

10. Pluggable Authentication Module (PAM)

PAM functionality is supported on Linux operating systems. PAM requires the libpam.so library that is supplied by the Operating System vendor.

Use of PAM can be enabled or disabled by the system administrator. By default, the Informix server will use the traditional authentication mechanism to avoid changes for the users.

The PAM modules are usually located in /lib64/security. The PAM services are defined in /etc/pam.d.

11. Processor Affinity

The processor affinity feature, which allows the pinning of a CPU virtual processor to a physical processor in a multi-CPU configuration, is supported on this platform.

12. Raw Character Devices

Some Linux distributions support binding a raw character device to a block device. Any block device may be used. HCL Informix Database Server supports using raw character devices.

13. Secure Sockets Layer

HCL Informix Database Server uses the libraries and utilities provided by

the IBM Global Security Kit (GSKit) for Secure Sockets Layer (SSL)
communication.

a. Before uninstalling GSKit, verify that it is not needed on your
system. It is possible that software other than Informix Database
Server requires GSKit. Uninstall by identifying and removing GSKit
packages using the command-line interface:

Run rpm command with the -qa option to obtain a list of installed
GSKit packages with their exact names.
For example:
rpm -qa | grep gsk

As root user run the rpm command to remove each package as needed.
For example:
rpm -ev gskssl64-8.0.55.12 gskcrypt64-8.0.55.12

Run dpkg command with the -l option to obtain a list of installed
GSKit Debian packages with their exact names.
For example:
dpkg -l | grep gsk

As root user run the dpkg command to remove each package as needed.
For example:
dpkg -r gskssl64 gskcrypt64

b. If you want to restore Secure Sockets Layer capability after you
have uninstalled GSKit, see the readme file in $INFORMIXDIR/gskit
for how to install GSKit.

14. Simple Password Communications Support Module

The name of the HCL Informix shared library for Simple Password CSM on
Linux is libixspw.so.

Features not supported
======================

1. Rolling upgrades to IDS version 14.10.xC2 are not supported.

Rolling upgrades are not supported in IDS version 14.10.xC2. Migration to
this version from a previous version requires changes to disk structures,
and the conversion process is incompatible with a rolling upgrade. When
upgrading HDR and RSS secondary servers to version 14.10.xC2, you must
follow the steps listed in the on-line documentation under "Migrating
an offline cluster to a new major version."

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Linux zSeries

```
==================================
             MACHINE SPECIFIC NOTES
                    FOR
```

```
                 IBM Informix Database Server 14.10.FC4 PRODUCT RELEASE
                               On Linux zSeries
                             DATE: 21 May 2020
                    =================================
```

OS Information : Built on Red Hat Enterprise Linux ES release 7.4 (Maipo).

System Requirements
===================

1. This product was built on Red Hat Enterprise Linux ES release 7.4
    for zSeries mainframe with 64-bit Kernel 3.10.0-693.el7 and glibc
    glibc 2.17-307, using the following compilers:

         gcc version 4.8.5 20150623 (Red Hat 4.8.5-39)

    The following packages have to be installed on your Linux system:

         libaio-0.3.109
         libgcc-4.8.5
         libstdc++-4.8.5
         ncurses-5.9
         pam-1.1.8
         elfutils-libelf-0.176

    This product has been certified on:

         - SUSE SLES 12.3 (Kernel: 4.4.73-51, Glibc: 2.22-61). The following
           packages have to be installed:

         libaio-0.3.109
         libgcc_s1-6.2.1
         libstdc++6-6.2.1
         ncurses-utils-5.9-40
         pam-1.1.8-23
         libelf1-0.158-6

2. The UNIX graphical tools ipload, onperf and xtree only require
    OpenMotif runtime libraries version 2.3.x. The minimum version is
    2.3.1, i.e. openmotif-2.3.1-2.el5.

3. The Korn shell is required for the Informix server alarmprogram
    scripts. Install it as /bin/ksh.

4. If a suitable library libaio.so.1 is found, IBM Informix Database Server
    enables Kernel Asynchronous I/O (KAIO) automatically. Otherwise KAIO is
    disabled.

5. The High Performance Loader utilities, onpload, ipload and onpladm, require
    a minimum of 35 MB of memory and 70 MB of swap space in order to run.

6. IBM Informix Database Server uses the libraries and utilities provided by
    the IBM Global Security Kit (GSKit) for data encryption and Secure Sockets
    Layer (SSL) communication. The GSKit is bundled with the server and will
    be installed on your machine as part of the server installation process.

    Here are more details on the GSKit:

        a. The GSKit is also bundled with other IBM products and might
           already be present on your machine. If GSKit is not installed,
           Informix server will install GSKit in /usr/local/ibm/gsk8_64
           directory on your machine.

        b. The GSKit installation directory must have 30 MB of free disk space.

c. One of the following packages must be installed on your system:
           RHEL 5 - compat-libstdc++-33-3.2.3-61 or later

        d. The RPM Package Manager is required to be installed on the system.

Check the following web site for the latest Linux system requirements
for IBM Informix Database Server:

    http://www-01.ibm.com/support/docview.wss?rs=630&uid=swg27013343

System Configuration
====================

1. Kernel Parameters

    The values of the kernel parameters that were used for testing this
    product are given below. These values might need to be tuned depending
    on the application and availability of system resources. They can either
    be dynamically changed in the /proc file system or are defined in the
    kernel sources and can be changed by rebuilding the kernel.

    SHMMAX: 4398046511104
    SHMMNI: 128
    SHMALL: 4194304
    SEMMNI: 128
    SEMMSL: 250
    SEMMNS: 32000
    SEMOPM: 32

    - The value of the kernel parameter "SEMMSL" should be set to at least
      100. This is the maximum number of semaphores per set.

2. Location of Shared Memory

    The ONCONFIG variable SHMBASE should be set to the following:

        SHMBASE 0x100000000L

Feature Notes   (alphabetized by feature)
=============

1. High Performance Loader

    User-defined conversion routines must be provided in a dynamic, shared
    64-bit library called ipldd11a.so. This library is installed in the
    $INFORMIXDIR/lib directory. You can set the location of this file with
    the HPL_DYNAMIC_LIB_PATH configuration parameter in file pointed to by
    PLCONFIG environment variable. For more details, refer the manual
    "High-Performance Loader User's Guide".

    The following two environment variables are required to be set as:

        PLOAD_SHMBASE=0x000004000000000
        IFX_XFER_SHMBASE=0x000005000000000

    Onpload will use shared memory during its execution. It will allocate
    memory beyond the address for the server, leaving room for server shared
    memory expansion.

2. IPv6 Support

The Informix database server supports Internet Protocol Version 6 (128 Bit Internet Addresses) as well as IPv4 (32 Bit Addresses).

In order for the machine name that is specified in the SQLHOSTS file to resolve to the correct IP address, the name services files on the operating system must be configured correctly. If the machine has an IPv6 address configured, and the listener thread is bound to an IPv6 address, then the name service switch files /etc/nsswitch.conf must be configured to fetch an IPv6 address. Also any local machine settings must be set correctly in the /etc/hosts file.

For compatibility with earlier version of Informix client and server products, assign each host name with both an IPv4 address and an IPv6 address. If the listener needs to be bound to an IPv4 address, and the name services resolve the name in the order of the IPv6 address followed by the IPv4 address, then an explicit IPv4 address needs to be put in the host name field of SQLHOSTS file. Client applications should also use the same setting.

3. Kernel Asynchronous I/O (KAIO)

KAIO is enabled by default on this platform. It can be disabled by setting the environment variable KAIOOFF=1 in the environment of the process that starting the server.

When using KAIO, it is recommended to run poll threads on separate VPs by specifying NET as VP class in the NETTYPE onconfig parameter, e.g.
NETTYPE ipcshm,...,...,NET or
NETTYPE soctcp,...,...,NET

On Linux, there is a system wide limit of the maximum number of parallel KAIO requests. The file /proc/sys/fs/aio-max-nr is containing this value. It can be increased by the Linux system administrator, e.g. by

echo new_value > /proc/sys/fs/aio-max-nr

The current number of allocated requests of all OS processes is visible in /proc/sys/fs/aio-nr.

By default, IBM Informix Database server is allocating half of the maximum number of requests, and assigns them equally to the number of configured CPU VPs. The number of requests allocated per CPU VP can be controlled by the environment variable KAIOON, by setting it to the required value before bringing up the server. The minimum value for KAIOON is 100. If Linux is about to run out of KAIO resources, e.g. when dynamically adding many CPU VPs, warnings will be printed to the online.log file. In this case, the Linux system administrator should add KAIO resources as described above. Note that the libaio.so library is required, regardless of the distribution or kernel level.

4. Large Memory Addressability (LMA)

IBM Informix LMA provides the ability to support system configurations with greater than 4GB of RAM. Most UNIX systems are limited to 4GB of RAM based on the memory addressing limitations of 32-bit architectures.

The values for the following ONCONFIG parameters are increased from 32-bit to 64-bit platform by LMA support:

   - The maximum number of buffers in BUFFERPOOL is 2147483647.

   - The maximum of LRU queues for lrus field in BUFFERPOOL is 512.

   - The DS_TOTAL_MEMORY, which is the total memory available for

decision support memory, is only limited by the amount of virtual
memory available. The sort memory comes out of the DS_TOTAL_MEMORY
memory and hence there is no explicit limit on the amount of sort
memory.

- The read ahead parameter RA_PAGES is only limited by the number of
  buffers and therefore can be any value less than 2147483647. The
  "chunk" write algorithm is not dependent on the amount of buffers or
  shared memory and can write as many pages in a single I/O as possible.

- The maximum size of any shared memory segment is 4398046511104 bytes.

- The value for SHMADD is 4294967296 kilobytes.

Refer to IBM Informix Administrator's Reference manual for the
information about the related configuration parameters setting.

5. MQ Messaging Database Extension

The MQ extension provides mechanism for data exchange between
Informix server and queues managed by Websphere MQ.

Note: MQ Messaging Extension expects Websphere MQ libraries installed in
      the default location /opt/mqm. Otherwise create symbolic links
      from /opt/mqm/lib64 to the 64-bit Websphere MQ libraries.

6. Network Protocols

The following protocols and interfaces are supported on this platform:

    SOCKETS using TCP/IP
    IPC using stream pipe (implemented using UNIX Domain Sockets)

To use SOCKETS with TCP/IP:

    a. The NETTYPE entry in the ONCONFIG file and the nettype field in
       the sqlhosts file entry must contain "onsoctcp".

    b. To enable an IBM Data Server Client to connect to the database
       Server, the NETTYPE entry in the ONCONFIG file and the protocal
       value in the sqlhosts file entry must contain "drsoctcp"

       If a CLI or JCC client wants to connect to the database server
       through DRDA while supporting SQLI connections, you must add a
       DBSERVERALIASES entry to the ONCONFIG file that corresponds to
       the sqlhosts file entry.

To use IPC (interprocess communication) with stream pipe:

    a. The NETTYPE entry in the ONCONFIG file and the nettype field in
        the sqlhosts file entry must contain "onipcstr".

Fast poll is supported with TCP/IP and stream pipe interfaces. To disable
fast poll, set the FASTPOLL parameter to 0 in the ONCONFIG file. By default
the fast poll is enabled (value is 1).

Remote 32-bit applications and tools (example: ESQL/C, 4GL, ISQL) can
only connect to the IBM Informix Database Server using the TCP/IP
protocol.

Local 32-bit applications and tools can connect to the 64-bit server
using either the TCP/IP sockets or the IPC stream pipe protocols.

The protocol for supporting IBM Informix MaxConnect on this platform

is "onsocimc".

7. Online Backup and Restore (ON-Bar)

    ON-Bar uses the XBSA interface. Some of the functions invoked by ON-Bar
    are in a shared library supplied by third party storage management vendors.
    For ON-Bar to access the functions, set the BAR_BSALIB_PATH parameter in
    $INFORMIXDIR/etc/$ONCONFIG to the full pathname of the library.

    Using $INFORMIXDIR/lib/ibsad001.so as a symbolic link to the library is
    deprecated and shall be discontinued.

    Informix Interface for Tivoli Storage Manager (TSM) is supported on this
    platform. The interface is built with TSM API version 5.3.2.

8. Optical

    As of 2020-04-10, even the stubs of support for OnLine/Optical are gone.

9. Pluggable Authentication Module (PAM)

    PAM functionality is supported on Linux operating systems. PAM requires
    the libpam.so library that is supplied by the Operating System vendor.

    Use of PAM can be enabled or disabled by the system administrator. By
    default, the Informix server will use the traditional authentication
    mechanism to avoid changes for the users.

    The PAM service identifies the PAM module. This PAM module usually is
    located in /usr/lib/security and its parameters are listed in
    /etc/pam.conf.

10. Processor Affinity

    The processor affinity feature, which allows the pinning of a CPU
    virtual processor to a physical processor in a multi-CPU configuration,
    is supported on this platform.

11. Secure Sockets Layer

    IBM Informix Database Server uses the libraries and utilities provided by
    the IBM Global Security Kit (GSKit) for Secure Sockets Layer (SSL)
    communication.

    a. Before uninstalling GSKit, verify that it is not needed on your
       system. It is possible that software other than Informix Database
       Server requires GSKit. Uninstall by identifying and removing GSKit
       packages using the command-line interface:

       Run rpm command with the -qa option to obtain a list of installed
       GSKit packages with their exact names.
       For example:
       rpm -qa | grep gsk

       As root user run the rpm command to remove each package as needed.
       For example:
       rpm -ev gskssl64-8.0.55.12 gskcrypt64-8.0.55.12

    b. If you want to restore Secure Sockets Layer capability after you
       have uninstalled GSKit, see the readme file in $INFORMIXDIR/gskit
       for how to install GSKit.

12. Simple Password Communications Support Module

```
       The name of the IBM Informix shared library for Simple Password CSM
       on Linux is libixspw.so.


Features not supported
======================

1.  Rolling upgrades to this IDS version are supported from version 12.10.xC8
    or higher.

    Rolling upgrades are not supported in this IDS version from versions
    older than 12.10.xC8. Such a migration requires changes to disk structures
    and the conversion process is incompatible with a rolling upgrade. In such
    cases, when upgrading HDR and RSS secondary servers, you must follow the
    steps listed in the on-line documentation under "Migrating an offline
    cluster to a new major version."

2.  J/Foundation

3.  OnSNMP

4.  Spatiotemporal Search Database Extension

5.  Web Feature Service Database Extension

6.  XML Publishing


Defects Fixed in this release
=============================

For information about defects fixed in this release, see:
http://www.ibm.com/support/docview.wss?uid=swg27049835


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```

SOLARIS 64

```
              ================================
                    MACHINE SPECIFIC NOTES
                            FOR
          IBM Informix Database Server 14.10.FC4W1 PRODUCT RELEASE
                       ON SOLARIS 64bit
                       DATE: 16 June 2020
              ================================
```

OS Information : Built on Solaris 11.3.

System Requirements
===================

1. This product was built on Solaris 11.3 using the following compilers
    from Oracle Developer Studio 12.6:

```
            Sun C 5.15 SunOS_sparc 2017/05/30
            Sun C++ 5.15 SunOS_sparc 2017/05/30
```

2. Solaris Support Repository Updates (SRUs) requirement.

        Solaris 11.3: SRU 34 or greater

3. IBM Informix Database Server is supported to work with and without Zones
    on Solaris 11. Read the following document for more information:

        ftp://ftp.software.ibm.com/software/data/informix/ids/IDS-SunSPARC-reqs.pdf

4. The UNIX graphical tools provided with this release require 64-bit
    X Windows System X11R6 and Motif 2.3.4 or later runtime libraries.

    If these tools cannot find the location of the X and Motif shared
    libraries, set the environment variable LD_LIBRARY_PATH to include
    these locations: /usr/openwin/lib/sparcv9 and /usr/dt/lib/sparcv9.

5. The High Performance Loader utilities, onpload and ipload, require a
    minimum of 35 MB of memory and 70 MB of swap space in order to run.

6. IBM Informix Database Server uses the libraries and utilities provided by
    the IBM Global Security Kit (GSKit) for data encryption and Secure Sockets
    Layer (SSL) communication. The GSKit is bundled with the server and will
    be installed on your machine as part of the server installation process.
    Here are more details on the GSKit:

        a. The GSKit is also bundled with other IBM products and might
           already be present on your machine. If GSKit8 is not
           installed, Informix server will install GSKit in /opt/ibm/gsk8_64
           directory on your machine.

        b. The GSKit installation directory must have 35 MB of free disk space.

7. To install the product as root, a root login user must be present on the
    system. The Root Role feature provided by Solaris is not supported.

8. The Informix product installer may fail to start correctly. When it
    aborts the following two messages are displayed:

        Installer User Interface Mode Not Supported
        Unable to load and to prepare the installer in console or silent mode.

    This can happen due to a known problem in the Java Virtual Machine that
    is internal to the installer. This problem is known as
    "JDK-8188030 : AWT java apps fail to start when some minimal fonts are
    present".
    It may appear when only minimal fonts of the CFF format are installed on
    the machine.

    On a SunOS system with Sparc 64-bit architecture, this problem can be
    worked around by installing an additional font with a format different
    than CFF.

    An alternative is to remove the installed fonts of the CFF format.
    On SunOS systems with Sparc 64-bit architecture the Informix product
    installer is known to start and work correctly when no fonts are
    installed. In this case the system utility command "fc-match -sv" reports
    the message "No fonts installed on the system".

Check the following web site for the latest Solaris system requirements
for IBM Informix Database Server:

http://www-01.ibm.com/support/docview.wss?rs=630&uid=swg27013343

System Configuration
====================

1. **Kernel Parameters**

    On Solaris 11.3, all System V IPC facilities are either automatically
    configured or can be controlled by resource controls.

    The resource controls have the following default values on Solaris 11.3:

            process.max-sem-nsems   512
            project.max-sem-ids   128
            project.max-shm-memory   1/4 of physical memory
            project.max-shm-ids   128

    Check project.max-shm-memory on your system, IBM recommend the value
    of 4398046511104 for the IBM Informix Database Server.

    On systems that have zones enabled, zone-wide resource controls are
    specified in the zone configuration.

    Refer to the rctladm(1m) man page for more information about available
    resource controls.

    Examples:

    1) To display the current value of project.max-shm-memory set to the
       project and system wide, where Informix server is running under the
       default project, run this command:

       # prctl -n project.max-shm-memory -i project default

    2) To display the values of all the resource controls for a specific
       Informix server process, run this command:

       # prctl <oninit pid>

    3) To set the value of project.max-shm-memory for the project default
       to 4 TB without restarting the system, run this command:

       # prctl -n project.max-shm-memory -r -v 4tb -i project default

    4) To perform the same action as in example 3, but instead use
       the projmod command to modify the attribute value for
       project.max-shm-memory in /etc/project the local source of
       project information file, run this command:

       # projmod -a -K 'project.max-shm-memory=(priv,4TB,deny)' default

2. **Location of Shared Memory**

    The default value for SHMBASE configuration parameter in ONCONFIG is

        SHMBASE 0x10A000000L

    If the Informix server uses large pages, set the SHMBASE configuration
    parameter to align to the page size. For example:

        SHMBASE 0x110000000L   # aligned to 256MB

    or

```
        SHMBASE 0x180000000L                  # aligned to 2GB
```

3. Environment Variables

    It is recommended that the environment variable INFORMIXSTACKSIZE be
    set to 128 (the default is 64) if the application involves operations
    which would require the IBM Informix Database Server to perform recursive
    database tasks (for example, cascading deletes).

Feature Notes   (alphabetized by feature)
=============

1. High Performance Loader

    User-defined conversion routines for the High Performance Loader must be
    provided in a dynamic, shared library called ipldd11a.so. This shared
    library is installed in the $INFORMIXDIR/lib directory. You can set the
    location of this file with the HPL_DYNAMIC_LIB_PATH configuration
    parameter in the file pointed to by PLCONFIG environment variable. For
    more details see the "High-Performance Loader User's Guide".

    To create a 64-bit shared library, the flags "-m64" can be used
    to convey to the compiler that a 64-bit object is to be generated.

    Onload will use shared memory during its execution. It will allocate
    memory beyond the address for the server, leaving room for server shared
    memory expansion.

2. IPv6 Support

    The Informix database server supports Internet Protocol Version 6 (128 Bit
    Internet Addresses) as well as IPv4 (32 Bit Addresses).

    In order for the machine name that is specified in the SQLHOSTS file to
    resolve to the correct IP address, the name services files on the operating
    system must be configured correctly. If the machine has an IPv6 address
    configured, and the listener thread is bound to an IPv6 address, then the
    name service switch files /etc/nsswitch.conf must be configured to fetch
    an IPv6 address. Also any local machine settings must be set correctly in
    the /etc/hosts file.

    For compatibility with earlier version of Informix client and server
    products, assign each host name with both an IPv4 address and an IPv6
    address. If the listener needs to be bound to an IPv4 address, and the
    name services resolve the name in the order of the IPv6 address followed
    by the IPv4 address, then an explicit IPv4 address needs to be put in the
    host name field of SQLHOSTS file. Client applications should also use the
    same setting.

3. J/Foundation (Java in the Server)

    The IBM Runtime Environment, Java(TM) Technology Edition, Version 8.0
    release is installed in $INFORMIXDIR/extend/krakatoa/jre and should be
    used with the J/Foundation component.

    A Java user-defined routine (UDR) runs in a Java virtual processor. Use
    the VPCLASS configuration parameter to specify the number of virtual
    processors for the server. You configure Java virtual processors in
    the "Java configuration parameters" section of the onconfig configuration
    file. The default onconfig.std file is in the $INFORMIXDIR/etc directory.

    To develop Java UDRs for the server on this platform, use Java Platform,

Standard Edition Development Kit (JDK) 8 or an earlier version according to Java compatibility guidelines. That kit can be downloaded from https://www.oracle.com/technetwork/java/javase/downloads/jdk8-downloads-2133151.html

4. Large Memory Addressability (LMA)

    IBM Informix LMA provides the ability to support system configurations with greater than 4GB of RAM. Most UNIX systems are limited to 4GB of RAM based on the memory addressing limitations of 32-bit architectures.

    The values for the following ONCONFIG parameters are increased from 32-bit to 64-bit platform by LMA support:

        - The maximum number of buffers in BUFFERPOOL is 536870912.

        - The maximum of LRU queues for lrus field in BUFFERPOOL is 512.

        - The DS_TOTAL_MEMORY, which is the total memory available for decision support memory, is only limited by the amount of virtual memory available (2^40)/2 MB. The sort memory comes out of the DS_TOTAL_MEMORY memory and hence there is no explicit limit on the amount of sort memory.

        - The read ahead parameter RA_PAGES is only limited by the number of buffers and therefore can be any value less than 536870912. The "chunk" write algorithm is not dependent on the amount of buffers or shared memory and can write as many pages in a single I/O as possible.

        - The maximum size of any shared memory segment is 4398046511104 bytes.

        - The value for SHMADD is 4294967296 kilobytes.

    Refer to IBM Informix Administrator's Reference manual for the information about the related configuration parameters setting.

5. Network Protocols

    The following protocols and interfaces are supported on this platform:

        TLI using TCP/IP
        SOCKETS using TCP/IP
        IPC using stream pipe

    To use TLI with TCP/IP:

        a. The NETTYPE entry in the ONCONFIG file and the nettype field in the sqlhosts file entry must contain "ontlitcp".

        b. To enable an IBM Data Server Client to connect to the database server, the NETTYPE entry in the ONCONFIG file and the protocol value in the sqlhosts file entry must contain "drtlitcp"

    To use SOCKETS with TCP/IP:

        a. The NETTYPE entry in the ONCONFIG file and the nettype field in the sqlhosts file entry must contain "onsoctcp".

        b. To enable an IBM Data Server Client to connect to the database Server, the NETTYPE entry in the ONCONFIG file and the protocal value in the sqlhosts file entry must contain "drsoctcp"

    If a CLI or JCC client wants to connect to the database server through DRDA while supporting SQLI connections, you must add a DBSERVERALIASES

entry to the ONCONFIG file that corresponds to the sqlhosts file entry.

When using either TLI or SOCKETS, set the "connections" field in the ONCONFIG NETTYPE parameter and the kernel driver ndd parameter "tcp_conn_req_max_q" to the maximum number of expected concurrent connections.

If the "tcp_conn_req_max_q" is set too low, you will see a client error with sqlcode = -908 and isamcode = 13. If the NETTYPE "connections" field is set too low, you will see a server listener-thread error with err = -25571.

To use IPC (interprocess communication) with stream pipe:

   a. The NETTYPE entry in the ONCONFIG file and the nettype field in the sqlhosts file entry must contain "onipcstr".

Remote 32-bit or 64-bit applications and tools (example: ESQL/C, 4GL, ISQL) can only connect to the IBM Informix Database Server using the TCP/IP protocol.

Local 32-bit applications and tools can connect to the 64-bit server using either the TCP/IP or the IPC stream pipe protocols.

Fast poll is supported with TCP/IP and stream pipe interfaces. To disable fast poll, set the FASTPOLL parameter to 0 in the ONCONFIG file. By default the fast poll is enabled (value is 1).

The protocol for supporting IBM Informix MaxConnect on this platform is "ontliimc".

6. OnLine Backup and Restore (ON-Bar)

ON-Bar uses the XBSA interface. Some of the functions invoked by ON-Bar are in a shared library supplied by third party storage management vendors. For ON-Bar to access these functions, set the BAR_BSALIB_PATH parameter in $INFORMIXDIR/etc/$ONCONFIG to the full pathname of the library.

This shared library must be compiled in 64-bit mode.

Using $INFORMIXDIR/lib/ibsad001.so as a symbolic link to the library is deprecated and shall be discontinued.

Informix Interface for Tivoli Storage Manager (TSM) is supported on this platform. The interface is built with TSM API version 5.3.2.

7. OnSNMP

The SNMP agent for OnSNMP is based on SNMP Research (SNMPR).

8. Pluggable Authentication Module (PAM)

PAM functionality is supported on Solaris operating systems. PAM requires the libpam.so library that is supplied by the Operating System vendor.

Use of PAM can be enabled or disabled by the system administrator. By default, the Informix server will use the traditional authentication mechanism to avoid changes for the users.

The PAM modules are usually located in /usr/lib/security/64. The PAM services are defined in /etc/pam.conf.

9. Secure Sockets Layer

```
        IBM Informix Database Server uses the libraries and utilities provided by
        the IBM Global Security Kit (GSKit) for Secure Sockets Layer (SSL)
        communication.

           a. Before uninstalling GSKit, verify that it is not needed on your
              system. It is possible that software other than Informix Database
              Server requires GSKit.  Uninstalling entails removing the GSKit
              packages with the pkgrm command-line tool

              As root user run the pkgrm command to remove each package as
              needed. For example, the following command removes the GSKit
              SSL and GSKit Crypt packages:
              pkgrm gsk8ssl32 gsk8cry32

           b. If you want to restore Secure Sockets Layer capability after you
              have uninstalled GSKit, see the readme file in $INFORMIXDIR/gskit
              for how to install GSKit.

    10. Simple Password Communications Support Module

        The name of the IBM Informix shared library for Simple Password CSM on
        Solaris is libixspw.so.


    Features not supported
    ======================

    1.  Rolling upgrades to IDS version 14.10.xC2 are not supported.

        Rolling upgrades are not supported in IDS version 14.10.xC2. Migration to
        this version from a previous version requires changes to disk structures,
        and the conversion process is incompatible with a rolling upgrade. When
        upgrading HDR and RSS secondary servers to version 14.10.xC2, you must
        follow the steps listed in the on-line documentation under "Migrating
        an offline cluster to a new major version."

    Defects Fixed in this release
    =============================

    For information about defects fixed in this release, see:
    http://www.ibm.com/support/docview.wss?uid=ibm10870226

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```

Windows x64

```
                ================================
                        MACHINE SPECIFIC NOTES
                                FOR
                IBM Informix Database Server 14.10.FC4W1 PRODUCT RELEASE
                            ON Windows x64
                            DATE: 16 Jun 2020
                ================================


OS Information : Built on Windows 2016 x64.. Certified on
                 Windows 2019.
```

```
System Requirements
===================

1.  This product is built on Windows 2016 using the following compiler from
    Microsoft Visual Studio 2017:

        Microsoft Visual C++ 2017

2.  Informix Server uninstallation

    Due to an issue in installer tool, the registry entries created by
    installer will not be automatically removed after Informix server
    uninstall. The work around is to cleanup existing registry entries under
    HKLM->Software->Informix->DBMS.

3.  IBM Informix Database Server uses the libraries and utilities provided by
    the IBM Global Security Kit (GSKit) for data encryption and Secure Sockets
    Layer (SSL) communication. The GSKit is bundled with the server and will
    be installed on your machine as part of the server installation process.
    Here are more details on the GSKit:

        a. The GSKit is also bundled with other IBM products and might
           already be present on your machine. If the GSKit was previously
           installed, but is older than version 8.0.55.12, Informix server
           will upgrade the GSKit on your machine to version 8.0.55.12. If
           GSKit is not installed, Informix server will install GSKit in
           \Program Files\ibm\gsk8_64 directory on your machine.

        b. The GSKit installation directory must have 35 MB of free disk space.

4.  Installation Prerequisite on Windows 2016 or Later Versions

    User may need to temporarily turn off User Account Control(UAC) security
    before you install IBM Informix.

    For information about how to create groups, add users to groups, and
    turn off User Account Control, see your Windows documentation.

Check the following web site for the latest Windows system requirements
for IBM Informix Database Server:

    http://www-01.ibm.com/support/docview.wss?rs=630&uid=swg27013343


System Configuration
====================

1.  Location of Shared Memory

    The ONCONFIG variable SHMBASE is recommended to be set to the following:

        SHMBASE 0x80000000L

2.  Administrator permission for running server utilities

    On Windows, you must run any server utility commands with administrator
    permission: for example, the 'oninit -iy' command to initialize the server.

    To run Informix utility commands as an administrator, from the Start menu,
    choose the Informix server name and then choose "Run as administrator".
    A command prompt with administrator permissions opens.
```

```
Feature Notes   (alphabetized by feature)
=============

1.   Informix Interface for TSM

     The Informix Interface DLL for TSM is installed as

          %INFORMIXDIR%\bin\libtxbsa.dll

     This interface is built with TSM API version 5.3.2.

     To use Tivoli Storage Manager with Informix databases, refer to IBM Informix
     Backup and Restore Guide.

2.   IPv6 Support

     The Informix database server supports Internet Protocol Version 6 (128 Bit
     Internet Addresses) as well as IPv4 (32 Bit Addresses).

     In order for the machine name that is specified in the SQLHOSTS registry
     to resolve to the correct IP address, the name services files on the
     Operating System should be correctly configured.

     For compatibility with earlier version of Informix client and server
     products, assign each host name with both an IPv4 address and an IPv6
     address. If the listener needs to be bound to an IPv4 address, and the
     name services resolve the name in the order of the IPv6 address followed
     by the IPv4 address, then an explicit IPv4 address needs to be put in the
     nodename field of server registry.

3.   J/Foundation (Java in the Server)

     The IBM Runtime Environment, Java(TM) Technology Edition, Version 8.0
     release is installed in $INFORMIXDIR/extend/krakatoa/jre and should be
     used with the J/Foundation component.

     A Java user-defined routine (UDR) runs in a Java virtual processor. Use
     the VPCLASS configuration parameter to specify the number of virtual
     processors for the server. You configure Java virtual processors in
     the "Java configuration parameters" section of the onconfig configuration
     file. The default onconfig.std file is in the $INFORMIXDIR/etc directory.

     To develop Java UDRs for the server on this platform, use Java Platform,
     Standard Edition Development Kit (JDK) 8 or an earlier version according
     to Java compatibility guidelines. That kit can be downloaded from
https://www.oracle.com/technetwork/java/javase/downloads/jdk8-downloads-
2133151.html.

4.   Large Memory Addressability (LMA)

     IBM Informix LMA provides the ability to support system configurations
     with greater than 4GB of RAM.

     The values for the following ONCONFIG parameters are increased from
     32-bit limit by LMA support:

          - The maximum number of buffers in BUFFERPOOL is 2147483647.

          - The maximum of LRU queues for lrus field in BUFFERPOOL is 512.

          - The DS_TOTAL_MEMORY, which is the total memory available for
            decision support memory, is only limited by the amount of virtual
```

memory available. The sort memory comes out of the DS_TOTAL_MEMORY memory and hence there is no explicit limit on the amount of sort memory.

- The read ahead parameter RA_PAGES is only limited by the number of buffers and therefore can be any value less than 2147483647. The "chunk" write algorithm is not dependent on the amount of buffers or shared memory and can write as many pages in a single I/O as possible.

- The maximum size of any shared memory segment is 4398046511104 bytes.

- The maximum value for SHMADD is 4294967296 kilobytes.

Refer to IBM Informix Administrator's Reference manual for the information about the related configuration parameters setting.

5. LDAP Authentication

This feature is set up and configured like the Pluggable Authentication Module (PAM) that is used on UNIX and Linux. Use the LDAP Authentication Support module when you want to use an LDAP server to authenticate your system users.

The authentication module is a dynamic link library that resides in the %INFORMIXDIR%\dbssodir\lib\security directory. The parameters of the module are listed in the %INFORMIXDIR%\dbssodir\pam.conf file.

The source code for a fully functional LDAP Authentication Module and samples of the required configuration files are included in the %INFORMIXDIR%\demo\authentication directory. You can modify the code for your specific LDAP Authentication Support module.

6. Network Protocols

The following protocol(s)/interface(s) are supported on this platform:

    SOCKETS using TCP/IP
    IPC using named pipe

To use SOCKETS with TCP/IP:

        a. The NETTYPE entry in the ONCONFIG file and the value data of PROTOCOL in the SQLHOSTS registry entry must contain "onsoctcp"

        b. To enable an IBM Informix Data Server Client to connect to the database
           server, the NETTYPE entry in the ONCONFIG file and the value data of PROTOCOL in the SQLHOSTS registry entry must contain "drsoctcp"

           If a CLI or JCC client wants to connect to the database server through DRDA while supporting SQLI connections, you must add a DBSERVERALIASES entry to the ONCONFIG file that corresponds to the SQLHOSTS registry entry.

    To use IPC (interprocess communication) with named pipe:

        a. The NETTYPE entry in the ONCONFIG file and the value data of PROTOCOL in the SQLHOSTS registry entry must contain "onipcnmp".

Remote 32-bit or 64-bit applications and tools (example: ESQL/C, 4GL, ISQL) can only connect to the IBM Informix Database Server using the TCP/IP protocol.

Local 32-bit applications and tools can connect to the 64-bit server using either the TCP/IP or the IPC named pipe protocols.

7. OnLine Backup and Restore (ON-Bar)

ON-Bar uses the XBSA interface. Some of the functions invoked by ON-Bar are in a dynamic link library supplied by third party storage management vendors. For ON-Bar to access these functions, you must specify the library name and location in the BAR_BSALIB_PATH parameter in the ONCONFIG file.

For example, if you are using PSM:

Set BAR_BSALIB_PATH to %INFORMIXDIR%\bin\libbsapsm.dll

For example, if you are using TSM:

Set BAR_BSALIB_PATH to %INFORMIXDIR%\bin\libtxbsa.dll

8. Secure Sockets Layer

IBM Informix Database Server uses the libraries and utilities provided by the IBM Global Security Kit (GSKit) for Secure Sockets Layer (SSL) communication.

9. Simple Password Communications Support Module

The name of the IBM Informix dynamic link library for Simple Password CSM on Windows is libixspw.dll. This dynamic link library is installed in %INFORMIXDIR%\bin.

10. XML User-Defined Routines

You cannot run XML UDRs at large memory segments (VX class) on this platform.

To avoid XML UDR execution failure, configue and adjust the following Informix server configuration parameters in the onconfig file:

PRELOAD_DLL_FILE -
    Specify the path name for a shared library file that is pre-loaded when the server is started.

BUFFERPOOL -
    Adjust the memory field to a lower value.

SHMVIRTSIZE -
    Adjust it to a lower value.

Features not supported
======================

1. Rolling upgrades to IDS version 14.10.xC2 are not supported.

Rolling upgrades are not supported in IDS version 14.10.xC2. Migration to this version from a previous version requires changes to disk structures, and the conversion process is incompatible with a rolling upgrade. When upgrading HDR and RSS secondary servers to version 14.10.xC2, you must follow the steps listed in the on-line documentation under "Migrating an offline cluster to a new major version."

2. Web Feature Service Database Extension

```
    3.  Mapped users

Defects Fixed in this release
=============================


For information about defects fixed in this release, see:
http://www.ibm.com/support/docview.wss?uid=ibm10870226

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(C) Copyright HCL Technologies Ltd. 2017, 2020. All Rights Reserved.
```

Release documentation and machine notes for IBM Informix, v14.10.xC3

These are the release, documentation, and machine notes for IBM® Informix® version 14.10.xC3.

- Release notes for IBM Informix for Windows Operating Systems, 14.10.xC3
  The Release notes provide a list of useful topics and links for when you install IBM Informix database product or fix pack.
- Release notes for IBM Informix for UNIX and Linux, 14.10.xC3
  The Release notes provide a list of useful topics and links for when you install an IBM Informix database product or fix pack.
- Machine notes for IBM Informix, version 14.10
  These are the machine notes for IBM Informix version 14.10.

Release notes for IBM Informix for Windows Operating Systems, 14.10.xC3

The Release notes provide a list of useful topics and links for when you install IBM® Informix® database product or fix pack.

Contents

- Description
- Announcement
- System requirements
- Installing IBM Informix 14.10.xC3
- Known problems
- Related information

Description

IBM Informix 14.10 is available in several different editions, and each offers different features and function.

For a complete list of what's new and changed in this release, go to
http://www.ibm.com/support/knowledgecenter/SSGU8G/welcomeIfxServers.html.

Information about the fixed defects for IBM Informix 14.10.xC3 is available at:
https://www.ibm.com/support/pages/defect-fix-list-informix-server-1410xc2-releases.

Announcement

The product announcement letters are available at http://www.ibm.com/common/ssi/index.wss. Search for Informix 14.10 and select Announcement letters. See the announcement for the following information:

- Detailed product description
- Product-positioning statement
- Packaging and ordering details
- International compatibility information

System requirements

For information about hardware and software compatibility, see the detailed system requirements document at http://www.ibm.com/support/docview.wss?uid=swg27013343..

Installing IBM Informix 14.10.xC3

For step-by-step installation instructions, see Installing Informix..

The IBM Informix Installation Guide (ids_win_installg_14.10.pdf) is also available in the product build in PDF format.

If you are migrating from another version of Informix, make sure that you understand all migration requirements and restrictions before you install the product. For migration information, see http://www.ibm.com/support/knowledgecenter/SSGU8G/welcomeIfxServers.html .

Known problems

At the time of publication, the following problems were known:

- If you uninstall Informix version 11.50, restart the computer before you install another version of Informix
  If you install Informix on a computer where you previously uninstalled version 11.50, the new installation might fail because the Informix database server Message Service (**msgserv.exe**) does not start.

  To avoid this problem, restart the computer before you install Informix again.

- Windows firewall exception is needed before installation
  Before you install Informix on Windows operating systems, make a Windows firewall exception for the TCP listening port that is used by Informix. By default, the Informix port is 9088; however, you can specify a different port number during installation.

- Removing users when you uninstall the database server

If there are multiple installations of the product on the computer, and you are uninstalling one of the products, be careful when you use the Remove users and groups option. Do not remove users or groups that are required by the other installations of the product. If you remove users or groups that are required by the other products, the other products will not start or they will be inoperable.

- Starting Informix instances
To start an Informix instance, use the instance shortcut that is in the Informix program group.

Related information

- Notice of deprecation:
The Backup to Amazon Simple Storage Services (AWS S3) provided in the ontape utility is considered deprecated and will be removed in an upcoming release. This feature will be replaced with the same REST based technology used in the Informix Primary Storage Manager, to expand coverage to other cloud providers and enhance functionality.

- End of support:
The Informix Storage Manager is not a valid storage manager anymore for the ON-Bar utilities. Usage of the old XBSA library with 14.10 is not supported and can lead to unpredictable results including loss of data or inability to restore.

- Latest open source drivers for Informix: http://github.com/OpenInformix.
- IBM Support Portal: http://www.ibm.com/support/entry/portal/
- International Informix Users Group (IIUG): http://www.iiug.org

Release notes for IBM Informix for UNIX and Linux, 14.10.xC3

The Release notes provide a list of useful topics and links for when you install an IBM® Informix® database product or fix pack.

Contents

- Description
- Announcement
- System requirements
- Installing IBM Informix 14.10.xC3
- Known problems
- Related information

Description

IBM Informix 14.10 is available in several different editions, and each offers different features and function.

For a complete list of what's new and changed in this release, go to .
http://www.ibm.com/support/knowledgecenter/SSGU8G/welcomeIfxServers.html.

Information about the fixed defects for IBM Informix 14.10.xC3 is available at:
http://www.ibm.com/support/docview.wss?uid=ibm10870226..

Announcement

The product announcement letters are available at http://www.ibm.com/common/ssi/index.wss. Search for Informix 14.10 and select Announcement letters. See the announcement for the following information:

- Detailed product description
- Product-positioning statement
- Packaging and ordering details
- International compatibility information

System requirements

For information about hardware and software compatibility, see the detailed system requirements document at http://www.ibm.com/support/docview.wss?uid=ibm10870226..

Installing IBM Informix 14.10.xC3

For step-by-step installation instructions, see Installing Informix at http://www.ibm.com/support/knowledgecenter/SSGU8G/welcomeIfxServers.html.

If you are migrating from another version of , make sure that you understand all migration requirements and restrictions before you install the product. For migration information, see http://www.ibm.com/support/knowledgecenter/SSGU8G/welcomeIfxServers.html.

Known problems

At the time of publication, the following problems were known:

- Removing users when you uninstall the database server
  If there are multiple installations of the product on the computer, and you are uninstalling one of the products, be careful when you use the Remove users and groups option. Do not remove users or groups that are required by the other installations of the product. If you remove users or groups that are required by the other products, the other products will not start or they will be inoperable.

Related information

- Notice of deprecation:
  The Backup to Amazon Simple Storage Services (AWS S3) provided in the ontape utility is considered deprecated and will be removed in an upcoming release. This feature will be replaced with the same REST based technology used in the Informix Primary Storage Manager, to expand coverage to other cloud providers and enhance functionality.

- End of support:
  The Informix Storage Manager is not a valid storage manager anymore for the ON-Bar utilities. Usage of the old XBSA library with 14.10 is not supported and can lead to unpredictable results including loss of data or inability to restore.

- Latest open source drivers for Informix: http://github.com/OpenInformix.

Machine notes for IBM Informix, version 14.10

These are the machine notes for IBM® Informix® version 14.10.

To view the notes, expand the categories in the contents pane in the Release information subtopic under the Product overview topic.

- HCL Informix Database Server 14.10.FC3, Windows x64

HCL Informix Database Server 14.10.FC3, Windows x64

```
                    ===============================
                        MACHINE  SPECIFIC  NOTES
                                  FOR
            HCL Informix Database Server 14.10.FC3 PRODUCT RELEASE
                            ON Windows x64
                         DATE: 09 Dec 2019
                    ===============================
```

```
OS Information : Built on Windows 2016 x64.. Certified on
                Windows 2019.
```

```
System Requirements
===================
```

```
1.  This product is built on Windows 2016 using the following compiler from
    Microsoft Visual Studio 2017:

        Microsoft Visual C++ 2017

2.  Informix Server uninstallation

    Due to an issue in installer tool, the registry entries created by
    installer will not be automatically removed after Informix server
    uninstall. The work around is to cleanup existing registry entries under
    HKLM->Software->Informix->DBMS.

3.  HCL Informix Database Server uses the libraries and utilities provided by
    the IBM Global Security Kit (GSKit) for data encryption and Secure Sockets
    Layer (SSL) communication. The GSKit is bundled with the server and will
    be installed on your machine as part of the server installation process.
    Here are more details on the GSKit:

        a. The GSKit is also bundled with other IBM products and might
           already be present on your machine. If the GSKit was previously
           installed, but is older than version 8.0.55.9, Informix server
           will upgrade the GSKit on your machine to version 8.0.55.9. If
```

GSKit is not installed, Informix server will install GSKit in
\Program Files\ibm\gsk8_64 directory on your machine.

   b. The GSKit installation directory must have 35 MB of free disk space.

4. Installation Prerequisite on Windows 2016 or Later Versions

   User may need to temporarily turn off User Account Control(UAC) security
   before you install HCL Informix.

   For information about how to create groups, add users to groups, and
   turn off User Account Control, see your Windows documentation.

System Configuration
====================

1. Location of Shared Memory

   The ONCONFIG variable SHMBASE is recommended to be set to the following:

      SHMBASE 0x80000000L

2. Administrator permission for running server utilities

   On Windows, you must run any server utility commands with administrator
   permission: for example, the 'oninit -iy' command to initialize the server.

   To run Informix utility commands as an administrator, from the Start menu,
   choose the Informix server name and then choose "Run as administrator".
   A command prompt with administrator permissions opens.

Feature Notes   (alphabetized by feature)
=============

1. Informix Interface for TSM

   The Informix Interface DLL for TSM is installed as

      %INFORMIXDIR%\bin\libtxbsa.dll

   This interface is built with TSM API version 5.3.2.

   To use Tivoli Storage Manager with Informix databases, refer to HCL Informix
   Backup and Restore Guide.

2. IPv6 Support

   The Informix database server supports Internet Protocol Version 6 (128 Bit
   Internet Addresses) as well as IPv4 (32 Bit Addresses).

   In order for the machine name that is specified in the SQLHOSTS registry
   to resolve to the correct IP address, the name services files on the
   Operating System should be correctly configured.

   For compatibility with earlier version of Informix client and server
   products, assign each host name with both an IPv4 address and an IPv6
   address. If the listener needs to be bound to an IPv4 address, and the
   name services resolve the name in the order of the IPv6 address followed
   by the IPv4 address, then an explicit IPv4 address needs to be put in the
   nodename field of server registry.

3. J/Foundation (Java in the Server)

   The IBM Runtime Environment, Java(TM) Technology Edition, Version 8.0
   release is installed in $INFORMIXDIR/extend/krakatoa/jre and should be
   used with the J/Foundation component.

   A Java user-defined routine (UDR) runs in a Java virtual processor. Use
   the VPCLASS configuration parameter to specify the number of virtual
   processors for the server. You configure Java virtual processors in
   the "Java configuration parameters" section of the onconfig configuration
   file. The default onconfig.std file is in the $INFORMIXDIR/etc directory.

   To develop Java UDRs for the server on this platform, use Java Platform,
   Standard Edition Development Kit (JDK) 8 or an earlier version according
   to Java compatibility guidelines. That kit can be downloaded from
https://www.oracle.com/technetwork/java/javase/downloads/jdk8-downloads-
2133151.html.

4. Large Memory Addressability (LMA)

   HCL Informix LMA provides the ability to support system configurations
   with greater than 4GB of RAM.

   The values for the following ONCONFIG parameters are increased from
   32-bit limit by LMA support:

       - The maximum number of buffers in BUFFERPOOL is 2147483647.

       - The maximum of LRU queues for lrus field in BUFFERPOOL is 512.

       - The DS_TOTAL_MEMORY, which is the total memory available for
         decision support memory, is only limited by the amount of virtual
         memory available. The sort memory comes out of the DS_TOTAL_MEMORY
         memory and hence there is no explicit limit on the amount of sort
         memory.

       - The read ahead parameter RA_PAGES is only limited by the number of
         buffers and therefore can be any value less than 2147483647. The
         "chunk" write algorithm is not dependent on the amount of buffers
         or shared memory and can write as many pages in a single I/O as
         possible.

       - The maximum size of any shared memory segment is 4398046511104 bytes.

       - The maximum value for SHMADD is 4294967296 kilobytes.

   Refer to HCL Informix Administrator's Reference manual for the information
   about the related configuration parameters setting.

5. LDAP Authentication

   This feature is set up and configured like the Pluggable Authentication
   Module (PAM) that is used on UNIX and Linux. Use the LDAP Authentication
   Support module when you want to use an LDAP server to authenticate your
   system users.

   The authentication module is a dynamic link library that resides in the
   %INFORMIXDIR%\dbssodir\lib\security directory. The parameters of the module
   are listed in the %INFORMIXDIR%\dbssodir\pam.conf file.

   The source code for a fully functional LDAP Authentication Module and
   samples of the required configuration files are included in the
   %INFORMIXDIR%\demo\authentication directory. You can modify the code for
   your specific LDAP Authentication Support module.

6. Network Protocols

    The following protocol(s)/interface(s) are supported on this platform:

    SOCKETS using TCP/IP
    IPC using named pipe

    To use SOCKETS with TCP/IP:

        a. The NETTYPE entry in the ONCONFIG file and the value data of
           PROTOCOL in the SQLHOSTS registry entry must contain "onsoctcp"

        b. To enable an HCL Informix Data Server Client to connect to the
database
           server, the NETTYPE entry in the ONCONFIG file and the value
           data of PROTOCOL in the SQLHOSTS registry entry must contain
           "drsoctcp"

           If a CLI or JCC client wants to connect to the database server
           through DRDA while supporting SQLI connections, you must add a
           DBSERVERALIASES entry to the ONCONFIG file that corresponds to
           the SQLHOSTS registry entry.

    To use IPC (interprocess communication) with named pipe:

        a. The NETTYPE entry in the ONCONFIG file and the value data of
           PROTOCOL in the SQLHOSTS registry entry must contain "onipcnmp".

    Remote 32-bit or 64-bit applications and tools (example: ESQL/C, 4GL, ISQL)
    can only connect to the HCL Informix Database Server using the TCP/IP
    protocol.

    Local 32-bit applications and tools can connect to the 64-bit server using
    either the TCP/IP or the IPC named pipe protocols.

7. OnLine Backup and Restore (ON-Bar)

    ON-Bar uses the XBSA interface. Some of the functions invoked by ON-Bar
    are in a dynamic link library supplied by third party storage management
    vendors. For ON-Bar to access these functions, you must specify the library
    name and location in the BAR_BSALIB_PATH parameter in the ONCONFIG file.

    For example, if you are using PSM:

        Set BAR_BSALIB_PATH to %INFORMIXDIR%\bin\libbsapsm.dll

    For example, if you are using TSM:

        Set BAR_BSALIB_PATH to %INFORMIXDIR%\bin\libtxbsa.dll

8. Secure Sockets Layer

    HCL Informix Database Server uses the libraries and utilities provided by
    the IBM Global Security Kit (GSKit) for Secure Sockets Layer (SSL)
    communication.

9. Simple Password Communications Support Module

    The name of the HCL Informix dynamic link library for Simple Password CSM
    on Windows is libixspw.dll. This dynamic link library is installed in
    %INFORMIXDIR%\bin.

10. XML User-Defined Routines

```
       You cannot run XML UDRs at large memory segments (VX class) on this
       platform.

       To avoid XML UDR execution failure, configue and adjust the following
       Informix server configuration parameters in the onconfig file:

          PRELOAD_DLL_FILE -
               Specify the path name for a shared library file that is
               pre-loaded when the server is started.

          BUFFERPOOL -
               Adjust the memory field to a lower value.

          SHMVIRTSIZE -
               Adjust it to a lower value.


Features not supported
======================

1.  Rolling upgrades to IDS version 14.10.xC2 are not supported.

    Rolling upgrades are not supported in IDS version 14.10.xC2. Migration to
    this version from a previous version requires changes to disk structures,
    and the conversion process is incompatible with a rolling upgrade. When
    upgrading HDR and RSS secondary servers to version 14.10.xC2, you must
    follow the steps listed in the on-line documentation under "Migrating
    an offline cluster to a new major version."

2.  Web Feature Service Database Extension

3.  Mapped users

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(C) Copyright HCL Technologies Ltd. 2017, 2019. All Rights Reserved.
```

Release documentation and machine notes for IBM Informix , v14.10.xC2

These are the release, documentation, and machine notes for IBM® Informix® version 14.10.xC2.

- Release notes for IBM Informix for Windows Operating Systems, 14.10.xC2
  The Release notes provide a list of useful topics and links for when you install IBM Informix database product or fix pack.
- Release notes for IBM Informix for UNIX and Linux, 14.10.xC2
  The Release notes provide a list of useful topics and links for when you install an IBM Informix database product or fix pack.

Release notes for IBM Informix for Windows Operating Systems, 14.10.xC2

The Release notes provide a list of useful topics and links for when you install IBM® Informix® database product or fix pack.

Contents

- [Description](#)
- [Announcement](#)
- [System requirements](#)
- [Installing IBM Informix 14.10.xC2](#)
- [Known problems](#)
- [Related information](#)

Description

IBM Informix 14.10 is available in several different editions, and each offers different features and function.

For a complete list of what's new and changed in this release, go to http://www.ibm.com/support/knowledgecenter/SSGU8G/welcomeIfxServers.html.

Information about the fixed defects for IBM Informix 14.10.xC2 is available at: https://www.ibm.com/support/pages/defect-fix-list-informix-server-1410xc2-releases.

Announcement

The product announcement letters are available at http://www.ibm.com/common/ssi/index.wss. Search for Informix 14.10 and select Announcement letters. See the announcement for the following information:

- Detailed product description
- Product-positioning statement
- Packaging and ordering details
- International compatibility information

System requirements

For information about hardware and software compatibility, see the detailed system requirements document at http://www.ibm.com/support/docview.wss?uid=swg27013343..

Installing IBM Informix 14.10.xC2

For step-by-step installation instructions, see Installing Informix at http://www.ibm.com/support/knowledgecenter/SSGU8G/welcomeIfxServers.html.

The IBM Informix Installation Guide (ids_win_installg_14.10.pdf) is also available in the product build in PDF format.

If you are migrating from another version of Informix, make sure that you understand all migration requirements and restrictions before you install the product. For migration information, see http://www.ibm.com/support/knowledgecenter/SSGU8G/welcomeIfxServers.html .

Known problems

At the time of publication, the following problems were known:

- If you uninstall Informix version 11.50, restart the computer before you install another version of Informix
  If you install Informix on a computer where you previously uninstalled version 11.50, the new installation might fail because the Informix database server Message Service (**msgserv.exe**) does not start.

  To avoid this problem, restart the computer before you install Informix again.

- Windows firewall exception is needed before installation
  Before you install Informix on Windows operating systems, make a Windows firewall exception for the TCP listening port that is used by Informix. By default, the Informix port is 9088; however, you can specify a different port number during installation.

- Removing users when you uninstall the database server
  If there are multiple installations of the product on the computer, and you are uninstalling one of the products, be careful when you use the Remove users and groups option. Do not remove users or groups that are required by the other installations of the product. If you remove users or groups that are required by the other products, the other products will not start or they will be inoperable.

- Starting Informix instances
  To start an Informix instance, use the instance shortcut that is in the Informix program group.

Related information

- Notice of deprecation:
  The Backup to Amazon Simple Storage Services (AWS S3) provided in the ontape utility is considered deprecated and will be removed in an upcoming release. This feature will be replaced with the same REST based technology used in the Informix Primary Storage Manager, to expand coverage to other cloud providers and enhance functionality.

- End of support:
  The Informix Storage Manager is not a valid storage manager anymore for the ON-Bar utilities. Usage of the old XBSA library with 14.10 is not supported and can lead to unpredictable results including loss of data or inability to restore.

- Latest open source drivers for Informix: http://github.com/OpenInformix.
- IBM Support Portal: http://www.ibm.com/support/entry/portal/
- International Informix Users Group (IIUG): http://www.iiug.org

Release notes for IBM Informix for UNIX and Linux, 14.10.xC2

The Release notes provide a list of useful topics and links for when you install an IBM® Informix® database product or fix pack.

Contents

Description

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- Detailed product description
- Product-positioning statement
- Packaging and ordering details
- International compatibility information

System requirements

For information about hardware and software compatibility, see the detailed system requirements document at http://www.ibm.com/support/docview.wss?uid=ibm10870226..

Installing IBM Informix 14.10.xC2

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http://www.ibm.com/support/knowledgecenter/SSGU8G/welcomeIfxServers.html.

If you are migrating from another version of , make sure that you understand all migration requirements and restrictions before you install the product. For migration information, see
http://www.ibm.com/support/knowledgecenter/SSGU8G/welcomeIfxServers.html.

Known problems

At the time of publication, the following problems were known:

- Removing users when you uninstall the database server
  If there are multiple installations of the product on the computer, and you are uninstalling one of the products, be careful when you use the Remove users and groups option. Do not remove users or groups that are required by the other installations of the product. If you remove users or groups that are required by the other products, the other products will not start or they will be inoperable.

Related information

- Notice of deprecation:
  The Backup to Amazon Simple Storage Services (AWS S3) provided in the ontape utility is considered deprecated and will be removed in an upcoming release. This feature will be replaced with the same REST based technology used in the Informix Primary Storage Manager, to expand coverage to other cloud providers and enhance functionality.

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  The Informix Storage Manager is not a valid storage manager anymore for the ON-Bar utilities. Usage of the old XBSA library with 14.10 is not supported and can lead to unpredictable results including loss of data or inability to restore.

- Latest open source drivers for Informix: http://github.com/OpenInformix.
- IBM Support Portal: http://www.ibm.com/support/entry/portal/
- International Informix Users Group (IIUG): http://www.iiug.org

Release documentation and machine notes for IBM Informix, v14.10.xC1

These are the release, documentation, and machine notes for IBM® Informix® version 14.10.xC1.

- Release notes IBM Informix for AIX and Linux 14.10.xC1
  The Release notes provide a list of useful topics and links for when you install an IBM Informix database product or fix pack.
- Machine notes for IBM Informix, version 14.10
  These are the machine notes for IBM Informix version 14.10.

Release notes IBM Informix for AIX and Linux 14.10.xC1

The Release notes provide a list of useful topics and links for when you install an IBM® Informix® database product or fix pack.

Contents

Description

IBM Informix 14.10 is available on Linux and AIX operating systems.

System requirements

Minimum disk space and memory requirements:

- 750 MB of disk space and 256 MB of memory

Many applications require substantially larger systems. Your HCL sales team can help optimize the hardware required for your application.

Refer to the machine notes for more detailed information on system requirements.

Installing IBM Informix 14.10.xC1

The *IBM Informix Installation Guide* (Installing Informix) is available on the Informix documentation site.

If you are migrating from another version of , make sure that you understand all migration requirements and restrictions before you install the product. For migration information, contact HCL sales team.

Known problems

At time of publication, the following problems were known:

- Removing users when you uninstall the database server
  If there are multiple installations of the product on the computer, and you are uninstalling one of the products, be careful when you use the Remove users and groups option. Do not remove users or groups that are required by the other installations of the product. If you remove users or groups that are required by the other products, the other products will not start or they will be inoperable.

- SuSE 15 OS on Linux86_64
  OpenSSL certificates are installed in a different location on SuSE 15. This causes a breakdown in communication between the FlexNet license server and the Informix server.

  Workaround:
  - Verify certificate on machine: rpm -qa | grep cert
  - Install the certificate bundle and create the link: rpm -ql ca-certificates-2+git20170807.10b2785-7.3.3.noarch |grep ca-
  - bundle: ln -s /etc/ssl/ca-bundle.pem $INFORMIXDIR/etc/ixRootCA.pem

Related information

- Notice of deprecation
  The Backup to Amazon Simple Storage Services (AWS S3) provided in the ontape utility is considered deprecated and will be removed in an upcoming release. This feature will be replaced with the same REST based technology used in the Informix Primary Storage Manager, to expand coverage to other cloud providers and enhance functionality.

- End of support
  The Informix Storage Manager is not a valid storage manager anymore for the ON-Bar utilities. Usage of the old XBSA library with 14.10 is not supported and can lead to unpredictable results including loss of data or inability to restore.

- Latest open source drivers for Informix: https://github.com/OpenInformix.
- More information about other products and services from HCL Technologies can be found at: https://www.hcltech.com/products-and-platforms.

Machine notes for IBM Informix, version 14.10

These are the machine notes for IBM® Informix® version 14.10.

To view the notes, expand the categories in the contents pane in the Release information subtopic under the Product overview topic.

- IBM Informix Database Server 14.10.FC1, IBM AIX 7.2 64bit
- IBM Informix Database Server 14.10.FC1, Linux x86_64bit

IBM Informix Database Server 14.10.FC1, IBM AIX 7.2 64bit

```
                    ================================
                         MACHINE SPECIFIC NOTES
                                   FOR
              IBM Informix Database Server 14.10.FC1 PRODUCT RELEASE
                          ON IBM AIX 7.2 64bit
                          DATE: 20 Feb 2019
                    ================================

OS Information : Built on AIX 7.2 Technology.

System Requirements
===================

1.  This product was built on AIX 7.2 Technology using the following
    compilers:
```

```
      IBM XL C/C++ for AIX, V11.1 (5724-X13)
      XL C/C++ Runtime       13.1.3
```

2. AIX patch requirement:

```
      TL2 (7200-02-02-1810)
```

3. The UNIX graphical tools provided with this release require X Window
    system X11R6 and Motif 2.3.4 or later runtime libraries.

4. The High Performance Loader utilities, onpload and ipload, require a
    minimum of 35 MB of memory and 70 MB of swap space in order to run.

5. If you are using Java(TM) UDRs, please refer to "AIX Loader Domains" under
    J/Foundation section for details.

6. HCL Informix Database Server uses the libraries and utilities provided by
    the IBM Global Security Kit (GSKit) for data encryption and Secure Sockets
    Layer (SSL) communication. The GSKit is bundled with the server and will
    be installed on your machine as part of the server installation process.
    Here are more details on the GSKit:

    a. The GSKit is also bundled with other IBM products and might
        already be present on your machine. If GSKit 8.0.50.89 is not
        installed, Informix server will install GSKit in /usr/opt/ibm/gsk8_64
        directory on your machine.

    b. The GSKit installation directory must have 35 MB of free disk space.

System Configuration
====================

1. Location of Shared Memory

    The ONCONFIG variable SHMBASE should be set to the following:

```
      SHMBASE 0x700000010000000
```

    If you are using Java UDRs, refer to the J/Foundation section for setting
    the SHMBASE value.

2. Environment Variables

    a. It is recommended that the environment variable INFORMIXSTACKSIZE be set
        to 128 (the default is 64) if the application involves operations which
        would require the HCL Informix Database Server to perform recursive
        database tasks (for example, cascading deletes).

    b. If you are using Java UDRs, set environment variable LDR_CNTRL to
        include the value "USERREGS" and "LOADPUBLIC" before starting IBM
        Informix Database Server.
        export LDR_CNTRL=LOADPUBLIC@USERREGS

Feature Notes   (alphabetized by feature)
=============

1. High Performance Loader

    User-defined conversion routines must be provided in a dynamic, shared
    library called ipldd11a_64.so. This library is installed in the
    $INFORMIXDIR/lib directory. You can set the location of this file with
    the HPL_DYNAMIC_LIB_PATH configuration parameter in file pointed to by

PLCONFIG environment variable. For more details, refer the manual
"High-Performance Loader User's Guide".

To create a 64-bit shared library, the environment variable OBJECT_MODE
should be set to 64 to convey to the compiler that a 64-bit object is to
be generated. The "-q64" flag for cc can also be used to indicate to the
compiler that 64-bit object is to be generated.

2. IPv6 Support

The Informix database server supports Internet Protocol Version 6 (128 Bit
Internet Addresses) as well as IPv4 (32 Bit Addresses).

In order for the machine name that is specified in the SQLHOSTS file to
resolve to the correct IP address, the name services files on the operating
system must be configured correctly. If the machine has an IPv6 address
configured, and the listener thread is bound to an IPv6 address, then the
name resolution file /etc/netsvc.conf must be configured to fetch an IPv6
address. Also any local machine settings must be set correctly in the
/etc/hosts file.

For compatibility with earlier version of Informix client and server
products, assign each host name with both an IPv4 address and an IPv6
address. If the listener needs to be bound to an IPv4 address, and the
name services resolve the name in the order of the IPv6 address followed
by the IPv4 address, then an explicit IPv4 address needs to be put in the
host name field of SQLHOSTS file. Client applications should also use the
same setting.

3. J/Foundation (Java in the Server)

The IBM Runtime Environment, Java Technology Edition, Version 8.0
release is installed in $INFORMIXDIR/extend/krakatoa/jre and should be
used with the J/Foundation component.

A Java user-defined routine (UDR) runs in a Java virtual processor. Use
the VPCLASS configuration parameter to specify the number of virtual
processors for the server. You configure Java virtual processors in
the "Java configuration parameters" section of the onconfig configuration
file. The default onconfig.std file is in the $INFORMIXDIR/etc directory.

To develop Java UDRs for the server on this platform, use the 64-bit
IBM SDK, Java Technology Edition, Version 8 or an earlier version
according to Java compatibility guidelines. Java SDK 8 contains the
latest virtual machine technology from IBM and can be downloaded from
http://www.ibm.com/java/jdk/.

Location of Shared Memory

When using IBM Informix Server with J/Foundation, the ONCONFIG parameter
SHMBASE should be set to the following:

     SHMBASE 0x700000030000000

AIX Loader Domains

If multiple shared libraries are loaded onto two VPs, one of which is
a Java VP, and the libraries are not loaded in the same order on each
VP, executing a function from the libraries can cause the HCL Informix
Database Server to core dump with the following message in online.log:

     09:35:58   Assert Failed: Exception Caught. Type: MT_EX_OS, Context: ill
     09:35:58   Who: Session(15, informix@ibms70, 46918, 1075033896)
                     Thread(41, sqlexec, 4010c7d8, 3)

```
                    File: mtex.c Line: 372
       09:35:58    Action: Please notify Technical Support.
```

You would typically encounter this error if your application is using
both C UDRs and Java UDRs.

To resolve this problem, the AIX loader domains concept is used. The
loader domain provides a means of loading shared libraries at the same
virtual address in a set of processes. The loader domain file is created
during the installation of the HCL Informix Database Server. This is
installed as "/var/adm/ifx_loader_domain".

HCL Informix Database Server with J/Foundation on AIX requires the loader
domain file "/var/adm/ifx_loader_domain" to exist at all times. If the
file does not exist, create it as superuser using the following commands:

```
       touch /var/adm/ifx_loader_domain
       chgrp informix /var/adm/ifx_loader_domain
       chmod 660 /var/adm/ifx_loader_domain
```

4.   Kernel Asynchronous I/O (KAIO)

     KAIO is enabled by default on this platform.

     The AIO subsystem is loaded by default but not activated. No AIO
     server is started at AIX startup. The AIO server is automatically
     started when applications are initiating AIO I/O requests. It stays
     active as long as it services AIO I/O requests.

     To disable KAIO, set the environment variable KAIOOFF:

```
       KAIOOFF=1 ; export KAIOOFF        ( for Bourne or Korn shell )
       setenv KAIOOFF 1                  ( for C shell )
```

     Limit the number of resident memory segments allocated to Informix.
     If you allocate a lot of resident memory segments to Informix and
     Informix uses a lot of KAIO and direct I/O, KAIO read or write calls
     might fail with errno 22 (EINVAL). EINVAL errors can lead to down dbspaces
     or system aborts. The following error typically appears in the server log:

```
       04:30:40   KAIO: error in kaio_WRITE, kaiocbp = 0x22b620d0, errno = 22
       04:30:40   fildes = 258 (gfd 3), buf = 0x700000122b64000, nbytes = 4096,
                  offset = 130785280
```

     The usual reason for these EINVAL errors is that the OS is running low
     on resident memory pages because the Informix server has too many shared
     memory segments allocated as "resident," as well as pinned OS kernel
     memory and KAIO resources.

     You can prevent these errors by setting fewer, or no, Informix server
     shared memory segments as resident. Set the RESIDENT configuration
     parameter in the onconfig file to 1 or 0.

5.   Large Memory Addressability (LMA)

     IBM Informix LMA provides the ability to support system configurations
     with greater than 4GB of RAM. Most UNIX systems are limited to 4GB of
     RAM based on the memory addressing limitations of 32-bit architectures.

     The values for the following ONCONFIG parameters are increased from
     32-bit to 64-bit platform by LMA support:

       - The maximum number of buffers in BUFFERPOOL is 2147483647.

- The maximum of LRU queues for lrus field in BUFFERPOOL is 512.

- The DS_TOTAL_MEMORY, which is the total memory available for decision support memory, is only limited by the amount of virtual memory available. The sort memory comes out of the DS_TOTAL_MEMORY memory and hence there is no explicit limit on the amount of sort memory.

- The read ahead parameter RA_PAGES is only limited by the number of buffers and therefore can be any value less than 2147483647. The "chunk" write algorithm is not dependent on the amount of buffers or shared memory and can write as many pages in a single I/O as possible.

- The maximum size of any shared memory segment is 68719460352 bytes.

- The value for SHMADD is 67108848 kilobytes.

6. Network Protocols

The following protocols and interfaces are supported on this platform:

```
SOCKETS using TCP/IP
IPC using stream pipe (implemented using UNIX Domain Sockets)
```

To use SOCKETS with TCP/IP:

a. The NETTYPE entry in the ONCONFIG file and the nettype field in the sqlhosts file entry must contain "onsoctcp".

b. To enable an IBM Data Server Client to connect to the database Server, the NETTYPE entry in the ONCONFIG file and the protocal value in the sqlhosts file entry must contain "drsoctcp"

If a CLI or JCC client wants to connect to the database server through DRDA while supporting SQLI connections, you must add a DBSERVERALIASES entry to the ONCONFIG file that corresponds to the sqlhosts file entry.

To use IPC (interprocess communication) with stream pipe:

a. The NETTYPE entry in the ONCONFIG file and the nettype field in the sqlhosts file entry must contain "onipcstr".

Fast poll is supported with TCP/IP and stream pipe interfaces. To disable fast poll, set the FASTPOLL parameter to 0 in the ONCONFIG file. By default the fast poll is enabled (value is 1).

Remote 32-bit applications and tools (example: ESQL/C, 4GL, ISQL) can only connect to the HCL Informix Database Server using the TCP/IP protocol.

Local 32-bit applications and tools can connect to the 64-bit server using either the TCP/IP sockets or the IPC stream pipe protocols.

The protocol for supporting IBM Informix MaxConnect on this platform is "onsocimc".

7. No Age (Disable Priority Aging)

The no aging feature that disables priority aging of CPU virtual processors by the operating system can be activated by setting the noage option of the VPCLASS configuration parameter for the CPU virtual processors. For example, the following ONCONFIG entry specifies that there are 8 CPU VPs, each

without aging:

VPCLASS cpu,num=8,noage

When the noage option is used, all oninit processes will run at priority 60 with fixed priority round robin type scheduling.

To override the default priority value for CPU VP class, set the environment variable INFX_CPUVP_PRIORITY to the desired priority, within limits (50 to 90) before starting the server.

The server checks and sets the CPU VP process to the defined priority if the defined value is within the above range.

8. OnLine Backup and Restore (ON-Bar)

ON-Bar uses the XBSA interface. Some of the functions invoked by ON-Bar are in a shared library supplied by third party storage management vendors. For ON-Bar to access these functions, set the BAR_BSALIB_PATH parameter in $INFORMIXDIR/etc/$ONCONFIG to the full pathname of the library.

Using $INFORMIXDIR/lib/ibsad001_64.so as a symbolic link to the library is deprecated and shall be discontinued.

Informix Interface for Tivoli Storage Manager (TSM) is supported on this platform. The interface is built with TSM API Client version 5.3.2.

9. OnSNMP

The SNMP agent for OnSNMP is based on SNMP Research (SNMPR).

10. Pluggable Authentication Module (PAM)

PAM functionality is supported on AIX operating system. The PAM is dependent on the libpam.so library supplied by the Operating System vendor.

Use of PAM can be enabled or disabled by the system administrator. By default, IBM Informix server will use the traditional authentication mechanism in order to avoid widespread changes required by the users.

The PAM modules typically resides in /usr/lib/security/64. The PAM services are defined in /etc/pam.conf.

11. Processor Affinity

The processor affinity feature, which allows the pinning of a CPU virtual processor to a physical processor in a multi-CPU configuration, is supported on this platform.

12. Secure Sockets Layer

HCL Informix Database Server uses the libraries and utilities provided by the IBM Global Security Kit (GSKit) for Secure Sockets Layer (SSL) communication.

a. Before uninstalling GSKit, verify that it is not needed on your system. It is possible that software other than Informix Database Server requires GSKit. Uninstalling entails removing GSKit packages as follows:

To remove package, as root user run the following installp -u -g -V2 GSKit8.gskcrypt64.ppc.rte GSKit8.gskssl64.ppc.rte

        b. If you want to restore Secure Sockets Layer capability after you
          have uninstalled GSKit, see the readme file in $INFORMIXDIR/gskit
          for how to install GSKit.

13. Shared Memory Residency

    Shared Memory Residency is supported. This feature can be enabled by
    setting ONCONFIG parameter RESIDENT to a non-zero value.

    Please read the KAIO section in this file if you are using
    Shared Memory Residency together with KAIO or DIRECT_IO, as this
    combination may cause problems.

    See APAR IC76872 for further information.

14. Simple Password Communications Support Module

    The name of the IBM Informix shared library for Simple Password CSM on
    on AIX is libixspw.so.

15. Single Sign On (SSO)

    This feature requires AIX system library libgssapi_krb5 to be installed
    on the system. This library is included in krb5.toolkit.adt (Network
    Authentication Service App. Dev. Toolkit).

Features not Supported
======================

1. Rolling upgrades to this IDS version are not supported.

    Rolling upgrades are not supported in this IDS version. Such a migration
    requires changes to disk structures and the conversion process is
    incompatible with a rolling upgrade. In such cases, when upgrading HDR
    and RSS secondary servers, you must follow the steps listed in the
    on-line documentation under "Migrating an offline cluster to a new major
    version."

2. Concurrent I/O on Shared Disk Secondary Servers.

IBM Informix Database Server 14.10.FC1, Linux x86_64bit

```
                    ================================
                          MACHINE  SPECIFIC  NOTES
                                    FOR
            IBM Informix Database Server 14.10.FC1 PRODUCT RELEASE
                            On Linux x86_64
                            DATE: 20 Feb 2019
                    ================================
```

OS Information : Built on Red Hat Enterprise Linux ES release 7.4 (Maipo).

System Requirements
===================

1.   This product was built on Red Hat Enterprise Linux ES release 7.4
     (Kernel: 3.10.0-693, Glibc: 2.17) for x86_64 compatible processors.
     The following compilers were used:

         gcc and c++ compiler 4.8.5 20150623 (Red Hat 4.8.5-16) for GLS and ICU
         gcc and c++ compiler 7.3.1 20180303 (Red Hat Devtoolset-7) for the server

     The following package have to be installed on your Linux system:

         libaio-0.3.109
         libgcc-4.8.5
         libstdc++-4.8.5
         ncurses-5.9
         pam-1.1.8

     Please note that this version of Informix does not support Linux
     environments with kernel version lower than 3.10.0-693

     For Informix Blade development GNU linker may need to be updated to

         GNU ld version 2.28-11.el7 or newer

     Update is not needed for install and operation of Informix

     This product has been certified on:

         - SUSE SLES 12.3 (Kernel: 4.4.73-51, Glibc: 2.22-61). The following
packages have to be installed:

             libaio-0.3.109
             libgcc_s1-6.2.1
             libstdc++6-6.2.1
             ncurses-utils-5.9-40
             pam-1.1.8-23

         - SUSE SLES 15 (Kernel: 4.12.14-25, Glibc: 2.26-13). The following
packages
             have to be installed:

             libaio-0.3.109
             libgcc_s1-8.2.1
             libstdc++6-8.2.1
             ncurses-utils-6.1.3
             pam-1.3.0-6.3.1

         - Ubuntu Server Edition 16.04 LTS (Kernel: 4.4.0-142, Glibc: 2.23).
             The following packages have to be installed:

             libgcc   5.4.0
             libstdc++6   5.4.0   libncurses5 6.0   libpam   1.1.8

         - Ubuntu Server Edition 17.10 LTS (Kernel: 4.13.0-21, Glibc: 2.26).
             The following packages have to be installed:

             libgcc   7.2.0
             libstdc++6   7.2.0   libncurses5 6.0   libpam   1.1.8

     Some Devian/Ubunty environments do not provide the bc utility by default,

it is required by Informix installer, and may need to be installed using apt-get or dpkg

2. The UNIX graphical tools ipload, onperf and xtree only require Motif runtime libraries version 2.3.x. The minimum version is 2.3.4, i.e. motif-devel-2.3.4-14.el7_5.x86_64

3. The Korn shell is required for the Informix server alarmprogram scripts. Install it as /bin/ksh. On Ubuntu Server Edition, pdksh needs to be installed.

4. If a suitable library libaio.so.1 is found, HCL Informix Database Server enables Kernel Asynchronous I/O (KAIO) automatically. Otherwise KAIO is disabled.

5. HCL Informix Database Server uses the libraries and utilities provided by the IBM Global Security Kit (GSKit) for data encryption and Secure Sockets Layer (SSL) communication. The GSKit is bundled with the server and will be installed on your machine as part of the server installation process.

    Here are more details on the GSKit:

    a. The GSKit is also bundled with other IBM products and might already be present on your machine. If GSKit is not installed, the script $INFORMIXDIR/gskit/installgskit will install GSKit in /usr/local/ibm/gsk8_64 directory on your machine.

    b. The GSKit installation directory must have 25 MB of free disk space.

    c. The RPM or Debian Package Manager is required to be installed on the system.

6. The Informix product installer may fail to start correctly. When it aborts the following two messages are displayed:

    Installer User Interface Mode Not Supported
    Unable to load and to prepare the installer in console or silent mode.

    This can happen due to a known problem in the Java Virtual Machine that is internal to the installer. This problem is known as "JDK-8188030 : AWT java apps fail to start when some minimal fonts are present". It may appear when only minimal fonts of the CFF format are installed on the machine.

    On a Linux system with Intel x86 64-bit architecture, this problem can be worked around by installing an additional font with a format different than CFF. For example fonts from the font package "gnu-free-mono-fonts" are known to allow the Informix product installer to start and operate correctly. This font package can be installed on RedHat distributions by executing the following command as user root:

        yum install gnu-free-mono-fonts

    (On different Linux distributions it may be necessary to use a different installation utility instead of "yum".)

System Configuration
====================

1. Kernel Parameters

    The values of the kernel parameters that were used for testing this product are given below. These values might need to be tuned depending

on the application and availability of system resources. They
can either be dynamically changed in the /proc file system or are defined
in the kernel sources and can be changed by rebuilding the kernel.

```
SHMMAX:    4398046511104
SHMMNI:    4096
SHMALL:    4194304
SEMMNI:    4096
SEMMSL:    250
SEMMNS:    32000
SEMOPM:    32
```

   - The value of the kernel parameter "SEMMSL" should be set to at least
     100. This is the maximum number of semaphores per set.

2.   Location of Shared Memory

     The ONCONFIG variable SHMBASE is set to the following:

         SHMBASE 0x44000000L

3.   Environment Variables

     It is recommended that the environment variable INFORMIXSTACKSIZE be
     set to 128 (the default is 64) if the application involves operations
     which would require the HCL Informix Database Server to perform recursive
     database tasks (for example, cascading deletes).

Feature Notes   (alphabetized by feature)
=============

1.   High Performance Loader

     User-defined conversion routines must be provided in a dynamic, shared
     64-bit library called ipldd11a.so. This library is installed in the
     $INFORMIXDIR/lib directory. You can set the location of this file with
     the HPL_DYNAMIC_LIB_PATH configuration parameter in file pointed to by
     PLCONFIG environment variable. For more details, refer the manual
     "High-Performance Loader User's Guide".

     The following two environment variables are required to be set as:

         PLOAD_SHMBASE=0x000004000000000
         IFX_XFER_SHMBASE=0x000005000000000

     Onpload will use shared memory during its execution. It will allocate
     memory beyond the address for the server, leaving room for server shared
     memory expansion.

2.   IPv6 Support

     The Informix database server supports Internet Protocol Version 6 (128 Bit
     Internet Addresses) as well as IPv4 (32 Bit Addresses).

     In order for the machine name that is specified in the SQLHOSTS file to
     resolve to the correct IP address, the name services files on the operating
     system must be configured correctly. If the machine has an IPv6 address
     configured, and the listener thread is bound to an IPv6 address, then the
     name service switch files /etc/nsswitch.conf must be configured to fetch
     an IPv6 address. Also any local machine settings must be set correctly in
     the /etc/hosts file.

     For compatibility with earlier version of Informix client and server

products, assign each host name with both an IPv4 address and an IPv6 address. If the listener needs to be bound to an IPv4 address, and the name services resolve the name in the order of the IPv6 address followed by the IPv4 address, then an explicit IPv4 address needs to be put in the host name field of SQLHOSTS file. Client applications should also use the same setting.

3. J/Foundation (Java in the Server):

    The IBM Runtime Environment, Java Technology Edition, Version 8.0 release is installed in $INFORMIXDIR/extend/krakatoa/jre and should be used with the J/Foundation component.

    A Java user-defined routine (UDR) runs in a Java virtual processor. Use the VPCLASS configuration parameter to specify the number of virtual processors for the server. You configure Java virtual processors in the "Java configuration parameters" section of the onconfig configuration file. The default onconfig.std file is in the $INFORMIXDIR/etc directory.

    To develop Java UDRs for the server on this platform, use the 64-bit IBM SDK, Java Technology Edition, Version 8 or an earlier version according to Java compatibility guidelines. Java SDK 8 contains the latest virtual machine technology from IBM and can be downloaded from http://www.ibm.com/java/jdk/.

4. Kernel Asynchronous I/O (KAIO)

    KAIO is enabled by default on this platform. It can be disabled by setting the environment variable KAIOOFF=1 in the environment of the process that starting the server.

    When using KAIO, it is recommended to run poll threads on separate VPs by specifying NET as VP class in the NETTYPE onconfig parameter, e.g.
    NETTYPE ipcshm,...,...,NET or
    NETTYPE soctcp,...,...,NET

    On Linux, there is a system wide limit of the maximum number of parallel KAIO requests. The file /proc/sys/fs/aio-max-nr is containing this value. It can be increased by the Linux system administrator, e.g. by

    # echo new_value > /proc/sys/fs/aio-max-nr

    The current number of allocated requests of all OS processes is visible in /proc/sys/fs/aio-nr.

    By default, HCL Informix Database Server is allocating half of the maximum number of requests, and assigns them equally to the number of configured CPU VPs. The number of requests allocated per CPU VP can be controlled by the environment variable KAIOON, by setting it to the required value before starting the server. The minimum value for KAIOON is 100. If Linux is about to run out of KAIO resources, e.g. when dynamically adding many CPU VPs, warnings will be printed to the online.log file. In this case, the Linux system administrator should add KAIO resources as described above.

5. Large Memory Addressability (LMA)

    HCL Informix LMA provides the ability to support system configurations with greater than 4GB of RAM. Most UNIX systems are limited to 4GB of RAM based on the memory addressing limitations of 32-bit architectures.

    The values for the following ONCONFIG parameters are increased from 32-bit to 64-bit platform by LMA support:

        - The maximum number of buffers in BUFFERPOOL is 2147483647.

- The maximum of LRU queues for lrus field in BUFFERPOOL is 512.

- The DS_TOTAL_MEMORY, which is the total memory available for decision support memory, is only limited by the amount of virtual memory available. The sort memory comes out of the DS_TOTAL_MEMORY memory and hence there is no explicit limit on the amount of sort memory.

- The read ahead parameter RA_PAGES is only limited by the number of buffers and therefore can be any value less than 2147483647. The "chunk" write algorithm is not dependent on the amount of buffers or shared memory and can write as many pages in a single I/O as possible.

- The maximum size of any shared memory segment is 4398046511104 bytes.

- The value for SHMADD is 4294967296 kilobytes.

Refer to HCL Informix Administrator's Reference manual for the information about the related configuration parameters setting.

6. Locking large pages in memory

The Informix database server can use large pages in memory when queries require more memory. (On Linux operating systems, large pages are called huge pages.) However, after you initialize Informix on Linux operating systems, the database server is unable to lock large pages in memory when queries require more memory. If you want to take advantage of the large-page support, you must use the onmode utility to add memory segments, and then run the queries.

7. Network Protocols

The following protocols and interfaces are supported on this platform:

    SOCKETS using TCP/IP
    IPC using stream pipe (implemented using UNIX Domain Sockets)

To use SOCKETS with TCP/IP:

a. The NETTYPE entry in the ONCONFIG file and the nettype field in the sqlhosts file entry must contain "onsoctcp".

b. To enable an IBM Data Server Client to connect to the database Server, the NETTYPE entry in the ONCONFIG file and the protocal value in the sqlhosts file entry must contain "drsoctcp"

    If a CLI or JCC client wants to connect to the database server through DRDA while supporting SQLI connections, you must add a DBSERVERALIASES entry to the ONCONFIG file that corresponds to the sqlhosts file entry.

To use IPC (interprocess communication) with stream pipe:

a. The NETTYPE entry in the ONCONFIG file and the nettype field in the sqlhosts file entry must contain "onipcstr".

Fast poll is supported with TCP/IP and stream pipe interfaces. To disable fast poll, set the FASTPOLL parameter to 0 in the ONCONFIG file. By default the fast poll is enabled (value is 1).

Remote 32-bit or 64-bit applications and tools (example: ESQL/C, 4GL, ISQL) can only connect to the HCL Informix Database Server using the TCP/IP

protocol.

Local 32-bit applications and tools can connect to the 64-bit server using either the TCP/IP sockets or the IPC stream pipe protocols.

The protocol for supporting IBM Informix MaxConnect on this platform is "onsocimc".

8. Online Backup and Restore (ON-Bar)

ON-Bar uses the XBSA interface. Some of the functions invoked by ON-Bar are in a shared library supplied by third party storage management vendors. For ON-Bar to access the functions, set the BAR_BSALIB_PATH parameter in $INFORMIXDIR/etc/$ONCONFIG to the full pathname of the library.

This shared library must be compiled in 64-bit mode.

Using $INFORMIXDIR/lib/ibsad001.so as a symbolic link to the library is deprecated and shall be discontinued.

Informix Interface for Tivoli Storage Manager (TSM) is supported on this platform. The interface is built with TSM API version 5.3.2.

9. OnSNMP

The SNMP agent for OnSNMP is based on SNMP Research (SNMPR).

10. Pluggable Authentication Module (PAM)

PAM functionality is supported on Linux operating systems. PAM requires the libpam.so library that is supplied by the Operating System vendor.

Use of PAM can be enabled or disabled by the system administrator. By default, the Informix server will use the traditional authentication mechanism to avoid changes for the users.

The PAM modules are usually located in /lib64/security. The PAM services are defined in /etc/pam.d.

11. Processor Affinity

The processor affinity feature, which allows the pinning of a CPU virtual processor to a physical processor in a multi-CPU configuration, is supported on this platform.

12. Raw Character Devices

Some Linux distributions support binding a raw character device to a block device. Any block device may be used. HCL Informix Database Server supports using raw character devices.

13. Secure Sockets Layer

HCL Informix Database Server uses the libraries and utilities provided by the IBM Global Security Kit (GSKit) for Secure Sockets Layer (SSL) communication.

   a. Before uninstalling GSKit, verify that it is not needed on your system. It is possible that software other than Informix Database Server requires GSKit. Uninstall by identifying and removing GSKit packages using the command-line interface:

   Run rpm command with the -qa option to obtain a list of installed GSKit packages with their exact names.

```
        For example:
        rpm -qa | grep gsk

        As root user run the rpm command to remove each package as needed.
        For example:
        rpm -ev gskssl64-8.0.50.89 gskcrypt64-8.0.50.89

        Run dpkg command with the -l option to obtain a list of installed
        GSKit Debian packages with their exact names.
        For example:
        dpkg -l | grep gsk

        As root user run the dpkg command to remove each package as needed.
        For example:
        dpkg -r gskssl64 gskcrypt64

     b. If you want to restore Secure Sockets Layer capability after you
        have uninstalled GSKit, see the readme file in $INFORMIXDIR/gskit
        for how to install GSKit.

14. Simple Password Communications Support Module

    The name of the HCL Informix shared library for Simple Password CSM on
    Linux is libixspw.so.


Features not supported
======================

1.  Rolling upgrades to this IDS version are not supported.

    Rolling upgrades are not supported in this IDS version. Such a migration
    requires changes to disk structures and the conversion process is
    incompatible with a rolling upgrade. In such cases, when upgrading HDR
    and RSS secondary servers, you must follow the steps listed in the
    on-line documentation under "Migrating an offline cluster to a new major
    version."

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```

Release, documentation, and machine notes for IBM Informix Client SDK

These are the release, documentation, and machine notes for Client Software Development Kit . Information about fixed and known defects is included in the release notes.

- Release, documentation, and machine notes for IBM Informix Client SDK, v4.50.xC6
  These are the release, documentation, and machine notes for Client SDK version 4.50.xC6.
- Release, documentation, and machine notes for IBM Informix Client SDK, v4.50.xC5
  These are the release, documentation, and machine notes for Client SDK version 4.50.xC5.

- [Release, documentation, and machine notes for IBM Informix Client SDK, v4.50.xC4](#)

  These are the release, documentation, and machine notes for Client SDK version 4.50.xC4.
- [Release, documentation, and machine notes for IBM Informix Client SDK, v4.50.xC3](#)

  These are the release, documentation, and machine notes for Client SDK version 4.50.xC3.
- [Release, documentation, and machine notes for IBM Informix Client SDK, v4.50.xC2](#)

  These are the release, documentation, and machine notes for Client SDK version 4.50.xC2.
- [Release, documentation, and machine notes for IBM Informix Client SDK, v4.50.xC1](#)

  These are the release, documentation, and machine notes for Client SDK version 4.50.xC1.

Release, documentation, and machine notes for IBM® Informix® Client SDK, v4.50.xC6

These are the release, documentation, and machine notes for Client SDK version 4.50.xC6.

- [Release notes for IBM Informix Client Software Development Kit for Windows Operating Systems, 4.50.xC6](#)
- [Release notes for IBM Informix Client Software Development Kit for UNIX and Linux, 4.50.xC6](#)
- [Machine notes for IBM Informix Client SDK, version 4.50](#)

  These are the machine notes for version 4.50.

Release notes for IBM Informix Client Software Development Kit for Windows Operating Systems, 4.50.xC6

Contents

The Release notes provide a list of useful topics and links for when you install the IBM® Informix® Client Software Development Kit Version 4.50.

- [Description](#)
- [Announcement](#)
- [Compatibility](#)
- [System requirements](#)
- [Installing IBM Informix Client SDK 4.50.xC6](#)
- [Choice of .NET Providers to use with IBM Informix Version 14.10](#)
- [Known Problems](#)
- [Related information](#)

Description

The IBM® Informix® Client Software Development Kit Version 4.50 Release notes include information about the following component products:

- IBM Informix Connection Manager
- IBM Informix ESQL/C
- IBM Informix .NET Provider
- IBM Informix Object Interface for C++
- IBM Informix ODBC Driver
- IBM Informix OLE DB Provider

For a complete list of what's new and changed in this release, go to
http://www.ibm.com/support/knowledgecenter/SSGU8G/welcomeIfxServers.html.
Information about the fixed defects for IBM Informix Client Software Development Kit 4.50.xC6 is available at: http://www.ibm.com/support/docview.wss?uid=ibm10871880.

Announcement

The product announcement letters are available at http://www.ibm.com/common/ssi/index.wss. Search for Informix 14.10 and select Announcement letters. See the announcement for the following information:

- Detailed product description
- Product-positioning statement
- Packaging and ordering details
- International compatibility information

Compatibility

Version 4.50 of IBM Informix Client Software Development Kit is compatible with the following database servers:

Database server	Versions
IBM Informix	11.70, 12.10, 14.10

Version 4.50 of Connection Manager is compatible with the following clients:

Client	Version
IBM Informix Client Software Development Kit (Client SDK)	3.70, 4.10, 4.50
IBM InformixConnect	3.70, 4.10, 4.50
IBM Informix JDBC Driver	3.70, 4.10, 4.50
Data Server Driver for JDBC and SQLJ	3.5.2 or later

System requirements

For information about hardware and software compatibility, see the detailed system requirements document at http://www.ibm.com/support/docview.wss?uid=swg27016673.

Installing IBM Informix Client SDK 4.50.xC6

For step-by-step installation instructions, see Installing Informix Client Products at
http://www.ibm.com/support/knowledgecenter/SSGU8G/welcomeIfxServers.html.

For standalone installation, minimum OpenSSL version 1.0.x need to be installed on the system. Please refer to https://www.openssl.org for more information on OpenSSL.

Choice of .NET Providers to use with IBM Informix Version 14.10

You can use either the Informix .NET Provider or the DB2® .NET Provider with your HCL Informix installation.

For information about the DB2 .NET Provider, see http://pic.dhe.ibm.com/infocenter/db2luw/v10r1/topic/com.ibm.swg.im.dbclient.adonet.doc/doc/c0010960.html

Known Problems

At time of publication, the following problems were known:

- When you use the IBM Informix ODBC Driver to perform distributed transactions that use the Microsoft Transaction Server, turn off session pooling for the Microsoft OLE DB Provider for ODBC Drivers (MSDASQL). This property can be set in the application by adding the value "OLE DB Services=-4" in the connection string. Setting the property turns off session pooling and autoenlistment in the MSDASQL OLE DB provider, and allows the pooling and auto enlistment to occur in the IBM Informix ODBC Driver.

Related information

- IBM Support Portal: http://www.ibm.com/support/entry/portal/
- The latest open source drivers for Informix can be found at https://github.com/OpenInformix.

Release notes for IBM Informix Client Software Development Kit for UNIX and Linux, 4.50.xC6

Contents

The Release notes provide a list of useful topics and links for when you install the IBM® Informix® Client Software Development Kit Version 4.50.

- Description
- Announcement
- Compatibility
- System requirements
- Installing IBM Informix Client SDK 4.50.xC6
- Related information

Description

The IBM® Informix® Client Software Development Kit Version 4.50 Release notes include information about the following component products:

- IBM Informix Connection Manager
- IBM Informix ESQL/C/C++
- IBM Informix ODBC Driver

For a complete list of what's new and changed in this release, see For a complete list of what's new and changed in this release, go to http://www.ibm.com/support/knowledgecenter/SSGU8G/welcomeIfxServers.html.

Information about the fixed defects for IBM Informix Client Software Development Kit 4.50.xC5 is available at: http://www.ibm.com/support/docview.wss?uid=ibm10871880..

Announcement

The product announcement letters are available at http://www.ibm.com/common/ssi/index.wss. Search for Informix 14.10 and select Announcement letters. See the announcement for the following information:

- Detailed product description
- Product-positioning statement
- Packaging and ordering details
- International compatibility information

Compatibility

Version 4.50 of IBM Informix Client Software Development Kit is compatible with the following database servers:

Database server	Versions
IBM Informix	11.70, 12.10, 14.10

Version 4.50 of Connection Manager is compatible with the following clients:

Client	Version
IBM Informix Client Software Development Kit (Client SDK)	3.70, 4.10, 4.50
IBM InformixConnect	3.70, 4.10, 4.50
IBM Informix JDBC Driver	3.70, 4.10, 4.50
Data Server Driver for JDBC and SQLJ	3.5.2 or later

System requirements

For information about hardware and software compatibility, see the detailed system requirements document at http://www.ibm.com/support/docview.wss?uid=swg27016673.

Installing IBM Informix Client SDK 4.50.xC6

For step-by-step installation instructions, see Installing Informix Client Products at http://www.ibm.com/support/knowledgecenter/SSGU8G/welcomeIfxServers.html.

For standalone installation, minimum OpenSSL version 1.0.x need to be installed on the system. Please refer to https://www.openssl.org for more information on OpenSSL.

Related information

- IBM Support Portal: http://www.ibm.com/support/entry/portal/
- The latest open source drivers for Informix can be found at https://github.com/OpenInformix.

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Machine notes for IBM® Informix® Client SDK, version 4.50

These are the machine notes for version 4.50.

To view the notes, expand the categories in the contents pane in the Release information subtopic under the Product overview topic.

- C++ Interface
- ESQL/C Machine Notes
- GLS API Machine Notes
- ODBC Driver Machine Notes
- Informix .NET Provider Machine Notes
- OLE DB Provider Machine Notes

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C++ Interface

Client SDK 4.50.xC6

- C++ Interface Version 4.50.FC6, AIX 7.2 64bit
- C++ Interface Version 4.50.FC6, HP Itanium 64bit
- C++ Interface Version 4.50.FC6, Linux ARMv7
- C++ Interface Version 4.50.FC6, Linux Power (little endian)
- C++ Interface Version 4.50.FC6, Linux Intel 64bit
- C++ Interface Version 4.50.FC6, Linux zSeries 64-Bit
- C++ Interface Version 4.50.FC6, Solaris Sparc 64bit
- C++ Interface Version 4.50.FC6, Windows x64

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C++ Interface Version 4.50.FC6, AIX 7.2 64bit

```
                    ================================
                       MACHINE SPECIFIC NOTES
                                FOR
             IBM Informix Client-SDK 4.50.FC6 PRODUCT RELEASE
                    C++ Interface Version 4.50.FC6
                          On AIX 7.2 64bit
                         DATE: 29 Apr 2021
                    ================================
```

OS Information : Built on AIX 7.2 Technology.

Machine Specific Notes
====================

1. This product was built on AIX 7.2 Technology using the
   following compilers:

   IBM XL C/C++ for AIX, V13.1.3 (5765-J06)
   XL C/C++ Runtime   13.1.3

2. AIX patch requirement:

3. To use a specific shared library to link with your application, include
   the directories where the 64bit C++ shared libraries are installed by
   setting your environment as follows:

        (for Bourne or Korn Shell)
        LIBPATH=$INFORMIXDIR/lib:$INFORMIXDIR/lib/c++:$INFORMIXDIR/lib/esql:
            $INFORMIXDIR/lib/dmi:$LIBPATH
        export LIBPATH

        (for C Shell)
        setenv LIBPATH $INFORMIXDIR/lib:$INFORMIXDIR/lib/c++:
                  $INFORMIXDIR/lib/dmi:$INFORMIXDIR/lib/esql:$LIBPATH

4. IPv6 Support

   The product supports Internet Protocol Version 6 (128 Bit Internet Addresses)
   as well as IPv4 (32 Bit Addresses).

   In order for the machine name specified in the SQLHOSTS file to resolve
   to the correct IP address, the name services files on the Operating System
   should be correctly configured. If the machine has IPv6 address configured
   and the listener thread is bound to an IPv6 address, then the name
   resolution files /etc/netsvc.conf should be configured to fetch IPv6
   address. Also use the appropriate /etc/hosts setting if local machine
   settings are used.

   For compatibility with older IBM Informix client and server products,
   assign the same hostname with both an IPv4 address and an IPv6 address.
   If the listener needs to be bound to an IPv4 address and the name services
   resolve the name in the order of the IPv6 address followed by IPv4 address,
   then an explicit IPv4 address needs to be put in nodename field of SQLHOSTS
   file. Client applications should also use the same setting.

Check the following web site for the latest AIX system requirements:

   http://www-01.ibm.com/support/docview.wss?rs=630&uid=swg27016673

C++ Interface Version 4.50.FC6, HP Itanium 64bit

```
================================
           MACHINE SPECIFIC NOTES
                   FOR
    IBM Informix Client-SDK 4.50.FC6 PRODUCT RELEASE
            C++ Interface Version 4.50.FC6
                 On HP Itanium 64bit
                 DATE: 29 Apr 2021
================================
```

OS Information : Built on HP-UX 11i V3 (aka 11.31) Itanium.

Machine Specific Notes
======================

1. This product was built on HP-UX 11i V3 (aka 11.31) Itanium using the
   following compilers:

   HP C/aC++ B3910B A.06.26 [Apr 12 2011]

   and with the following packages:

   Bundle Name   Description
   -----------   -----------
   B9007AA   C.11.31.06   HP C/aC++ Developer's Bundle
   BUNDLE   B.2011.08.04   Patch Bundle

2. For shared library support, setting the environment variable
   SHLIB_PATH:

       (for C Shell)
       setenv SHLIB_PATH $INFORMIXDIR/lib:$INFORMIXDIR/lib/esql:
       $INFORMIXDIR/lib/c++:$INFORMIXDIR/lib/dmi:$SHLIB_PATH

       (for Bourne or Korn Shell)
       SHLIB_PATH=$INFORMIXDIR/lib:$INFORMIXDIR/lib/esql:
       $INFORMIXDIR/lib/c++:$INFORMIXDIR/lib/dmi:$SHLIB_PATH
       export SHLIB_PATH

3. To build any C++ application that uses the "Standard Template Library",
   the C++ compiler flag "-AA" is required.

4. IPv6 Support

   The product supports Internet Protocol Version 6 (128 Bit Internet Addresses)
   as well as IPv4 (32 Bit Addresses).

   In order for the machine name specified in the SQLHOSTS file to resolve
   to the correct IP address, the name services files on the Operating System
   should be correctly configured. If the machine has IPv6 address configured
   and the listener thread is bound to an IPv6 address, then the name
   resolution files /etc/netsvc.conf should be configured to fetch IPv6
   address. Also use the appropriate /etc/hosts setting if local machine
   settings are used.

   For compatibility with older IBM Informix client and server products,

```
    assign the same hostname with both an IPv4 address and an IPv6 address.
    If the listener needs to be bound to an IPv4 address and the name services
    resolve the name in the order of the IPv6 address followed by IPv4 address,
    then an explicit IPv4 address needs to be put in nodename field of SQLHOSTS
    file. Client applications should also use the same setting.

Check the following web site for the latest HP-UX system requirements:

    http://www-01.ibm.com/support/docview.wss?rs=630&uid=swg27016673


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```

C++ Interface Version 4.50.FC6, Linux ARMv7

```
                    ================================
                         MACHINE SPECIFIC NOTES
                                  FOR
                IBM Informix Client-SDK 4.50.UC6 PRODUCT RELEASE
                        C++ Interface Version 4.50.UC6
                            On Linux ARMv7 (armhf)
                            DATE: 28 Apr 2021
                    ================================
```

```
OS Information: Built on Raspbian 9 (stretch) armhf

Machine Specific Notes
======================

IBM(R) Informix(R) Object Interface for C++ is not supported on this platform.


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```

C++ Interface Version 4.50.FC6, Linux Power (little endian)

```
                    ================================
                         MACHINE SPECIFIC NOTES
                                  FOR
                IBM Informix Client-SDK 4.50.FC6 PRODUCT RELEASEpro
                        C++ Interface Version 4.50.FC6
                            On Linux Power (little endian)
                            DATE: 29 Apr 2021
                    ================================
```

```
OS Information : Built on Red Hat Enterprise Linux ES release 7.4 (Maipo)
               Certified on SUSE SLES 12.3 and 15.

Machine Specific Notes
======================

1. This product was built on Red Hat Enterprise Linux ES 7.4 (Maipo)
   for 64-Bit Power Series Architecture little endian with Kernel version
   4.10.0 and glibc 2.17 using the following compilers:

        gcc/g++ 4.8.5 20150623

2. For shared library support, setting the environment variable
   LD_LIBRARY_PATH:

     (for C Shell)
     setenv LD_LIBRARY_PATH $INFORMIXDIR/lib:$INFORMIXDIR/lib/esql:
     $INFORMIXDIR/lib/c++:$INFORMIXDIR/lib/dmi:$LD_LIBRARY_PATH

     (for Bourne or Korn Shell)
     LD_LIBRARY_PATH=$INFORMIXDIR/lib:$INFORMIXDIR/lib/esql:
     $INFORMIXDIR/lib/c++:$INFORMIXDIR/lib/dmi:$LD_LIBRARY_PATH
     export LD_LIBRARY_PATH

3. IPv6 Support

   IBM Informix Server supports Internet Protocol Version 6 (128 Bit Internet
   Addresses) as well as IPv4 (32 Bit Addresses).

   In order for the machine name specified in the SQLHOSTS file to resolve to
   the correct IP address, the name services files on the operating system
   should be correctly configured. If the machine has IPv6 address configured
   and the listener thread is bound to an IPv6 address, then the name
   resolution files /etc/nsswitch.conf should be configured to fetch IPv6
   addresss. Also use the appropriate /etc/hosts setting if local machine
   settings are used.

   For compatibility with older IBM Informix client and server products,
   assign the same hostname with both an IPv4 address and an IPv6 address.
   If the listener needs to be bound to an IPv4 address and the name services
   resolve the name in the order of the IPv6 address followed by IPv4 address,
   then an explicit IPv4 address needs to be put in nodename field of SQLHOSTS
   file. Client applications should also use the same setting.

Check the following web site for the latest Linux system requirements:

   http://www-01.ibm.com/support/docview.wss?rs=630&uid=swg27016673


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```

C++ Interface Version 4.50.FC6, Linux Intel 64bit

```
                    ===============================
                        MACHINE SPECIFIC NOTES
```

```
                                FOR
            IBM Informix Client-SDK 4.50.FC6 PRODUCT RELEASE
                   C++ Interface Version 4.50.FC6
                      On Linux Intel 64bit
                      DATE: 29 Apr 2021
                 ================================
```

OS Information : Built on Red Hat Enterprise Linux ES release 7.4 (Maipo)
                 Certified on SUSE SLES 12.3 and 15,
                 Ubuntu Server Edition 16.04 LTS and 17.10.

Machine Specific Notes
=====================

1. This product was built on Red Hat Enterprise Linux ES release 7.4
   (Kernel: 3.10.0-693, Glibc: 2.17) for x86_64 compatible processors.
   The following compilers were used:

        gcc and g++ compiler 4.8.5 20150623 (Red Hat 4.8.5-16)

   Installing the product on Ubuntu or Debian requires RPM to be installed
   and initialized. After RPM installed, use the following commands to
   initialize RPM:

        mkdir -p /var/lib/rpm
        rpm --initdb

   The bc utility is required by the product installer, and needs to be
   installed on Ubuntu.

2. If you use the C++ Interface with shared libraries, setting the
   environment variable LD_LIBRARY_PATH:

     (for C Shell)
     setenv LD_LIBRARY_PATH $INFORMIXDIR/lib:$INFORMIXDIR/lib/esql:
     $INFORMIXDIR/lib/c++:$INFORMIXDIR/lib/dmi:$LD_LIBRARY_PATH

     (for Bourne or Korn Shell)
     LD_LIBRARY_PATH=$INFORMIXDIR/lib:$INFORMIXDIR/lib/esql:
     $INFORMIXDIR/lib/c++:$INFORMIXDIR/lib/dmi:$LD_LIBRARY_PATH
     export LD_LIBRARY_PATH

3. IPv6 Support

   The product supports Internet Protocol Version 6 (128 Bit Internet Addresses)
   as well as IPv4 (32 Bit Addresses).

   In order for the machine name specified in the SQLHOSTS file to resolve
   to the correct IP address, the name services files on the Operating System
   should be correctly configured. If the machine has IPv6 address configured
   and the listener thread is bound to an IPv6 address, then the name
   resolution files /etc/netsvc.conf should be configured to fetch IPv6
   address. Also use the appropriate /etc/hosts setting if local machine
   settings are used.

   For compatibility with older IBM Informix client and server products,
   assign the same hostname with both an IPv4 address and an IPv6 address.
   If the listener needs to be bound to an IPv4 address and the name services
   resolve the name in the order of the IPv6 address followed by IPv4 address,
   then an explicit IPv4 address needs to be put in nodename field of SQLHOSTS
   file. Client applications should also use the same setting.

Check the following web site for the latest Linux system requirements:

C++ Interface Version 4.50.FC6, Linux zSeries 64-Bit

```
                        ===============================
                             MACHINE SPECIFIC NOTES
                                     FOR
                    IBM Informix Client-SDK 4.50.FC6 PRODUCT RELEASE
                          C++ Interface Version 4.50.FC6
                             On Linux zSeries 64-Bit
                               DATE: 29 Apr 2021
                        ===============================
```

OS Information : Built on Red Hat Enterprise Linux ES release 7.4 (Maipo).
                Certified on SUSE SLES 12.3.

Machine Specific Notes
======================

1. This product was built on Red Hat Enterprise Linux ES release 7.4
   for zSeries mainframe with 64-bit Kernel 3.10.0-693.el7 and
   glibc 2.17-307, using the following compilers:

        gcc version 4.8.5 20150623 (Red Hat 4.8.5-39)

2. If you use the C++ Interface with shared libraries, setting the environment
   variable LD_LIBRARY_PATH:

      (for C Shell)
      setenv LD_LIBRARY_PATH $INFORMIXDIR/lib:$INFORMIXDIR/lib/esql:
      $INFORMIXDIR/lib/c++:$INFORMIXDIR/lib/dmi:$LD_LIBRARY_PATH

      (for Bourne or Korn Shell)
      LD_LIBRARY_PATH=$INFORMIXDIR/lib:$INFORMIXDIR/lib/esql:
      $INFORMIXDIR/lib/c++:$INFORMIXDIR/lib/dmi:$LD_LIBRARY_PATH
      export LD_LIBRARY_PATH

3. IPv6 Support

   IBM Informix Server supports Internet Protocol Version 6 (128 Bit Internet
   Addresses) as well as IPv4 (32 Bit Addresses).

   In order for the machine name specified in the SQLHOSTS file to resolve to
   the correct IP address, the name services files on the operating system
   should be correctly configured. If the machine has IPv6 address configured
   and the listener thread is bound to an IPv6 address, then the name
   resolution files /etc/nsswitch.conf should be configured to fetch IPv6
   addresss. Also use the appropriate /etc/hosts setting if local machine
   settings are used.

   For compatibility with older IBM Informix client and server products,
   assign the same hostname with both an IPv4 address and an IPv6 address.

If the listener needs to be bound to an IPv4 address and the name services
resolve the name in the order of the IPv6 address followed by IPv4 address,
then an explicit IPv4 address needs to be put in nodename field of SQLHOSTS
file. Client applications should also use the same setting.

Check the following web site for the latest Linux system requirements:

   http://www-01.ibm.com/support/docview.wss?rs=630&uid=swg27016673

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C++ Interface Version 4.50.FC6, Solaris Sparc 64bit

```
                    ===============================
                          MACHINE SPECIFIC NOTES
                                   FOR
                    IBM Informix Client-SDK 4.50.FC6 PRODUCT RELEASE
                          C++ Interface Version 4.50.FC6
                            On Solaris Sparc 64bit
                               DATE: 29 Apr 2021
                    ===============================
```

OS Information : Built on Solaris 11.3.

Machine Specific Notes
======================

1. This product was built on Solaris 11.3 using the following compilers
   from Oracle Solaris Studio 12.3:

        Sun C 5.12 SunOS_sparc December 2011
        Sun C++ 5.12 SunOS_sparc December 2011

   The product was built with the following 64-bit compiler flag:

        "-m64"

2. For shared library support, setting environment variables LD_LIBRARY_PATH
   and LD_LIBRARY_PATH_64

   (for Bourne or Korn Shell)
       LD_LIBRARY_PATH=
            $INFORMIXDIR/lib:$INFORMIXDIR/lib/c++:$INFORMIXDIR/lib/esql:
            $INFORMIXDIR/lib/dmi:$LD_LIBRARY_PATH
       export LD_LIBRARY_PATH

   (for C Shell)
       setenv LD_LIBRARY_PATH
            $INFORMIXDIR/lib:$INFORMIXDIR/lib/c++:$INFORMIXDIR/lib/esql:
            $INFORMIXDIR/lib/dmi$LD_LIBRARY_PATH

   If there are 64-bit shared object libraries (.so files)
   which you want the runtime linkers ld and ild to link with your
   C++ API applications, you must either add the directory paths for

```
    these libraries to LD_LIBRARY_PATH or LD_LIBRARY_PATH_64.
    Note that if you add them to LD_LIBRARY_PATH but not to
    LD_LIBRARY_PATH_64 and you define LD_LIBRARY_PATH_64, they will not
    be found as LD_LIBRARY_PATH is ignored when searching for 64-bit
    libraries if LD_LIBRARY_PATH_64 is set.
    You should either set LD_LIBRARY_PATH to all 32-bit and 64-bit
    paths required by your applications and not set LD_LIBRARY_PATH_64
    at all, or set LD_LIBRARY_PATH to only 32-bit paths and
    LD_LIBRARY_PATH_64 to 64-bit paths.

    See the Solaris man pages for ld and ild for more information
    on the environment variables LD_LIBRARY_PATH and LD_LIBRARY_PATH_64.
    See also the Solaris Linker and Libraries Guide.

3. IPv6 Support

    IBM Informix Server supports Internet Protocol Version 6 (128 Bit Internet
    Addresses) as well as IPv4 (32 Bit Addresses).

    In order for the machine name specified in the SQLHOSTS file to resolve to
    the correct IP address, the name services files on the operating system
    should be correctly configured. If the machine has IPv6 address configured
    and the listener thread is bound to an IPv6 address, then the name
    resolution files /etc/nsswitch.conf should be configured to fetch IPv6
    address. Also use the appropriate /etc/hosts setting if local machine
    settings are used.

    For compatibility with older IBM Informix client and server products,
    assign the same hostname with both an IPv4 address and an IPv6 address.
    If the listener needs to be bound to an IPv4 address and the name services
    resolve the name in the order of the IPv6 address followed by IPv4 address,
    then an explicit IPv4 address needs to be put in nodename field of SQLHOSTS
    file. Client applications should also use the same setting.

Check the following web site for the latest Solaris system requirements:

    http://www-01.ibm.com/support/docview.wss?rs=630&uid=swg27016673


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C++ Interface Version 4.50.FC6, Windows x64

```
                =================================
                    MACHINE SPECIFIC NOTES
                            FOR
        IBM Informix Client-SDK 4.50.FC6 PRODUCT RELEASE
                C++ Interface Version 4.50.FC6
                       On Windows x64
                     DATE: 22 Apr 2021
                =================================

OS Information : Built on Windows Server 2016 x64.


Machine Specific Notes
======================
```

1. This product supports the following compiler:

    Microsoft Visual Studio 2017

    This product is built on Windows 2016 using the following compiler from
    Microsoft Visual Studio 2017:

    Microsoft Visual C++ 2017

2. IPv6 Support

    IDS supports Internet Protocol Version 6 (128 Bit Internet Addresses)
    as well as IPv4 (32 Bit Addresses).

    In order for the machine name specified in the SQLHOSTS registry to resolve
    to the correct IP address, the name services files on the Operating System
    should be correctly configured.

    For compatibility with older IBM Informix client and server products,
    assign the same hostname with both an IPv4 address and an IPv6 address.
    If the listener needs to be bound to an IPv4 address and the name services
    resolve the name in the order of the IPv6 address followed by IPv4 address,
    then an explicit IPv4 address needs to be put in the nodename field of the
    server registry. Client applications should also use the same setting.

3. Connectivity on Windows Vista

    To enable connections between database servers on the Vista operating
    system, you must enable network discovery and NetBIOS over TCP/IP.

    To enable connections:

    1) From the Control Panel, double-click Network and Sharing.
    2) In the Sharing and Discovery section of the Network and Sharing Center,
       click Network discovery and then Turn on network discovery.
    3) In the Network section, click View Status next to the Local Area
       Connection.
    4) In the Local Area Connection Status dialog box, click Properties.
    5) In the Local Area Connection Properties dialog box, choose the
       appropriate Internet Protocol Version and click Properties.
    6) In the Internet Protocol Version Properties dialog box, click Advanced.
    7) On the WINS page of the Advanced TCP/IP Settings dialog box, click
       Enable NetBIOS over TCP/IP and then click OK.
    8) Continue clicking OK or Close until all dialog boxes are closed.

Check the following web site for the latest Windows system requirements:

    http://www-01.ibm.com/support/docview.wss?rs=630&uid=swg27016673

ESQL/C Machine Notes

Client SDK 4.50.xC6

- [ESQL/C Version 4.50.FC6, AIX 7.2 64bit](#)
- [ESQL/C Version 4.50.FC6, HP Itanium 64bit](#)
- [ESQL/C Version 4.50.FC5, Linux ARMv7 (armhf)](#)
- [ESQL/C Version 4.50.FC6, Linux aarch64bit](#)
- [ESQL/C Version 4.50.FC5, Linux Power (little endian)](#)
- [ESQL/C Version 4.50.FC6, Linux Intel 64bit](#)
- [ESQL/C Version 4.50.FC6, Linux zSeries 64-Bit](#)
- [ESQL/C Version 4.50.FC6, Solaris Sparc 64bit](#)
- [ESQL/C Version 4.50.FC6, Windows x64](#)

ESQL/C Version 4.50.FC6, AIX 7.2 64bit

```
                    MACHINE SPECIFIC NOTES
                             FOR
           IBM Informix Client-SDK 4.50.FC6 PRODUCT RELEASE
               IBM INFORMIX-ESQL/C Version 4.50.FC6
                       On AIX 7.2 64bit
                      DATE: 29 Apr 2021
              ================================
```

OS Information : Built on AIX 7.2 Technology.

Machine Specific Notes
======================

1. This product was built on AIX 7.2 Technology using the
   following compilers:

   IBM XL C/C++ for AIX, V11.1 (5724-X13)
   XL C/C++ Runtime   13.1.3

2. AIX patch requirement:

3. ESQL/C support for static libraries

   ESQL/C product libraries are supported as both static and shared
   libraries. By default the script uses shared libraries.
   To use static libraries, the 'esql' script must be invoked with the
   -static option:

        esql -static

   To use ESQL/C shared libraries, the environment variable LIBPATH
   must include $INFORMIXDIR/lib and $INFORMIXDIR/lib/esql. During
   runtime of the executable, the dynamic loader will look in this
   path for IBM Informix ESQL/C shared libraries.

     (for Bourne or Korn Shell)
     LIBPATH=$INFORMIXDIR/lib:$INFORMIXDIR/lib/esql:$LIBPATH
     export LIBPATH

     (for C Shell)
     setenv LIBPATH $INFORMIXDIR/lib:$INFORMIXDIR/lib/esql:$LIBPATH

4. **ESQL/C support for thread safe libraries**

   The thread safe ESQL/C libraries are supported on this platform using
   POSIX threads. The THREADLIB environment variable must be to POSIX:
       (for Bourne or Korn Shell)
       THREADLIB=POSIX
       export THREADLIB

       (for C Shell)
       setenv THREADLIB POSIX

   To build thread safe ESQL/C programs, use the following command:

       esql -thread prog.ec -o prog

   Applications that have not been compiled with the -thread option cannot be
   linked with applications that have been compiled with the -thread option.
   To do so, compile all applications with the -thread option.

5. **IPv6 Support**

   The product supports Internet Protocol Version 6 (128 Bit Internet Addresses)
   as well as IPv4 (32 Bit Addresses).

   In order for the machine name specified in the SQLHOSTS file to resolve
   to the correct IP address, the name services files on the Operating System
   should be correctly configured. If the machine has IPv6 address configured
   and the listener thread is bound to an IPv6 address, then the name
   resolution files /etc/netsvc.conf should be configured to fetch IPv6
   address. Also use the appropriate /etc/hosts setting if local machine
   settings are used.

   For compatibility with older IBM Informix client and server products,
   assign the same hostname with both an IPv4 address and an IPv6 address.
   If the listener needs to be bound to an IPv4 address and the name services
   resolve the name in the order of the IPv6 address followed by IPv4 address,
   then an explicit IPv4 address needs to be put in nodename field of SQLHOSTS
   file. Client applications should also use the same setting.

6. **Pluggable Authentication Module (PAM)**

   PAM functionality is supported on AIX 7.2 operating systems. The PAM is
   dependent on the libpam.a library supplied by the Operating System vendor.

   Use of PAM can be enabled or disabled by the system administrator. By
   default, IBM IDS will use the traditional authentication mechanism in
   order to avoid widespread changes required by the users.

   The PAM service identifies the PAM module. This PAM module typically
   resides in /usr/lib/security and its parameters are listed in
   /etc/pam.conf.

Check the following web site for the latest AIX system requirements:

   http://www-01.ibm.com/support/docview.wss?rs=630&uid=swg27016673

ESQL/C Version 4.50.FC6, HP Itanium 64bit

```
                  ===============================
                       MACHINE SPECIFIC NOTES
                               FOR
              IBM Informix Client-SDK 4.50.FC6 PRODUCT RELEASE
                  IBM INFORMIX-ESQL/C Version 4.50.FC6
                          On HP Itanium 64bit
                          DATE: 29 Apr 2021
                  ===============================
```

OS Information : Built on HP-UX 11i V3 (aka 11.31) Itanium.

Machine Specific Notes
======================

1. This product was built on HP-UX 11i V3 (aka 11.31) Itanium using the
   following compilers:

   HP C/aC++ B3910B A.06.26 [Apr 12 2011]

   and with the following packages:

   Bundle Name   Description
   -----------   -----------
   B9007AA   C.11.31.06   HP C/aC++ Developer's Bundle
   BUNDLE   B.2011.08.04   Patch Bundle

2. ESQL/C support for static libraries

   ESQL/C product libraries are supported as both static and shared
   libraries. By default the script uses shared libraries.
   To use static libraries, the 'esql' script must be invoked with the
   -static option:

        esql -static

   During the execution of an ESQL/C program compiled with shared library you
   need the environment variable SHLIB_PATH set to include $INFORMIXDIR/
   lib and $INFORMIXDIR/lib/esql. At runtime of the executable, dynamic
   loader will look for this path for Informix ESQL/C shared libraries.

        (for Bourne or Korn Shell)
        SHLIB_PATH=$INFORMIXDIR/lib:$INFORMIXDIR/lib/esql
        export SHLIB_PATH

        (for C Shell)
        setenv SHLIB_PATH $INFORMIXDIR/lib:$INFORMIXDIR/lib/esql

3. ESQL/C support for thread safe libraries

   The thread safe ESQL/C libraries are supported on this platform using
   POSIX threads. The THREADLIB environment variable must be to POSIX:

        (for Bourne or Korn Shell)
        export THREADLIB=POSIX

        (for C Shell)
        setenv THREADLIB POSIX

To build a thread safe ESQL/C programs, use the following command:

        esql -thread prog.ec -o prog

Applications that have not been compiled with the -thread option cannot be
linked with applications that have been compiled with the -thread option.
To do so, compile all applications with the -thread option.

4. Pluggable Authentication Module (PAM)

PAM functionality is supported on HP-UX operating systems. The PAM is
dependent on the libpam.so library supplied by the Operating System vendor.

Use of PAM can be enabled or disabled by the system administrator. By
default, IBM IDS will use the traditional authentication mechanism in
order to avoid widespread changes required by the users.

The PAM service identifies the PAM module. This PAM module typically
resides in /usr/lib/security and its parameters are listed in
/etc/pam.conf.

5. IPv6 Support

The product supports Internet Protocol Version 6 (128 Bit Internet Addresses)
as well as IPv4 (32 Bit Addresses).

In order for the machine name specified in the SQLHOSTS file to resolve
to the correct IP address, the name services files on the Operating System
should be correctly configured. If the machine has IPv6 address configured
and the listener thread is bound to an IPv6 address, then the name
resolution files /etc/netsvc.conf should be configured to fetch IPv6
address. Also use the appropriate /etc/hosts setting if local machine
settings are used.

For compatibility with older IBM Informix client and server products,
assign the same hostname with both an IPv4 address and an IPv6 address.
If the listener needs to be bound to an IPv4 address and the name services
resolve the name in the order of the IPv6 address followed by IPv4 address,
then an explicit IPv4 address needs to be put in nodename field of SQLHOSTS
file. Client applications should also use the same setting.

Check the following web site for the latest HP-UX system requirements:

    http://www-01.ibm.com/support/docview.wss?rs=630&uid=swg27016673

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ESQL/C Version 4.50.FC5, Linux ARMv7 (armhf)

```
================================
          MACHINE  SPECIFIC  NOTES
                  FOR
    IBM Informix Client-SDK 4.50.UC6 PRODUCT RELEASE
        IBM INFORMIX-ESQL/C Version 4.50.UC6
                  On Linux ARMv7
```

OS Information: Built on Raspbian 9 (stretch) armhf

Machine Specific Notes
======================

1. This product was built on Raspbian Stretch 9 armhf
    (Kernel: 4.14.79-v7+, Glibc: 2.24-11) for ARMv7 compatible
    processors. The following compilers were used:

        gcc and g++ compiler 6.3.0 (Raspbian 6.3.0-18+rpi1+deb9u1)

    The following packages are required on your Linux system:

        libc6
        libgcc1
        libstdc++6
        zlib1g
        krb5
        libcomerr2
        libkeyutils1
        libpcre3
        libselinux1
        openjdk-8
        libelf1 0.152

2. ESQL/C support for static libraries

   ESQL/C product libraries are supported as both static and shared
   libraries. By default the ESQL/C module uses shared libraries.
   To use static libraries, run the esql command with the -static option:

        esql -static

   To use ESQL/C shared libraries, set the environment variable LD_LIBRARY_PATH
   to include $INFORMIXDIR/lib and $INFORMIXDIR/lib/esql. During runtime,
   the dynamic loader will look in this path for IBM Informix ESQL/C shared
   libraries.

       (for Bourne or Korn Shell)
       LD_LIBRARY_PATH=$INFORMIXDIR/lib:$INFORMIXDIR/lib/esql:$LD_LIBRARY_PATH
       export LD_LIBRARY_PATH

       (for C Shell)
       setenv LD_LIBRARY_PATH
$INFORMIXDIR/lib:$INFORMIXDIR/lib/esql:$LD_LIBRARY_PATH

3. ESQL/C support for thread-safe libraries

   The thread-safe ESQL/C libraries are supported on this platform using
   POSIX threads. The THREADLIB environment variable must be set to POSIX:

       (for Bourne or Korn Shell)
       THREADLIB=POSIX
       export THREADLIB

       (for C Shell)
       setenv THREADLIB POSIX

   To build thread-safe ESQL/C programs, use the following command:

       esql -thread mythreadapp.ec -o mythreadapp

IMPORTANT: Applications that were NOT compiled with the -thread option
cannot be linked with applications that were compiled with the -thread
option. To use threads in an application, compile ALL of application
modules with the "-thread" option.

4. Pluggable Authentication Module (PAM)

   PAM functionality is supported on Linux operating systems. PAM requires
   the libpam.so library that is supplied by the Operating System vendor.

   Use of PAM can be enabled or disabled by the system administrator. By
   default, the Informix server will use the traditional authentication
   mechanism to avoid changes for the users.

   The PAM service identifies the PAM module. This PAM module usually is
   located in /usr/lib/arm-linux-gnueabihf and its parameters are listed
   in /etc/pam.conf.

5. IPv6 Support

   The Informix server supports Internet Protocol Version 6 (128 Bit Internet
   Addresses) as well as IPv4 (32 Bit Addresses).

   In order for the machine name that is specified in the SQLHOSTS file to
   resolve to the correct IP address, the name services files on the operating
   system must be configured correctly. If the machine has an IPv6 address
   configured, and the listener thread is bound to an IPv6 address, then the
   name service switch files /etc/nsswitch.conf must be configured to fetch
   an IPv6 address. Also any local machine settings must be set correctly in
   the /etc/hosts file.

   For compatibility with earlier version of Informix client and server
   products, assign each host name with both an IPv4 address and an IPv6
   address. If the listener needs to be bound to an IPv4 address, and the
   name services resolve the name in the order of the IPv6 address followed
   by the IPv4 address, then an explicit IPv4 address needs to be put in the
   host name field of SQLHOSTS file. Client applications should also use the
   same setting.

Check the following website for the latest Linux system requirements:

   http://www.ibm.com/support/docview.wss?rs=630&uid=swg27016673

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ESQL/C Version 4.50.FC6, Linux aarch64bit

```
================================
        MACHINE  SPECIFIC  NOTES
                FOR
   IBM Informix Client-SDK 4.50.FC6 PRODUCT RELEASE
      IBM INFORMIX-ESQL/C Version 4.50.FC6
              On Linux aarch64
            DATE: 28 Apr 2021
```

```
                    ==============================
```

OS Information: Built on openSUSE Leap 42.3

Machine Specific Notes
=====================

1. This product was built on openSUSE Leap 42.3
    (Kernel: 4.4.162-78-default, Glibc: 2.22) for aarch64 compatible
    processors. The following compilers were used:

        gcc/g++ (SUSE Linux) 4.8.5

    The following packages are required on your Linux system:

        glibc
        libgcc_s1
        libstdc++6
        libz1
        krb5
        libcom_err2
        libkeyutils1
        libpcre1
        libselinux1
        libelf1-0.158

2. ESQL/C support for static libraries

   ESQL/C product libraries are supported as both static and shared
   libraries. By default the ESQL/C module uses shared libraries.
   To use static libraries, run the esql command with the -static option:

        esql -static

   To use ESQL/C shared libraries, set the environment variable LD_LIBRARY_PATH
   to include $INFORMIXDIR/lib and $INFORMIXDIR/lib/esql. During runtime,
   the dynamic loader will look in this path for IBM Informix ESQL/C shared
   libraries.

      (for Bourne or Korn Shell)
      LD_LIBRARY_PATH=$INFORMIXDIR/lib:$INFORMIXDIR/lib/esql:$LD_LIBRARY_PATH
      export LD_LIBRARY_PATH

      (for C Shell)
      setenv LD_LIBRARY_PATH
$INFORMIXDIR/lib:$INFORMIXDIR/lib/esql:$LD_LIBRARY_PATH

3. ESQL/C support for thread-safe libraries

   The thread-safe ESQL/C libraries are supported on this platform using
   POSIX threads. The THREADLIB environment variable must be set to POSIX:

      (for Bourne or Korn Shell)
      THREADLIB=POSIX
      export THREADLIB

      (for C Shell)
      setenv THREADLIB POSIX

   To build thread-safe ESQL/C programs, use the following command:

      esql -thread mythreadapp.ec -o mythreadapp

   IMPORTANT: Applications that were NOT compiled with the -thread option

cannot be linked with applications that were compiled with the -thread
option. To use threads in an application, compile ALL of application
modules with the "-thread" option.

4. Pluggable Authentication Module (PAM)

   PAM functionality is supported on Linux operating systems. PAM requires
   the libpam.so library that is supplied by the Operating System vendor.

   Use of PAM can be enabled or disabled by the system administrator. By
   default, the Informix server will use the traditional authentication
   mechanism to avoid changes for the users.

   The PAM service identifies the PAM module. This PAM module usually is
   located in /usr/lib/arm-linux-gnueabihf and its parameters are listed
   in /etc/pam.conf.

5. IPv6 Support

   The Informix server supports Internet Protocol Version 6 (128 Bit Internet
   Addresses) as well as IPv4 (32 Bit Addresses).

   In order for the machine name that is specified in the SQLHOSTS file to
   resolve to the correct IP address, the name services files on the operating
   system must be configured correctly. If the machine has an IPv6 address
   configured, and the listener thread is bound to an IPv6 address, then the
   name service switch files /etc/nsswitch.conf must be configured to fetch
   an IPv6 address. Also any local machine settings must be set correctly in
   the /etc/hosts file.

   For compatibility with earlier version of Informix client and server
   products, assign each host name with both an IPv4 address and an IPv6
   address. If the listener needs to be bound to an IPv4 address, and the
   name services resolve the name in the order of the IPv6 address followed
   by the IPv4 address, then an explicit IPv4 address needs to be put in the
   host name field of SQLHOSTS file. Client applications should also use the
   same setting.

Check the following website for the latest Linux system requirements:

   http://www.ibm.com/support/docview.wss?rs=630&uid=swg27016673

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ESQL/C Version 4.50.FC5, Linux Power (little endian)

```
================================
        MACHINE SPECIFIC NOTES
                FOR
   IBM Informix Client-SDK 4.50.FC6 PRODUCT RELEASE
        IBM INFORMIX-ESQL/C Version 4.50.FC6
            On Linux Power (little endian)
                DATE: 29 Apr 2021
        ================================
```

```
OS Information : Built on Red Hat Enterprise Linux ES release 7.4 (Maipo)
                Certified on SUSE SLES 12.3 and 15.

Machine Specific Notes
======================

1. This product was built on Red Hat Enterprise Linux ES 7.4 (Maipo)
   for 64-Bit Power Series Architecture little endian with Kernel version
   4.10.0 and glibc 2.17 using the following compilers:

        gcc/g++ 4.8.5 20150623

2. ESQL/C support for static libraries

   ESQL/C product libraries are supported as both static and shared
   libraries. By default the script uses shared libraries.
   To use static libraries, the 'esql' script must be invoked with the
   -static option:

        esql -static

   To use ESQL/C shared libraries, the environment variable LD_LIBRARY_PATH
   should be set to include $INFORMIXDIR/lib and $INFORMIXDIR/lib/esql.
   During runtime of the executable, the dynamic loader will look in this
   path for IBM Informix ESQL/C shared libraries.

      (for Bourne or Korn Shell)
      LD_LIBRARY_PATH=$INFORMIXDIR/lib:$INFORMIXDIR/lib/esql:$LD_LIBRARY_PATH
      export LD_LIBRARY_PATH

      (for C Shell)
      setenv LD_LIBRARY_PATH
$INFORMIXDIR/lib:$INFORMIXDIR/lib/esql:$LD_LIBRARY_PATH

3. ESQL/C support for thread safe libraries

   The thread safe ESQL/C libraries are supported on this platform using
   POSIX threads. The THREADLIB environment variable must be to POSIX:

      (for Bourne or Korn Shell)
      THREADLIB=POSIX
      export THREADLIB

      (for C Shell)
      setenv THREADLIB POSIX

   To build thread safe ESQL/C programs, use the following command:

      esql -thread  mythreadapp.ec -o mythreadapp

   Applications that have NOT been compiled with the -thread option CANNOT be
   linked with applications that HAVE been compiled with the -thread option.
   To use threads in an application, compile ALL of its modules with the
   "-thread" option.

4. Pluggable Authentication Module (PAM)

   PAM functionality is supported on Linux for Power architecture systems.
   The PAM is dependent on the libpam.so library supplied by the Operating
   System vendor.

   Use of PAM can be enabled or disabled by the system administrator. By
   default, IBM IDS will use the traditional authentication mechanism in
   order to avoid widespread changes required by the users.
```

The PAM service identifies the PAM module. This PAM module typically
resides in /lib/security and its parameters are listed in /etc/pam.d.
The pam.conf file is ignored on Linux, if the /etc/pam.d directory is
present.

5. IPv6 Support

IBM Informix Server supports Internet Protocol Version 6 (128 Bit Internet
Addresses) as well as IPv4 (32 Bit Addresses).

In order for the machine name specified in the SQLHOSTS file to resolve to
the correct IP address, the name services files on the operating system
should be correctly configured. If the machine has IPv6 address configured
and the listener thread is bound to an IPv6 address, then the name
resolution files /etc/nsswitch.conf should be configured to fetch IPv6
addresss. Also use the appropriate /etc/hosts setting if local machine
settings are used.

For compatibility with older IBM Informix client and server products,
assign the same hostname with both an IPv4 address and an IPv6 address.
If the listener needs to be bound to an IPv4 address and the name services
resolve the name in the order of the IPv6 address followed by IPv4 address,
then an explicit IPv4 address needs to be put in nodename field of SQLHOSTS
file. Client applications should also use the same setting.

Check the following web site for the latest Linux system requirements:

   http://www-01.ibm.com/support/docview.wss?rs=630&uid=swg27016673

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ESQL/C Version 4.50.FC6, Linux Intel 64bit

```
                  ================================
                       MACHINE SPECIFIC NOTES
                               FOR
            IBM Informix Client-SDK 4.50.FC6 PRODUCT RELEASE
                 IBM INFORMIX-ESQL/C Version 4.50.FC6
                        On Linux Intel 64bit
                         DATE: 29 Apr 2021
                  ================================
```

OS Information : Built on Red Hat Enterprise Linux ES release 7.4 (Maipo)
               Certified on SUSE SLES 12.3 and 15,
               Ubuntu Server Edition 16.04 LTS and 17.10.

Machine Specific Notes
======================

1. This product was built on Red Hat Enterprise Linux ES release 7.4
   (Kernel: 3.10.0-693, Glibc: 2.17) for x86_64 compatible processors.
   The following compilers were used:

       gcc and g++ compiler 4.8.5 20150623 (Red Hat 4.8.5-16)

Installing the product on Ubuntu or Debian requires RPM to be installed and initialized. After RPM installed, use the following commands to initialize RPM:

```
mkdir -p /var/lib/rpm
rpm --initdb
```

The bc utility is required by the product installer, and needs to be installed on Ubuntu.

2. ESQL/C support for static libraries

ESQL/C product libraries are supported as both static and shared libraries. By default the script uses shared libraries.
To use static libraries, the 'esql' script must be invoked with the -static option:

```
esql -static
```

To use ESQL/C shared libraries, the environment variable LD_LIBRARY_PATH should be set to include $INFORMIXDIR/lib and $INFORMIXDIR/lib/esql. During runtime of the executable, the dynamic loader will look in this path for IBM Informix ESQL/C shared libraries.

```
(for Bourne or Korn Shell)
LD_LIBRARY_PATH=$INFORMIXDIR/lib:$INFORMIXDIR/lib/esql:$LD_LIBRARY_PATH
export LD_LIBRARY_PATH

(for C Shell)
setenv LD_LIBRARY_PATH
$INFORMIXDIR/lib:$INFORMIXDIR/lib/esql:$LD_LIBRARY_PATH
```

3. ESQL/C support for thread safe libraries

The thread safe ESQL/C libraries are supported on this platform using POSIX threads. The THREADLIB environment variable must be to POSIX:

```
(for Bourne or Korn Shell)
THREADLIB=POSIX
export THREADLIB

(for C Shell)
setenv THREADLIB POSIX
```

To build thread safe ESQL/C programs, use the following command:

```
esql -thread  mythreadapp.ec -o mythreadapp
```

Applications that have NOT been compiled with the -thread option CANNOT be linked with applications that HAVE been compiled with the -thread option. To use threads in an application, compile ALL of its modules with the "-thread" option.

4. Pluggable Authentication Module (PAM)

PAM functionality is supported on Linux operating systems. The PAM is dependent on the libpam.so library supplied by the Operating System vendor.

Use of PAM can be enabled or disabled by the system administrator. By default, IBM IDS will use the traditional authentication mechanism in order to avoid widespread changes required by the users.

The PAM service identifies the PAM module. This PAM module typically

resides in /lib/security and its parameters are listed in /etc/pam.d.
The pam.conf file is ignored on Linux, if the /etc/pam.d directory is
present.

5. IPv6 Support

   The product supports Internet Protocol Version 6 (128 Bit Internet Addresses)
   as well as IPv4 (32 Bit Addresses).

   In order for the machine name specified in the SQLHOSTS file to resolve
   to the correct IP address, the name services files on the Operating System
   should be correctly configured. If the machine has IPv6 address configured
   and the listener thread is bound to an IPv6 address, then the name
   resolution files /etc/netsvc.conf should be configured to fetch IPv6
   address. Also use the appropriate /etc/hosts setting if local machine
   settings are used.

   For compatibility with older IBM Informix client and server products,
   assign the same hostname with both an IPv4 address and an IPv6 address.
   If the listener needs to be bound to an IPv4 address and the name services
   resolve the name in the order of the IPv6 address followed by IPv4 address,
   then an explicit IPv4 address needs to be put in nodename field of SQLHOSTS
   file. Client applications should also use the same setting.

Check the following web site for the latest Linux system requirements:

   http://www-01.ibm.com/support/docview.wss?rs=630&uid=swg27016673

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ESQL/C Version 4.50.FC6, Linux zSeries 64-Bit

```
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                         MACHINE SPECIFIC NOTES
                                  FOR
                  IBM Informix Client-SDK 4.50.FC6 PRODUCT RELEASE
                       IBM INFORMIX-ESQL/C Version 4.50.FC6
                             On Linux zSeries 64-Bit
                              DATE: 29 Apr 2021
                    ================================
```

OS Information : Built on Red Hat Enterprise Linux ES release 7.4 (Maipo).
                 Certified on SUSE SLES 12.3.

Machine Specific Notes
======================

1. This product was built on Red Hat Enterprise Linux ES release 7.4
   for zSeries mainframe with 64-bit Kernel 3.10.0-693.el7 and
   glibc 2.17-307, using the following compilers:

       gcc version 4.8.5 20150623 (Red Hat 4.8.5-39)

2. ESQL/C support for static libraries

ESQL/C product libraries are supported as both static and shared
libraries. By default the script uses shared libraries.
To use static libraries, the 'esql' script must be invoked with the
-static option:

        esql -static

  To use ESQL/C shared libraries, the environment variable LD_LIBRARY_PATH
  should be set to include $INFORMIXDIR/lib and $INFORMIXDIR/lib/esql.
  During runtime of the executable, the dynamic loader will look in this
  path for IBM Informix ESQL/C shared libraries.

     (for Bourne or Korn Shell)
     LD_LIBRARY_PATH=$INFORMIXDIR/lib:$INFORMIXDIR/lib/esql:$LD_LIBRARY_PATH
     export LD_LIBRARY_PATH

     (for C Shell)
     setenv LD_LIBRARY_PATH
$INFORMIXDIR/lib:$INFORMIXDIR/lib/esql:$LD_LIBRARY_PATH

3. ESQL/C support for thread safe libraries

   The thread safe ESQL/C libraries are supported on this platform using
   POSIX threads. The THREADLIB environment variable must be to POSIX:

      (for Bourne or Korn Shell)
      THREADLIB=POSIX
      export THREADLIB

      (for C Shell)
      setenv THREADLIB POSIX

   To build thread safe ESQL/C programs, use the following command:

      esql -thread mythreadapp.ec -o mythreadapp

   Applications that have NOT been compiled with the -thread option CANNOT be
   linked with applications that HAVE been compiled with the -thread option.
   To use threads in an application, compile ALL of its modules with the
   "-thread" option.

4. Pluggable Authentication Module (PAM)

   PAM functionality is supported on Linux zSeries operating systems. The
   PAM is dependent on the libpam.so library supplied by the Operating System
   vendor.

   Use of PAM can be enabled or disabled by the system administrator. By
   default, IBM IDS will use the traditional authentication mechanism in
   order to avoid widespread changes required by the users.

   The PAM service identifies the PAM module. This PAM module typically
   resides in /lib/security and its parameters are listed in /etc/pam.d.
   The pam.conf file is ignored on Linux, if the /etc/pam.d directory is
   present.

5. IPv6 Support

   IBM Informix Server supports Internet Protocol Version 6 (128 Bit Internet
   Addresses) as well as IPv4 (32 Bit Addresses).

   In order for the machine name specified in the SQLHOSTS file to resolve to
   the correct IP address, the name services files on the operating system
   should be correctly configured. If the machine has IPv6 address configured

and the listener thread is bound to an IPv6 address, then the name
resolution files /etc/nsswitch.conf should be configured to fetch IPv6
addresss. Also use the appropriate /etc/hosts setting if local machine
settings are used.

For compatibility with older IBM Informix client and server products,
assign the same hostname with both an IPv4 address and an IPv6 address.
If the listener needs to be bound to an IPv4 address and the name services
resolve the name in the order of the IPv6 address followed by IPv4 address,
then an explicit IPv4 address needs to be put in nodename field of SQLHOSTS
file. Client applications should also use the same setting.

Check the following web site for the latest Linux system requirements:

   http://www-01.ibm.com/support/docview.wss?rs=630&uid=swg27016673

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ESQL/C Version 4.50.FC6, Solaris Sparc 64bit

```
                   ===============================
                         MACHINE SPECIFIC NOTES
                                  FOR
                 IBM Informix Client-SDK 4.50.FC6 PRODUCT RELEASE
                      IBM INFORMIX-ESQL/C Version 4.50.FC6
                            On Solaris Sparc 64bit
                              DATE: 29 Apr 2021
                   ===============================
```

OS Information : Built on Solaris 11.3.

Machine Specific Notes
======================

1. This product was built on Solaris 11.3 using the following compilers
   from Oracle Solaris Studio 12.6:

        Sun C 5.15 SunOS_sparc 2017/05/30
        Sun C++ 5.15 SunOS_sparc 2017/05/30

   The product was built with the following 64-bit compiler flag:

        "-m64"

2. ESQL/C support for static libraries

   ESQL/C product libraries are supported as both static and shared
   libraries. By default the script uses shared libraries.
   To use static libraries, the 'esql' script must be invoked with the
   -static option:

        esql -static

    To use ESQL/C shared libraries, the environment variable LD_LIBRARY_PATH

must include $INFORMIXDIR/lib and $INFORMIXDIR/lib/esql. During runtime
of the executable, the dynamic loader will look in this path for IBM
Informix ESQL/C shared libraries.

```
(for Bourne or Korn Shell)
LD_LIBRARY_PATH=$INFORMIXDIR/lib:$INFORMIXDIR/lib/esql:$LD_LIBRARY_PATH
export LD_LIBRARY_PATH

(for C Shell)
setenv LD_LIBRARY_PATH
$INFORMIXDIR/lib:$INFORMIXDIR/lib/esql:$LD_LIBRARY_PATH
```

3. ESQL/C support for thread safe libraries

   The thread safe ESQL/C libraries are supported on this platform using
   Native Solaris threads. The THREADLIB environment variable must be to
   SOL:

   ```
   (for Bourne or Korn Shell)
   export THREADLIB=SOL

   (for C Shell)
   setenv THREADLIB SOL
   ```

   To build thread safe ESQL/C programs, use the following command:

   ```
   esql -static -thread prog.ec -o prog
   ```

4. Pluggable Authentication Module (PAM)

   PAM functionality is supported on Solaris operating systems. The PAM is
   dependent on the libpam.so library supplied by the Operating System vendor.

   Use of PAM can be enabled or disabled by the system administrator. By
   default, IBM IDS will use the traditional authentication mechanism in
   order to avoid widespread changes required by the users.

   The PAM service identifies the PAM module. This PAM module typically
   resides in /usr/lib/security and its parameters are listed in
   /etc/pam.conf.

5. IPv6 Support

   IBM Informix Server supports Internet Protocol Version 6 (128 Bit Internet
   Addresses) as well as IPv4 (32 Bit Addresses).

   In order for the machine name specified in the SQLHOSTS file to resolve to
   the correct IP address, the name services files on the operating system
   should be correctly configured. If the machine has IPv6 address configured
   and the listener thread is bound to an IPv6 address, then the name
   resolution files /etc/nsswitch.conf should be configured to fetch IPv6
   address. Also use the appropriate /etc/hosts setting if local machine
   settings are used.

   For compatibility with older IBM Informix client and server products,
   assign the same hostname with both an IPv4 address and an IPv6 address.
   If the listener needs to be bound to an IPv4 address and the name services
   resolve the name in the order of the IPv6 address followed by IPv4 address,
   then an explicit IPv4 address needs to be put in nodename field of SQLHOSTS
   file. Client applications should also use the same setting.

Check the following web site for the latest Solaris system requirements:

   http://www-01.ibm.com/support/docview.wss?rs=630&uid=swg27016673

ESQL/C Version 4.50.FC6, Windows x64

```
================================
           MACHINE SPECIFIC NOTES
                    FOR
    IBM Informix Client-SDK 4.50.FC6 PRODUCT RELEASE
         IBM INFORMIX-ESQL/C Version 4.50.FC6
                On Windows x64
              DATE: 22 Apr 2021
================================
```

OS Information : Built on Windows Server 2016 x64.

Machine Specific Notes
=====================

1. This product supports the following compiler:

    Microsoft Visual Studio 2017

    This product is built on Windows 2016 using the following compiler
    from Microsoft Visual Studio 2017:

    Microsoft Visual C++ 2017

2. Pluggable Authentication Module (PAM)

    PAM functionality is supported. Use of PAM can be enabled or disabled by
    the system administrator. By default, IBM IDS will use the traditional
    authentication mechanism in order to avoid widespread changes required
    by the users.

3. IPv6 Support

    IDS supports Internet Protocol Version 6 (128 Bit Internet Addresses)
    as well as IPv4 (32 Bit Addresses).

    In order for the machine name specified in the SQLHOSTS registry to resolve
    to the correct IP address, the name services files on the Operating System
    should be correctly configured.

    For compatibility with older IBM Informix client and server products,
    assign the same hostname with both an IPv4 address and an IPv6 address.
    If the listener needs to be bound to an IPv4 address and the name services
    resolve the name in the order of the IPv6 address followed by IPv4 address,
    then an explicit IPv4 address needs to be put in the nodename field of the
    server registry. Client applications should also use the same setting.

4. ESQL/C support for static libraries

    ESQL/C product libraries are supported as both static and dynamic
    libraries. By default the script uses dynamic libraries.

```
    To use static libraries, the 'esql' script must be invoked with the
    -static option:

        esql -static

    Currently this -static option only works with the Microsoft Compiler.
    The static library name is isqlt09s.lib. This library is installed in
    $INFORMIXDIR/lib.

    This version of CSDK is built and certified with Microsoft Visual
    Studio 2013 Version. Hence its recommended to use compiler version >= 2013.
    If you statically link (-static option) your ESQL/C application
    with Microsoft Visual Studio Version older than 2013, you may receive
    undefined symbol __report_rangecheckfailure() error. In order to avoid
    this error, you will need to use Microsoft Visual Studio Version 2013 or
later.

5.  Connectivity on Windows Vista

    To enable connections between database servers on the Vista operating
    system, you must enable network discovery and NetBIOS over TCP/IP.

    To enable connections:

    1) From the Control Panel, double-click Network and Sharing.
    2) In the Sharing and Discovery section of the Network and Sharing Center,
       click Network discovery and then Turn on network discovery.
    3) In the Network section, click View Status next to the Local Area
       Connection.
    4) In the Local Area Connection Status dialog box, click Properties.
    5) In the Local Area Connection Properties dialog box, choose the
       appropriate Internet Protocol Version and click Properties.
    6) In the Internet Protocol Version Properties dialog box, click Advanced.
    7) On the WINS page of the Advanced TCP/IP Settings dialog box, click
       Enable NetBIOS over TCP/IP and then click OK.
    8) Continue clicking OK or Close until all dialog boxes are closed.

6.  Host Variables (mlong datatype in Windows 64-bit)

    The mlong datatype is mapped to __int64 for Windows 64-bit. In Windows
    32-bit and 32/64-bit UNIX, mlong is mapped to long datatype.

Check the following web site for the latest Windows system requirements:

    http://www-01.ibm.com/support/docview.wss?rs=630&uid=swg27016673


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```

GLS API Machine Notes

Client SDK 4.50.xC6

- GLS API Version 7.0, Linux Intel 64bit
- GLS API Version 6.0, HP Itanium 64bit

- [GLS API Version 7.0, Linux ARMv7 (armhf)](#)
- [GLS API Version 7.0, Linux aarch64](#)
- [GLS API Version 7.0, Linux Power (little endian)](#)
- [GLS API Version 7.0, Linux Intel 64bit](#)
- [GLS API Version 7.0, Linux zSeries 64-Bit](#)
- [GLS API Version 7.0, Solaris Sparc 64bit](#)
- [GLS API Version 7.0, Windows x64](#)

GLS API Version 7.0, Linux Intel 64bit

```
================================
        MACHINE SPECIFIC NOTES
                FOR
   IBM Informix Client-SDK 4.50.FC6 PRODUCT RELEASE
           GLS API Version 7.0
             On AIX 7.2 64bit
             DATE: 29 Apr 2021
================================
```

OS Information : Built on AIX 7.2 Technology.

Machine Specific Notes
======================

1. This product was built on AIX 7.2 Technology using the
   following compilers:

   IBM XL C/C++ for AIX, V13.1.3 (5765-J06)
   XL C/C++ Runtime   13.1.3

Check the following web site for the latest AIX system requirements:

   http://www-01.ibm.com/support/docview.wss?rs=630&uid=swg27016673

2. AIX patch requirement:

   AIX 7.1:

        September 2010 PTF for XL C for AIX, V11.1

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GLS API Version 6.0, HP Itanium 64bit

```
================================
        MACHINE SPECIFIC NOTES
                FOR
```

```
                    IBM Informix Client-SDK 4.50.FC6 PRODUCT RELEASE
                               GLS API Version 6.0
                               On HP Itanium 64bit
                              DATE: 29 Apr 2021
                    =================================
```

OS Information : Built on HP-UX 11i V3 (aka 11.31) Itanium.

Machine Specific Notes
=====================

1. This product was built on HP-UX 11i V3 (aka 11.31) Itanium using the
   following compilers:

   HP C/aC++ B3910B A.06.26 [Apr 12 2011]

   and with the following packages:

   Bundle Name   Description
   -----------   -----------
   B9007AA   C.11.31.06   HP C/aC++ Developer's Bundle
   BUNDLE   B.2011.08.04   Patch Bundle

Check the following web site for the latest HP-UX system requirements:

   http://www-01.ibm.com/support/docview.wss?rs=630&uid=swg27016673

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GLS API Version 7.0, Linux ARMv7 (armhf)

```
                    =================================
                          MACHINE SPECIFIC NOTES
                                   FOR
                 IBM Informix Client-SDK 4.50.UC6 PRODUCT RELEASE
                               GLS API Version 7.0
                              On Linux ARMv7 (armhf)
                              DATE: 28 Apr 2021
                    =================================
```

OS Information: Built on Raspbian 9 (stretch) armhf

Machine Specific Notes
=====================

1. This product was built on Raspbian Stretch 9 armhf
    (Kernel: 4.14.79-v7+, Glibc: 2.24-11) for ARMv7 compatible
    processors. The following compilers were used:

        gcc and g++ compiler 6.3.0 (Raspbian 6.3.0-18+rpi1+deb9u1)

    The following packages have to be installed on your Linux system:

        libc6
        libgcc1

```
        libstdc++6
        zlib1g
        krb5
        libcomerr2
        libkeyutils1
        libpcre3
        libselinux1
        openjdk-8
        libelf1 0.152
```

Check the following website for the latest Linux system requirements:

   `http://www.ibm.com/support/docview.wss?rs=630&uid=swg27016673`

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GLS API Version 7.0, Linux aarch64

```
        =================================
               MACHINE SPECIFIC NOTES
                        FOR
        IBM Informix Client-SDK 4.50.FC6 PRODUCT RELEASE
                  GLS API Version 7.0
                    On Linux aarch64
                   DATE: 28 Apr 2021
        =================================
```

OS Information: Built on openSUSE Leap 42.3

Machine Specific Notes
=====================

1.   Thin product was built on openSUSE Leap 42.3
     (Kernel: 4.4.162-78-default, Glibc: 2.22) for aarch64 compatible
     processors. The following compilers were used:

        gcc/g++ (SUSE Linux) 4.8.5

     The following packages have to be installed on your Linux system:

        glibc
        libgcc_s1
        libstdc++6
        libz1
        krb5
        libcom_err2
        libkeyutils1
        libpcre1
        libselinux1
        libelf1-0.158

Check the following website for the latest Linux system requirements:

   `http://www.ibm.com/support/docview.wss?rs=630&uid=swg27016673`

GLS API Version 7.0, Linux Power (little endian)

```
=================================
            MACHINE SPECIFIC NOTES
                    FOR
    IBM Informix Client-SDK 4.50.FC6 PRODUCT RELEASE
              GLS API Version 7.0
            On Linux Power (little endian)
                DATE: 29 Apr 2021
=================================
```

OS Information : Built on Red Hat Enterprise Linux ES release 7.4 (Maipo)
          Certified on SUSE SLES 12.3 and 15.

Machine Specific Notes
======================

1. This product was built on Red Hat Enterprise Linux ES 7.4 (Maipo)
   for 64-Bit Power Series Architecture little endian with Kernel version
   4.10.0 and glibc 2.17 using the following compilers:

        gcc/g++ 4.8.5 20150623

Check the following web site for the latest Linux system requirements:

    http://www-01.ibm.com/support/docview.wss?rs=630&uid=swg27016673

GLS API Version 7.0, Linux Intel 64bit

```
=================================
            MACHINE SPECIFIC NOTES
                    FOR
    IBM Informix Client-SDK 4.50.FC6 PRODUCT RELEASE
              GLS API Version 7.0
              On Linux Intel 64bit
                DATE: 29 Apr 2021
=================================
```

OS Information : Built on Red Hat Enterprise Linux ES release 7.4 (Maipo)
          Certified on SUSE SLES 12.3 and 15,
          Ubuntu Server Edition 16.04 LTS and 17.10.

```
Machine Specific Notes
======================

1. This product was built on Red Hat Enterprise Linux ES release 7.4
   (Kernel:  3.10.0-693, Glibc: 2.17) for x86_64 compatible processors.
   The following compilers were used:

        gcc and g++ compiler 4.8.5 20150623 (Red Hat 4.8.5-16)

   Installing the product on Ubuntu or Debian requires RPM to be installed
   and initialized. After RPM installed, use the following commands to
   initialize RPM:

        mkdir -p /var/lib/rpm
        rpm --initdb

   The bc utility is required by the product installer, and needs to be
   installed on Ubuntu.

Check the following web site for the latest Linux system requirements:

   http://www-01.ibm.com/support/docview.wss?rs=630&uid=swg27016673


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```

GLS API Version 7.0, Linux zSeries 64-Bit

```
                   ===============================
                         MACHINE SPECIFIC NOTES
                                  FOR
                   IBM Informix Client-SDK 4.50.FC6 PRODUCT RELEASE
                            GLS API Version 7.0
                          On Linux zSeries 64-Bit
                            DATE: 29 Apr 2021
                   ===============================

OS Information : Built on Red Hat Enterprise Linux ES release 7.4 (Maipo).
                Certified on SUSE SLES 12.3.

Machine Specific Notes
======================

1. This product was built on Red Hat Enterprise Linux ES release 7.4
   for zSeries mainframe with 64-bit Kernel  3.10.0-693.el7 and
   glibc 2.17-307, using the following compilers:

        gcc version 4.8.5 20150623 (Red Hat 4.8.5-39)

Check the following web site for the latest Linux system requirements:

   http://www-01.ibm.com/support/docview.wss?rs=630&uid=swg27016673


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```

GLS API Version 7.0, Solaris Sparc 64bit

```
                    ================================
                         MACHINE SPECIFIC NOTES
                                  FOR
                IBM Informix Client-SDK 4.50.FC6 PRODUCT RELEASE
                           GLS API Version 7.0
                           On Solaris Sparc 64bit
                             DATE: 29 Apr 2021
                    ================================

OS Information : Built on Solaris 11.3.

Machine Specific Notes
======================

1. This product was built on Solaris 11.3 using the following compilers
   from Oracle Solaris Studio 12.3:

        Sun C 5.12 SunOS_sparc December 2011
        Sun C++ 5.12 SunOS_sparc December 2011

   The product was built with the following 64-bit compiler flag:

        "-m64"

Check the following web site for the latest Solaris system requirements:

   http://www-01.ibm.com/support/docview.wss?rs=630&uid=swg27016673


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```

GLS API Version 7.0, Windows x64

```
                    ================================
                         MACHINE SPECIFIC NOTES
                                  FOR
                IBM Informix Client-SDK 4.50.FC6 PRODUCT RELEASE
                           GLS API Version 7.00
                              On Windows x64
                             DATE: 22 Apr 2021
                    ================================

OS Information : Built on Windows Server 2016 x64.

Machine Specific Notes
======================
```

```
1.  This product supports the following compiler:

        Microsoft Visual Studio 2017

    This product is built on Windows 2016 using the following compiler
    from Microsoft Visual Studio 2017:

        Microsoft Visual C++ 2017

2.  Connectivity on Windows Vista

    To enable connections between database servers on the Vista operating
    system, you must enable network discovery and NetBIOS over TCP/IP.

    To enable connections:

    1) From the Control Panel, double-click Network and Sharing.
    2) In the Sharing and Discovery section of the Network and Sharing Center,
       click Network discovery and then Turn on network discovery.
    3) In the Network section, click View Status next to the Local Area
       Connection.
    4) In the Local Area Connection Status dialog box, click Properties.
    5) In the Local Area Connection Properties dialog box, choose the
       appropriate Internet Protocol Version and click Properties.
    6) In the Internet Protocol Version Properties dialog box, click Advanced.
    7) On the WINS page of the Advanced TCP/IP Settings dialog box, click
       Enable NetBIOS over TCP/IP and then click OK.
    8) Continue clicking OK or Close until all dialog boxes are closed.

Check the following web site for the latest Windows system requirements:

    http://www-01.ibm.com/support/docview.wss?rs=630&uid=swg27016673


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```

ODBC Driver Machine Notes

Client SDK 4.50.xC5

- Informix ODBC Driver Version 4.50.FC6, AIX 7.2 64bit
- Informix ODBC Driver Version 4.50.FC6, HP Itanium 64bit
- Informix ODBC Driver Version 4.50.FC6, Linux ARMv7 (armhf)
- Informix ODBC Driver Version 4.50.FC6, Linux aarch64
- Informix ODBC Driver Version 4.50.FC6, Linux Power (little endian)
- Informix ODBC Driver Version 4.50.FC6, Linux Intel 64bit
- Informix ODBC Driver Version 4.50.FC6, Linux zSeries 64-Bit
- Informix ODBC Driver Version 4.50.FC6, Solaris Sparc 64bit
- Informix ODBC Driver Version 4.50.FC6, Windows x64

Informix ODBC Driver Version 4.50.FC6, AIX 7.2 64bit

```
================================
           MACHINE SPECIFIC NOTES
                    FOR
    IBM Informix Client-SDK 4.50.FC6 PRODUCT RELEASE
        Informix ODBC Driver Version 4.50.FC6
                On AIX 7.2 64bit
              DATE: 29 Apr 2021
================================
```

OS Information : Built on AIX 7.2 Technology.

Machine Specific Notes
======================

1. This product was built on AIX 7.2 Technology using the
   following compilers:

   IBM XL C/C++ for AIX, V13.1.3 (5765-J06)
   XL C/C++ Runtime   13.1.3

2. AIX patch requirement:

3. For using the ODBC shared libraries, the application should be compiled
   with the -brtl linker option and the LIBPATH environment variable must
   be set as follows.

        (for Bourne or Korn Shell)
        LIBPATH=$INFORMIXDIR/lib:$INFORMIXDIR/lib/cli:$INFORMIXDIR/lib/esql:
            $LIBPATH
        export LIBPATH

        (for C Shell)
        setenv LIBPATH $INFORMIXDIR/lib:$INFORMIXDIR/lib/cli:
                    $INFORMIXDIR/lib/esql:$LIBPATH

4. The thread safe ODBC libraries are supported on this platform using
   POSIX threads and the applications must be compiled with xlc_r.
   For using the ODBC thread shared library, the application should be
   compiled with the -brtl linker option.

5. Migration of existing ODBC applications from 32 bit versions of
   IBM INFORMIX-Client SDK to IBM INFORMIX-Client SDK 4.50.FC6.

   ALL the existing 32-bit ODBC applications WILL need to be recompiled
   to make them work with IBM INFORMIX-Client SDK 4.50.FC6.
   Before recompiling these existing applications, changes will be
   required to be made to the application sources, if above mentioned ODBC
   API and/or ODBC Datatypes are being used. Also applications   should
   not have any "long" and/or "unsigned long" C-Data types declared
   which is being passed to any Informix ODBC APIs. Informix recommends
   use of SQLINTEGER/SQLUINTEGER, SDWORD/UDWORD standard ODBC types as
   defined in Informix header files.

5. IPv6 Support

   The product supports Internet Protocol Version 6 (128 Bit Internet Addresses)
   as well as IPv4 (32 Bit Addresses).

In order for the machine name specified in the SQLHOSTS file to resolve
to the correct IP address, the name services files on the Operating System
should be correctly configured. If the machine has IPv6 address configured
and the listener thread is bound to an IPv6 address, then the name
resolution files /etc/netsvc.conf should be configured to fetch IPv6
address. Also use the appropriate /etc/hosts setting if local machine
settings are used.

For compatibility with older IBM Informix client and server products,
assign the same hostname with both an IPv4 address and an IPv6 address.
If the listener needs to be bound to an IPv4 address and the name services
resolve the name in the order of the IPv6 address followed by IPv4 address,
then an explicit IPv4 address needs to be put in nodename field of SQLHOSTS
file. Client applications should also use the same setting.

6. Pluggable Authentication Module (PAM)

PAM functionality is supported on AIX 7.2 operating systems. The PAM is
dependent on the libpam.a library supplied by the Operating System vendor.

Use of PAM can be enabled or disabled by the system administrator. By
default, IBM IDS will use the traditional authentication mechanism in
order to avoid widespread changes required by the users.

The PAM service identifies the PAM module. This PAM module typically
resides in /usr/lib/security and its parameters are listed in
/etc/pam.conf.

Check the following web site for the latest AIX system requirements:

http://www-01.ibm.com/support/docview.wss?rs=630&uid=swg27016673

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Informix ODBC Driver Version 4.50.FC6, HP Itanium 64bit

```
                      ================================

                           MACHINE SPECIFIC NOTES
                                   FOR
               IBM Informix Client-SDK 4.50.FC6 PRODUCT RELEASE
                  IBM Informix ODBC Driver Version 4.50.FC6
                           On HP Itanium 64bit
                           DATE: 29 Apr 2021
                      ================================
```

OS Information : Built on HP-UX 11i V3 (aka 11.31) Itanium.

Machine Specific Notes
======================

1. This product was built on HP-UX 11i V3 (aka 11.31) Itanium using the

following compilers:

HP C/aC++ B3910B A.06.26 [Apr 12 2011]

and with the following packages:

```
Bundle Name      Description
-----------      -----------
B9007AA          C.11.31.06     HP C/aC++ Developer's Bundle
BUNDLE           B.2011.08.04   Patch Bundle
```

2. For shared library support, environment variable SHLIB_PATH needs to be set to include the $INFORMIXDIR/lib/cli directories where INFORMIX ODBC shared libraries are installed.

   (for Bourne or Korn Shell)
   SHLIB_PATH=$INFORMIXDIR/lib/cli:$INFORMIXDIR/lib/esql:$SHLIB_PATH
   export SHLIB_PATH

   (for C Shell)
   setenv SHLIB_PATH $INFORMIXDIR/lib/cli:$INFORMIXDIR/lib/esql:$SHLIB_PATH

3. The thread safe INFORMIX ODBC libraries are supported for the current release.

4. Migration of existing ODBC applications from 32 bit versions of IBM INFORMIX-Client SDK to IBM INFORMIX-Client SDK 4.50.FC6.

   ALL the existing 32-bit ODBC applications WILL need to be recompiled to make them work with IBM INFORMIX-Client SDK 4.50.FC6.
   Before recompiling these existing applications, changes will be required to be made to the application sources, if above mentioned ODBC API and/or ODBC Datatypes are being used. Also applications   should not have any "long" and/or "unsigned long" C-Data types declared which is being passed to any Informix ODBC APIs. Informix recommends use of SQLINTEGER/SQLUINTEGER, SDWORD/UDWORD standard ODBC types as defined in Informix header files.

5. Pluggable Authentication Module (PAM)

   PAM functionality is supported on HP-UX operating systems. The PAM is dependent on the libpam.so library supplied by the Operating System vendor.

   Use of PAM can be enabled or disabled by the system administrator. By default, IBM IDS will use the traditional authentication mechanism in order to avoid widespread changes required by the users.

   The PAM service identifies the PAM module. This PAM module typically resides in /usr/lib/security and its parameters are listed in /etc/pam.conf.

6. IPv6 Support

   The product supports Internet Protocol Version 6 (128 Bit Internet Addresses) as well as IPv4 (32 Bit Addresses).

   In order for the machine name specified in the SQLHOSTS file to resolve to the correct IP address, the name services files on the Operating System should be correctly configured. If the machine has IPv6 address configured and the listener thread is bound to an IPv6 address, then the name resolution files /etc/netsvc.conf should be configured to fetch IPv6 address. Also use the appropriate /etc/hosts setting if local machine settings are used.

For compatibility with older IBM Informix client and server products, assign the same hostname with both an IPv4 address and an IPv6 address. If the listener needs to be bound to an IPv4 address and the name services resolve the name in the order of the IPv6 address followed by IPv4 address, then an explicit IPv4 address needs to be put in nodename field of SQLHOSTS file. Client applications should also use the same setting.

Check the following web site for the latest HP-UX system requirements:

http://www-01.ibm.com/support/docview.wss?rs=630&uid=swg27016673

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Informix ODBC Driver Version 4.50.FC6, Linux ARMv7 (armhf)

```
================================
        MACHINE SPECIFIC NOTES
                FOR
   IBM Informix Client-SDK 4.50.UC6 PRODUCT RELEASE
      IBM Informix ODBC Driver Version 4.50.UC6
                On Linux ARMv7 (armhf)
                DATE: 28 Apr 2021
================================
```

OS Information: Built on Raspbian 9 (stretch) armhf

Machine Specific Notes
======================

1. This product was built on Raspbian Stretch 9 armhf
    (Kernel: 4.14.79-v7+, Glibc: 2.24-11) for ARMv7 compatible
    processors. The following compilers were used:

        gcc and g++ compiler 6.3.0 (Raspbian 6.3.0-18+rpi1+deb9u1)

    The following packages are required on your Linux system:

        libc6
        libgcc1
        libstdc++6
        zlib1g
        krb5
        libcomerr2
        libkeyutils1
        libpcre3
        libselinux1
        openjdk-8
        libelf1 0.152

2. For shared library support, set the environment variable LD_LIBRARY_PATH
    to include the $INFORMIXDIR/lib/cli directories where IBM INFORMIX ODBC
    shared libraries are installed.

```
    (for C Shell)
    setenv LD_LIBRARY_PATH $INFORMIXDIR/lib:$INFORMIXDIR/lib/cli:
            $INFORMIXDIR/lib/esql:$LD_LIBRARY_PATH


    (for Bourne or Korn Shell)
    LD_LIBRARY_PATH=$INFORMIXDIR/lib/cli:$INFORMIXDIR/lib/esql:
                    $LD_LIBRARY_PATH
    export LD_LIBRARY_PATH
```

3. The thread-safe ODBC libraries are supported on this platform using POSIX
   threads. Make sure that you set the THREADLIB environment variable to
   "POSIX" before linking your ODBC program using the esql command.

4. Pluggable Authentication Module (PAM)

   PAM functionality is supported on Linux operating systems. PAM requires
   the libpam.so library that is supplied by the Operating System vendor.

   Use of PAM can be enabled or disabled by the system administrator. By
   default, the Informix server will use the traditional authentication
   mechanism to avoid changes for the users.

   The PAM service identifies the PAM module. This PAM module usually is
   located in /usr/lib/arm-linux-gnueabihf and its parameters are listed
   in /etc/pam.conf.

5. IPv6 Support

   The Informix server supports Internet Protocol Version 6 (128 Bit Internet
   Addresses) as well as IPv4 (32 Bit Addresses).

   In order for the machine name that is specified in the SQLHOSTS file to
   resolve to the correct IP address, the name services files on the operating
   system must be configured correctly. If the machine has an IPv6 address
   configured, and the listener thread is bound to an IPv6 address, then the
   name service switch files /etc/nsswitch.conf must be configured to fetch
   an IPv6 address. Also any local machine settings must be set correctly in
   the /etc/hosts file.

   For compatibility with earlier version of Informix client and server
   products, assign each host name with both an IPv4 address and an IPv6
   address. If the listener needs to be bound to an IPv4 address, and the
   name services resolve the name in the order of the IPv6 address followed
   by the IPv4 address, then an explicit IPv4 address needs to be put in the
   host name field of SQLHOSTS file. Client applications should also use the
   same setting.

Check the following website for the latest Linux system requirements:

   http://www.ibm.com/support/docview.wss?rs=630&uid=swg27016673

Informix ODBC Driver Version 4.50.FC6, Linux aarch64

```
                        ================================
                              MACHINE SPECIFIC NOTES
                                      FOR
                   IBM Informix Client-SDK 4.50.FC6 PRODUCT RELEASE
                      IBM Informix ODBC Driver Version 4.50.FC6
                                 On Linux aarch64
                                DATE: 28 Apr 2021
                        ================================
```

OS Information: Built on openSUSE Leap 42.3

Machine Specific Notes
====================

1. This product was built on openSUSE Leap 42.3
    (Kernel: 4.4.162-78-default, Glibc: 2.22) for aarch64 compatible
    processors. The following compilers were used:

        gcc/g++ (SUSE Linux) 4.8.5

    The following packages are required on your Linux system:

        glibc
        libgcc_s1
        libstdc++6
        libz1
        krb5
        libcom_err2
        libkeyutils1
        libpcre1
        libselinux1
        libelf1-0.158

2. For shared library support, set the environment variable LD_LIBRARY_PATH
    to include the $INFORMIXDIR/lib/cli directories where IBM INFORMIX ODBC
    shared libraries are installed.

    (for C Shell)
    setenv LD_LIBRARY_PATH $INFORMIXDIR/lib:$INFORMIXDIR/lib/cli:
        $INFORMIXDIR/lib/esql:$LD_LIBRARY_PATH

    (for Bourne or Korn Shell)
    LD_LIBRARY_PATH=$INFORMIXDIR/lib/cli:$INFORMIXDIR/lib/esql:
                    $LD_LIBRARY_PATH
    export LD_LIBRARY_PATH

3. The thread-safe ODBC libraries are supported on this platform using POSIX
    threads. Make sure that you set the THREADLIB environment variable to
    "POSIX" before linking your ODBC program using the esql command.

4. Pluggable Authentication Module (PAM)

    PAM functionality is supported on Linux operating systems. PAM requires
    the libpam.so library that is supplied by the Operating System vendor.

    Use of PAM can be enabled or disabled by the system administrator. By
    default, the Informix server will use the traditional authentication
    mechanism to avoid changes for the users.

    The PAM service identifies the PAM module. This PAM module usually is
    located in /usr/lib/arm-linux-gnueabihf and its parameters are listed
    in /etc/pam.conf.

5. IPv6 Support

The Informix server supports Internet Protocol Version 6 (128 Bit Internet
Addresses) as well as IPv4 (32 Bit Addresses).

In order for the machine name that is specified in the SQLHOSTS file to
resolve to the correct IP address, the name services files on the operating
system must be configured correctly. If the machine has an IPv6 address
configured, and the listener thread is bound to an IPv6 address, then the
name service switch files /etc/nsswitch.conf must be configured to fetch
an IPv6 address. Also any local machine settings must be set correctly in
the /etc/hosts file.

For compatibility with earlier version of Informix client and server
products, assign each host name with both an IPv4 address and an IPv6
address. If the listener needs to be bound to an IPv4 address, and the
name services resolve the name in the order of the IPv6 address followed
by the IPv4 address, then an explicit IPv4 address needs to be put in the
host name field of SQLHOSTS file. Client applications should also use the
same setting.

Check the following website for the latest Linux system requirements:

    http://www.ibm.com/support/docview.wss?rs=630&uid=swg27016673

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Informix ODBC Driver Version 4.50.FC6, Linux Power (little endian)

```
================================
        MACHINE  SPECIFIC  NOTES
               FOR
 IBM Informix Client-SDK 4.50.FC6 PRODUCT RELEASE
    IBM Informix ODBC Driver Version 4.50.FC6
         On Linux Power (little endian)
             DATE: 29 Apr 2021
================================
```

OS Information : Built on Red Hat Enterprise Linux ES release 7.4 (Maipo)
                Certified on SUSE SLES 12.3 and 15.

Machine Specific Notes
======================

1. This product was built on Red Hat Enterprise Linux ES 7.4 (Maipo)
   for 64-Bit Power Series Architecture little endian with Kernel version
   4.10.0 and glibc 2.17 using the following compilers:

        gcc/g++ 4.8.5 20150623

2. If you use the ODBC with shared libraries, you must make sure that the
   ODBC libraries are made available at run time by including the ODBC
   library directory ($INFORMIXDIR/lib/cli) in your LD_LIBRARY_PATH
   environment variable value.

For example, a typical value for LD_LIBRARY_PATH in an Informix environment with ODBC use would look like this:

```
(for Bourne or Korn Shell)
LD_LIBRARY_PATH=$INFORMIXDIR/lib/cli:$INFORMIXDIR/lib/esql:$LD_LIBRARY_PATH
export LD_LIBRARY_PATH
```

```
(for C Shell)
setenv LD_LIBRARY_PATH
        $INFORMIXDIR/lib/cli:$INFORMIXDIR/lib/esql:$LD_LIBRARY_PATH
```

3. Thread-safe ODBC libraries are supported on this platform using POSIX threads. Make sure that you set the THREADLIB environment variable to "POSIX" before linking your ODBC program using the esql script.

4. Pluggable Authentication Module (PAM)

   PAM functionality is supported on Linux for Power architecture systems. The PAM is dependent on the libpam.so library supplied by the Operating System vendor.

   Use of PAM can be enabled or disabled by the system administrator. By default, IBM IDS will use the traditional authentication mechanism in order to avoid widespread changes required by the users.

   The PAM service identifies the PAM module. This PAM module typically resides in /lib/security and its parameters are listed in /etc/pam.d. The pam.conf file is ignored on Linux, if the /etc/pam.d directory is present.

5. IPv6 Support

   IBM Informix Server supports Internet Protocol Version 6 (128 Bit Internet Addresses) as well as IPv4 (32 Bit Addresses).

   In order for the machine name specified in the SQLHOSTS file to resolve to the correct IP address, the name services files on the operating system should be correctly configured. If the machine has IPv6 address configured and the listener thread is bound to an IPv6 address, then the name resolution files /etc/nsswitch.conf should be configured to fetch IPv6 addresss. Also use the appropriate /etc/hosts setting if local machine settings are used.

   For compatibility with older IBM Informix client and server products, assign the same hostname with both an IPv4 address and an IPv6 address. If the listener needs to be bound to an IPv4 address and the name services resolve the name in the order of the IPv6 address followed by IPv4 address, then an explicit IPv4 address needs to be put in nodename field of SQLHOSTS file. Client applications should also use the same setting.

Check the following web site for the latest Linux system requirements:

   http://www-01.ibm.com/support/docview.wss?rs=630&uid=swg27016673

Informix ODBC Driver Version 4.50.FC6, Linux Intel 64bit

```
                       ================================
                           MACHINE SPECIFIC NOTES
                                    FOR
                  IBM Informix Client-SDK 4.50.FC6 PRODUCT RELEASE
                     IBM Informix ODBC Driver Version 4.50.FC6
                              On Linux Intel 64bit
                              DATE: 29 Apr 2021
                       ================================
```

OS Information : Built on Red Hat Enterprise Linux ES release 7.4 (Maipo)
                 Certified on SUSE SLES 12.3 and 15,
                 Ubuntu Server Edition 16.04 LTS and 17.10.

Machine Specific Notes
======================

1. This product was built on Red Hat Enterprise Linux ES release 7.4
   (Kernel: 3.10.0-693, Glibc: 2.17) for x86_64 compatible processors.
   The following compilers were used:

        gcc and g++ compiler 4.8.5 20150623 (Red Hat 4.8.5-16)

   Installing the product on Ubuntu or Debian requires RPM to be installed
   and initialized. After RPM installed, use the following commands to
   initialize RPM:

        mkdir -p /var/lib/rpm
        rpm --initdb

   The bc utility is required by the product installer, and needs to be
   installed on Ubuntu.

2. For shared library support, environment variable LD_LIBRARY_PATH
   needs to be set to include the $INFORMIXDIR/lib/cli directories
   where IBM INFORMIX ODBC shared libraries are installed.

   (for C Shell)
   setenv LD_LIBRARY_PATH $INFORMIXDIR/lib:$INFORMIXDIR/lib/cli:
        $INFORMIXDIR/lib/esql:$LD_LIBRARY_PATH

   (for Bourne or Korn Shell)
   LD_LIBRARY_PATH=$INFORMIXDIR/lib/cli:$INFORMIXDIR/lib/esql:
                   $LD_LIBRARY_PATH
   export LD_LIBRARY_PATH

3. The thread safe ODBC libraries are supported on this platform using POSIX
   threads. Make sure that you set the THREADLIB environment variable to
   "POSIX" before linking your ODBC program using the esql script.

4. Pluggable Authentication Module (PAM)

   PAM functionality is supported on Linux operating systems. The PAM is
   dependent on the libpam.so library supplied by the Operating System vendor.

   Use of PAM can be enabled or disabled by the system administrator. By
   default, IBM IDS will use the traditional authentication mechanism in

order to avoid widespread changes required by the users.

        The PAM service identifies the PAM module. This PAM module typically
        resides in /lib/security and its parameters are listed in /etc/pam.d.
        The pam.conf file is ignored on Linux, if the /etc/pam.d directory is
        present.

5. IPv6 Support

        The product supports Internet Protocol Version 6 (128 Bit Internet Addresses)
        as well as IPv4 (32 Bit Addresses).

        In order for the machine name specified in the SQLHOSTS file to resolve
        to the correct IP address, the name services files on the Operating System
        should be correctly configured. If the machine has IPv6 address configured
        and the listener thread is bound to an IPv6 address, then the name
        resolution files /etc/netsvc.conf should be configured to fetch IPv6
        address. Also use the appropriate /etc/hosts setting if local machine
        settings are used.

        For compatibility with older IBM Informix client and server products,
        assign the same hostname with both an IPv4 address and an IPv6 address.
        If the listener needs to be bound to an IPv4 address and the name services
        resolve the name in the order of the IPv6 address followed by IPv4 address,
        then an explicit IPv4 address needs to be put in nodename field of SQLHOSTS
        file. Client applications should also use the same setting.

Check the following web site for the latest Linux system requirements:

        http://www-01.ibm.com/support/docview.wss?rs=630&uid=swg27016673

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Informix ODBC Driver Version 4.50.FC6, Linux zSeries 64-Bit

```
                    ===============================
                       MACHINE SPECIFIC NOTES
                                FOR
              IBM Informix Client-SDK 4.50.FC6 PRODUCT RELEASE
                  IBM Informix ODBC Driver Version 4.50.FC6
                        On Linux zSeries 64-Bit
                          DATE: 29 Apr 2021
                    ===============================
```

OS Information : Built on Red Hat Enterprise Linux ES release 7.4 (Maipo).
                 Certified on SUSE SLES 12.3.

Machine Specific Notes
======================

1. This product was built on Red Hat Enterprise Linux ES release 7.4
    for zSeries mainframe with 64-bit Kernel 3.10.0-693.el7 and
    glibc 2.17-307, using the following compilers:

```
        gcc version 4.8.5 20150623 (Red Hat 4.8.5-39)
```

2. For shared library support, environment variable LD_LIBRARY_PATH
   needs to be set to include the $INFORMIXDIR/lib/cli directories
   where IBM INFORMIX ODBC shared libraries are installed.

```
   (for C Shell)
   setenv LD_LIBRARY_PATH $INFORMIXDIR/lib:$INFORMIXDIR/lib/cli:
         $INFORMIXDIR/lib/esql:$LD_LIBRARY_PATH

   (for Bourne or Korn Shell)
   LD_LIBRARY_PATH=$INFORMIXDIR/lib/cli:$INFORMIXDIR/lib/esql:
                   $LD_LIBRARY_PATH
   export LD_LIBRARY_PATH
```

3. Thread-safe ODBC libraries are supported on this platform using POSIX
   threads. Make sure that you set the THREADLIB environment variable to
   "POSIX" before linking your ODBC program using the esql script.

4. Pluggable Authentication Module (PAM)

   PAM functionality is supported on Linux zSeries operating systems. The
   PAM is dependent on the libpam.so library supplied by the Operating System
   vendor.

   Use of PAM can be enabled or disabled by the system administrator. By
   default, IBM IDS will use the traditional authentication mechanism in
   order to avoid widespread changes required by the users.

   The PAM service identifies the PAM module. This PAM module typically
   resides in /lib/security and its parameters are listed in /etc/pam.d.
   The pam.conf file is ignored on Linux, if the /etc/pam.d directory is
   present.

5. IPv6 Support

   IBM Informix Server supports Internet Protocol Version 6 (128 Bit Internet
   Addresses) as well as IPv4 (32 Bit Addresses).

   In order for the machine name specified in the SQLHOSTS file to resolve to
   the correct IP address, the name services files on the operating system
   should be correctly configured. If the machine has IPv6 address configured
   and the listener thread is bound to an IPv6 address, then the name
   resolution files /etc/nsswitch.conf should be configured to fetch IPv6
   addresss. Also use the appropriate /etc/hosts setting if local machine
   settings are used.

   For compatibility with older IBM Informix client and server products,
   assign the same hostname with both an IPv4 address and an IPv6 address.
   If the listener needs to be bound to an IPv4 address and the name services
   resolve the name in the order of the IPv6 address followed by IPv4 address,
   then an explicit IPv4 address needs to be put in nodename field of SQLHOSTS
   file. Client applications should also use the same setting.

Check the following web site for the latest Linux system requirements:

   http://www-01.ibm.com/support/docview.wss?rs=630&uid=swg27016673

Informix ODBC Driver Version 4.50.FC6, Solaris Sparc 64bit

```
                 ================================
                       MACHINE SPECIFIC NOTES
                               FOR
             IBM Informix Client-SDK 4.50.FC6 PRODUCT RELEASE
                 IBM Informix ODBC Driver Version 4.50.FC6
                        On Solaris Sparc 64bit
                        DATE: 29 Apr 2021
                 ================================
```

OS Information : Built on Solaris 11.3.

Machine Specific Notes
======================

1. This product was built on Solaris 11.3 using the following compilers
   from Oracle Solaris Studio 12.3:

        Sun C 5.12 SunOS_sparc December 2011
        Sun C++ 5.12 SunOS_sparc December 2011

   The product was built with the following 64-bit compiler flag:

        "-m64"

2. Setting the environment variable LD_LIBRARY_PATH (or LD_LIBRARY_PATH_64)

   (for Bourne or Korn Shell)
       LD_LIBRARY_PATH=
             $INFORMIXDIR/lib/cli:$INFORMIXDIR/lib/esql:$LD_LIBRARY_PATH
       export LD_LIBRARY_PATH

   (for C Shell)
       setenv LD_LIBRARY_PATH
          $INFORMIXDIR/lib/cli:$INFORMIXDIR/lib/esql:$LD_LIBRARY_PATH

   If there are 64-bit shared object libraries (.so files)
   which you want the runtime linkers ld and ild to link with your
   C++ API applications, you must either add the directory paths for
   these libraries to LD_LIBRARY_PATH or LD_LIBRARY_PATH_64.
   Note that if you add them to LD_LIBRARY_PATH but not to
   LD_LIBRARY_PATH_64 and you define LD_LIBRARY_PATH_64, they will not
   be found as LD_LIBRARY_PATH is ignored when searching for 64-bit
   libraries if LD_LIBRARY_PATH_64 is set.
   You should either set LD_LIBRARY_PATH to all 32-bit and 64-bit
   paths required by your applications and not set LD_LIBRARY_PATH_64
   at all, or set LD_LIBRARY_PATH to only 32-bit paths and
   LD_LIBRARY_PATH_64 to 64-bit paths.

   See the Solaris man pages for ld and ild for more information
   on the environment variables LD_LIBRARY_PATH and LD_LIBRARY_PATH_64.
   See also the Solaris Linker and Libraries Guide.

3. The thread safe ODBC libraries are supported on this platform using
   Native Solaris threads.

4. Migration of existing ODBC applications from 32 bit versions of
   IBM Informix Client-SDK to IBM Informix Client-SDK 4.50.FC6.

   ALL the existing 32-bit ODBC applications WILL need to be recompiled
   to make them work with IBM Informix Client-SDK 4.50.FC6.
   Before recompiling these existing applications, changes will be
   required to be made to the application sources, if above mentioned ODBC
   API and/or ODBC Datatypes are being used. Also applications   should
   not have any "long" and/or "unsigned long" C-Data types declared
   which is being passed to any Informix ODBC APIs. Informix recommends
   use of SQLINTEGER/SQLUINTEGER, SDWORD/UDWORD standard ODBC types as
   defined in Informix header files.

5. Pluggable Authentication Module (PAM)

   PAM functionality is supported on Solaris operating systems. The PAM is
   dependent on the libpam.so library supplied by the Operating System vendor.

   Use of PAM can be enabled or disabled by the system administrator. By
   default, IBM IDS will use the traditional authentication mechanism in
   order to avoid widespread changes required by the users.

   The PAM service identifies the PAM module. This PAM module typically
   resides in /usr/lib/security and its parameters are listed in
   /etc/pam.conf.

6. IPv6 Support

   IBM Informix Server supports Internet Protocol Version 6 (128 Bit Internet
   Addresses) as well as IPv4 (32 Bit Addresses).

   In order for the machine name specified in the SQLHOSTS file to resolve to
   the correct IP address, the name services files on the operating system
   should be correctly configured. If the machine has IPv6 address configured
   and the listener thread is bound to an IPv6 address, then the name
   resolution files /etc/nsswitch.conf should be configured to fetch IPv6
   address. Also use the appropriate /etc/hosts setting if local machine
   settings are used.

   For compatibility with older IBM Informix client and server products,
   assign the same hostname with both an IPv4 address and an IPv6 address.
   If the listener needs to be bound to an IPv4 address and the name services
   resolve the name in the order of the IPv6 address followed by IPv4 address,
   then an explicit IPv4 address needs to be put in nodename field of SQLHOSTS
   file. Client applications should also use the same setting.

Check the following web site for the latest Solaris system requirements:

   http://www-01.ibm.com/support/docview.wss?rs=630&uid=swg27016673

Informix ODBC Driver Version 4.50.FC6, Windows x64

```
                    ===============================
                          MACHINE SPECIFIC NOTES
                                   FOR
                IBM Informix Client-SDK 4.50.FC6 PRODUCT RELEASE
                    IBM Informix ODBC Driver Version 4.50.FC6
                                On Windows x64
                             DATE: 22 Apr 2021
                    ===============================
```

OS Information : Built on Windows Server 2016 x64.

Machine Specific Notes
====================

1. **This product supports the following compiler:**

        Microsoft Visual Studio 2017

    This product is built on Windows 2016 using the following compiler from
    Microsoft Visual Studio 2017:

        Microsoft Visual C++ 2017

2. **Pluggable Authentication Module (PAM)**

    PAM functionality is supported. Use of PAM can be enabled or disabled by
    the system administrator. By default, IBM IDS will use the traditional
    authentication mechanism in order to avoid widespread changes required
    by the users.

3. **IPv6 Support**

    IDS supports Internet Protocol Version 6 (128 Bit Internet Addresses)
    as well as IPv4 (32 Bit Addresses).

    In order for the machine name specified in the SQLHOSTS registry to resolve
    to the correct IP address, the name services files on the Operating System
    should be correctly configured.

    For compatibility with older IBM Informix client and server products,
    assign the same hostname with both an IPv4 address and an IPv6 address.
    If the listener needs to be bound to an IPv4 address and the name services
    resolve the name in the order of the IPv6 address followed by IPv4 address,
    then an explicit IPv4 address needs to be put in the nodename field of the
    server registry. Client applications should also use the same setting.

4. **Connectivity on Windows Vista**

    To enable connections between database servers on the Vista operating
    system, you must enable network discovery and NetBIOS over TCP/IP.

    To enable connections:

    1) **From the Control Panel, double-click Network and Sharing.**
    2) **In the Sharing and Discovery section of the Network and Sharing Center,**
       click Network discovery and then Turn on network discovery.
    3) **In the Network section, click View Status next to the Local Area**
       Connection.
    4) **In the Local Area Connection Status dialog box, click Properties.**
    5) **In the Local Area Connection Properties dialog box, choose the**
       appropriate Internet Protocol Version and click Properties.
    6) **In the Internet Protocol Version Properties dialog box, click Advanced.**
    7) **On the WINS page of the Advanced TCP/IP Settings dialog box, click**
       Enable NetBIOS over TCP/IP and then click OK.

8) Continue clicking OK or Close until all dialog boxes are closed.

5. Workaround to list ODBC driver in Data Sources(ODBC Window)

    Warning: As we will be modifying the registry, performing a registry
              back-up is recommended.

    1) Copy the lines between BEGIN and END block, save it as a
       file(for example, ifmx_odbc_driver.txt) in any location in your
       hard drive (for example in C:\MyFolder\).
       NOTE: All lines should start at column 1(no spaces before start of line)

       BEGIN Block
       Windows Registry Editor Version 5.00

       [HKEY_LOCAL_MACHINE\SOFTWARE\ODBC\ODBCINST.INI\ODBC Drivers]
       "IBM INFORMIX ODBC DRIVER"="installed"

       [HKEY_LOCAL_MACHINE\SOFTWARE\ODBC\ODBCINST.INI\IBM INFORMIX ODBC DRIVER]
       "Driver"="INFORMIXDIR\bin\iclit09b.dll"
       "Setup"="INFORMIXDIR\bin\iclit09b.dll"
       "SQLLevel"="1"
       "FileUsage"="0"
       "DriverODBCVer"="03.51"
       "ConnectFunctions"="YYY"
       "APILevel"="1"
       "CPTimeout"="<not pooled>"
        END   Block

    2) Edit ifmx_odbc_driver.txt to replace INFORMIXDIR to the installed
       location of CSDK. For example, if CSDK is installed in c:\IBM\ folder,
       then replace INFORMIXDIR with c:\IBM.

    3) Rename ifmx_odbc_driver.txt to ifmx_odbc_driver.reg. To update
       the registry, either double click on the ifmx_odbc_driver.reg file or
       type the following line from a command prompt.

       regedit c:\MyFolder\ifmx_odbc_driver.reg

       Click Yes, when you get the following message:
       "Are you sure you want to add the information in
       c:\MyFolder\ifmx_odbc_driver.reg file to the registry?"

       Click OK, when you get the following message:
       "Information in c:\MyFolder\ifmx_odbc_driver.reg file has been
        successfully entered into the registry."

    4) You can now configure ODBC DSNs by running odbcad32.exe

Check the following web site for the latest Windows system requirements:

   http://www-01.ibm.com/support/docview.wss?rs=630&uid=swg27016673

Informix .NET Provider Machine Notes

Client SDK 4.50.xC6

-

IBM Informix .NET Provider Version 4.50.FC6, Windows x64

```
================================
           MACHINE SPECIFIC NOTES
                   FOR
       IBM Informix Client-SDK 4.50.FC6 PRODUCT RELEASE
           IBM Informix .NET Provider Version 4.50.FC6
                   On Windows x64
                   DATE: 22 Apr 2021
================================
```

OS Information : Built on Windows Server 2016 x64.

Machine Specific Notes
=====================

1. IBM Informix .NET Provider for 2.0 .NET framework is no longer included in
this release.

2. IBM Informix .NET Provider for 4.0 .NET framework is built on Windows
    2016 using Visual C# compiler from (Visual Studio 2017):

        Microsoft .NET Framework v4.5.51209 SP1

3. The IBM Informix .NET Provider is no longer automatically deployed in the
Global Assembly
    Cache (GAC) or registered as a DbFactoryProvider during the installation
process.

    To deploy the provider in the GAC use the Global Assembly Cache tool
(Gacutil.exe)
    provided by the Windows Software Development Kit (SDK).

        https://docs.microsoft.com/en-us/dotnet/framework/tools/gacutil-exe-gac-
tool

    To register the provider as a DbFactoryProvider update your application
configuration
    file (app.config) or the .NET runtime global configuration file
(machine.config) with
    the following entry:

        <DbProviderFactories>
          <add name="IBM Informix .NET Data Provider"
invariant="IBM.Data.Informix"
          description="IBM Informix Data Provider for .NET Framework 4.0"
                type="IBM.Data.Informix.IfxFactory, IBM.Data.Informix,
Version=4.0.0.0,
          Culture=neutral, PublicKeyToken=7c307b91aa13d208" />
        </DbProviderFactories>

```
4.  IPv6 Support

    IDS supports Internet Protocol Version 6 (128 Bit Internet Addresses)
    as well as IPv4 (32 Bit Addresses).

    In order for the machine name specified in the SQLHOSTS registry to resolve
    to the correct IP address, the name services files on the Operating System
    should be correctly configured.

    For compatibility with older IBM Informix client and server products,
    assign the same hostname with both an IPv4 address and an IPv6 address.
    If the listener needs to be bound to an IPv4 address and the name services
    resolve the name in the order of the IPv6 address followed by IPv4 address,
    then an explicit IPv4 address needs to be put in the nodename field of the
    server registry. Client applications should also use the same setting.

5.  Connectivity on Windows Vista

    To enable connections between database servers on the Vista operating
    system, you must enable network discovery and NetBIOS over TCP/IP.

    To enable connections:

    1) From the Control Panel, double-click Network and Sharing.
    2) In the Sharing and Discovery section of the Network and Sharing Center,
       click Network discovery and then Turn on network discovery.
    3) In the Network section, click View Status next to the Local Area
       Connection.
    4) In the Local Area Connection Status dialog box, click Properties.
    5) In the Local Area Connection Properties dialog box, choose the
       appropriate Internet Protocol Version and click Properties.
    6) In the Internet Protocol Version Properties dialog box, click Advanced.
    7) On the WINS page of the Advanced TCP/IP Settings dialog box, click
       Enable NetBIOS over TCP/IP and then click OK.
    8) Continue clicking OK or Close until all dialog boxes are closed.

Check the following web site for the latest Windows system requirements:

   http://www-01.ibm.com/support/docview.wss?rs=630&uid=swg27016673


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```

OLE DB Provider Machine Notes

Client SDK 4.50.xC6

- [IBM Informix OLE DB Provider Version 4.50.FC6, Windows x64](#)

IBM Informix OLE DB Provider Version 4.50.FC6, Windows x64

```
================================
        MACHINE SPECIFIC NOTES
               FOR
   IBM Informix Client-SDK 4.50.FC6 PRODUCT RELEASE
    IBM Informix OLE DB Provider Version 4.50.FC6
               On Windows x64
            DATE: 22 Apr 2021
================================
```

OS Information : Built on Windows Server 2016 x64.

Machine Specific Notes
=====================

1. This product supports the following compiler:

        Microsoft Visual Studio 2017

    This product is built on Windows 2016 using the following compiler from
    Microsoft Visual Studio 2017:

        Microsoft Visual C++ 2017

2. IPv6 Support

    IDS supports Internet Protocol Version 6 (128 Bit Internet Addresses)
    as well as IPv4 (32 Bit Addresses).

    In order for the machine name specified in the SQLHOSTS registry to resolve
    to the correct IP address, the name services files on the Operating System
    should be correctly configured.

    For compatibility with older IBM Informix client and server products,
    assign the same hostname with both an IPv4 address and an IPv6 address.
    If the listener needs to be bound to an IPv4 address and the name services
    resolve the name in the order of the IPv6 address followed by IPv4 address,
    then an explicit IPv4 address needs to be put in the nodename field of the
    server registry. Client applications should also use the same setting.

3. Connectivity on Windows Vista

    To enable connections between database servers on the Vista operating
    system, you must enable network discovery and NetBIOS over TCP/IP.

    To enable connections:

    1) From the Control Panel, double-click Network and Sharing.
    2) In the Sharing and Discovery section of the Network and Sharing Center,
       click Network discovery and then Turn on network discovery.
    3) In the Network section, click View Status next to the Local Area
       Connection.
    4) In the Local Area Connection Status dialog box, click Properties.
    5) In the Local Area Connection Properties dialog box, choose the
       appropriate Internet Protocol Version and click Properties.
    6) In the Internet Protocol Version Properties dialog box, click Advanced.
    7) On the WINS page of the Advanced TCP/IP Settings dialog box, click

```
        Enable NetBIOS over TCP/IP and then click OK.
   8) Continue clicking OK or Close until all dialog boxes are closed.

Check the following web site for the latest Windows system requirements:

   http://www-01.ibm.com/support/docview.wss?rs=630&uid=swg27016673


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```

Release, documentation, and machine notes for IBM® Informix® Client SDK, v4.50.xC5

These are the release, documentation, and machine notes for Client SDK version 4.50.xC5.

- Release notes for IBM Informix Client Software Development Kit for Windows Operating Systems, 4.50.xC5
- Release notes for IBM Informix Client Software Development Kit for UNIX and Linux, 4.50.xC5
- Machine notes for IBM Informix Client SDK, version 4.50
  These are the machine notes for version 4.50.

Release notes for IBM Informix Client Software Development Kit for Windows Operating Systems, 4.50.xC5

Contents

- Description
- Announcement
- Compatibility
- System requirements
- Installing IBM Informix Client SDK 4.50.xC5
- Choice of .NET Providers to use with IBM Informix Version 14.10
- Known Problems
- Related information

Description

The IBM® Informix® Client Software Development Kit Version 4.50 Release notes include information about the following component products:

- IBM Informix Connection Manager
- IBM Informix ESQL/C
- IBM Informix .NET Provider
- IBM Informix Object Interface for C++
- IBM Informix ODBC Driver
- IBM Informix OLE DB Provider

For a complete list of what's new and changed in this release, go to http://www.ibm.com/support/knowledgecenter/SSGU8G/welcomeIfxServers.html.
Information about the fixed defects for IBM Informix Client Software Development Kit 4.50.xC5 is available at: http://www.ibm.com/support/docview.wss?uid=ibm10871880.

Announcement

The product announcement letters are available at http://www.ibm.com/common/ssi/index.wss. Search for Informix 14.10 and select Announcement letters. See the announcement for the following information:

- Detailed product description
- Product-positioning statement
- Packaging and ordering details
- International compatibility information

Compatibility

Version 4.50 of IBM Informix Client Software Development Kit is compatible with the following database servers:

Database server	Versions
IBM Informix Client Software Development Kit	11.70, 12.10, 14.10

Version 4.50 of Connection Manager is compatible with the following clients:

Client	Version
IBM Informix Client Software Development Kit (Client SDK)	3.70, 4.10, 4.50
IBM InformixConnect	3.70, 4.10, 4.50
IBM Informix JDBC Driver	3.70, 4.10, 4.50
Data Server Driver for JDBC and SQLJ	3.5.2 or later

System requirements

For information about hardware and software compatibility, see the detailed system requirements document at http://www.ibm.com/support/docview.wss?uid=swg27016673.

Installing IBM Informix Client SDK 4.50.xC5

For step-by-step installation instructions, see Installing Informix Client Products at http://www.ibm.com/support/knowledgecenter/SSGU8G/welcomeIfxServers.html.

For standalone installation, minimum OpenSSL version 1.0.x need to be installed on the system. Please refer to https://www.openssl.org for more information on OpenSSL.

Choice of .NET Providers to use with IBM Informix Version 14.10

You can use either the Informix .NET Provider or the DB2® .NET Provider with your HCL Informix installation.

For information about the DB2 .NET Provider, see
http://pic.dhe.ibm.com/infocenter/db2luw/v10r1/topic/com.ibm.swg.im.dbclient.adonet.doc/doc/c0010960.html

Known Problems

At time of publication, the following problems were known:

- When you use the IBM Informix ODBC Driver to perform distributed transactions that use the Microsoft Transaction Server, turn off session pooling for the Microsoft OLE DB Provider for ODBC Drivers (MSDASQL). This property can be set in the application by adding the value "OLE DB Services=-4" in the connection string. Setting the property turns off session pooling and autoenlistment in the MSDASQL OLE DB provider, and allows the pooling and auto enlistment to occur in the IBM Informix ODBC Driver.

Related information

- IBM Support Portal: http://www.ibm.com/support/entry/portal/
- The latest open source drivers for Informix can be found at https://github.com/OpenInformix.

Release notes for IBM Informix Client Software Development Kit for UNIX and Linux, 4.50.xC5

Contents

The Release notes provide a list of useful topics and links for when you install the IBM® Informix® Client Software Development Kit Version 4.50.

- Description
- x`
- Announcement
- Compatibility
- System requirements
- Installing IBM Informix Client SDK 4.50.xC5
- Related information

Description

The IBM® Informix® Client Software Development Kit Version 4.50 Release notes include information about the following component products:

- IBM Informix Connection Manager
- IBM Informix ESQL/C/C++
- IBM Informix ODBC Driver

For a complete list of what's new and changed in this release, see For a complete list of what's new and changed in this release, go to
http://www.ibm.com/support/knowledgecenter/SSGU8G/welcomeIfxServers.html.

Information about the fixed defects for IBM Informix Client Software Development Kit 4.50.xC5 is available at: http://www.ibm.com/support/docview.wss?uid=ibm10871880..

Announcement

The product announcement letters are available at http://www.ibm.com/common/ssi/index.wss. Search for Informix 14.10 and select Announcement letters. See the announcement for the following information:

- Detailed product description
- Product-positioning statement
- Packaging and ordering details
- International compatibility information

Compatibility

Version 4.50 of IBM Informix Client Software Development Kit is compatible with the following database servers:

Database server	Versions
IBM Informix	11.70, 12.10, 14.10

Version 4.50 of Connection Manager is compatible with the following clients:

Client	Version
IBM Informix Client Software Development Kit (Client SDK)	3.70, 4.10, 4.50
IBM InformixConnect	3.70, 4.10, 4.50
IBM Informix JDBC Driver	3.70, 4.10, 4.50
Data Server Driver for JDBC and SQLJ	3.5.2 or later

System requirements

For information about hardware and software compatibility, see the detailed system requirements document at http://www.ibm.com/support/docview.wss?uid=swg27016673.

Installing IBM Informix Client SDK 4.50.xC5

For step-by-step installation instructions, see Installing Informix Client Products at
http://www.ibm.com/support/knowledgecenter/SSGU8G/welcomeIfxServers.html.

For standalone installation, minimum OpenSSL version 1.0.x need to be installed on the system. Please refer to https://www.openssl.org for more information on OpenSSL.

Related information

- IBM Support Portal: http://www.ibm.com/support/entry/portal/
- The latest open source drivers for Informix can be found at https://github.com/OpenInformix.

Machine notes for IBM® Informix® Client SDK, version 4.50

These are the machine notes for version 4.50.

To view the notes, expand the categories in the contents pane in the Release information subtopic under the Product overview topic.

- C++ Interface
- ESQL/C Machine Notes
- GLS API Machine Notes
- ODBC Driver Machine Notes
- Informix .NET Provider Machine Notes
- OLE DB Provider Machine Notes

C++ Interface

Client SDK 4.50.xC5

- C++ Interface Version 4.50.FC5, AIX 7.2 64bit
- C++ Interface Version 4.50.FC5, HP Itanium 64bit
- C++ Interface Version 4.50.FC5, Linux aarch64
- C++ Interface Version 4.50.FC5, Linux ARMv7
- C++ Interface Version 4.50.FC5, Linux Power (little endian)
- C++ Interface Version 4.50.FC5, Linux Intel 64bit
- C++ Interface Version 4.50.FC5, Linux zSeries 64-Bit
- C++ Interface Version 4.50.FC5, Solaris Sparc 64bit
- C++ Interface Version 4.50.FC5, Windows x64

C++ Interface Version 4.50.FC5, AIX 7.2 64bit

```
=================================
        MACHINE SPECIFIC NOTES
```

```
                              FOR
              IBM Informix Client-SDK 4.50.FC5 PRODUCT RELEASE
                      C++ Interface Version 4.50.FC5
                          On AIX 7.2 64bit
                        DATE: 17 Nov 2020
                 ================================
```

OS Information : Built on AIX 7.2 Technology.

Machine Specific Notes
======================

1. This product was built on AIX 7.2 Technology using the
   following compilers:

   IBM XL C/C++ for AIX, V13.1.3 (5765-J06)
   XL C/C++ Runtime   13.1.3

2. AIX patch requirement:

3. To use a specific shared library to link with your application, include
   the directories where the 64bit C++ shared libraries are installed by
   setting your environment as follows:

       (for Bourne or Korn Shell)
       LIBPATH=$INFORMIXDIR/lib:$INFORMIXDIR/lib/c++:$INFORMIXDIR/lib/esql:
           $INFORMIXDIR/lib/dmi:$LIBPATH
       export LIBPATH

       (for C Shell)
       setenv LIBPATH $INFORMIXDIR/lib:$INFORMIXDIR/lib/c++:
                 $INFORMIXDIR/lib/dmi:$INFORMIXDIR/lib/esql:$LIBPATH

4. IPv6 Support

   The product supports Internet Protocol Version 6 (128 Bit Internet Addresses)
   as well as IPv4 (32 Bit Addresses).

   In order for the machine name specified in the SQLHOSTS file to resolve
   to the correct IP address, the name services files on the Operating System
   should be correctly configured. If the machine has IPv6 address configured
   and the listener thread is bound to an IPv6 address, then the name
   resolution files /etc/netsvc.conf should be configured to fetch IPv6
   address. Also use the appropriate /etc/hosts setting if local machine
   settings are used.

   For compatibility with older IBM Informix client and server products,
   assign the same hostname with both an IPv4 address and an IPv6 address.
   If the listener needs to be bound to an IPv4 address and the name services
   resolve the name in the order of the IPv6 address followed by IPv4 address,
   then an explicit IPv4 address needs to be put in nodename field of SQLHOSTS
   file. Client applications should also use the same setting.

Check the following web site for the latest AIX system requirements:

   http://www-01.ibm.com/support/docview.wss?rs=630&uid=swg27016673

C++ Interface Version 4.50.FC5, HP Itanium 64bit

```
===============================
           MACHINE SPECIFIC NOTES
                    FOR
      IBM Informix Client-SDK 4.50.FC5 PRODUCT RELEASE
              C++ Interface Version 4.50.FC5
                  On HP Itanium 64bit
                  DATE: 17 Nov 2020
===============================
```

OS Information : Built on HP-UX 11i V3 (aka 11.31) Itanium.

Machine Specific Notes
======================

1. This product was built on HP-UX 11i V3 (aka 11.31) Itanium using the
   following compilers:

   HP C/aC++ B3910B A.06.26 [Apr 12 2011]

   and with the following packages:

   Bundle Name   Description
   -----------   -----------
   B9007AA   C.11.31.06   HP C/aC++ Developer's Bundle
   BUNDLE   B.2011.08.04   Patch Bundle

2. For shared library support, setting the environment variable
   SHLIB_PATH:

       (for C Shell)
       setenv SHLIB_PATH $INFORMIXDIR/lib:$INFORMIXDIR/lib/esql:
       $INFORMIXDIR/lib/c++:$INFORMIXDIR/lib/dmi:$SHLIB_PATH

       (for Bourne or Korn Shell)
       SHLIB_PATH=$INFORMIXDIR/lib:$INFORMIXDIR/lib/esql:
       $INFORMIXDIR/lib/c++:$INFORMIXDIR/lib/dmi:$SHLIB_PATH
       export SHLIB_PATH

3. To build any C++ application that uses the "Standard Template Library",
   the C++ compiler flag "-AA" is required.

4. IPv6 Support

   The product supports Internet Protocol Version 6 (128 Bit Internet Addresses)
   as well as IPv4 (32 Bit Addresses).

   In order for the machine name specified in the SQLHOSTS file to resolve
   to the correct IP address, the name services files on the Operating System
   should be correctly configured. If the machine has IPv6 address configured
   and the listener thread is bound to an IPv6 address, then the name
   resolution files /etc/netsvc.conf should be configured to fetch IPv6
   address. Also use the appropriate /etc/hosts setting if local machine
   settings are used.

   For compatibility with older IBM Informix client and server products,
   assign the same hostname with both an IPv4 address and an IPv6 address.
   If the listener needs to be bound to an IPv4 address and the name services
   resolve the name in the order of the IPv6 address followed by IPv4 address,

```
    then an explicit IPv4 address needs to be put in nodename field of SQLHOSTS
    file. Client applications should also use the same setting.

Check the following web site for the latest HP-UX system requirements:

    http://www-01.ibm.com/support/docview.wss?rs=630&uid=swg27016673
```

C++ Interface Version 4.50.FC5, Linux aarch64

```
                        ================================
                            MACHINE SPECIFIC NOTES
                                    FOR
                    IBM Informix Client-SDK 4.50.FC5 PRODUCT RELEASE
                            C++ Interface Version 4.50.FC5
                                On Linux aarch64
                                DATE: 17 Nov 2020
                        ================================

OS Information: Built on openSUSE Leap 42.3

Machine Specific Notes
======================

IBM(R) Informix(R) Object Interface for C++ is not supported on this platform.
```

C++ Interface Version 4.50.FC5, Linux ARMv7

```
                        ================================
                            MACHINE SPECIFIC NOTES
                                    FOR
                    IBM Informix Client-SDK 4.50.UC5 PRODUCT RELEASE
                            C++ Interface Version 4.50.UC5
                                On Linux ARMv7 (armhf)
                                DATE: 17 Nov 2020
                        ================================

OS Information: Built on Raspbian 9 (stretch) armhf

Machine Specific Notes
======================

IBM(R) Informix(R) Object Interface for C++ is not supported on this platform.
```

C++ Interface Version 4.50.FC5, Linux Power (little endian)

```
                      ==============================
                          MACHINE SPECIFIC NOTES
                                  FOR
                  IBM Informix Client-SDK 4.50.FC5 PRODUCT RELEASE
                          C++ Interface Version 4.50.FC5
                            On Linux Power (little endian)
                              DATE: 17 Nov 2020
                      ==============================
```

OS Information : Built on Red Hat Enterprise Linux ES release 7.4 (Maipo)
            Certified on SUSE SLES 12.3 and 15.

Machine Specific Notes
======================

1. This product was built on Red Hat Enterprise Linux ES 7.4 (Maipo)
   for 64-Bit Power Series Architecture little endian with Kernel version
   4.10.0 and glibc 2.17 using the following compilers:

        gcc/g++ 4.8.5 20150623

2. For shared library support, setting the environment variable
   LD_LIBRARY_PATH:

      (for C Shell)
      setenv LD_LIBRARY_PATH $INFORMIXDIR/lib:$INFORMIXDIR/lib/esql:
      $INFORMIXDIR/lib/c++:$INFORMIXDIR/lib/dmi:$LD_LIBRARY_PATH

      (for Bourne or Korn Shell)
      LD_LIBRARY_PATH=$INFORMIXDIR/lib:$INFORMIXDIR/lib/esql:
      $INFORMIXDIR/lib/c++:$INFORMIXDIR/lib/dmi:$LD_LIBRARY_PATH
      export LD_LIBRARY_PATH

3. IPv6 Support

   IBM Informix Server supports Internet Protocol Version 6 (128 Bit Internet
   Addresses) as well as IPv4 (32 Bit Addresses).

   In order for the machine name specified in the SQLHOSTS file to resolve to
   the correct IP address, the name services files on the operating system
   should be correctly configured. If the machine has IPv6 address configured
   and the listener thread is bound to an IPv6 address, then the name
   resolution files /etc/nsswitch.conf should be configured to fetch IPv6
   addresss. Also use the appropriate /etc/hosts setting if local machine
   settings are used.

   For compatibility with older IBM Informix client and server products,
   assign the same hostname with both an IPv4 address and an IPv6 address.

If the listener needs to be bound to an IPv4 address and the name services resolve the name in the order of the IPv6 address followed by IPv4 address, then an explicit IPv4 address needs to be put in nodename field of SQLHOSTS file. Client applications should also use the same setting.

Check the following web site for the latest Linux system requirements:

    http://www-01.ibm.com/support/docview.wss?rs=630&uid=swg27016673

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C++ Interface Version 4.50.FC5, Linux Intel 64bit

```
                  ================================
                       MACHINE SPECIFIC NOTES
                                 FOR
                  IBM Informix Client-SDK 4.50.FC5 PRODUCT RELEASE
                       C++ Interface Version 4.50.FC5
                            On Linux Intel 64bit
                            DATE: 17 Nov 2020
                  ================================
```

OS Information : Built on Red Hat Enterprise Linux ES release 7.4 (Maipo)
                 Certified on SUSE SLES 12.3 and 15,
                 Ubuntu Server Edition 16.04 LTS and 17.10.

Machine Specific Notes
======================

1. This product was built on Red Hat Enterprise Linux ES release 7.4
   (Kernel: 3.10.0-693, Glibc: 2.17) for x86_64 compatible processors.
   The following compilers were used:

        gcc and g++ compiler 4.8.5 20150623 (Red Hat 4.8.5-16)

   Installing the product on Ubuntu or Debian requires RPM to be installed
   and initialized. After RPM installed, use the following commands to
   initialize RPM:

        mkdir -p /var/lib/rpm
        rpm --initdb

   The bc utility is required by the product installer, and needs to be
   installed on Ubuntu.

2. If you use the C++ Interface with shared libraries, setting the
   environment variable LD_LIBRARY_PATH:

     (for C Shell)
     setenv LD_LIBRARY_PATH $INFORMIXDIR/lib:$INFORMIXDIR/lib/esql:
     $INFORMIXDIR/lib/c++:$INFORMIXDIR/lib/dmi:$LD_LIBRARY_PATH

     (for Bourne or Korn Shell)
     LD_LIBRARY_PATH=$INFORMIXDIR/lib:$INFORMIXDIR/lib/esql:
     $INFORMIXDIR/lib/c++:$INFORMIXDIR/lib/dmi:$LD_LIBRARY_PATH

```
      export LD_LIBRARY_PATH
```

3. IPv6 Support

   The product supports Internet Protocol Version 6 (128 Bit Internet Addresses)
   as well as IPv4 (32 Bit Addresses).

   In order for the machine name specified in the SQLHOSTS file to resolve
   to the correct IP address, the name services files on the Operating System
   should be correctly configured. If the machine has IPv6 address configured
   and the listener thread is bound to an IPv6 address, then the name
   resolution files /etc/netsvc.conf should be configured to fetch IPv6
   address. Also use the appropriate /etc/hosts setting if local machine
   settings are used.

   For compatibility with older IBM Informix client and server products,
   assign the same hostname with both an IPv4 address and an IPv6 address.
   If the listener needs to be bound to an IPv4 address and the name services
   resolve the name in the order of the IPv6 address followed by IPv4 address,
   then an explicit IPv4 address needs to be put in nodename field of SQLHOSTS
   file. Client applications should also use the same setting.

Check the following web site for the latest Linux system requirements:

   http://www-01.ibm.com/support/docview.wss?rs=630&uid=swg27016673

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C++ Interface Version 4.50.FC5, Linux zSeries 64-Bit

```
                      =================================
                            MACHINE SPECIFIC NOTES
                                     FOR
                  IBM Informix Client-SDK 4.50.FC5 PRODUCT RELEASE
                          C++ Interface Version 4.50.FC5
                             On Linux zSeries 64-Bit
                               DATE: 17 Nov 2020
                      =================================
```

OS Information : Built on Red Hat Enterprise Linux ES release 7.4 (Maipo).
                Certified on SUSE SLES 12.3.

Machine Specific Notes
======================

1. This product was built on Red Hat Enterprise Linux ES release 7.4
   for zSeries mainframe with 64-bit Kernel 3.10.0-693.el7 and
   glibc 2.17-307, using the following compilers:

        gcc version 4.8.5 20150623 (Red Hat 4.8.5-39)

2. If you use the C++ Interface with shared libraries, setting the environment
   variable LD_LIBRARY_PATH:

```
    (for C Shell)
    setenv LD_LIBRARY_PATH $INFORMIXDIR/lib:$INFORMIXDIR/lib/esql:
    $INFORMIXDIR/lib/c++:$INFORMIXDIR/lib/dmi:$LD_LIBRARY_PATH

    (for Bourne or Korn Shell)
    LD_LIBRARY_PATH=$INFORMIXDIR/lib:$INFORMIXDIR/lib/esql:
    $INFORMIXDIR/lib/c++:$INFORMIXDIR/lib/dmi:$LD_LIBRARY_PATH
    export LD_LIBRARY_PATH
```

3. IPv6 Support

   IBM Informix Server supports Internet Protocol Version 6 (128 Bit Internet
   Addresses) as well as IPv4 (32 Bit Addresses).

   In order for the machine name specified in the SQLHOSTS file to resolve to
   the correct IP address, the name services files on the operating system
   should be correctly configured. If the machine has IPv6 address configured
   and the listener thread is bound to an IPv6 address, then the name
   resolution files /etc/nsswitch.conf should be configured to fetch IPv6
   addresss. Also use the appropriate /etc/hosts setting if local machine
   settings are used.

   For compatibility with older IBM Informix client and server products,
   assign the same hostname with both an IPv4 address and an IPv6 address.
   If the listener needs to be bound to an IPv4 address and the name services
   resolve the name in the order of the IPv6 address followed by IPv4 address,
   then an explicit IPv4 address needs to be put in nodename field of SQLHOSTS
   file. Client applications should also use the same setting.

Check the following web site for the latest Linux system requirements:

   http://www-01.ibm.com/support/docview.wss?rs=630&uid=swg27016673

C++ Interface Version 4.50.FC5, Solaris Sparc 64bit

```
                 =================================
                         MACHINE SPECIFIC NOTES
                                 FOR
             IBM Informix Client-SDK 4.50.FC5 PRODUCT RELEASE
                     C++ Interface Version 4.50.FC5
                        On Solaris Sparc 64bit
                           DATE: 17 Nov 2020
                 =================================
```

OS Information : Built on Solaris 11.3.

Machine Specific Notes
======================

1. This product was built on Solaris 11.3 using the following compilers
   from Oracle Solaris Studio 12.3:

```
        Sun C 5.12 SunOS_sparc December 2011
        Sun C++ 5.12 SunOS_sparc December 2011
```

   The product was built with the following 64-bit compiler flag:

```
        "-m64"
```

2. For shared library support, setting environment variables LD_LIBRARY_PATH
   and LD_LIBRARY_PATH_64

```
   (for Bourne or Korn Shell)
       LD_LIBRARY_PATH=
           $INFORMIXDIR/lib:$INFORMIXDIR/lib/c++:$INFORMIXDIR/lib/esql:
            $INFORMIXDIR/lib/dmi:$LD_LIBRARY_PATH
       export LD_LIBRARY_PATH

   (for C Shell)
       setenv LD_LIBRARY_PATH
           $INFORMIXDIR/lib:$INFORMIXDIR/lib/c++:$INFORMIXDIR/lib/esql:
           $INFORMIXDIR/lib/dmi$LD_LIBRARY_PATH
```

   If there are 64-bit shared object libraries (.so files)
   which you want the runtime linkers ld and ild to link with your
   C++ API applications, you must either add the directory paths for
   these libraries to LD_LIBRARY_PATH or LD_LIBRARY_PATH_64.
   Note that if you add them to LD_LIBRARY_PATH but not to
   LD_LIBRARY_PATH_64 and you define LD_LIBRARY_PATH_64, they will not
   be found as LD_LIBRARY_PATH is ignored when searching for 64-bit
   libraries if LD_LIBRARY_PATH_64 is set.
   You should either set LD_LIBRARY_PATH to all 32-bit and 64-bit
   paths required by your applications and not set LD_LIBRARY_PATH_64
   at all, or set LD_LIBRARY_PATH to only 32-bit paths and
   LD_LIBRARY_PATH_64 to 64-bit paths.

   See the Solaris man pages for ld and ild for more information
   on the environment variables LD_LIBRARY_PATH and LD_LIBRARY_PATH_64.
   See also the Solaris Linker and Libraries Guide.

3. IPv6 Support

   IBM Informix Server supports Internet Protocol Version 6 (128 Bit Internet
   Addresses) as well as IPv4 (32 Bit Addresses).

   In order for the machine name specified in the SQLHOSTS file to resolve to
   the correct IP address, the name services files on the operating system
   should be correctly configured. If the machine has IPv6 address configured
   and the listener thread is bound to an IPv6 address, then the name
   resolution files /etc/nsswitch.conf should be configured to fetch IPv6
   address. Also use the appropriate /etc/hosts setting if local machine
   settings are used.

   For compatibility with older IBM Informix client and server products,
   assign the same hostname with both an IPv4 address and an IPv6 address.
   If the listener needs to be bound to an IPv4 address and the name services
   resolve the name in the order of the IPv6 address followed by IPv4 address,
   then an explicit IPv4 address needs to be put in nodename field of SQLHOSTS
   file. Client applications should also use the same setting.

Check the following web site for the latest Solaris system requirements:

   http://www-01.ibm.com/support/docview.wss?rs=630&uid=swg27016673

C++ Interface Version 4.50.FC5, Windows x64

```
=================================
            MACHINE SPECIFIC NOTES
                    FOR
    IBM Informix Client-SDK 4.50.FC5 PRODUCT RELEASE
             C++ Interface Version 4.50.FC5
                  On Windows x64
                DATE: 17 Nov 2020
=================================
```

OS Information : Built on Windows Server 2016 x64.

Machine Specific Notes
======================

1. This product supports the following compiler:

        Microsoft Visual Studio 2017

    This product is built on Windows 2016 using the following compiler from
    Microsoft Visual Studio 2017:

        Microsoft Visual C++ 2017

2. IPv6 Support

    IDS supports Internet Protocol Version 6 (128 Bit Internet Addresses)
    as well as IPv4 (32 Bit Addresses).

    In order for the machine name specified in the SQLHOSTS registry to resolve
    to the correct IP address, the name services files on the Operating System
    should be correctly configured.

    For compatibility with older IBM Informix client and server products,
    assign the same hostname with both an IPv4 address and an IPv6 address.
    If the listener needs to be bound to an IPv4 address and the name services
    resolve the name in the order of the IPv6 address followed by IPv4 address,
    then an explicit IPv4 address needs to be put in the nodename field of the
    server registry. Client applications should also use the same setting.

3. Connectivity on Windows Vista

    To enable connections between database servers on the Vista operating
    system, you must enable network discovery and NetBIOS over TCP/IP.

    To enable connections:

    1) From the Control Panel, double-click Network and Sharing.
    2) In the Sharing and Discovery section of the Network and Sharing Center,
       click Network discovery and then Turn on network discovery.
    3) In the Network section, click View Status next to the Local Area
       Connection.
    4) In the Local Area Connection Status dialog box, click Properties.

```
     5) In the Local Area Connection Properties dialog box, choose the
        appropriate Internet Protocol Version and click Properties.
     6) In the Internet Protocol Version Properties dialog box, click Advanced.
     7) On the WINS page of the Advanced TCP/IP Settings dialog box, click
        Enable NetBIOS over TCP/IP and then click OK.
     8) Continue clicking OK or Close until all dialog boxes are closed.

Check the following web site for the latest Windows system requirements:

    http://www-01.ibm.com/support/docview.wss?rs=630&uid=swg27016673


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```

ESQL/C Machine Notes

Client SDK 4.50.xC5

- ESQL/C Version 4.50.FC5, AIX 7.2 64bit
- ESQL/C Version 4.50.FC5, HP Itanium 64bit
- ESQL/C Version 4.50.FC5, Linux ARMv7 (armhf)
- ESQL/C Version 4.50.FC5, Linux aarch64bit
- ESQL/C Version 4.50.FC5, Linux Power (little endian)
- ESQL/C Version 4.50.FC5, Linux Intel 64bit
- ESQL/C Version 4.50.FC5, Linux zSeries 64-Bit
- ESQL/C Version 4.50.FC5, Solaris Sparc 64bit
- ESQL/C Version 4.50.FC5, Windows x64

ESQL/C Version 4.50.FC5, AIX 7.2 64bit

```
             ==================================
                      MACHINE SPECIFIC NOTES
                              FOR
            IBM Informix Client-SDK 4.50.FC5 PRODUCT RELEASE
                 IBM INFORMIX-ESQL/C Version 4.50.FC5
                         On AIX 7.2 64bit
                        DATE: 17 Nov 2020
             ==================================

OS Information : Built on AIX 7.2 Technology.

Machine Specific Notes
======================

1. This product was built on AIX 7.2 Technology using the
   following compilers:

   IBM XL C/C++ for AIX, V11.1 (5724-X13)
```

```
    XL C/C++ Runtime        13.1.3
```

2. AIX patch requirement:

3. ESQL/C support for static libraries

   ESQL/C product libraries are supported as both static and shared
   libraries. By default the script uses shared libraries.
   To use static libraries, the 'esql' script must be invoked with the
   -static option:

```
       esql -static
```

   To use ESQL/C shared libraries, the environment variable LIBPATH
   must include $INFORMIXDIR/lib and $INFORMIXDIR/lib/esql. During
   runtime of the executable, the dynamic loader will look in this
   path for IBM Informix ESQL/C shared libraries.

```
     (for Bourne or Korn Shell)
     LIBPATH=$INFORMIXDIR/lib:$INFORMIXDIR/lib/esql:$LIBPATH
     export LIBPATH

     (for C Shell)
     setenv LIBPATH  $INFORMIXDIR/lib:$INFORMIXDIR/lib/esql:$LIBPATH
```

4. ESQL/C support for thread safe libraries

   The thread safe ESQL/C libraries are supported on this platform using
   POSIX threads. The THREADLIB environment variable must be to POSIX:
```
     (for Bourne or Korn Shell)
     THREADLIB=POSIX
     export THREADLIB

     (for C Shell)
     setenv THREADLIB POSIX
```

   To build thread safe ESQL/C programs, use the following command:

```
       esql -thread prog.ec -o prog
```

   Applications that have not been compiled with the -thread option cannot be
   linked with applications that have been compiled with the -thread option.
   To do so, compile all applications with the -thread option.

5. IPv6 Support

   The product supports Internet Protocol Version 6 (128 Bit Internet Addresses)
   as well as IPv4 (32 Bit Addresses).

   In order for the machine name specified in the SQLHOSTS file to resolve
   to the correct IP address, the name services files on the Operating System
   should be correctly configured. If the machine has IPv6 address configured
   and the listener thread is bound to an IPv6 address, then the name
   resolution files /etc/netsvc.conf should be configured to fetch IPv6
   address. Also use the appropriate /etc/hosts setting if local machine
   settings are used.

   For compatibility with older IBM Informix client and server products,
   assign the same hostname with both an IPv4 address and an IPv6 address.
   If the listener needs to be bound to an IPv4 address and the name services
   resolve the name in the order of the IPv6 address followed by IPv4 address,
   then an explicit IPv4 address needs to be put in nodename field of SQLHOSTS
   file. Client applications should also use the same setting.

6. Pluggable Authentication Module (PAM)

   PAM functionality is supported on AIX 7.2 operating systems. The PAM is
   dependent on the libpam.a library supplied by the Operating System vendor.

   Use of PAM can be enabled or disabled by the system administrator. By
   default, IBM IDS will use the traditional authentication mechanism in
   order to avoid widespread changes required by the users.

   The PAM service identifies the PAM module. This PAM module typically
   resides in /usr/lib/security and its parameters are listed in
   /etc/pam.conf.

Check the following web site for the latest AIX system requirements:

   http://www-01.ibm.com/support/docview.wss?rs=630&uid=swg27016673

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ESQL/C Version 4.50.FC5, HP Itanium 64bit

```
                    ================================
                         MACHINE SPECIFIC NOTES
                                  FOR
                IBM Informix Client-SDK 4.50.FC5 PRODUCT RELEASE
                    IBM INFORMIX-ESQL/C Version 4.50.FC5
                           On HP Itanium 64bit
                           DATE: 17 Nov 2020
                    ================================
```

OS Information : Built on HP-UX 11i V3 (aka 11.31) Itanium.

Machine Specific Notes
======================

1. This product was built on HP-UX 11i V3 (aka 11.31) Itanium using the
   following compilers:

   HP C/aC++ B3910B A.06.26 [Apr 12 2011]

   and with the following packages:

   Bundle Name   Description
   -----------   -----------
   B9007AA   C.11.31.06   HP C/aC++ Developer's Bundle
   BUNDLE   B.2011.08.04   Patch Bundle

2. ESQL/C support for static libraries

   ESQL/C product libraries are supported as both static and shared
   libraries. By default the script uses shared libraries.
   To use static libraries, the 'esql' script must be invoked with the
   -static option:

```
esql -static
```

During the execution of an ESQL/C program compiled with shared library you
need the environment variable SHLIB_PATH set to include $INFORMIXDIR/
lib and $INFORMIXDIR/lib/esql. At runtime of the executable, dynamic
loader will look for this path for Informix ESQL/C shared libraries.

```
(for Bourne or Korn Shell)
SHLIB_PATH=$INFORMIXDIR/lib:$INFORMIXDIR/lib/esql
export SHLIB_PATH

(for C Shell)
setenv SHLIB_PATH $INFORMIXDIR/lib:$INFORMIXDIR/lib/esql
```

3. ESQL/C support for thread safe libraries

The thread safe ESQL/C libraries are supported on this platform using
POSIX threads. The THREADLIB environment variable must be to POSIX:

```
(for Bourne or Korn Shell)
export THREADLIB=POSIX

(for C Shell)
setenv THREADLIB POSIX
```

To build a thread safe ESQL/C programs, use the following command:

```
esql -thread prog.ec -o prog
```

Applications that have not been compiled with the -thread option cannot be
linked with applications that have been compiled with the -thread option.
To do so, compile all applications with the -thread option.

4. Pluggable Authentication Module (PAM)

PAM functionality is supported on HP-UX operating systems. The PAM is
dependent on the libpam.so library supplied by the Operating System vendor.

Use of PAM can be enabled or disabled by the system administrator. By
default, IBM IDS will use the traditional authentication mechanism in
order to avoid widespread changes required by the users.

The PAM service identifies the PAM module. This PAM module typically
resides in /usr/lib/security and its parameters are listed in
/etc/pam.conf.

5. IPv6 Support

The product supports Internet Protocol Version 6 (128 Bit Internet Addresses)
as well as IPv4 (32 Bit Addresses).

In order for the machine name specified in the SQLHOSTS file to resolve
to the correct IP address, the name services files on the Operating System
should be correctly configured. If the machine has IPv6 address configured
and the listener thread is bound to an IPv6 address, then the name
resolution files /etc/netsvc.conf should be configured to fetch IPv6
address. Also use the appropriate /etc/hosts setting if local machine
settings are used.

For compatibility with older IBM Informix client and server products,
assign the same hostname with both an IPv4 address and an IPv6 address.
If the listener needs to be bound to an IPv4 address and the name services
resolve the name in the order of the IPv6 address followed by IPv4 address,
then an explicit IPv4 address needs to be put in nodename field of SQLHOSTS

```
   file. Client applications should also use the same setting.

Check the following web site for the latest HP-UX system requirements:

   http://www-01.ibm.com/support/docview.wss?rs=630&uid=swg27016673


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```

ESQL/C Version 4.50.FC5, Linux ARMv7 (armhf)

```
                    ================================
                          MACHINE SPECIFIC NOTES
                                  FOR
                    IBM Informix Client-SDK 4.50.UC5 PRODUCT RELEASE
                        IBM INFORMIX-ESQL/C Version 4.50.UC5
                                On Linux ARMv7
                              DATE: 17 Nov 2020
                    ================================

OS Information: Built on Raspbian 9 (stretch) armhf

Machine Specific Notes
======================

1.  This product was built on Raspbian Stretch 9 armhf
    (Kernel: 4.14.79-v7+, Glibc: 2.24-11) for ARMv7 compatible
    processors. The following compilers were used:

        gcc and g++ compiler 6.3.0 (Raspbian 6.3.0-18+rpi1+deb9u1)

    The following packages are required on your Linux system:

        libc6
        libgcc1
        libstdc++6
        zlib1g
        krb5
        libcomerr2
        libkeyutils1
        libpcre3
        libselinux1
        openjdk-8
        libelf1 0.152

2. ESQL/C support for static libraries

    ESQL/C product libraries are supported as both static and shared
    libraries. By default the ESQL/C module uses shared libraries.
    To use static libraries, run the esql command with the -static option:

        esql -static

    To use ESQL/C shared libraries, set the environment variable LD_LIBRARY_PATH
    to include $INFORMIXDIR/lib and $INFORMIXDIR/lib/esql. During runtime,
    the dynamic loader will look in this path for IBM Informix ESQL/C shared
```

```
     libraries.

     (for Bourne or Korn Shell)
     LD_LIBRARY_PATH=$INFORMIXDIR/lib:$INFORMIXDIR/lib/esql:$LD_LIBRARY_PATH
     export LD_LIBRARY_PATH

     (for C Shell)
     setenv LD_LIBRARY_PATH
$INFORMIXDIR/lib:$INFORMIXDIR/lib/esql:$LD_LIBRARY_PATH
```

3. ESQL/C support for thread-safe libraries

   The thread-safe ESQL/C libraries are supported on this platform using
   POSIX threads. The THREADLIB environment variable must be set to POSIX:

```
     (for Bourne or Korn Shell)
     THREADLIB=POSIX
     export THREADLIB

     (for C Shell)
     setenv THREADLIB POSIX
```

   To build thread-safe ESQL/C programs, use the following command:

```
     esql -thread  mythreadapp.ec -o mythreadapp
```

   IMPORTANT: Applications that were NOT compiled with the -thread option
   cannot be linked with applications that were compiled with the -thread
   option. To use threads in an application, compile ALL of application
   modules with the "-thread" option.

4. Pluggable Authentication Module (PAM)

   PAM functionality is supported on Linux operating systems. PAM requires
   the libpam.so library that is supplied by the Operating System vendor.

   Use of PAM can be enabled or disabled by the system administrator. By
   default, the Informix server will use the traditional authentication
   mechanism to avoid changes for the users.

   The PAM service identifies the PAM module. This PAM module usually is
   located in /usr/lib/arm-linux-gnueabihf and its parameters are listed
   in /etc/pam.conf.

5. IPv6 Support

   The Informix server supports Internet Protocol Version 6 (128 Bit Internet
   Addresses) as well as IPv4 (32 Bit Addresses).

   In order for the machine name that is specified in the SQLHOSTS file to
   resolve to the correct IP address, the name services files on the operating
   system must be configured correctly. If the machine has an IPv6 address
   configured, and the listener thread is bound to an IPv6 address, then the
   name service switch files /etc/nsswitch.conf must be configured to fetch
   an IPv6 address. Also any local machine settings must be set correctly in
   the /etc/hosts file.

   For compatibility with earlier version of Informix client and server
   products, assign each host name with both an IPv4 address and an IPv6
   address. If the listener needs to be bound to an IPv4 address, and the
   name services resolve the name in the order of the IPv6 address followed
   by the IPv4 address, then an explicit IPv4 address needs to be put in the
   host name field of SQLHOSTS file. Client applications should also use the
   same setting.

Check the following website for the latest Linux system requirements:

    http://www.ibm.com/support/docview.wss?rs=630&uid=swg27016673

ESQL/C Version 4.50.FC5, Linux aarch64bit

```
                    ================================
                       MACHINE SPECIFIC NOTES
                                FOR
                IBM Informix Client-SDK 4.50.FC5 PRODUCT RELEASE
                    IBM INFORMIX-ESQL/C Version 4.50.FC5
                            On Linux aarch64
                            DATE: 17 Nov 2020
                    ================================
```

OS Information: Built on openSUSE Leap 42.3

Machine Specific Notes
======================

1. This product was built on openSUSE Leap 42.3
    (Kernel: 4.4.162-78-default, Glibc: 2.22) for aarch64 compatible
    processors. The following compilers were used:

        gcc/g++ (SUSE Linux) 4.8.5

    The following packages are required on your Linux system:

        glibc
        libgcc_s1
        libstdc++6
        libz1
        krb5
        libcom_err2
        libkeyutils1
        libpcre1
        libselinux1
        libelf1-0.158

2. ESQL/C support for static libraries

    ESQL/C product libraries are supported as both static and shared
    libraries. By default the ESQL/C module uses shared libraries.
    To use static libraries, run the esql command with the -static option:

        esql -static

    To use ESQL/C shared libraries, set the environment variable LD_LIBRARY_PATH
    to include $INFORMIXDIR/lib and $INFORMIXDIR/lib/esql. During runtime,
    the dynamic loader will look in this path for IBM Informix ESQL/C shared
    libraries.

```
      (for Bourne or Korn Shell)
      LD_LIBRARY_PATH=$INFORMIXDIR/lib:$INFORMIXDIR/lib/esql:$LD_LIBRARY_PATH
      export LD_LIBRARY_PATH


      (for C Shell)
      setenv LD_LIBRARY_PATH
$INFORMIXDIR/lib:$INFORMIXDIR/lib/esql:$LD_LIBRARY_PATH
```

3. ESQL/C support for thread-safe libraries

   The thread-safe ESQL/C libraries are supported on this platform using
   POSIX threads. The THREADLIB environment variable must be set to POSIX:

```
      (for Bourne or Korn Shell)
      THREADLIB=POSIX
      export THREADLIB


      (for C Shell)
      setenv THREADLIB POSIX
```

   To build thread-safe ESQL/C programs, use the following command:

```
      esql -thread  mythreadapp.ec -o mythreadapp
```

   IMPORTANT: Applications that were NOT compiled with the -thread option
   cannot be linked with applications that were compiled with the -thread
   option. To use threads in an application, compile ALL of application
   modules with the "-thread" option.

4. Pluggable Authentication Module (PAM)

   PAM functionality is supported on Linux operating systems. PAM requires
   the libpam.so library that is supplied by the Operating System vendor.

   Use of PAM can be enabled or disabled by the system administrator. By
   default, the Informix server will use the traditional authentication
   mechanism to avoid changes for the users.

   The PAM service identifies the PAM module. This PAM module usually is
   located in /usr/lib/arm-linux-gnueabihf and its parameters are listed
   in /etc/pam.conf.

5. IPv6 Support

   The Informix server supports Internet Protocol Version 6 (128 Bit Internet
   Addresses) as well as IPv4 (32 Bit Addresses).

   In order for the machine name that is specified in the SQLHOSTS file to
   resolve to the correct IP address, the name services files on the operating
   system must be configured correctly. If the machine has an IPv6 address
   configured, and the listener thread is bound to an IPv6 address, then the
   name service switch files /etc/nsswitch.conf must be configured to fetch
   an IPv6 address. Also any local machine settings must be set correctly in
   the /etc/hosts file.

   For compatibility with earlier version of Informix client and server
   products, assign each host name with both an IPv4 address and an IPv6
   address. If the listener needs to be bound to an IPv4 address, and the
   name services resolve the name in the order of the IPv6 address followed
   by the IPv4 address, then an explicit IPv4 address needs to be put in the
   host name field of SQLHOSTS file. Client applications should also use the
   same setting.

Check the following website for the latest Linux system requirements:

ESQL/C Version 4.50.FC5, Linux Power (little endian)

```
                       ===============================
                           MACHINE SPECIFIC NOTES
                                    FOR
                 IBM Informix Client-SDK 4.50.FC5 PRODUCT RELEASE
                      IBM INFORMIX-ESQL/C Version 4.50.FC5
                         On Linux Power (little endian)
                              DATE: 17 Nov 2020
                       ===============================
```

OS Information : Built on Red Hat Enterprise Linux ES release 7.4 (Maipo)
                 Certified on SUSE SLES 12.3 and 15.

Machine Specific Notes
======================

1. This product was built on Red Hat Enterprise Linux ES 7.4 (Maipo)
   for 64-Bit Power Series Architecture little endian with Kernel version
   4.10.0 and glibc 2.17 using the following compilers:

        gcc/g++ 4.8.5 20150623

2. ESQL/C support for static libraries

   ESQL/C product libraries are supported as both static and shared
   libraries. By default the script uses shared libraries.
   To use static libraries, the 'esql' script must be invoked with the
   -static option:

        esql -static

   To use ESQL/C shared libraries, the environment variable LD_LIBRARY_PATH
   should be set to include $INFORMIXDIR/lib and $INFORMIXDIR/lib/esql.
   During runtime of the executable, the dynamic loader will look in this
   path for IBM Informix ESQL/C shared libraries.

     (for Bourne or Korn Shell)
     LD_LIBRARY_PATH=$INFORMIXDIR/lib:$INFORMIXDIR/lib/esql:$LD_LIBRARY_PATH
     export LD_LIBRARY_PATH

     (for C Shell)
     setenv LD_LIBRARY_PATH
$INFORMIXDIR/lib:$INFORMIXDIR/lib/esql:$LD_LIBRARY_PATH

3. ESQL/C support for thread safe libraries

   The thread safe ESQL/C libraries are supported on this platform using
   POSIX threads. The THREADLIB environment variable must be to POSIX:

```
        (for Bourne or Korn Shell)
        THREADLIB=POSIX
        export THREADLIB


        (for C Shell)
        setenv THREADLIB POSIX
```

   To build thread safe ESQL/C programs, use the following command:

```
        esql -thread  mythreadapp.ec -o mythreadapp
```

   Applications that have NOT been compiled with the -thread option CANNOT be
   linked with applications that HAVE been compiled with the -thread option.
   To use threads in an application, compile ALL of its modules with the
   "-thread" option.

4. Pluggable Authentication Module (PAM)

   PAM functionality is supported on Linux for Power architecture systems.
   The PAM is dependent on the libpam.so library supplied by the Operating
   System vendor.

   Use of PAM can be enabled or disabled by the system administrator. By
   default, IBM IDS will use the traditional authentication mechanism in
   order to avoid widespread changes required by the users.

   The PAM service identifies the PAM module. This PAM module typically
   resides in /lib/security and its parameters are listed in /etc/pam.d.
   The pam.conf file is ignored on Linux, if the /etc/pam.d directory is
   present.

5. IPv6 Support

   IBM Informix Server supports Internet Protocol Version 6 (128 Bit Internet
   Addresses) as well as IPv4 (32 Bit Addresses).

   In order for the machine name specified in the SQLHOSTS file to resolve to
   the correct IP address, the name services files on the operating system
   should be correctly configured. If the machine has IPv6 address configured
   and the listener thread is bound to an IPv6 address, then the name
   resolution files /etc/nsswitch.conf should be configured to fetch IPv6
   addresss. Also use the appropriate /etc/hosts setting if local machine
   settings are used.

   For compatibility with older IBM Informix client and server products,
   assign the same hostname with both an IPv4 address and an IPv6 address.
   If the listener needs to be bound to an IPv4 address and the name services
   resolve the name in the order of the IPv6 address followed by IPv4 address,
   then an explicit IPv4 address needs to be put in nodename field of SQLHOSTS
   file. Client applications should also use the same setting.

Check the following web site for the latest Linux system requirements:

   http://www-01.ibm.com/support/docview.wss?rs=630&uid=swg27016673

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ESQL/C Version 4.50.FC5, Linux Intel 64bit

```
================================
        MACHINE SPECIFIC NOTES
                FOR
     IBM Informix Client-SDK 4.50.FC5 PRODUCT RELEASE
        IBM INFORMIX-ESQL/C Version 4.50.FC5
                On Linux Intel 64bit
                DATE: 17 Nov 2020
================================
```

OS Information : Built on Red Hat Enterprise Linux ES release 7.4 (Maipo)
                Certified on SUSE SLES 12.3 and 15,
                Ubuntu Server Edition 16.04 LTS and 17.10.

Machine Specific Notes
======================

1. This product was built on Red Hat Enterprise Linux ES release 7.4
   (Kernel: 3.10.0-693, Glibc: 2.17) for x86_64 compatible processors.
   The following compilers were used:

        gcc and g++ compiler 4.8.5 20150623 (Red Hat 4.8.5-16)

   Installing the product on Ubuntu or Debian requires RPM to be installed
   and initialized. After RPM installed, use the following commands to
   initialize RPM:

        mkdir -p /var/lib/rpm
        rpm --initdb

   The bc utility is required by the product installer, and needs to be
   installed on Ubuntu.

2. ESQL/C support for static libraries

   ESQL/C product libraries are supported as both static and shared
   libraries. By default the script uses shared libraries.
   To use static libraries, the 'esql' script must be invoked with the
   -static option:

        esql -static

   To use ESQL/C shared libraries, the environment variable LD_LIBRARY_PATH
   should be set to include $INFORMIXDIR/lib and $INFORMIXDIR/lib/esql.
   During runtime of the executable, the dynamic loader will look in this
   path for IBM Informix ESQL/C shared libraries.

        (for Bourne or Korn Shell)
        LD_LIBRARY_PATH=$INFORMIXDIR/lib:$INFORMIXDIR/lib/esql:$LD_LIBRARY_PATH
        export LD_LIBRARY_PATH

        (for C Shell)
        setenv LD_LIBRARY_PATH
$INFORMIXDIR/lib:$INFORMIXDIR/lib/esql:$LD_LIBRARY_PATH

3. ESQL/C support for thread safe libraries

   The thread safe ESQL/C libraries are supported on this platform using
   POSIX threads. The THREADLIB environment variable must be to POSIX:

```
    (for Bourne or Korn Shell)
    THREADLIB=POSIX
    export THREADLIB

    (for C Shell)
    setenv THREADLIB POSIX
```

To build thread safe ESQL/C programs, use the following command:

```
    esql -thread  mythreadapp.ec -o mythreadapp
```

Applications that have NOT been compiled with the -thread option CANNOT be
linked with applications that HAVE been compiled with the -thread option.
To use threads in an application, compile ALL of its modules with the
"-thread" option.

4. Pluggable Authentication Module (PAM)

PAM functionality is supported on Linux operating systems. The PAM is
dependent on the libpam.so library supplied by the Operating System vendor.

Use of PAM can be enabled or disabled by the system administrator. By
default, IBM IDS will use the traditional authentication mechanism in
order to avoid widespread changes required by the users.

The PAM service identifies the PAM module. This PAM module typically
resides in /lib/security and its parameters are listed in /etc/pam.d.
The pam.conf file is ignored on Linux, if the /etc/pam.d directory is
present.

5. IPv6 Support

The product supports Internet Protocol Version 6 (128 Bit Internet Addresses)
as well as IPv4 (32 Bit Addresses).

In order for the machine name specified in the SQLHOSTS file to resolve
to the correct IP address, the name services files on the Operating System
should be correctly configured. If the machine has IPv6 address configured
and the listener thread is bound to an IPv6 address, then the name
resolution files /etc/netsvc.conf should be configured to fetch IPv6
address. Also use the appropriate /etc/hosts setting if local machine
settings are used.

For compatibility with older IBM Informix client and server products,
assign the same hostname with both an IPv4 address and an IPv6 address.
If the listener needs to be bound to an IPv4 address and the name services
resolve the name in the order of the IPv6 address followed by IPv4 address,
then an explicit IPv4 address needs to be put in nodename field of SQLHOSTS
file. Client applications should also use the same setting.

Check the following web site for the latest Linux system requirements:

    http://www-01.ibm.com/support/docview.wss?rs=630&uid=swg27016673

ESQL/C Version 4.50.FC5, Linux zSeries 64-Bit

```
================================
         MACHINE SPECIFIC NOTES
                 FOR
   IBM Informix Client-SDK 4.50.FC5 PRODUCT RELEASE
      IBM INFORMIX-ESQL/C Version 4.50.FC5
            On Linux zSeries 64-Bit
              DATE: 17 Nov 2020
================================
```

OS Information : Built on Red Hat Enterprise Linux ES release 7.4 (Maipo).
                 Certified on SUSE SLES 12.3.

Machine Specific Notes
======================

1. This product was built on Red Hat Enterprise Linux ES release 7.4
   for zSeries mainframe with 64-bit Kernel 3.10.0-693.el7 and
   glibc 2.17-307, using the following compilers:

        gcc version 4.8.5 20150623 (Red Hat 4.8.5-39)

2. ESQL/C support for static libraries

   ESQL/C product libraries are supported as both static and shared
   libraries. By default the script uses shared libraries.
   To use static libraries, the 'esql' script must be invoked with the
   -static option:

        esql -static

    To use ESQL/C shared libraries, the environment variable LD_LIBRARY_PATH
    should be set to include $INFORMIXDIR/lib and $INFORMIXDIR/lib/esql.
    During runtime of the executable, the dynamic loader will look in this
    path for IBM Informix ESQL/C shared libraries.

      (for Bourne or Korn Shell)
      LD_LIBRARY_PATH=$INFORMIXDIR/lib:$INFORMIXDIR/lib/esql:$LD_LIBRARY_PATH
      export LD_LIBRARY_PATH

      (for C Shell)
      setenv LD_LIBRARY_PATH
$INFORMIXDIR/lib:$INFORMIXDIR/lib/esql:$LD_LIBRARY_PATH

3. ESQL/C support for thread safe libraries

   The thread safe ESQL/C libraries are supported on this platform using
   POSIX threads. The THREADLIB environment variable must be to POSIX:

      (for Bourne or Korn Shell)
      THREADLIB=POSIX
      export THREADLIB

      (for C Shell)
      setenv THREADLIB POSIX

   To build thread safe ESQL/C programs, use the following command:

      esql -thread mythreadapp.ec -o mythreadapp
```

Applications that have NOT been compiled with the -thread option CANNOT be
linked with applications that HAVE been compiled with the -thread option.
To use threads in an application, compile ALL of its modules with the
"-thread" option.

4. Pluggable Authentication Module (PAM)

   PAM functionality is supported on Linux zSeries operating systems. The
   PAM is dependent on the libpam.so library supplied by the Operating System
   vendor.

   Use of PAM can be enabled or disabled by the system administrator. By
   default, IBM IDS will use the traditional authentication mechanism in
   order to avoid widespread changes required by the users.

   The PAM service identifies the PAM module. This PAM module typically
   resides in /lib/security and its parameters are listed in /etc/pam.d.
   The pam.conf file is ignored on Linux, if the /etc/pam.d directory is
   present.

5. IPv6 Support

   IBM Informix Server supports Internet Protocol Version 6 (128 Bit Internet
   Addresses) as well as IPv4 (32 Bit Addresses).

   In order for the machine name specified in the SQLHOSTS file to resolve to
   the correct IP address, the name services files on the operating system
   should be correctly configured. If the machine has IPv6 address configured
   and the listener thread is bound to an IPv6 address, then the name
   resolution files /etc/nsswitch.conf should be configured to fetch IPv6
   addresss. Also use the appropriate /etc/hosts setting if local machine
   settings are used.

   For compatibility with older IBM Informix client and server products,
   assign the same hostname with both an IPv4 address and an IPv6 address.
   If the listener needs to be bound to an IPv4 address and the name services
   resolve the name in the order of the IPv6 address followed by IPv4 address,
   then an explicit IPv4 address needs to be put in nodename field of SQLHOSTS
   file. Client applications should also use the same setting.

Check the following web site for the latest Linux system requirements:

   http://www-01.ibm.com/support/docview.wss?rs=630&uid=swg27016673


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# ESQL/C Version 4.50.FC5, Solaris Sparc 64bit

```
                     ================================
                          MACHINE SPECIFIC NOTES
                                    FOR
              IBM Informix Client-SDK 4.50.FC5 PRODUCT RELEASE
                    IBM INFORMIX-ESQL/C Version 4.50.FC5
```

On Solaris Sparc 64bit
DATE: 17 Nov 2020
================================

OS Information : Built on Solaris 11.3.

Machine Specific Notes
=====================

1. This product was built on Solaris 11.3 using the following compilers
   from Oracle Solaris Studio 12.6:

        Sun C 5.15 SunOS_sparc 2017/05/30
        Sun C++ 5.15 SunOS_sparc 2017/05/30

   The product was built with the following 64-bit compiler flag:

        "-m64"

2. ESQL/C support for static libraries

   ESQL/C product libraries are supported as both static and shared
   libraries. By default the script uses shared libraries.
   To use static libraries, the 'esql' script must be invoked with the
   -static option:

          esql -static

    To use ESQL/C shared libraries, the environment variable LD_LIBRARY_PATH
    must include $INFORMIXDIR/lib and $INFORMIXDIR/lib/esql. During runtime
    of the executable, the dynamic loader will look in this path for IBM
    Informix ESQL/C shared libraries.

      (for Bourne or Korn Shell)
      LD_LIBRARY_PATH=$INFORMIXDIR/lib:$INFORMIXDIR/lib/esql:$LD_LIBRARY_PATH
      export LD_LIBRARY_PATH

      (for C Shell)
      setenv LD_LIBRARY_PATH
$INFORMIXDIR/lib:$INFORMIXDIR/lib/esql:$LD_LIBRARY_PATH

3. ESQL/C support for thread safe libraries

   The thread safe ESQL/C libraries are supported on this platform using
   Native Solaris threads. The THREADLIB environment variable must be to
   SOL:

      (for Bourne or Korn Shell)
      export THREADLIB=SOL

      (for C Shell)
      setenv THREADLIB SOL

   To build thread safe ESQL/C programs, use the following command:

      esql -static -thread prog.ec -o prog

4. Pluggable Authentication Module (PAM)

   PAM functionality is supported on Solaris operating systems. The PAM is
   dependent on the libpam.so library supplied by the Operating System vendor.

   Use of PAM can be enabled or disabled by the system administrator. By
   default, IBM IDS will use the traditional authentication mechanism in

order to avoid widespread changes required by the users.

The PAM service identifies the PAM module. This PAM module typically resides in /usr/lib/security and its parameters are listed in /etc/pam.conf.

5. IPv6 Support

IBM Informix Server supports Internet Protocol Version 6 (128 Bit Internet Addresses) as well as IPv4 (32 Bit Addresses).

In order for the machine name specified in the SQLHOSTS file to resolve to the correct IP address, the name services files on the operating system should be correctly configured. If the machine has IPv6 address configured and the listener thread is bound to an IPv6 address, then the name resolution files /etc/nsswitch.conf should be configured to fetch IPv6 address. Also use the appropriate /etc/hosts setting if local machine settings are used.

For compatibility with older IBM Informix client and server products, assign the same hostname with both an IPv4 address and an IPv6 address. If the listener needs to be bound to an IPv4 address and the name services resolve the name in the order of the IPv6 address followed by IPv4 address, then an explicit IPv4 address needs to be put in nodename field of SQLHOSTS file. Client applications should also use the same setting.

Check the following web site for the latest Solaris system requirements:

http://www-01.ibm.com/support/docview.wss?rs=630&uid=swg27016673

ESQL/C Version 4.50.FC5, Windows x64

```
================================
        MACHINE SPECIFIC NOTES
                FOR
   IBM Informix Client-SDK 4.50.FC5 PRODUCT RELEASE
        IBM INFORMIX-ESQL/C Version 4.50.FC5
                On Windows x64
                DATE: 17 Nov 2020
================================
```

OS Information : Built on Windows Server 2016 x64.

Machine Specific Notes
======================

1. This product supports the following compiler:

        Microsoft Visual Studio 2017

    This product is built on Windows 2016 using the following compiler from Microsoft Visual Studio 2017:

Microsoft Visual C++ 2017

2. Pluggable Authentication Module (PAM)

    PAM functionality is supported. Use of PAM can be enabled or disabled by
    the system administrator. By default, IBM IDS will use the traditional
    authentication mechanism in order to avoid widespread changes required
    by the users.

3. IPv6 Support

    IDS supports Internet Protocol Version 6 (128 Bit Internet Addresses)
    as well as IPv4 (32 Bit Addresses).

    In order for the machine name specified in the SQLHOSTS registry to resolve
    to the correct IP address, the name services files on the Operating System
    should be correctly configured.

    For compatibility with older IBM Informix client and server products,
    assign the same hostname with both an IPv4 address and an IPv6 address.
    If the listener needs to be bound to an IPv4 address and the name services
    resolve the name in the order of the IPv6 address followed by IPv4 address,
    then an explicit IPv4 address needs to be put in the nodename field of the
    server registry. Client applications should also use the same setting.

4. ESQL/C support for static libraries

    ESQL/C product libraries are supported as both static and dynamic
    libraries. By default the script uses dynamic libraries.
    To use static libraries, the 'esql' script must be invoked with the
    -static option:

        esql -static

    Currently this -static option only works with the Microsoft Compiler.
    The static library name is isqlt09s.lib. This library is installed in
    $INFORMIXDIR/lib.

    This version of CSDK is built and certified with Microsoft Visual
    Studio 2013 Version. Hence its recommended to use compiler version >= 2013.
    If you statically link (-static option) your ESQL/C application
    with Microsoft Visual Studio Version older than 2013, you may receive
    undefined symbol __report_rangecheckfailure() error. In order to avoid
    this error, you will need to use Microsoft Visual Studio Version 2013 or
later.

5. Connectivity on Windows Vista

    To enable connections between database servers on the Vista operating
    system, you must enable network discovery and NetBIOS over TCP/IP.

    To enable connections:

    1) From the Control Panel, double-click Network and Sharing.
    2) In the Sharing and Discovery section of the Network and Sharing Center,
       click Network discovery and then Turn on network discovery.
    3) In the Network section, click View Status next to the Local Area
       Connection.
    4) In the Local Area Connection Status dialog box, click Properties.
    5) In the Local Area Connection Properties dialog box, choose the
       appropriate Internet Protocol Version and click Properties.
    6) In the Internet Protocol Version Properties dialog box, click Advanced.
    7) On the WINS page of the Advanced TCP/IP Settings dialog box, click
       Enable NetBIOS over TCP/IP and then click OK.

```
         8) Continue clicking OK or Close until all dialog boxes are closed.

6.   Host Variables (mlong datatype in Windows 64-bit)

     The mlong datatype is mapped to __int64 for Windows 64-bit. In Windows
     32-bit and 32/64-bit UNIX, mlong is mapped to long datatype.

Check the following web site for the latest Windows system requirements:

   http://www-01.ibm.com/support/docview.wss?rs=630&uid=swg27016673


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GLS API Machine Notes

Client SDK 4.50.xC5

- GLS API Version 7.0, Linux Intel 64bit
- GLS API Version 6.0, HP Itanium 64bit
- GLS API Version 7.0, Linux ARMv7 (armhf)
- GLS API Version 7.0, Linux aarch64
- GLS API Version 7.0, Linux Power (little endian)
- GLS API Version 7.0, Linux Intel 64bit
- GLS API Version 7.0, Linux zSeries 64-Bit
- GLS API Version 7.0, Solaris Sparc 64bit
- GLS API Version 7.0, Windows x64

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GLS API Version 7.0, Linux Intel 64bit

```
                    ================================
                        MACHINE SPECIFIC NOTES
                                 FOR
              IBM Informix Client-SDK 4.50.FC5 PRODUCT RELEASE
                        GLS API Version 7.0
                           On AIX 7.2 64bit
                          DATE: 17 Nov 2020
                    ================================

OS Information : Built on AIX 7.2 Technology.

Machine Specific Notes
======================

1. This product was built on AIX 7.2 Technology using the
   following compilers:

   IBM XL C/C++ for AIX, V13.1.3 (5765-J06)
```

```
   XL C/C++ Runtime        13.1.3

Check the following web site for the latest AIX system requirements:

   http://www-01.ibm.com/support/docview.wss?rs=630&uid=swg27016673

2. AIX patch requirement:

   AIX 7.1:

        September 2010 PTF for XL C for AIX, V11.1


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```

GLS API Version 6.0, HP Itanium 64bit

```
                         ===============================
                             MACHINE SPECIFIC NOTES
                                     FOR
                 IBM Informix Client-SDK 4.50.FC5 PRODUCT RELEASE
                             GLS API Version 6.0
                             On HP Itanium 64bit
                              DATE: 17 Nov 2020
                         ===============================
```

```
OS Information : Built on HP-UX 11i V3 (aka 11.31) Itanium.

Machine Specific Notes
======================

1. This product was built on HP-UX 11i V3 (aka 11.31) Itanium using the
   following compilers:

   HP C/aC++ B3910B A.06.26 [Apr 12 2011]

   and with the following packages:

   Bundle Name      Description
   -----------      -----------
   B9007AA          C.11.31.06      HP C/aC++ Developer's Bundle
   BUNDLE           B.2011.08.04    Patch Bundle

Check the following web site for the latest HP-UX system requirements:

   http://www-01.ibm.com/support/docview.wss?rs=630&uid=swg27016673


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```

GLS API Version 7.0, Linux ARMv7 (armhf)

```
                 ================================
                       MACHINE SPECIFIC NOTES
                               FOR
                 IBM Informix Client-SDK 4.50.UC5 PRODUCT RELEASE
                          GLS API Version 7.0
                            On Linux ARMv7 (armhf)
                          DATE: 17 Nov 2020
                 ================================
```

OS Information: Built on Raspbian 9 (stretch) armhf

Machine Specific Notes
=====================

1. This product was built on Raspbian Stretch 9 armhf
    (Kernel: 4.14.79-v7+, Glibc: 2.24-11) for ARMv7 compatible
    processors. The following compilers were used:

        gcc and g++ compiler 6.3.0 (Raspbian 6.3.0-18+rpi1+deb9u1)

    The following packages have to be installed on your Linux system:

        libc6
        libgcc1
        libstdc++6
        zlib1g
        krb5
        libcomerr2
        libkeyutils1
        libpcre3
        libselinux1
        openjdk-8
        libelf1 0.152

Check the following website for the latest Linux system requirements:

    http://www.ibm.com/support/docview.wss?rs=630&uid=swg27016673

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GLS API Version 7.0, Linux aarch64

```
                 ================================
                       MACHINE SPECIFIC NOTES
                               FOR
                 IBM Informix Client-SDK 4.50.FC5 PRODUCT RELEASE
                          GLS API Version 7.0
                            On Linux aarch64
                          DATE: 17 Nov 2020
                 ================================
```

```
    OS Information: Built on openSUSE Leap 42.3

    Machine Specific Notes
    =====================

    1.   Thin product was built on openSUSE Leap 42.3
         (Kernel: 4.4.162-78-default, Glibc: 2.22) for aarch64 compatible
         processors. The following compilers were used:

             gcc/g++ (SUSE Linux) 4.8.5

       The following packages have to be installed on your Linux system:

             glibc
             libgcc_s1
             libstdc++6
             libz1
             krb5
             libcom_err2
             libkeyutils1
             libpcre1
             libselinux1
             libelf1-0.158

    Check the following website for the latest Linux system requirements:

        http://www.ibm.com/support/docview.wss?rs=630&uid=swg27016673


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```

GLS API Version 7.0, Linux Power (little endian)

```
                ================================
                       MACHINE SPECIFIC NOTES
                              FOR
                IBM Informix Client-SDK 4.50.FC5 PRODUCT RELEASE
                         GLS API Version 7.0
                      On Linux Power (little endian)
                          DATE: 17 Nov 2020
                ================================

    OS Information : Built on Red Hat Enterprise Linux ES release 7.4 (Maipo)
              Certified on SUSE SLES 12.3 and 15.

    Machine Specific Notes
    =====================

    1. This product was built on Red Hat Enterprise Linux ES 7.4 (Maipo)
       for 64-Bit Power Series Architecture little endian with Kernel version
       4.10.0 and glibc 2.17 using the following compilers:

             gcc/g++ 4.8.5 20150623
```

Check the following web site for the latest Linux system requirements:

    http://www-01.ibm.com/support/docview.wss?rs=630&uid=swg27016673

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GLS API Version 7.0, Linux Intel 64bit

```
                    ================================
                         MACHINE  SPECIFIC  NOTES
                                   FOR
                 IBM Informix Client-SDK 4.50.FC5 PRODUCT RELEASE
                            GLS API Version 7.0
                            On Linux Intel 64bit
                              DATE: 17 Nov 2020
                    ================================
```

OS Information : Built on Red Hat Enterprise Linux ES release 7.4 (Maipo)
                 Certified on SUSE SLES 12.3 and 15,
                 Ubuntu Server Edition 16.04 LTS and 17.10.

Machine Specific Notes
======================

1. This product was built on Red Hat Enterprise Linux ES release 7.4
   (Kernel: 3.10.0-693, Glibc: 2.17) for x86_64 compatible processors.
   The following compilers were used:

        gcc and g++ compiler 4.8.5 20150623 (Red Hat 4.8.5-16)

   Installing the product on Ubuntu or Debian requires RPM to be installed
   and initialized. After RPM installed, use the following commands to
   initialize RPM:

        mkdir -p /var/lib/rpm
        rpm --initdb

   The bc utility is required by the product installer, and needs to be
   installed on Ubuntu.

Check the following web site for the latest Linux system requirements:

    http://www-01.ibm.com/support/docview.wss?rs=630&uid=swg27016673

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GLS API Version 7.0, Linux zSeries 64-Bit

```
                    ==================================
                           MACHINE SPECIFIC NOTES
                                     FOR
                    IBM Informix Client-SDK 4.50.FC5 PRODUCT RELEASE
                               GLS API Version 7.0
                              On Linux zSeries 64-Bit
                                 DATE: 17 Nov 2020
                    ==================================
```

OS Information : Built on Red Hat Enterprise Linux ES release 7.4 (Maipo).
                Certified on SUSE SLES 12.3.

Machine Specific Notes
=====================

1. This product was built on Red Hat Enterprise Linux ES release 7.4
   for zSeries mainframe with 64-bit Kernel 3.10.0-693.el7 and
   glibc 2.17-307, using the following compilers:

        gcc version 4.8.5 20150623 (Red Hat 4.8.5-39)

Check the following web site for the latest Linux system requirements:

    http://www-01.ibm.com/support/docview.wss?rs=630&uid=swg27016673

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GLS API Version 7.0, Solaris Sparc 64bit

```
                    ==================================
                           MACHINE SPECIFIC NOTES
                                     FOR
                    IBM Informix Client-SDK 4.50.FC5 PRODUCT RELEASE
                               GLS API Version 7.0
                              On Solaris Sparc 64bit
                                 DATE: 17 Nov 2020
                    ==================================
```

OS Information : Built on Solaris 11.3.

Machine Specific Notes
=====================

1. This product was built on Solaris 11.3 using the following compilers
   from Oracle Solaris Studio 12.3:

        Sun C 5.12 SunOS_sparc December 2011
        Sun C++ 5.12 SunOS_sparc December 2011

   The product was built with the following 64-bit compiler flag:

        "-m64"

Check the following web site for the latest Solaris system requirements:

GLS API Version 7.0, Windows x64

```
================================
          MACHINE SPECIFIC NOTES
                FOR
     IBM Informix Client-SDK 4.50.FC5 PRODUCT RELEASE
              GLS API Version 7.00
                On Windows x64
               DATE: 17 Nov 2020
================================
```

OS Information : Built on Windows Server 2016 x64.

Machine Specific Notes
======================

1. This product supports the following compiler:

        Microsoft Visual Studio 2017

    This product is built on Windows 2016 using the following compiler
    from Microsoft Visual Studio 2017:

        Microsoft Visual C++ 2017

2. Connectivity on Windows Vista

    To enable connections between database servers on the Vista operating
    system, you must enable network discovery and NetBIOS over TCP/IP.

    To enable connections:

    1) From the Control Panel, double-click Network and Sharing.
    2) In the Sharing and Discovery section of the Network and Sharing Center,
       click Network discovery and then Turn on network discovery.
    3) In the Network section, click View Status next to the Local Area
       Connection.
    4) In the Local Area Connection Status dialog box, click Properties.
    5) In the Local Area Connection Properties dialog box, choose the
       appropriate Internet Protocol Version and click Properties.
    6) In the Internet Protocol Version Properties dialog box, click Advanced.
    7) On the WINS page of the Advanced TCP/IP Settings dialog box, click
       Enable NetBIOS over TCP/IP and then click OK.
    8) Continue clicking OK or Close until all dialog boxes are closed.

Check the following web site for the latest Windows system requirements:

    http://www-01.ibm.com/support/docview.wss?rs=630&uid=swg27016673

```
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```

ODBC Driver Machine Notes

Client SDK 4.50.xC5

- [Informix ODBC Driver Version 4.50.FC4W1, AIX 7.2 64bit](#)
- [Informix ODBC Driver Version 4.50.FC4W1, HP Itanium 64bit](#)
- [Informix ODBC Driver Version 4.50.FC5, Linux ARMv7 (armhf)](#)
- [Informix ODBC Driver Version 4.50.FC5, Linux aarch64](#)
- [Informix ODBC Driver Version 4.50.FC5, Linux Power (little endian)](#)
- [Informix ODBC Driver Version 4.50.FC5, Linux Intel 64bit](#)
- [Informix ODBC Driver Version 4.50.FC5, Linux zSeries 64-Bit](#)
- [Informix ODBC Driver Version 4.50.FC5, Solaris Sparc 64bit](#)
- [Informix ODBC Driver Version 4.50.FC5, Windows x64](#)

Informix ODBC Driver Version 4.50.FC4W1, AIX 7.2 64bit

```
================================
         MACHINE SPECIFIC NOTES
                   FOR
   IBM Informix Client-SDK 4.50.FC5 PRODUCT RELEASE
       Informix ODBC Driver Version 4.50.FC5
                On AIX 7.2 64bit
              DATE: 17 Nov 2020
================================
```

```
OS Information : Built on AIX 7.2 Technology.

Machine Specific Notes
======================

1. This product was built on AIX 7.2 Technology using the
   following compilers:

   IBM XL C/C++ for AIX, V13.1.3 (5765-J06)
   XL C/C++ Runtime       13.1.3

2. AIX patch requirement:


3. For using the ODBC shared libraries, the application should be compiled
   with the -brtl linker option and the LIBPATH environment variable must
   be set as follows.
```

```
        (for Bourne or Korn Shell)
        LIBPATH=$INFORMIXDIR/lib:$INFORMIXDIR/lib/cli:$INFORMIXDIR/lib/esql:
           $LIBPATH
        export LIBPATH


        (for C Shell)
        setenv LIBPATH   $INFORMIXDIR/lib:$INFORMIXDIR/lib/cli:
                    $INFORMIXDIR/lib/esql:$LIBPATH
```

4. The thread safe ODBC libraries are supported on this platform using
   POSIX threads and the applications must be compiled with xlc_r.
   For using the ODBC thread shared library, the application should be
   compiled with the -brtl linker option.

5. Migration of existing ODBC applications from 32 bit versions of
   IBM INFORMIX-Client SDK to IBM INFORMIX-Client SDK 4.50.FC5.

   ALL the existing 32-bit ODBC applications WILL need to be recompiled
   to make them work with IBM INFORMIX-Client SDK 4.50.FC5.
   Before recompiling these existing applications, changes will be
   required to be made to the application sources, if above mentioned ODBC
   API and/or ODBC Datatypes are being used. Also applications   should
   not have any "long" and/or "unsigned long" C-Data types declared
   which is being passed to any Informix ODBC APIs. Informix recommends
   use of SQLINTEGER/SQLUINTEGER, SDWORD/UDWORD standard ODBC types as
   defined in Informix header files.

5. IPv6 Support

   The product supports Internet Protocol Version 6 (128 Bit Internet Addresses)
   as well as IPv4 (32 Bit Addresses).

   In order for the machine name specified in the SQLHOSTS file to resolve
   to the correct IP address, the name services files on the Operating System
   should be correctly configured. If the machine has IPv6 address configured
   and the listener thread is bound to an IPv6 address, then the name
   resolution files /etc/netsvc.conf should be configured to fetch IPv6
   address. Also use the appropriate /etc/hosts setting if local machine
   settings are used.

   For compatibility with older IBM Informix client and server products,
   assign the same hostname with both an IPv4 address and an IPv6 address.
   If the listener needs to be bound to an IPv4 address and the name services
   resolve the name in the order of the IPv6 address followed by IPv4 address,
   then an explicit IPv4 address needs to be put in nodename field of SQLHOSTS
   file. Client applications should also use the same setting.

6. Pluggable Authentication Module (PAM)

   PAM functionality is supported on AIX 7.2 operating systems. The PAM is
   dependent on the libpam.a library supplied by the Operating System vendor.

   Use of PAM can be enabled or disabled by the system administrator. By
   default, IBM IDS will use the traditional authentication mechanism in
   order to avoid widespread changes required by the users.

   The PAM service identifies the PAM module. This PAM module typically
   resides in /usr/lib/security and its parameters are listed in
   /etc/pam.conf.

Check the following web site for the latest AIX system requirements:

   http://www-01.ibm.com/support/docview.wss?rs=630&uid=swg27016673

Informix ODBC Driver Version 4.50.FC4W1, HP Itanium 64bit

```
                    ================================

                         MACHINE SPECIFIC NOTES
                                  FOR
                 IBM Informix Client-SDK 4.50.FC5 PRODUCT RELEASE
                   IBM Informix ODBC Driver Version 4.50.FC5
                            On HP Itanium 64bit
                            DATE: 17 Nov 2020
                    ================================
```

OS Information : Built on HP-UX 11i V3 (aka 11.31) Itanium.

Machine Specific Notes
=====================

1. This product was built on HP-UX 11i V3 (aka 11.31) Itanium using the
   following compilers:

   HP C/aC++ B3910B A.06.26 [Apr 12 2011]

   and with the following packages:

   Bundle Name   Description
   -----------   -----------
   B9007AA   C.11.31.06   HP C/aC++ Developer's Bundle
   BUNDLE   B.2011.08.04   Patch Bundle

2. For shared library support, environment variable SHLIB_PATH needs to be set
   to include the $INFORMIXDIR/lib/cli directories where INFORMIX ODBC
   shared libraries are installed.

   (for Bourne or Korn Shell)
   SHLIB_PATH=$INFORMIXDIR/lib/cli:$INFORMIXDIR/lib/esql:$SHLIB_PATH
   export SHLIB_PATH

   (for C Shell)
   setenv SHLIB_PATH $INFORMIXDIR/lib/cli:$INFORMIXDIR/lib/esql:$SHLIB_PATH

3. The thread safe INFORMIX ODBC libraries are supported for the current
   release.

4. Migration of existing ODBC applications from 32 bit versions of
    IBM INFORMIX-Client SDK to IBM INFORMIX-Client SDK 4.50.FC5.

    ALL the existing 32-bit ODBC applications WILL need to be recompiled
    to make them work with IBM INFORMIX-Client SDK 4.50.FC5.
    Before recompiling these existing applications, changes will be
    required to be made to the application sources, if above mentioned ODBC
    API and/or ODBC Datatypes are being used. Also applications   should

```
      not have any "long" and/or "unsigned long" C-Data types declared
      which is being passed to any Informix ODBC APIs. Informix recommends
      use of SQLINTEGER/SQLUINTEGER, SDWORD/UDWORD standard ODBC types as
      defined in Informix header files.
```

5. Pluggable Authentication Module (PAM)

   PAM functionality is supported on HP-UX operating systems. The PAM is
   dependent on the libpam.so library supplied by the Operating System vendor.

   Use of PAM can be enabled or disabled by the system administrator. By
   default, IBM IDS will use the traditional authentication mechanism in
   order to avoid widespread changes required by the users.

   The PAM service identifies the PAM module. This PAM module typically
   resides in /usr/lib/security and its parameters are listed in
   /etc/pam.conf.

6. IPv6 Support

   The product supports Internet Protocol Version 6 (128 Bit Internet Addresses)
   as well as IPv4 (32 Bit Addresses).

   In order for the machine name specified in the SQLHOSTS file to resolve
   to the correct IP address, the name services files on the Operating System
   should be correctly configured. If the machine has IPv6 address configured
   and the listener thread is bound to an IPv6 address, then the name
   resolution files /etc/netsvc.conf should be configured to fetch IPv6
   address. Also use the appropriate /etc/hosts setting if local machine
   settings are used.

   For compatibility with older IBM Informix client and server products,
   assign the same hostname with both an IPv4 address and an IPv6 address.
   If the listener needs to be bound to an IPv4 address and the name services
   resolve the name in the order of the IPv6 address followed by IPv4 address,
   then an explicit IPv4 address needs to be put in nodename field of SQLHOSTS
   file. Client applications should also use the same setting.

Check the following web site for the latest HP-UX system requirements:

   http://www-01.ibm.com/support/docview.wss?rs=630&uid=swg27016673

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Informix ODBC Driver Version 4.50.FC5, Linux ARMv7 (armhf)

```
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                      MACHINE  SPECIFIC  NOTES
                               FOR
            IBM Informix Client-SDK 4.50.UC5 PRODUCT RELEASE
                 IBM Informix ODBC Driver Version 4.50.UC5
                        On Linux ARMv7 (armhf)
                         DATE: 17 Nov 2020
```

```
                ===============================
```

OS Information: Built on Raspbian 9 (stretch) armhf

Machine Specific Notes
=====================

1. This product was built on Raspbian Stretch 9 armhf
    (Kernel: 4.14.79-v7+, Glibc: 2.24-11) for ARMv7 compatible
    processors. The following compilers were used:

        gcc and g++ compiler 6.3.0 (Raspbian 6.3.0-18+rpi1+deb9u1)

    The following packages are required on your Linux system:

        libc6
        libgcc1
        libstdc++6
        zlib1g
        krb5
        libcomerr2
        libkeyutils1
        libpcre3
        libselinux1
        openjdk-8
        libelf1 0.152

2. For shared library support, set the environment variable LD_LIBRARY_PATH
    to include the $INFORMIXDIR/lib/cli directories where IBM INFORMIX ODBC
    shared libraries are installed.

    (for C Shell)
    setenv LD_LIBRARY_PATH $INFORMIXDIR/lib:$INFORMIXDIR/lib/cli:
        $INFORMIXDIR/lib/esql:$LD_LIBRARY_PATH

    (for Bourne or Korn Shell)
    LD_LIBRARY_PATH=$INFORMIXDIR/lib/cli:$INFORMIXDIR/lib/esql:
                $LD_LIBRARY_PATH
    export LD_LIBRARY_PATH

3. The thread-safe ODBC libraries are supported on this platform using POSIX
    threads. Make sure that you set the THREADLIB environment variable to
    "POSIX" before linking your ODBC program using the esql command.

4. Pluggable Authentication Module (PAM)

    PAM functionality is supported on Linux operating systems. PAM requires
    the libpam.so library that is supplied by the Operating System vendor.

    Use of PAM can be enabled or disabled by the system administrator. By
    default, the Informix server will use the traditional authentication
    mechanism to avoid changes for the users.

    The PAM service identifies the PAM module. This PAM module usually is
    located in /usr/lib/arm-linux-gnueabihf and its parameters are listed
    in /etc/pam.conf.

5. IPv6 Support

    The Informix server supports Internet Protocol Version 6 (128 Bit Internet
    Addresses) as well as IPv4 (32 Bit Addresses).

    In order for the machine name that is specified in the SQLHOSTS file to
    resolve to the correct IP address, the name services files on the operating

```
    system must be configured correctly. If the machine has an IPv6 address
    configured, and the listener thread is bound to an IPv6 address, then the
    name service switch files /etc/nsswitch.conf must be configured to fetch
    an IPv6 address. Also any local machine settings must be set correctly in
    the /etc/hosts file.

    For compatibility with earlier version of Informix client and server
    products, assign each host name with both an IPv4 address and an IPv6
    address. If the listener needs to be bound to an IPv4 address, and the
    name services resolve the name in the order of the IPv6 address followed
    by the IPv4 address, then an explicit IPv4 address needs to be put in the
    host name field of SQLHOSTS file. Client applications should also use the
    same setting.

Check the following website for the latest Linux system requirements:

    http://www.ibm.com/support/docview.wss?rs=630&uid=swg27016673


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```

Informix ODBC Driver Version 4.50.FC5, Linux aarch64

```
                ================================
                     MACHINE SPECIFIC NOTES
                              FOR
              IBM Informix Client-SDK 4.50.FC5 PRODUCT RELEASE
                 IBM Informix ODBC Driver Version 4.50.FC5
                         On Linux aarch64
                         DATE: 17 Nov 2020
                ================================

OS Information: Built on openSUSE Leap 42.3

Machine Specific Notes
======================

1.  This product was built on openSUSE Leap 42.3
    (Kernel: 4.4.162-78-default, Glibc: 2.22) for aarch64 compatible
    processors. The following compilers were used:

        gcc/g++ (SUSE Linux) 4.8.5

    The following packages are required on your Linux system:

        glibc
        libgcc_s1
        libstdc++6
        libz1
        krb5
        libcom_err2
        libkeyutils1
        libpcre1
        libselinux1
        libelf1-0.158
```

2. For shared library support, set the environment variable LD_LIBRARY_PATH
   to include the $INFORMIXDIR/lib/cli directories where IBM INFORMIX ODBC
   shared libraries are installed.

   (for C Shell)
   setenv LD_LIBRARY_PATH $INFORMIXDIR/lib:$INFORMIXDIR/lib/cli:
        $INFORMIXDIR/lib/esql:$LD_LIBRARY_PATH

   (for Bourne or Korn Shell)
   LD_LIBRARY_PATH=$INFORMIXDIR/lib/cli:$INFORMIXDIR/lib/esql:
                   $LD_LIBRARY_PATH
   export LD_LIBRARY_PATH

3. The thread-safe ODBC libraries are supported on this platform using POSIX
   threads. Make sure that you set the THREADLIB environment variable to
   "POSIX" before linking your ODBC program using the esql command.

4. Pluggable Authentication Module (PAM)

   PAM functionality is supported on Linux operating systems. PAM requires
   the libpam.so library that is supplied by the Operating System vendor.

   Use of PAM can be enabled or disabled by the system administrator. By
   default, the Informix server will use the traditional authentication
   mechanism to avoid changes for the users.

   The PAM service identifies the PAM module. This PAM module usually is
   located in /usr/lib/arm-linux-gnueabihf and its parameters are listed
   in /etc/pam.conf.

5. IPv6 Support

   The Informix server supports Internet Protocol Version 6 (128 Bit Internet
   Addresses) as well as IPv4 (32 Bit Addresses).

   In order for the machine name that is specified in the SQLHOSTS file to
   resolve to the correct IP address, the name services files on the operating
   system must be configured correctly. If the machine has an IPv6 address
   configured, and the listener thread is bound to an IPv6 address, then the
   name service switch files /etc/nsswitch.conf must be configured to fetch
   an IPv6 address. Also any local machine settings must be set correctly in
   the /etc/hosts file.

   For compatibility with earlier version of Informix client and server
   products, assign each host name with both an IPv4 address and an IPv6
   address. If the listener needs to be bound to an IPv4 address, and the
   name services resolve the name in the order of the IPv6 address followed
   by the IPv4 address, then an explicit IPv4 address needs to be put in the
   host name field of SQLHOSTS file. Client applications should also use the
   same setting.

Check the following website for the latest Linux system requirements:

   http://www.ibm.com/support/docview.wss?rs=630&uid=swg27016673

Informix ODBC Driver Version 4.50.FC5, Linux Power (little endian)

```
================================
             MACHINE SPECIFIC NOTES
                     FOR
     IBM Informix Client-SDK 4.50.FC5 PRODUCT RELEASE
        IBM Informix ODBC Driver Version 4.50.FC5
              On Linux Power (little endian)
                  DATE: 17 Nov 2020
================================
```

OS Information : Built on Red Hat Enterprise Linux ES release 7.4 (Maipo)
            Certified on SUSE SLES 12.3 and 15.

Machine Specific Notes
======================

1. This product was built on Red Hat Enterprise Linux ES 7.4 (Maipo)
   for 64-Bit Power Series Architecture little endian with Kernel version
   4.10.0 and glibc 2.17 using the following compilers:

        gcc/g++ 4.8.5 20150623

2. If you use the ODBC with shared libraries, you must make sure that the
   ODBC libraries are made available at run time by including the ODBC
   library directory ($INFORMIXDIR/lib/cli) in your LD_LIBRARY_PATH
   environment variable value.

   For example, a typical value for LD_LIBRARY_PATH in an Informix environment
   with ODBC use would look like this:

   (for Bourne or Korn Shell)
   LD_LIBRARY_PATH=$INFORMIXDIR/lib/cli:$INFORMIXDIR/lib/esql:$LD_LIBRARY_PATH
   export LD_LIBRARY_PATH

   (for C Shell)
   setenv LD_LIBRARY_PATH
        $INFORMIXDIR/lib/cli:$INFORMIXDIR/lib/esql:$LD_LIBRARY_PATH

3. Thread-safe ODBC libraries are supported on this platform using POSIX
   threads. Make sure that you set the THREADLIB environment variable to
   "POSIX" before linking your ODBC program using the esql script.

4. Pluggable Authentication Module (PAM)

   PAM functionality is supported on Linux for Power architecture systems.
   The PAM is dependent on the libpam.so library supplied by the Operating
   System vendor.

   Use of PAM can be enabled or disabled by the system administrator. By
   default, IBM IDS will use the traditional authentication mechanism in
   order to avoid widespread changes required by the users.

   The PAM service identifies the PAM module. This PAM module typically
   resides in /lib/security and its parameters are listed in /etc/pam.d.
   The pam.conf file is ignored on Linux, if the /etc/pam.d directory is
   present.

5. IPv6 Support

   IBM Informix Server supports Internet Protocol Version 6 (128 Bit Internet
   Addresses) as well as IPv4 (32 Bit Addresses).

   In order for the machine name specified in the SQLHOSTS file to resolve to
   the correct IP address, the name services files on the operating system
   should be correctly configured. If the machine has IPv6 address configured
   and the listener thread is bound to an IPv6 address, then the name
   resolution files /etc/nsswitch.conf should be configured to fetch IPv6
   addresss. Also use the appropriate /etc/hosts setting if local machine
   settings are used.

   For compatibility with older IBM Informix client and server products,
   assign the same hostname with both an IPv4 address and an IPv6 address.
   If the listener needs to be bound to an IPv4 address and the name services
   resolve the name in the order of the IPv6 address followed by IPv4 address,
   then an explicit IPv4 address needs to be put in nodename field of SQLHOSTS
   file. Client applications should also use the same setting.

Check the following web site for the latest Linux system requirements:

   http://www-01.ibm.com/support/docview.wss?rs=630&uid=swg27016673

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Informix ODBC Driver Version 4.50.FC5, Linux Intel 64bit

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                         MACHINE  SPECIFIC  NOTES
                                    FOR
                IBM Informix Client-SDK 4.50.FC5 PRODUCT RELEASE
                    IBM Informix ODBC Driver Version 4.50.FC5
                            On Linux Intel 64bit
                            DATE: 17 Nov 2020
                    ================================
```

OS Information : Built on Red Hat Enterprise Linux ES release 7.4 (Maipo)
                 Certified on SUSE SLES 12.3 and 15,
                 Ubuntu Server Edition 16.04 LTS and 17.10.

Machine Specific Notes
======================

1. This product was built on Red Hat Enterprise Linux ES release 7.4
   (Kernel: 3.10.0-693, Glibc: 2.17) for x86_64 compatible processors.
   The following compilers were used:

        gcc and g++ compiler 4.8.5 20150623 (Red Hat 4.8.5-16)

   Installing the product on Ubuntu or Debian requires RPM to be installed
   and initialized. After RPM installed, use the following commands to
   initialize RPM:

```
        mkdir -p /var/lib/rpm
        rpm --initdb
```

The bc utility is required by the product installer, and needs to be installed on Ubuntu.

2. For shared library support, environment variable LD_LIBRARY_PATH needs to be set to include the $INFORMIXDIR/lib/cli directories where IBM INFORMIX ODBC shared libraries are installed.

```
   (for C Shell)
setenv LD_LIBRARY_PATH $INFORMIXDIR/lib:$INFORMIXDIR/lib/cli:
      $INFORMIXDIR/lib/esql:$LD_LIBRARY_PATH
```

```
   (for Bourne or Korn Shell)
LD_LIBRARY_PATH=$INFORMIXDIR/lib/cli:$INFORMIXDIR/lib/esql:
                   $LD_LIBRARY_PATH
   export LD_LIBRARY_PATH
```

3. The thread safe ODBC libraries are supported on this platform using POSIX threads. Make sure that you set the THREADLIB environment variable to "POSIX" before linking your ODBC program using the esql script.

4. Pluggable Authentication Module (PAM)

   PAM functionality is supported on Linux operating systems. The PAM is dependent on the libpam.so library supplied by the Operating System vendor.

   Use of PAM can be enabled or disabled by the system administrator. By default, IBM IDS will use the traditional authentication mechanism in order to avoid widespread changes required by the users.

   The PAM service identifies the PAM module. This PAM module typically resides in /lib/security and its parameters are listed in /etc/pam.d. The pam.conf file is ignored on Linux, if the /etc/pam.d directory is present.

5. IPv6 Support

   The product supports Internet Protocol Version 6 (128 Bit Internet Addresses) as well as IPv4 (32 Bit Addresses).

   In order for the machine name specified in the SQLHOSTS file to resolve to the correct IP address, the name services files on the Operating System should be correctly configured. If the machine has IPv6 address configured and the listener thread is bound to an IPv6 address, then the name resolution files /etc/netsvc.conf should be configured to fetch IPv6 address. Also use the appropriate /etc/hosts setting if local machine settings are used.

   For compatibility with older IBM Informix client and server products, assign the same hostname with both an IPv4 address and an IPv6 address. If the listener needs to be bound to an IPv4 address and the name services resolve the name in the order of the IPv6 address followed by IPv4 address, then an explicit IPv4 address needs to be put in nodename field of SQLHOSTS file. Client applications should also use the same setting.

Check the following web site for the latest Linux system requirements:

   http://www-01.ibm.com/support/docview.wss?rs=630&uid=swg27016673

Informix ODBC Driver Version 4.50.FC5, Linux zSeries 64-Bit

```
================================
            MACHINE SPECIFIC NOTES
                    FOR
     IBM Informix Client-SDK 4.50.FC5 PRODUCT RELEASE
          IBM Informix ODBC Driver Version 4.50.FC5
                On Linux zSeries 64-Bit
                DATE: 17 Nov 2020
================================
```

OS Information : Built on Red Hat Enterprise Linux ES release 7.4 (Maipo).
                Certified on SUSE SLES 12.3.

Machine Specific Notes
======================

1. This product was built on Red Hat Enterprise Linux ES release 7.4
   for zSeries mainframe with 64-bit Kernel 3.10.0-693.el7 and
   glibc 2.17-307, using the following compilers:

        gcc version 4.8.5 20150623 (Red Hat 4.8.5-39)

2. For shared library support, environment variable LD_LIBRARY_PATH
   needs to be set to include the $INFORMIXDIR/lib/cli directories
   where IBM INFORMIX ODBC shared libraries are installed.

   (for C Shell)
   setenv LD_LIBRARY_PATH $INFORMIXDIR/lib:$INFORMIXDIR/lib/cli:
         $INFORMIXDIR/lib/esql:$LD_LIBRARY_PATH

   (for Bourne or Korn Shell)
   LD_LIBRARY_PATH=$INFORMIXDIR/lib/cli:$INFORMIXDIR/lib/esql:
                   $LD_LIBRARY_PATH
   export LD_LIBRARY_PATH

3. Thread-safe ODBC libraries are supported on this platform using POSIX
   threads. Make sure that you set the THREADLIB environment variable to
   "POSIX" before linking your ODBC program using the esql script.

4. Pluggable Authentication Module (PAM)

   PAM functionality is supported on Linux zSeries operating systems. The
   PAM is dependent on the libpam.so library supplied by the Operating System
   vendor.

   Use of PAM can be enabled or disabled by the system administrator. By
   default, IBM IDS will use the traditional authentication mechanism in
   order to avoid widespread changes required by the users.

   The PAM service identifies the PAM module. This PAM module typically
   resides in /lib/security and its parameters are listed in /etc/pam.d.

```
    The pam.conf file is ignored on Linux, if the /etc/pam.d directory is
    present.

5. IPv6 Support

   IBM Informix Server supports Internet Protocol Version 6 (128 Bit Internet
   Addresses) as well as IPv4 (32 Bit Addresses).

   In order for the machine name specified in the SQLHOSTS file to resolve to
   the correct IP address, the name services files on the operating system
   should be correctly configured. If the machine has IPv6 address configured
   and the listener thread is bound to an IPv6 address, then the name
   resolution files /etc/nsswitch.conf should be configured to fetch IPv6
   addresss. Also use the appropriate /etc/hosts setting if local machine
   settings are used.

   For compatibility with older IBM Informix client and server products,
   assign the same hostname with both an IPv4 address and an IPv6 address.
   If the listener needs to be bound to an IPv4 address and the name services
   resolve the name in the order of the IPv6 address followed by IPv4 address,
   then an explicit IPv4 address needs to be put in nodename field of SQLHOSTS
   file. Client applications should also use the same setting.

Check the following web site for the latest Linux system requirements:

   http://www-01.ibm.com/support/docview.wss?rs=630&uid=swg27016673


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```

Informix ODBC Driver Version 4.50.FC5, Solaris Sparc 64bit

```
                        ==================================
                              MACHINE SPECIFIC NOTES
                                      FOR
                   IBM Informix Client-SDK 4.50.FC5 PRODUCT RELEASE
                         IBM Informix ODBC Driver Version 4.50.FC5
                              On Solaris Sparc 64bit
                                 DATE: 17 Nov 2020
                        ==================================

OS Information : Built on Solaris 11.3.

Machine Specific Notes
======================

1. This product was built on Solaris 11.3 using the following compilers
   from Oracle Solaris Studio 12.3:

        Sun C 5.12 SunOS_sparc December 2011
        Sun C++ 5.12 SunOS_sparc December 2011

   The product was built with the following 64-bit compiler flag:
```

```
            "-m64"
```

2. Setting the environment variable LD_LIBRARY_PATH (or LD_LIBRARY_PATH_64)

   (for Bourne or Korn Shell)
       LD_LIBRARY_PATH=
           $INFORMIXDIR/lib/cli:$INFORMIXDIR/lib/esql:$LD_LIBRARY_PATH
       export LD_LIBRARY_PATH

   (for C Shell)
       setenv LD_LIBRARY_PATH
           $INFORMIXDIR/lib/cli:$INFORMIXDIR/lib/esql:$LD_LIBRARY_PATH

   If there are 64-bit shared object libraries (.so files)
   which you want the runtime linkers ld and ild to link with your
   C++ API applications, you must either add the directory paths for
   these libraries to LD_LIBRARY_PATH or LD_LIBRARY_PATH_64.
   Note that if you add them to LD_LIBRARY_PATH but not to
   LD_LIBRARY_PATH_64 and you define LD_LIBRARY_PATH_64, they will not
   be found as LD_LIBRARY_PATH is ignored when searching for 64-bit
   libraries if LD_LIBRARY_PATH_64 is set.
   You should either set LD_LIBRARY_PATH to all 32-bit and 64-bit
   paths required by your applications and not set LD_LIBRARY_PATH_64
   at all, or set LD_LIBRARY_PATH to only 32-bit paths and
   LD_LIBRARY_PATH_64 to 64-bit paths.

   See the Solaris man pages for ld and ild for more information
   on the environment variables LD_LIBRARY_PATH and LD_LIBRARY_PATH_64.
   See also the Solaris Linker and Libraries Guide.

3. The thread safe ODBC libraries are supported on this platform using
   Native Solaris threads.

4. Migration of existing ODBC applications from 32 bit versions of
   IBM Informix Client-SDK to IBM Informix Client-SDK 4.50.FC5.

   ALL the existing 32-bit ODBC applications WILL need to be recompiled
   to make them work with IBM Informix Client-SDK 4.50.FC5.
   Before recompiling these existing applications, changes will be
   required to be made to the application sources, if above mentioned ODBC
   API and/or ODBC Datatypes are being used. Also applications   should
   not have any "long" and/or "unsigned long" C-Data types declared
   which is being passed to any Informix ODBC APIs. Informix recommends
   use of SQLINTEGER/SQLUINTEGER, SDWORD/UDWORD standard ODBC types as
   defined in Informix header files.

5. Pluggable Authentication Module (PAM)

   PAM functionality is supported on Solaris operating systems. The PAM is
   dependent on the libpam.so library supplied by the Operating System vendor.

   Use of PAM can be enabled or disabled by the system administrator. By
   default, IBM IDS will use the traditional authentication mechanism in
   order to avoid widespread changes required by the users.

   The PAM service identifies the PAM module. This PAM module typically
   resides in /usr/lib/security and its parameters are listed in
   /etc/pam.conf.

6. IPv6 Support

   IBM Informix Server supports Internet Protocol Version 6 (128 Bit Internet
   Addresses) as well as IPv4 (32 Bit Addresses).

In order for the machine name specified in the SQLHOSTS file to resolve to the correct IP address, the name services files on the operating system should be correctly configured. If the machine has IPv6 address configured and the listener thread is bound to an IPv6 address, then the name resolution files /etc/nsswitch.conf should be configured to fetch IPv6 address. Also use the appropriate /etc/hosts setting if local machine settings are used.

For compatibility with older IBM Informix client and server products, assign the same hostname with both an IPv4 address and an IPv6 address. If the listener needs to be bound to an IPv4 address and the name services resolve the name in the order of the IPv6 address followed by IPv4 address, then an explicit IPv4 address needs to be put in nodename field of SQLHOSTS file. Client applications should also use the same setting.

Check the following web site for the latest Solaris system requirements:

http://www-01.ibm.com/support/docview.wss?rs=630&uid=swg27016673

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Informix ODBC Driver Version 4.50.FC5, Windows x64

```
=================================
        MACHINE SPECIFIC NOTES
                FOR
    IBM Informix Client-SDK 4.50.FC5 PRODUCT RELEASE
        IBM Informix ODBC Driver Version 4.50.FC5
                On Windows x64
                DATE: 17 Nov 2020
=================================
```

OS Information : Built on Windows Server 2016 x64.

Machine Specific Notes
======================

1. This product supports the following compiler:

        Microsoft Visual Studio 2017

    This product is built on Windows 2016 using the following compiler from Microsoft Visual Studio 2017:

        Microsoft Visual C++ 2017

2. Pluggable Authentication Module (PAM)

    PAM functionality is supported. Use of PAM can be enabled or disabled by the system administrator. By default, IBM IDS will use the traditional authentication mechanism in order to avoid widespread changes required by the users.

3. IPv6 Support

IDS supports Internet Protocol Version 6 (128 Bit Internet Addresses)
as well as IPv4 (32 Bit Addresses).

In order for the machine name specified in the SQLHOSTS registry to resolve
to the correct IP address, the name services files on the Operating System
should be correctly configured.

For compatibility with older IBM Informix client and server products,
assign the same hostname with both an IPv4 address and an IPv6 address.
If the listener needs to be bound to an IPv4 address and the name services
resolve the name in the order of the IPv6 address followed by IPv4 address,
then an explicit IPv4 address needs to be put in the nodename field of the
server registry. Client applications should also use the same setting.

4. Connectivity on Windows Vista

To enable connections between database servers on the Vista operating
system, you must enable network discovery and NetBIOS over TCP/IP.

To enable connections:

1) From the Control Panel, double-click Network and Sharing.
2) In the Sharing and Discovery section of the Network and Sharing Center,
   click Network discovery and then Turn on network discovery.
3) In the Network section, click View Status next to the Local Area
   Connection.
4) In the Local Area Connection Status dialog box, click Properties.
5) In the Local Area Connection Properties dialog box, choose the
   appropriate Internet Protocol Version and click Properties.
6) In the Internet Protocol Version Properties dialog box, click Advanced.
7) On the WINS page of the Advanced TCP/IP Settings dialog box, click
   Enable NetBIOS over TCP/IP and then click OK.
8) Continue clicking OK or Close until all dialog boxes are closed.

5. Workaround to list ODBC driver in Data Sources(ODBC Window)

Warning: As we will be modifying the registry, performing a registry
          back-up is recommended.

1) Copy the lines between BEGIN and END block, save it as a
   file(for example, ifmx_odbc_driver.txt) in any location in your
   hard drive (for example in C:\MyFolder\).
   NOTE: All lines should start at column 1(no spaces before start of line)

BEGIN Block
Windows Registry Editor Version 5.00

[HKEY_LOCAL_MACHINE\SOFTWARE\ODBC\ODBCINST.INI\ODBC Drivers]
"IBM INFORMIX ODBC DRIVER"="installed"

[HKEY_LOCAL_MACHINE\SOFTWARE\ODBC\ODBCINST.INI\IBM INFORMIX ODBC DRIVER]
"Driver"="INFORMIXDIR\bin\iclit09b.dll"
"Setup"="INFORMIXDIR\bin\iclit09b.dll"
"SQLLevel"="1"
"FileUsage"="0"
"DriverODBCVer"="03.51"
"ConnectFunctions"="YYY"
"APILevel"="1"
"CPTimeout"="<not pooled>"
 END   Block

2) Edit ifmx_odbc_driver.txt to replace INFORMIXDIR to the installed
   location of CSDK. For example, if CSDK is installed in c:\IBM\ folder,

```
        then replace INFORMIXDIR with c:\IBM.

   3) Rename ifmx_odbc_driver.txt to  ifmx_odbc_driver.reg.  To update
      the registry, either double click on the ifmx_odbc_driver.reg file or
      type the following line from a command prompt.

        regedit c:\MyFolder\ifmx_odbc_driver.reg

        Click Yes, when you get the following message:
        "Are you sure you want to add the information in
        c:\MyFolder\ifmx_odbc_driver.reg file to the registry?"

        Click OK, when you get the following message:
        "Information in c:\MyFolder\ifmx_odbc_driver.reg file has been
         successfully entered into the registry."

   4) You can now configure ODBC DSNs  by running odbcad32.exe

Check the following web site for the latest Windows system requirements:

   http://www-01.ibm.com/support/docview.wss?rs=630&uid=swg27016673


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```

Informix .NET Provider Machine Notes

Client SDK 4.50.xC5

- IBM Informix .NET Provider Version 4.50.FC5, Windows x64

IBM Informix .NET Provider Version 4.50.FC5, Windows x64

```
                  ================================
                       MACHINE SPECIFIC NOTES
                               FOR
          IBM Informix Client-SDK 4.50.FC5 PRODUCT RELEASE
                IBM Informix .NET Provider Version 4.50.FC5
                          On Windows x64
                          DATE: 17 Nov 2020
                  ================================

OS Information : Built on Windows Server 2016 x64.


Machine Specific Notes
======================
```

1. IBM Informix .NET Provider for 2.0 .NET framework is no longer included in
   this release.

2. IBM Informix .NET Provider for 4.0 .NET framework is built on Windows
   2016 using Visual C# compiler from (Visual Studio 2017):

        Microsoft .NET Framework v4.5.51209 SP1

3. The IBM Informix .NET Provider is no longer automatically deployed in the
   Global Assembly
   Cache (GAC) or registered as a DbFactoryProvider during the installation
   process.

    To deploy the provider in the GAC use the Global Assembly Cache tool
   (Gacutil.exe)
    provided by the Windows Software Development Kit (SDK).

        https://docs.microsoft.com/en-us/dotnet/framework/tools/gacutil-exe-gac-
   tool

    To register the provider as a DbFactoryProvider update your application
   configuration
    file (app.config) or the .NET runtime global configuration file
   (machine.config) with
    the following entry:

        <DbProviderFactories>
          <add name="IBM Informix .NET Data Provider"
   invariant="IBM.Data.Informix"
          description="IBM Informix Data Provider for .NET Framework 4.0"
                type="IBM.Data.Informix.IfxFactory, IBM.Data.Informix,
   Version=4.0.0.0,
          Culture=neutral, PublicKeyToken=7c307b91aa13d208" />
        </DbProviderFactories>

4. IPv6 Support

    IDS supports Internet Protocol Version 6 (128 Bit Internet Addresses)
    as well as IPv4 (32 Bit Addresses).

    In order for the machine name specified in the SQLHOSTS registry to resolve
    to the correct IP address, the name services files on the Operating System
    should be correctly configured.

    For compatibility with older IBM Informix client and server products,
    assign the same hostname with both an IPv4 address and an IPv6 address.
    If the listener needs to be bound to an IPv4 address and the name services
    resolve the name in the order of the IPv6 address followed by IPv4 address,
    then an explicit IPv4 address needs to be put in the nodename field of the
    server registry. Client applications should also use the same setting.

5. Connectivity on Windows Vista

    To enable connections between database servers on the Vista operating
    system, you must enable network discovery and NetBIOS over TCP/IP.

    To enable connections:

    1) From the Control Panel, double-click Network and Sharing.
    2) In the Sharing and Discovery section of the Network and Sharing Center,
       click Network discovery and then Turn on network discovery.
    3) In the Network section, click View Status next to the Local Area
       Connection.
    4) In the Local Area Connection Status dialog box, click Properties.

```
            5) In the Local Area Connection Properties dialog box, choose the
               appropriate Internet Protocol Version and click Properties.
            6) In the Internet Protocol Version Properties dialog box, click Advanced.
            7) On the WINS page of the Advanced TCP/IP Settings dialog box, click
               Enable NetBIOS over TCP/IP and then click OK.
            8) Continue clicking OK or Close until all dialog boxes are closed.

   Check the following web site for the latest Windows system requirements:

      http://www-01.ibm.com/support/docview.wss?rs=630&uid=swg27016673


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OLE DB Provider Machine Notes

Client SDK 4.50.xC5

- [IBM Informix OLE DB Provider Version 4.50.FC5, Windows x64](#)

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IBM Informix OLE DB Provider Version 4.50.FC5, Windows x64

```
            =================================
                       MACHINE SPECIFIC NOTES
                                FOR
            IBM Informix Client-SDK 4.50.FC5 PRODUCT RELEASE
             IBM Informix OLE DB Provider Version 4.50.FC5
                           On Windows x64
                        DATE: 17 Nov 2020
            =================================
```

```
   OS Information : Built on Windows Server 2016 x64.

   Machine Specific Notes
   ======================


   1.  This product supports the following compiler:

          Microsoft Visual Studio 2017

       This product is built on Windows 2016 using the following compiler from
       Microsoft Visual Studio 2017:

          Microsoft Visual C++ 2017


   2.  IPv6 Support
```

```
    IDS supports Internet Protocol Version 6 (128 Bit Internet Addresses)
    as well as IPv4 (32 Bit Addresses).

    In order for the machine name specified in the SQLHOSTS registry to resolve
    to the correct IP address, the name services files on the Operating System
    should be correctly configured.

    For compatibility with older IBM Informix client and server products,
    assign the same hostname with both an IPv4 address and an IPv6 address.
    If the listener needs to be bound to an IPv4 address and the name services
    resolve the name in the order of the IPv6 address followed by IPv4 address,
    then an explicit IPv4 address needs to be put in the nodename field of the
    server registry. Client applications should also use the same setting.

3.  Connectivity on Windows Vista

    To enable connections between database servers on the Vista operating
    system, you must enable network discovery and NetBIOS over TCP/IP.

    To enable connections:

    1) From the Control Panel, double-click Network and Sharing.
    2) In the Sharing and Discovery section of the Network and Sharing Center,
       click Network discovery and then Turn on network discovery.
    3) In the Network section, click View Status next to the Local Area
       Connection.
    4) In the Local Area Connection Status dialog box, click Properties.
    5) In the Local Area Connection Properties dialog box, choose the
       appropriate Internet Protocol Version and click Properties.
    6) In the Internet Protocol Version Properties dialog box, click Advanced.
    7) On the WINS page of the Advanced TCP/IP Settings dialog box, click
       Enable NetBIOS over TCP/IP and then click OK.
    8) Continue clicking OK or Close until all dialog boxes are closed.

Check the following web site for the latest Windows system requirements:

    http://www-01.ibm.com/support/docview.wss?rs=630&uid=swg27016673


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Release, documentation, and machine notes for IBM® Informix® Client SDK, v4.50.xC4

These are the release, documentation, and machine notes for Client SDK version 4.50.xC4.

- Release notes for IBM Informix Client Software Development Kit for Windows Operating Systems, 4.50.xC4W1
- Release notes for IBM Informix Client Software Development Kit for UNIX and Linux, 4.50.xC4
- Machine notes for IBM Informix Client SDK, version 4.50
  These are the machine notes for version 4.50.

Release notes for IBM Informix Client Software Development Kit for Windows Operating Systems, 4.50.xC4W1

Contents

- [Description](#)
- [Announcement](#)
- [Compatibility](#)
- [System requirements](#)
- [Installing IBM Informix Client SDK 4.50.xC4W1](#)
- [Choice of .NET Providers to use with HCL Informix Version 14.10](#)
- [Known Problems](#)
- [Related information](#)

Description

The IBM® Informix® Client Software Development Kit Version 4.50 Release notes include information about the following component products:

- IBM Informix Connection Manager
- IBM Informix ESQL/C
- IBM Informix .NET Provider
- IBM Informix Object Interface for C++
- IBM Informix ODBC Driver
- IBM Informix OLE DB Provider

For a complete list of what's new and changed in this release, go to http://www.ibm.com/support/knowledgecenter/SSGU8G/welcomeIfxServers.html.
Information about the fixed defects for IBM Informix Client Software Development Kit 4.50.xC4 is available at: http://www.ibm.com/support/docview.wss?uid=ibm10871880.

Announcement

The product announcement letters are available at http://www.ibm.com/common/ssi/index.wss. Search for Informix 14.10 and select Announcement letters. See the announcement for the following information:

- Detailed product description
- Product-positioning statement
- Packaging and ordering details
- International compatibility information

Compatibility

Version 4.50 of IBM Informix Client Software Development Kit is compatible with the following database servers:

Database server	Versions

| IBM Informix Client Software Development Kit | 11.70, 12.10, 14.10 |

Version 4.50 of Connection Manager is compatible with the following clients:

Client	Version
IBM Informix Client Software Development Kit (Client SDK)	3.70, 4.10, 4.50
IBM InformixConnect	3.70, 4.10, 4.50
IBM Informix JDBC Driver	3.70, 4.10, 4.50
Data Server Driver for JDBC and SQLJ	3.5.2 or later

System requirements

For information about hardware and software compatibility, see the detailed system requirements document at http://www.ibm.com/support/docview.wss?uid=swg27016673.

Installing IBM Informix Client SDK 4.50.xC4W1

For step-by-step installation instructions, see Installing Informix Client Products at http://www.ibm.com/support/knowledgecenter/SSGU8G/welcomeIfxServers.html.

For standalone installation, minimum OpenSSL version 1.0.x need to be installed on the system. Please refer to https://www.openssl.org for more information on OpenSSL.

Choice of .NET Providers to use with HCL Informix Version 14.10

You can use either the Informix .NET Provider or the DB2® .NET Provider with your HCL Informix installation.

The DB2 .NET Provider is part of the Informix Client Software Development Kit bundle on Microsoft Windows.

Known Problems

At time of publication, the following problems were known:

- When you use the IBM Informix ODBC Driver to perform distributed transactions that use the Microsoft Transaction Server, turn off session pooling for the Microsoft OLE DB Provider for ODBC Drivers (MSDASQL). This property can be set in the application by adding the value "OLE DB Services=-4" in the connection string. Setting the property turns off session pooling and autoenlistment in the MSDASQL OLE DB provider, and allows the pooling and autoenlistment to occur in the IBM Informix ODBC Driver.

Related information

- IBM Support Portal: http://www.ibm.com/support/entry/portal/
- The latest open source drivers for Informix can be found at https://github.com/OpenInformix.

Release notes for IBM Informix Client Software Development Kit for UNIX and Linux, 4.50.xC4

Contents

- [Description](#)
- x`
- [Announcement](#)
- [Compatibility](#)
- [System requirements](#)
- [Installing IBM Informix Client SDK 4.50.xC4W1](#)
- [Related information](#)

Description

The IBM® Informix® Client Software Development Kit Version 4.50 Release notes include information about the following component products:

- IBM Informix Connection Manager
- IBM Informix ESQL/C
- IBM Informix Object Interface for C++
- IBM Informix ODBC Driver

For a complete list of what's new and changed in this release, see For a complete list of what's new and changed in this release, go to http://www.ibm.com/support/knowledgecenter/SSGU8G/welcomeIfxServers.html.

Information about the fixed defects for IBM Informix Client Software Development Kit 4.50.xC2 is available at: http://www.ibm.com/support/docview.wss?uid=ibm10871880..

Announcement

The product announcement letters are available at http://www.ibm.com/common/ssi/index.wss. Search for Informix 14.10 and select Announcement letters. See the announcement for the following information:

- Detailed product description
- Product-positioning statement
- Packaging and ordering details
- International compatibility information

Compatibility

Version 4.50 of IBM Informix Client Software Development Kit is compatible with the following database servers:

Database server	Versions
IBM Informix	11.70, 12.10, 14.10

Version 4.50 of Connection Manager is compatible with the following clients:

Client	Version
IBM Informix Client Software Development Kit (Client SDK)	3.70, 4.10, 4.50
IBM InformixConnect	3.70, 4.10, 4.50
IBM Informix JDBC Driver	3.70, 4.10, 4.50
Data Server Driver for JDBC and SQLJ	3.5.2 or later

System requirements

For information about hardware and software compatibility, see the detailed system requirements document at http://www.ibm.com/support/docview.wss?uid=swg27016673.

Installing IBM Informix Client SDK 4.50.xC4W1

For step-by-step installation instructions, see Installing Informix Client Products at http://www.ibm.com/support/knowledgecenter/SSGU8G/welcomeIfxServers.html.

For standalone installation, minimum OpenSSL version 1.0.x need to be installed on the system. Please refer to https://www.openssl.org for more information on OpenSSL.

Related information

- IBM Support Portal: http://www.ibm.com/support/entry/portal/
- The latest open source drivers for Informix can be found at https://github.com/OpenInformix.

Machine notes for IBM® Informix® Client SDK, version 4.50

These are the machine notes for version 4.50.

To view the notes, expand the categories in the contents pane in the Release information subtopic under the Product overview topic.

- C++ Interface
- ESQL/C Machine Notes
- GLS API Machine Notes
- ODBC Driver Machine Notes
- Informix .NET Provider Machine Notes
- OLE DB Provider Machine Notes

C++ Interface

C++ Interface Version 4.50.FC4W1, AIX 7.2 64bit

```
================================
       MACHINE SPECIFIC NOTES
              FOR
 IBM Informix Client-SDK 4.50.FC4W1 PRODUCT RELEASE
        C++ Interface Version 4.50.FC4
              On AIX 7.2 64bit
            DATE: 15 Jun 2020
================================
```

OS Information : Built on AIX 7.2 Technology.

```
Machine Specific Notes
======================
```

1. This product was built on AIX 7.2 Technology using the
   following compilers:

   IBM XL C/C++ for AIX, V13.1.3 (5765-J06)
   XL C/C++ Runtime   13.1.3

2. AIX patch requirement:

3. To use a specific shared library to link with your application, include
   the directories where the 64bit C++ shared libraries are installed by
   setting your environment as follows:

       (for Bourne or Korn Shell)
       LIBPATH=$INFORMIXDIR/lib:$INFORMIXDIR/lib/c++:$INFORMIXDIR/lib/esql:
           $INFORMIXDIR/lib/dmi:$LIBPATH
       export LIBPATH

       (for C Shell)
       setenv LIBPATH $INFORMIXDIR/lib:$INFORMIXDIR/lib/c++:

```
                         $INFORMIXDIR/lib/dmi:$INFORMIXDIR/lib/esql:$LIBPATH
```

4. IPv6 Support

   The product supports Internet Protocol Version 6 (128 Bit Internet Addresses)
   as well as IPv4 (32 Bit Addresses).

   In order for the machine name specified in the SQLHOSTS file to resolve
   to the correct IP address, the name services files on the Operating System
   should be correctly configured. If the machine has IPv6 address configured
   and the listener thread is bound to an IPv6 address, then the name
   resolution files /etc/netsvc.conf should be configured to fetch IPv6
   address. Also use the appropriate /etc/hosts setting if local machine
   settings are used.

   For compatibility with older IBM Informix client and server products,
   assign the same hostname with both an IPv4 address and an IPv6 address.
   If the listener needs to be bound to an IPv4 address and the name services
   resolve the name in the order of the IPv6 address followed by IPv4 address,
   then an explicit IPv4 address needs to be put in nodename field of SQLHOSTS
   file. Client applications should also use the same setting.

Check the following web site for the latest AIX system requirements:

   http://www-01.ibm.com/support/docview.wss?rs=630&uid=swg27016673

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C++ Interface Version 4.50.FC4W1, HP Itanium 64bit

```
                    ================================
                          MACHINE SPECIFIC NOTES
                                   FOR
               IBM Informix Client-SDK 4.50.FC4W1 PRODUCT RELEASE
                        C++ Interface Version 4.50.FC4
                            On HP Itanium 64bit
                            DATE: 15 Jun 2020
                    ================================
```

OS Information : Built on HP-UX 11i V3 (aka 11.31) Itanium.

Machine Specific Notes
======================

1. This product was built on HP-UX 11i V3 (aka 11.31) Itanium using the
   following compilers:

   HP C/aC++ B3910B A.06.26 [Apr 12 2011]

   and with the following packages:

   Bundle Name   Description
   -----------   -----------
   B9007AA   C.11.31.06   HP C/aC++ Developer's Bundle
   BUNDLE   B.2011.08.04   Patch Bundle

2. For shared library support, setting the environment variable
   SHLIB_PATH:

       (for C Shell)
       setenv SHLIB_PATH $INFORMIXDIR/lib:$INFORMIXDIR/lib/esql:
       $INFORMIXDIR/lib/c++:$INFORMIXDIR/lib/dmi:$SHLIB_PATH

       (for Bourne or Korn Shell)
       SHLIB_PATH=$INFORMIXDIR/lib:$INFORMIXDIR/lib/esql:
       $INFORMIXDIR/lib/c++:$INFORMIXDIR/lib/dmi:$SHLIB_PATH
       export SHLIB_PATH

3. To build any C++ application that uses the "Standard Template Library",
   the C++ compiler flag "-AA" is required.

4. IPv6 Support

   The product supports Internet Protocol Version 6 (128 Bit Internet Addresses)
   as well as IPv4 (32 Bit Addresses).

   In order for the machine name specified in the SQLHOSTS file to resolve
   to the correct IP address, the name services files on the Operating System
   should be correctly configured. If the machine has IPv6 address configured
   and the listener thread is bound to an IPv6 address, then the name
   resolution files /etc/netsvc.conf should be configured to fetch IPv6
   address. Also use the appropriate /etc/hosts setting if local machine
   settings are used.

   For compatibility with older IBM Informix client and server products,
   assign the same hostname with both an IPv4 address and an IPv6 address.
   If the listener needs to be bound to an IPv4 address and the name services
   resolve the name in the order of the IPv6 address followed by IPv4 address,
   then an explicit IPv4 address needs to be put in nodename field of SQLHOSTS
   file. Client applications should also use the same setting.

Check the following web site for the latest HP-UX system requirements:

   http://www-01.ibm.com/support/docview.wss?rs=630&uid=swg27016673

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C++ Interface Version 4.50.FC4W1, openSUSE aarch64

```
                        ================================
                              MACHINE  SPECIFIC  NOTES
                                        FOR
                     IBM Informix Client-SDK 4.50.FC4W1 PRODUCT RELEASE
                              C++ Interface Version 4.50.FC4
                                  On openSUSE aarch64
                                 DATE: 15 Jun 2020
                        ================================
```

OS Information: Built on openSUSE Leap 42.3

```
Machine Specific Notes
======================

IBM(R) Informix(R) Object Interface for C++ is not supported on this platform.


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```

C++ Interface Version 4.50.FC4W1, Linux ARMv7

```
                    ================================
                          MACHINE SPECIFIC NOTES
                                   FOR
                IBM Informix Client-SDK 4.50.UC4W1 PRODUCT RELEASE
                        C++ Interface Version 4.50.UC4W1
                              On Linux ARMv7 (armhf)
                              DATE: 15 Jun 2020
                    ================================
```

```
OS Information: Built on Raspbian 9 (stretch) armhf

Machine Specific Notes
======================

IBM(R) Informix(R) Object Interface for C++ is not supported on this platform.


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```

C++ Interface Version 4.50.FC4W1, Linux Power (little endian)

```
                    ================================
                          MACHINE SPECIFIC NOTES
                                   FOR
                IBM Informix Client-SDK 4.50.FC4W1 PRODUCT RELEASE
                        C++ Interface Version 4.50.FC4W1
                          On Linux Power (little endian)
                              DATE: 15 Jun 2020
                    ================================
```

```
OS Information : Built on Red Hat Enterprise Linux ES release 7.4 (Maipo)
                Certified on SUSE SLES 12.3 and 15.

Machine Specific Notes
```

```
======================
```

1. This product was built on Red Hat Enterprise Linux ES 7.4 (Maipo)
   for 64-Bit Power Series Architecture little endian with Kernel version
   4.10.0 and glibc 2.17 using the following compilers:

        gcc/g++ 4.8.5 20150623

2. For shared library support, setting the environment variable
   LD_LIBRARY_PATH:

      (for C Shell)
      setenv LD_LIBRARY_PATH $INFORMIXDIR/lib:$INFORMIXDIR/lib/esql:
      $INFORMIXDIR/lib/c++:$INFORMIXDIR/lib/dmi:$LD_LIBRARY_PATH

      (for Bourne or Korn Shell)
      LD_LIBRARY_PATH=$INFORMIXDIR/lib:$INFORMIXDIR/lib/esql:
      $INFORMIXDIR/lib/c++:$INFORMIXDIR/lib/dmi:$LD_LIBRARY_PATH
      export LD_LIBRARY_PATH

3. IPv6 Support

   IBM Informix Server supports Internet Protocol Version 6 (128 Bit Internet
   Addresses) as well as IPv4 (32 Bit Addresses).

   In order for the machine name specified in the SQLHOSTS file to resolve to
   the correct IP address, the name services files on the operating system
   should be correctly configured. If the machine has IPv6 address configured
   and the listener thread is bound to an IPv6 address, then the name
   resolution files /etc/nsswitch.conf should be configured to fetch IPv6
   addresss. Also use the appropriate /etc/hosts setting if local machine
   settings are used.

   For compatibility with older IBM Informix client and server products,
   assign the same hostname with both an IPv4 address and an IPv6 address.
   If the listener needs to be bound to an IPv4 address and the name services
   resolve the name in the order of the IPv6 address followed by IPv4 address,
   then an explicit IPv4 address needs to be put in nodename field of SQLHOSTS
   file. Client applications should also use the same setting.

Check the following web site for the latest Linux system requirements:

   http://www-01.ibm.com/support/docview.wss?rs=630&uid=swg27016673

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C++ Interface Version 4.50.FC4W1, Linux Intel 64bit

```
                    ================================
                         MACHINE  SPECIFIC  NOTES
                                   FOR
                IBM Informix Client-SDK 4.50.FC4W1 PRODUCT RELEASE
                      C++ Interface Version 4.50.FC4W1
                           On Linux Intel 64bit
                          DATE: 15 Jun 2020
```

```
                    ==============================

OS Information : Built on Red Hat Enterprise Linux ES release 7.4 (Maipo)
                Certified on SUSE SLES 12.3 and 15,
                Ubuntu Server Edition 16.04 LTS and 17.10.


Machine Specific Notes
======================


1. This product was built on Red Hat Enterprise Linux ES release 7.4
   (Kernel:  3.10.0-693, Glibc: 2.17) for x86_64 compatible processors.
   The following compilers were used:

        gcc and g++ compiler 4.8.5 20150623 (Red Hat 4.8.5-16)

   Installing the product on Ubuntu or Debian requires RPM to be installed
   and initialized. After RPM installed, use the following commands to
   initialize RPM:

        mkdir -p /var/lib/rpm
        rpm --initdb

   The bc utility is required by the product installer, and needs to be
   installed on Ubuntu.

2. If you use the C++ Interface with shared libraries, setting the
   environment variable LD_LIBRARY_PATH:

        (for C Shell)
        setenv LD_LIBRARY_PATH $INFORMIXDIR/lib:$INFORMIXDIR/lib/esql:
        $INFORMIXDIR/lib/c++:$INFORMIXDIR/lib/dmi:$LD_LIBRARY_PATH

        (for Bourne or Korn Shell)
        LD_LIBRARY_PATH=$INFORMIXDIR/lib:$INFORMIXDIR/lib/esql:
        $INFORMIXDIR/lib/c++:$INFORMIXDIR/lib/dmi:$LD_LIBRARY_PATH
        export LD_LIBRARY_PATH

3. IPv6 Support

   The product supports Internet Protocol Version 6 (128 Bit Internet Addresses)
   as well as IPv4 (32 Bit Addresses).

   In order for the machine name specified in the SQLHOSTS file to resolve
   to the correct IP address, the name services files on the Operating System
   should be correctly configured. If the machine has IPv6 address configured
   and the listener thread is bound to an IPv6 address, then the name
   resolution files /etc/netsvc.conf should be configured to fetch IPv6
   address. Also use the appropriate /etc/hosts setting if local machine
   settings are used.

   For compatibility with older IBM Informix client and server products,
   assign the same hostname with both an IPv4 address and an IPv6 address.
   If the listener needs to be bound to an IPv4 address and the name services
   resolve the name in the order of the IPv6 address followed by IPv4 address,
   then an explicit IPv4 address needs to be put in nodename field of SQLHOSTS
   file. Client applications should also use the same setting.

Check the following web site for the latest Linux system requirements:

   http://www-01.ibm.com/support/docview.wss?rs=630&uid=swg27016673


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```

C++ Interface Version 4.50.FC4W1, Linux zSeries 64-Bit

```
================================
        MACHINE SPECIFIC NOTES
                FOR
    IBM Informix Client-SDK 4.50.FC4W1 PRODUCT RELEASE
        C++ Interface Version 4.50.FC4W1
            On Linux zSeries 64-Bit
              DATE: 15 Jun 2020
================================
```

OS Information : Built on Red Hat Enterprise Linux ES release 7.4 (Maipo).
                 Certified on SUSE SLES 12.3.

Machine Specific Notes
======================

1. This product was built on Red Hat Enterprise Linux ES release 7.4
   for zSeries mainframe with 64-bit Kernel 3.10.0-693.el7 and glibc
   glibc 2.17-307, using the following compilers:

       gcc version 4.8.5 20150623 (Red Hat 4.8.5-39)

2. If you use the C++ Interface with shared libraries, setting the environment
   variable LD_LIBRARY_PATH:

      (for C Shell)
      setenv LD_LIBRARY_PATH $INFORMIXDIR/lib:$INFORMIXDIR/lib/esql:
      $INFORMIXDIR/lib/c++:$INFORMIXDIR/lib/dmi:$LD_LIBRARY_PATH

      (for Bourne or Korn Shell)
      LD_LIBRARY_PATH=$INFORMIXDIR/lib:$INFORMIXDIR/lib/esql:
      $INFORMIXDIR/lib/c++:$INFORMIXDIR/lib/dmi:$LD_LIBRARY_PATH
      export LD_LIBRARY_PATH

3. IPv6 Support

   IBM Informix Server supports Internet Protocol Version 6 (128 Bit Internet
   Addresses) as well as IPv4 (32 Bit Addresses).

   In order for the machine name specified in the SQLHOSTS file to resolve to
   the correct IP address, the name services files on the operating system
   should be correctly configured. If the machine has IPv6 address configured
   and the listener thread is bound to an IPv6 address, then the name
   resolution files /etc/nsswitch.conf should be configured to fetch IPv6
   addresss. Also use the appropriate /etc/hosts setting if local machine
   settings are used.

   For compatibility with older IBM Informix client and server products,
   assign the same hostname with both an IPv4 address and an IPv6 address.
   If the listener needs to be bound to an IPv4 address and the name services
   resolve the name in the order of the IPv6 address followed by IPv4 address,
   then an explicit IPv4 address needs to be put in nodename field of SQLHOSTS
   file. Client applications should also use the same setting.

Check the following web site for the latest Linux system requirements:

C++ Interface Version 4.50.FC4W1, Solaris Sparc 64bit

```
                ================================
                     MACHINE SPECIFIC NOTES
                              FOR
            IBM Informix Client-SDK 4.50.FC4W1 PRODUCT RELEASE
                     C++ Interface Version 4.50.FC4W1
                        On Solaris Sparc 64bit
                          DATE: 15 Jun 2020
                ================================
```

OS Information : Built on Solaris 11.3.

Machine Specific Notes
======================

1. This product was built on Solaris 11.3 using the following compilers
   from Oracle Solaris Studio 12.3:

        Sun C 5.12 SunOS_sparc December 2011
        Sun C++ 5.12 SunOS_sparc December 2011

   The product was built with the following 64-bit compiler flag:

        "-m64"

2. For shared library support, setting environment variables LD_LIBRARY_PATH
   and LD_LIBRARY_PATH_64

   (for Bourne or Korn Shell)
       LD_LIBRARY_PATH=
           $INFORMIXDIR/lib:$INFORMIXDIR/lib/c++:$INFORMIXDIR/lib/esql:
            $INFORMIXDIR/lib/dmi:$LD_LIBRARY_PATH
       export LD_LIBRARY_PATH

   (for C Shell)
       setenv LD_LIBRARY_PATH
           $INFORMIXDIR/lib:$INFORMIXDIR/lib/c++:$INFORMIXDIR/lib/esql:
           $INFORMIXDIR/lib/dmi$LD_LIBRARY_PATH

   If there are 64-bit shared object libraries (.so files)
   which you want the runtime linkers ld and ild to link with your
   C++ API applications, you must either add the directory paths for
   these libraries to LD_LIBRARY_PATH or LD_LIBRARY_PATH_64.
   Note that if you add them to LD_LIBRARY_PATH but not to
   LD_LIBRARY_PATH_64 and you define LD_LIBRARY_PATH_64, they will not
   be found as LD_LIBRARY_PATH is ignored when searching for 64-bit
   libraries if LD_LIBRARY_PATH_64 is set.
   You should either set LD_LIBRARY_PATH to all 32-bit and 64-bit

```
       paths required by your applications and not set LD_LIBRARY_PATH_64
       at all, or set LD_LIBRARY_PATH to only 32-bit paths and
       LD_LIBRARY_PATH_64 to 64-bit paths.

       See the Solaris man pages for ld and ild for more information
       on the environment variables LD_LIBRARY_PATH and LD_LIBRARY_PATH_64.
       See also the Solaris Linker and Libraries Guide.

   3. IPv6 Support

       IBM Informix Server supports Internet Protocol Version 6 (128 Bit Internet
       Addresses) as well as IPv4 (32 Bit Addresses).

       In order for the machine name specified in the SQLHOSTS file to resolve to
       the correct IP address, the name services files on the operating system
       should be correctly configured. If the machine has IPv6 address configured
       and the listener thread is bound to an IPv6 address, then the name
       resolution files /etc/nsswitch.conf should be configured to fetch IPv6
       address. Also use the appropriate /etc/hosts setting if local machine
       settings are used.

       For compatibility with older IBM Informix client and server products,
       assign the same hostname with both an IPv4 address and an IPv6 address.
       If the listener needs to be bound to an IPv4 address and the name services
       resolve the name in the order of the IPv6 address followed by IPv4 address,
       then an explicit IPv4 address needs to be put in nodename field of SQLHOSTS
       file. Client applications should also use the same setting.

   Check the following web site for the latest Solaris system requirements:

       http://www-01.ibm.com/support/docview.wss?rs=630&uid=swg27016673


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```

C++ Interface Version 4.50.FC4W1, Windows x64

```
                       ================================
                             MACHINE SPECIFIC NOTES
                                     FOR
                    IBM Informix Client-SDK 4.50.FC4W1 PRODUCT RELEASE
                            C++ Interface Version 4.50.FC4W1
                                   On Windows x64
                                   DATE: 15 Jun 2020
                       ================================


   OS Information : Built on Windows Server 2016 x64.

   Machine Specific Notes
   ======================

   1.  This product supports the following compiler:

           Microsoft Visual Studio 2017

       This product is built on Windows 2016 using the following compiler from
```

```
    Microsoft Visual Studio 2017:

        Microsoft Visual C++ 2017

2.  IPv6 Support

    IDS supports Internet Protocol Version 6 (128 Bit Internet Addresses)
    as well as IPv4 (32 Bit Addresses).

    In order for the machine name specified in the SQLHOSTS registry to resolve
    to the correct IP address, the name services files on the Operating System
    should be correctly configured.

    For compatibility with older IBM Informix client and server products,
    assign the same hostname with both an IPv4 address and an IPv6 address.
    If the listener needs to be bound to an IPv4 address and the name services
    resolve the name in the order of the IPv6 address followed by IPv4 address,
    then an explicit IPv4 address needs to be put in the nodename field of the
    server registry. Client applications should also use the same setting.

3.  Connectivity on Windows Vista

    To enable connections between database servers on the Vista operating
    system, you must enable network discovery and NetBIOS over TCP/IP.

    To enable connections:

    1) From the Control Panel, double-click Network and Sharing.
    2) In the Sharing and Discovery section of the Network and Sharing Center,
       click Network discovery and then Turn on network discovery.
    3) In the Network section, click View Status next to the Local Area
       Connection.
    4) In the Local Area Connection Status dialog box, click Properties.
    5) In the Local Area Connection Properties dialog box, choose the
       appropriate Internet Protocol Version and click Properties.
    6) In the Internet Protocol Version Properties dialog box, click Advanced.
    7) On the WINS page of the Advanced TCP/IP Settings dialog box, click
       Enable NetBIOS over TCP/IP and then click OK.
    8) Continue clicking OK or Close until all dialog boxes are closed.

Check the following web site for the latest Windows system requirements:

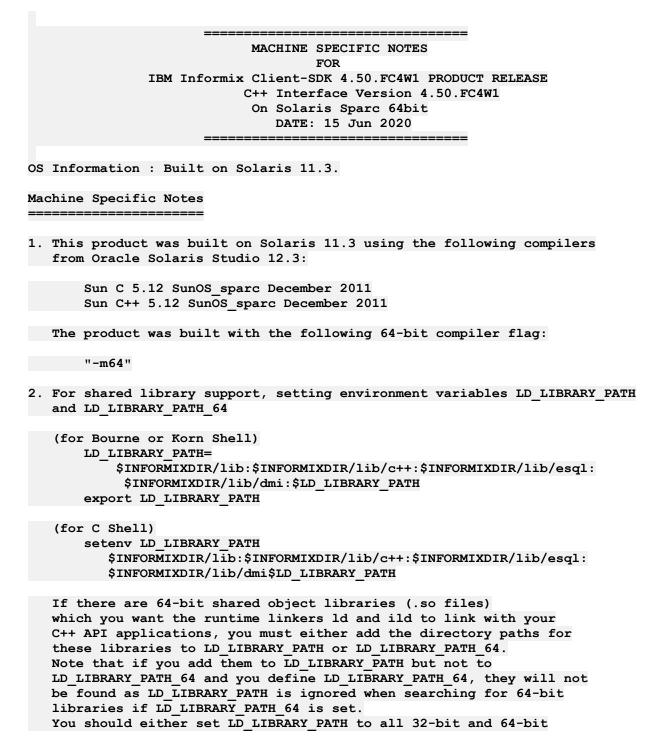    http://www-01.ibm.com/support/docview.wss?rs=630&uid=swg27016673


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```

ESQL/C Machine Notes

Client SDK 4.50.xC4W1

15 Jun 2020

- ESQL/C Version 4.50.FC4W1, AIX 7.2 64bit
- ESQL/C Version 4.50.FC4W1, HP Itanium 64bit

- [ESQL/C Version 4.50.FC4, Linux ARMv7 (armhf)](#)
- [ESQL/C Version 4.50.FC4, Linux aarch64bit](#)
- [ESQL/C Version 4.50.FC4W1, Linux Power (little endian)](#)
- [ESQL/C Version 4.50.FC4, Linux Intel 64bit](#)
- [ESQL/C Version 4.50.FC4W1, Linux Intel 64bit](#)
- [ESQL/C Version 4.50.FC4W1, Solaris Sparc 64bit](#)
- [ESQL/C Version 4.50.FC4W1, Windows x64](#)

ESQL/C Version 4.50.FC4W1, AIX 7.2 64bit

```
                    MACHINE SPECIFIC NOTES
                            FOR
        IBM Informix Client-SDK 4.50.FC4W1 PRODUCT RELEASE
            IBM INFORMIX-ESQL/C Version 4.50.FC4W1
                     On AIX 7.2 64bit
                    DATE: 15 Jun 2020
               ================================
```

OS Information : Built on AIX 7.2 Technology.

Machine Specific Notes
======================

1. This product was built on AIX 7.2 Technology using the
   following compilers:

   IBM XL C/C++ for AIX, V11.1 (5724-X13)
   XL C/C++ Runtime   13.1.3

2. AIX patch requirement:

3. ESQL/C support for static libraries

   ESQL/C product libraries are supported as both static and shared
   libraries. By default the script uses shared libraries.
   To use static libraries, the 'esql' script must be invoked with the
   -static option:

        esql -static

   To use ESQL/C shared libraries, the environment variable LIBPATH
   must include $INFORMIXDIR/lib and $INFORMIXDIR/lib/esql. During
   runtime of the executable, the dynamic loader will look in this
   path for IBM Informix ESQL/C shared libraries.

      (for Bourne or Korn Shell)
      LIBPATH=$INFORMIXDIR/lib:$INFORMIXDIR/lib/esql:$LIBPATH
      export LIBPATH

      (for C Shell)
      setenv LIBPATH $INFORMIXDIR/lib:$INFORMIXDIR/lib/esql:$LIBPATH

4. ESQL/C support for thread safe libraries

   The thread safe ESQL/C libraries are supported on this platform using

POSIX threads. The THREADLIB environment variable must be to POSIX:
```
      (for Bourne or Korn Shell)
      THREADLIB=POSIX
      export THREADLIB


      (for C Shell)
      setenv THREADLIB POSIX
```

To build thread safe ESQL/C programs, use the following command:

```
      esql -thread prog.ec -o prog
```

Applications that have not been compiled with the -thread option cannot be linked with applications that have been compiled with the -thread option. To do so, compile all applications with the -thread option.

5. IPv6 Support

The product supports Internet Protocol Version 6 (128 Bit Internet Addresses) as well as IPv4 (32 Bit Addresses).

In order for the machine name specified in the SQLHOSTS file to resolve to the correct IP address, the name services files on the Operating System should be correctly configured. If the machine has IPv6 address configured and the listener thread is bound to an IPv6 address, then the name resolution files /etc/netsvc.conf should be configured to fetch IPv6 address. Also use the appropriate /etc/hosts setting if local machine settings are used.

For compatibility with older IBM Informix client and server products, assign the same hostname with both an IPv4 address and an IPv6 address. If the listener needs to be bound to an IPv4 address and the name services resolve the name in the order of the IPv6 address followed by IPv4 address, then an explicit IPv4 address needs to be put in nodename field of SQLHOSTS file. Client applications should also use the same setting.

6. Pluggable Authentication Module (PAM)

PAM functionality is supported on AIX 7.2 operating systems. The PAM is dependent on the libpam.a library supplied by the Operating System vendor.

Use of PAM can be enabled or disabled by the system administrator. By default, IBM IDS will use the traditional authentication mechanism in order to avoid widespread changes required by the users.

The PAM service identifies the PAM module. This PAM module typically resides in /usr/lib/security and its parameters are listed in /etc/pam.conf.

Check the following web site for the latest AIX system requirements:

http://www-01.ibm.com/support/docview.wss?rs=630&uid=swg27016673

ESQL/C Version 4.50.FC4W1, HP Itanium 64bit

```
                    ===============================
                         MACHINE SPECIFIC NOTES
                                   FOR
                    IBM Informix Client-SDK 4.50.FC4W1 PRODUCT RELEASE
                        IBM INFORMIX-ESQL/C Version 4.50.FC4W1
                              On HP Itanium 64bit
                              DATE: 15 Jun 2020
                    ===============================
```

OS Information : Built on HP-UX 11i V3 (aka 11.31) Itanium.

Machine Specific Notes
====================

1. **This product was built on HP-UX 11i V3 (aka 11.31) Itanium using the following compilers:**

   HP C/aC++ B3910B A.06.26 [Apr 12 2011]

   and with the following packages:

Bundle Name	Description	
-----------	-----------	
B9007AA	C.11.31.06	HP C/aC++ Developer's Bundle
BUNDLE	B.2011.08.04	Patch Bundle

2. **ESQL/C support for static libraries**

   ESQL/C product libraries are supported as both static and shared libraries. By default the script uses shared libraries. To use static libraries, the 'esql' script must be invoked with the -static option:

   esql -static

   During the execution of an ESQL/C program compiled with shared library you need the environment variable SHLIB_PATH set to include $INFORMIXDIR/ lib and $INFORMIXDIR/lib/esql. At runtime of the executable, dynamic loader will look for this path for Informix ESQL/C shared libraries.

   (for Bourne or Korn Shell)
   SHLIB_PATH=$INFORMIXDIR/lib:$INFORMIXDIR/lib/esql
   export SHLIB_PATH

   (for C Shell)
   setenv SHLIB_PATH $INFORMIXDIR/lib:$INFORMIXDIR/lib/esql

3. **ESQL/C support for thread safe libraries**

   The thread safe ESQL/C libraries are supported on this platform using POSIX threads. The THREADLIB environment variable must be to POSIX:

   (for Bourne or Korn Shell)
   export THREADLIB=POSIX

   (for C Shell)
   setenv THREADLIB POSIX

   To build a thread safe ESQL/C programs, use the following command:

   esql -thread prog.ec -o prog

   Applications that have not been compiled with the -thread option cannot be linked with applications that have been compiled with the -thread option.

To do so, compile all applications with the -thread option.

4. Pluggable Authentication Module (PAM)

PAM functionality is supported on HP-UX operating systems. The PAM is
dependent on the libpam.so library supplied by the Operating System vendor.

Use of PAM can be enabled or disabled by the system administrator. By
default, IBM IDS will use the traditional authentication mechanism in
order to avoid widespread changes required by the users.

The PAM service identifies the PAM module. This PAM module typically
resides in /usr/lib/security and its parameters are listed in
/etc/pam.conf.

5. IPv6 Support

The product supports Internet Protocol Version 6 (128 Bit Internet Addresses)
as well as IPv4 (32 Bit Addresses).

In order for the machine name specified in the SQLHOSTS file to resolve
to the correct IP address, the name services files on the Operating System
should be correctly configured. If the machine has IPv6 address configured
and the listener thread is bound to an IPv6 address, then the name
resolution files /etc/netsvc.conf should be configured to fetch IPv6
address. Also use the appropriate /etc/hosts setting if local machine
settings are used.

For compatibility with older IBM Informix client and server products,
assign the same hostname with both an IPv4 address and an IPv6 address.
If the listener needs to be bound to an IPv4 address and the name services
resolve the name in the order of the IPv6 address followed by IPv4 address,
then an explicit IPv4 address needs to be put in nodename field of SQLHOSTS
file. Client applications should also use the same setting.

Check the following web site for the latest HP-UX system requirements:

http://www-01.ibm.com/support/docview.wss?rs=630&uid=swg27016673

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ESQL/C Version 4.50.FC4, Linux ARMv7 (armhf)

```
                ================================
                      MACHINE SPECIFIC NOTES
                              FOR
          IBM Informix Client-SDK 4.50.UC4W1 PRODUCT RELEASE
               IBM INFORMIX-ESQL/C Version 4.50.UC4W1
                        On Linux ARMv7 (armhf)
                        DATE: 15 Jun 2020
                ================================
```

OS Information: Built on Raspbian 9 (stretch) armhf

Machine Specific Notes

```
======================
```

1. This product was built on Raspbian Stretch 9 armhf
    (Kernel: 4.14.79-v7+, Glibc: 2.24-11) for ARMv7 compatible
    processors. The following compilers were used:

        gcc and g++ compiler 6.3.0 (Raspbian 6.3.0-18+rpi1+deb9u1)

    The following packages are required on your Linux system:

        libc6
        libgcc1
        libstdc++6
        zlib1g
        krb5
        libcomerr2
        libkeyutils1
        libpcre3
        libselinux1
        openjdk-8

2. ESQL/C support for static libraries

    ESQL/C product libraries are supported as both static and shared
    libraries. By default the ESQL/C module uses shared libraries.
    To use static libraries, run the esql command with the -static option:

        esql -static

    To use ESQL/C shared libraries, set the environment variable LD_LIBRARY_PATH
    to include $INFORMIXDIR/lib and $INFORMIXDIR/lib/esql. During runtime,
    the dynamic loader will look in this path for IBM Informix ESQL/C shared
    libraries.

        (for Bourne or Korn Shell)
        LD_LIBRARY_PATH=$INFORMIXDIR/lib:$INFORMIXDIR/lib/esql:$LD_LIBRARY_PATH
        export LD_LIBRARY_PATH

        (for C Shell)
        setenv LD_LIBRARY_PATH
$INFORMIXDIR/lib:$INFORMIXDIR/lib/esql:$LD_LIBRARY_PATH

3. ESQL/C support for thread-safe libraries

    The thread-safe ESQL/C libraries are supported on this platform using
    POSIX threads. The THREADLIB environment variable must be set to POSIX:

        (for Bourne or Korn Shell)
        THREADLIB=POSIX
        export THREADLIB

        (for C Shell)
        setenv THREADLIB POSIX

    To build thread-safe ESQL/C programs, use the following command:

        esql -thread mythreadapp.ec -o mythreadapp

    IMPORTANT: Applications that were NOT compiled with the -thread option
    cannot be linked with applications that were compiled with the -thread
    option. To use threads in an application, compile ALL of application
    modules with the "-thread" option.

4. Pluggable Authentication Module (PAM)

PAM functionality is supported on Linux operating systems. PAM requires the libpam.so library that is supplied by the Operating System vendor.

Use of PAM can be enabled or disabled by the system administrator. By default, the Informix server will use the traditional authentication mechanism to avoid changes for the users.

The PAM service identifies the PAM module. This PAM module usually is located in /usr/lib/arm-linux-gnueabihf and its parameters are listed in /etc/pam.conf.

5. IPv6 Support

The Informix server supports Internet Protocol Version 6 (128 Bit Internet Addresses) as well as IPv4 (32 Bit Addresses).

In order for the machine name that is specified in the SQLHOSTS file to resolve to the correct IP address, the name services files on the operating system must be configured correctly. If the machine has an IPv6 address configured, and the listener thread is bound to an IPv6 address, then the name service switch files /etc/nsswitch.conf must be configured to fetch an IPv6 address. Also any local machine settings must be set correctly in the /etc/hosts file.

For compatibility with earlier version of Informix client and server products, assign each host name with both an IPv4 address and an IPv6 address. If the listener needs to be bound to an IPv4 address, and the name services resolve the name in the order of the IPv6 address followed by the IPv4 address, then an explicit IPv4 address needs to be put in the host name field of SQLHOSTS file. Client applications should also use the same setting.

Check the following website for the latest Linux system requirements:

http://www.ibm.com/support/docview.wss?rs=630&uid=swg27016673

ESQL/C Version 4.50.FC4, Linux aarch64bit

```
================================
        MACHINE  SPECIFIC  NOTES
                FOR
   HCL Informix Client-SDK 4.50.FC4W1 PRODUCT RELEASE
      HCL INFORMIX-ESQL/C Version 4.50.FC4W1
               On Linux aarch64
               DATE: 15 Jun 2020
================================
```

OS Information: Built on openSUSE Leap 42.3

Machine Specific Notes
=====================

1. This product was built on openSUSE Leap 42.3
    (Kernel: 4.4.162-78-default, Glibc: 2.22) for aarch64 compatible
    processors. The following compilers were used:

        gcc/g++ (SUSE Linux) 4.8.5

    The following packages are required on your Linux system:

        glibc
        libgcc_s1
        libstdc++6
        libz1
        krb5
        libcom_err2
        libkeyutils1
        libpcre1
        libselinux1

2. ESQL/C support for static libraries

    ESQL/C product libraries are supported as both static and shared
    libraries. By default the ESQL/C module uses shared libraries.
    To use static libraries, run the esql command with the -static option:

        esql -static

    To use ESQL/C shared libraries, set the environment variable LD_LIBRARY_PATH
    to include $INFORMIXDIR/lib and $INFORMIXDIR/lib/esql. During runtime,
    the dynamic loader will look in this path for IBM Informix ESQL/C shared
    libraries.

        (for Bourne or Korn Shell)
        LD_LIBRARY_PATH=$INFORMIXDIR/lib:$INFORMIXDIR/lib/esql:$LD_LIBRARY_PATH
        export LD_LIBRARY_PATH

        (for C Shell)
        setenv LD_LIBRARY_PATH
$INFORMIXDIR/lib:$INFORMIXDIR/lib/esql:$LD_LIBRARY_PATH

3. ESQL/C support for thread-safe libraries

    The thread-safe ESQL/C libraries are supported on this platform using
    POSIX threads. The THREADLIB environment variable must be set to POSIX:

        (for Bourne or Korn Shell)
        THREADLIB=POSIX
        export THREADLIB

        (for C Shell)
        setenv THREADLIB POSIX

    To build thread-safe ESQL/C programs, use the following command:

        esql -thread mythreadapp.ec -o mythreadapp

    IMPORTANT: Applications that were NOT compiled with the -thread option
    cannot be linked with applications that were compiled with the -thread
    option. To use threads in an application, compile ALL of application
    modules with the "-thread" option.

4. Pluggable Authentication Module (PAM)

    PAM functionality is supported on Linux operating systems. PAM requires
    the libpam.so library that is supplied by the Operating System vendor.

Use of PAM can be enabled or disabled by the system administrator. By default, the Informix server will use the traditional authentication mechanism to avoid changes for the users.

The PAM service identifies the PAM module. This PAM module usually is located in /usr/lib/arm-linux-gnueabihf and its parameters are listed in /etc/pam.conf.

5. IPv6 Support

The Informix server supports Internet Protocol Version 6 (128 Bit Internet Addresses) as well as IPv4 (32 Bit Addresses).

In order for the machine name that is specified in the SQLHOSTS file to resolve to the correct IP address, the name services files on the operating system must be configured correctly. If the machine has an IPv6 address configured, and the listener thread is bound to an IPv6 address, then the name service switch files /etc/nsswitch.conf must be configured to fetch an IPv6 address. Also any local machine settings must be set correctly in the /etc/hosts file.

For compatibility with earlier version of Informix client and server products, assign each host name with both an IPv4 address and an IPv6 address. If the listener needs to be bound to an IPv4 address, and the name services resolve the name in the order of the IPv6 address followed by the IPv4 address, then an explicit IPv4 address needs to be put in the host name field of SQLHOSTS file. Client applications should also use the same setting.

Check the following website for the latest Linux system requirements:

http://www.ibm.com/support/docview.wss?rs=630&uid=swg27016673

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ESQL/C Version 4.50.FC4W1, Linux Power (little endian)

```
=================================
         MACHINE SPECIFIC NOTES
                FOR
   IBM Informix Client-SDK 4.50.FC4W1 PRODUCT RELEASE
         IBM INFORMIX-ESQL/C Version 4.50.FC4W1
            On Linux Power (little endian)
                DATE: 15 Jun 2020
=================================
```

OS Information : Built on Red Hat Enterprise Linux ES release 7.4 (Maipo)
                 Certified on SUSE SLES 12.3 and 15.

Machine Specific Notes
======================

1. This product was built on Red Hat Enterprise Linux ES 7.4 (Maipo)
   for 64-Bit Power Series Architecture little endian with Kernel version

4.10.0 and glibc 2.17 using the following compilers:

    gcc/g++ 4.8.5 20150623

2. ESQL/C support for static libraries

ESQL/C product libraries are supported as both static and shared
libraries. By default the script uses shared libraries.
To use static libraries, the 'esql' script must be invoked with the
-static option:

    esql -static

To use ESQL/C shared libraries, the environment variable LD_LIBRARY_PATH
should be set to include $INFORMIXDIR/lib and $INFORMIXDIR/lib/esql.
During runtime of the executable, the dynamic loader will look in this
path for IBM Informix ESQL/C shared libraries.

    (for Bourne or Korn Shell)
    LD_LIBRARY_PATH=$INFORMIXDIR/lib:$INFORMIXDIR/lib/esql:$LD_LIBRARY_PATH
    export LD_LIBRARY_PATH

    (for C Shell)
    setenv LD_LIBRARY_PATH
$INFORMIXDIR/lib:$INFORMIXDIR/lib/esql:$LD_LIBRARY_PATH

3. ESQL/C support for thread safe libraries

The thread safe ESQL/C libraries are supported on this platform using
POSIX threads. The THREADLIB environment variable must be to POSIX:

    (for Bourne or Korn Shell)
    THREADLIB=POSIX
    export THREADLIB

    (for C Shell)
    setenv THREADLIB POSIX

To build thread safe ESQL/C programs, use the following command:

    esql -thread mythreadapp.ec -o mythreadapp

Applications that have NOT been compiled with the -thread option CANNOT be
linked with applications that HAVE been compiled with the -thread option.
To use threads in an application, compile ALL of its modules with the
"-thread" option.

4. Pluggable Authentication Module (PAM)

PAM functionality is supported on Linux for Power architecture systems.
The PAM is dependent on the libpam.so library supplied by the Operating
System vendor.

Use of PAM can be enabled or disabled by the system administrator. By
default, IBM IDS will use the traditional authentication mechanism in
order to avoid widespread changes required by the users.

The PAM service identifies the PAM module. This PAM module typically
resides in /lib/security and its parameters are listed in /etc/pam.d.
The pam.conf file is ignored on Linux, if the /etc/pam.d directory is
present.

5. IPv6 Support

IBM Informix Server supports Internet Protocol Version 6 (128 Bit Internet
Addresses) as well as IPv4 (32 Bit Addresses).

In order for the machine name specified in the SQLHOSTS file to resolve to
the correct IP address, the name services files on the operating system
should be correctly configured. If the machine has IPv6 address configured
and the listener thread is bound to an IPv6 address, then the name
resolution files /etc/nsswitch.conf should be configured to fetch IPv6
addresss. Also use the appropriate /etc/hosts setting if local machine
settings are used.

For compatibility with older IBM Informix client and server products,
assign the same hostname with both an IPv4 address and an IPv6 address.
If the listener needs to be bound to an IPv4 address and the name services
resolve the name in the order of the IPv6 address followed by IPv4 address,
then an explicit IPv4 address needs to be put in nodename field of SQLHOSTS
file. Client applications should also use the same setting.

Check the following web site for the latest Linux system requirements:

   http://www-01.ibm.com/support/docview.wss?rs=630&uid=swg27016673

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ESQL/C Version 4.50.FC4, Linux Intel 64bit

```
                    ===============================
                        MACHINE SPECIFIC NOTES
                                 FOR
             IBM Informix Client-SDK 4.50.FC4W1 PRODUCT RELEASE
                 IBM INFORMIX-ESQL/C Version 4.50.FC4W1
                          On Linux Intel 64bit
                          DATE: 15 Jun 2020
                    ===============================
```

OS Information : Built on Red Hat Enterprise Linux ES release 7.4 (Maipo)
                 Certified on SUSE SLES 12.3 and 15,
                 Ubuntu Server Edition 16.04 LTS and 17.10.

Machine Specific Notes
======================

1. This product was built on Red Hat Enterprise Linux ES release 7.4
   (Kernel: 3.10.0-693, Glibc: 2.17) for x86_64 compatible processors.
   The following compilers were used:

        gcc and g++ compiler 4.8.5 20150623 (Red Hat 4.8.5-16)

   Installing the product on Ubuntu or Debian requires RPM to be installed
   and initialized. After RPM installed, use the following commands to
   initialize RPM:

        mkdir -p /var/lib/rpm
        rpm --initdb

The bc utility is required by the product installer, and needs to be
installed on Ubuntu.

2. ESQL/C support for static libraries

   ESQL/C product libraries are supported as both static and shared
   libraries. By default the script uses shared libraries.
   To use static libraries, the 'esql' script must be invoked with the
   -static option:

       esql -static

   To use ESQL/C shared libraries, the environment variable LD_LIBRARY_PATH
   should be set to include $INFORMIXDIR/lib and $INFORMIXDIR/lib/esql.
   During runtime of the executable, the dynamic loader will look in this
   path for IBM Informix ESQL/C shared libraries.

       (for Bourne or Korn Shell)
       LD_LIBRARY_PATH=$INFORMIXDIR/lib:$INFORMIXDIR/lib/esql:$LD_LIBRARY_PATH
       export LD_LIBRARY_PATH

       (for C Shell)
       setenv LD_LIBRARY_PATH
$INFORMIXDIR/lib:$INFORMIXDIR/lib/esql:$LD_LIBRARY_PATH

3. ESQL/C support for thread safe libraries

   The thread safe ESQL/C libraries are supported on this platform using
   POSIX threads. The THREADLIB environment variable must be to POSIX:

       (for Bourne or Korn Shell)
       THREADLIB=POSIX
       export THREADLIB

       (for C Shell)
       setenv THREADLIB POSIX

   To build thread safe ESQL/C programs, use the following command:

       esql -thread mythreadapp.ec -o mythreadapp

   Applications that have NOT been compiled with the -thread option CANNOT be
   linked with applications that HAVE been compiled with the -thread option.
   To use threads in an application, compile ALL of its modules with the
   "-thread" option.

4. Pluggable Authentication Module (PAM)

   PAM functionality is supported on Linux operating systems. The PAM is
   dependent on the libpam.so library supplied by the Operating System vendor.

   Use of PAM can be enabled or disabled by the system administrator. By
   default, IBM IDS will use the traditional authentication mechanism in
   order to avoid widespread changes required by the users.

   The PAM service identifies the PAM module. This PAM module typically
   resides in /lib/security and its parameters are listed in /etc/pam.d.
   The pam.conf file is ignored on Linux, if the /etc/pam.d directory is
   present.

5. IPv6 Support

   The product supports Internet Protocol Version 6 (128 Bit Internet Addresses)
   as well as IPv4 (32 Bit Addresses).

In order for the machine name specified in the SQLHOSTS file to resolve
to the correct IP address, the name services files on the Operating System
should be correctly configured. If the machine has IPv6 address configured
and the listener thread is bound to an IPv6 address, then the name
resolution files /etc/netsvc.conf should be configured to fetch IPv6
address. Also use the appropriate /etc/hosts setting if local machine
settings are used.

For compatibility with older IBM Informix client and server products,
assign the same hostname with both an IPv4 address and an IPv6 address.
If the listener needs to be bound to an IPv4 address and the name services
resolve the name in the order of the IPv6 address followed by IPv4 address,
then an explicit IPv4 address needs to be put in nodename field of SQLHOSTS
file. Client applications should also use the same setting.

Check the following web site for the latest Linux system requirements:

http://www-01.ibm.com/support/docview.wss?rs=630&uid=swg27016673

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ESQL/C Version 4.50.FC4W1, Linux Intel 64bit

```
================================
             MACHINE  SPECIFIC  NOTES
                      FOR
   IBM Informix Client-SDK 4.50.FC4W1 PRODUCT RELEASE
         IBM INFORMIX-ESQL/C Version 4.50.FC4W1
               On Linux zSeries 64-Bit
                DATE: 15 Jun 2020
================================
```

OS Information : Built on Red Hat Enterprise Linux ES release 7.4 (Maipo).
                Certified on SUSE SLES 12.3.

Machine Specific Notes
======================

1. This product was built on Red Hat Enterprise Linux ES release 7.4
   for zSeries mainframe with 64-bit Kernel 3.10.0-693.el7 and glibc
   glibc 2.17-307, using the following compilers:

        gcc version 4.8.5 20150623 (Red Hat 4.8.5-39)

2. ESQL/C support for static libraries

   ESQL/C product libraries are supported as both static and shared
   libraries. By default the script uses shared libraries.
   To use static libraries, the 'esql' script must be invoked with the
   -static option:

        esql -static

     To use ESQL/C shared libraries, the environment variable LD_LIBRARY_PATH

```
    should be set to include $INFORMIXDIR/lib and $INFORMIXDIR/lib/esql.
    During runtime of the executable, the dynamic loader will look in this
    path for IBM Informix ESQL/C shared libraries.

       (for Bourne or Korn Shell)
       LD_LIBRARY_PATH=$INFORMIXDIR/lib:$INFORMIXDIR/lib/esql:$LD_LIBRARY_PATH
       export LD_LIBRARY_PATH

       (for C Shell)
       setenv LD_LIBRARY_PATH
$INFORMIXDIR/lib:$INFORMIXDIR/lib/esql:$LD_LIBRARY_PATH

3. ESQL/C support for thread safe libraries

    The thread safe ESQL/C libraries are supported on this platform using
    POSIX threads. The THREADLIB environment variable must be to POSIX:

       (for Bourne or Korn Shell)
       THREADLIB=POSIX
       export THREADLIB

       (for C Shell)
       setenv THREADLIB POSIX

    To build thread safe ESQL/C programs, use the following command:

       esql -thread  mythreadapp.ec -o mythreadapp

    Applications that have NOT been compiled with the -thread option CANNOT be
    linked with applications that HAVE been compiled with the -thread option.
    To use threads in an application, compile ALL of its modules with the
    "-thread" option.

4. Pluggable Authentication Module (PAM)

    PAM functionality is supported on Linux zSeries operating systems. The
    PAM is dependent on the libpam.so library supplied by the Operating System
    vendor.

    Use of PAM can be enabled or disabled by the system administrator. By
    default, IBM IDS will use the traditional authentication mechanism in
    order to avoid widespread changes required by the users.

    The PAM service identifies the PAM module. This PAM module typically
    resides in /lib/security and its parameters are listed in /etc/pam.d.
    The pam.conf file is ignored on Linux, if the /etc/pam.d directory is
    present.

5. IPv6 Support

    IBM Informix Server supports Internet Protocol Version 6 (128 Bit Internet
    Addresses) as well as IPv4 (32 Bit Addresses).

    In order for the machine name specified in the SQLHOSTS file to resolve to
    the correct IP address, the name services files on the operating system
    should be correctly configured. If the machine has IPv6 address configured
    and the listener thread is bound to an IPv6 address, then the name
    resolution files /etc/nsswitch.conf should be configured to fetch IPv6
    addresss. Also use the appropriate /etc/hosts setting if local machine
    settings are used.

    For compatibility with older IBM Informix client and server products,
    assign the same hostname with both an IPv4 address and an IPv6 address.
    If the listener needs to be bound to an IPv4 address and the name services
```

resolve the name in the order of the IPv6 address followed by IPv4 address,
        then an explicit IPv4 address needs to be put in nodename field of SQLHOSTS
        file. Client applications should also use the same setting.

Check the following web site for the latest Linux system requirements:

    http://www-01.ibm.com/support/docview.wss?rs=630&uid=swg27016673

ESQL/C Version 4.50.FC4W1, Solaris Sparc 64bit

```
                    ================================
                          MACHINE SPECIFIC NOTES
                                   FOR
                IBM Informix Client-SDK 4.50.FC4W1 PRODUCT RELEASE
                     IBM INFORMIX-ESQL/C Version 4.50.FC4W1
                           On Solaris Sparc 64bit
                             DATE: 15 Jun 2020
                    ================================
```

OS Information : Built on Solaris 11.3.

Machine Specific Notes
=====================

1. This product was built on Solaris 11.3 using the following compilers
   from Oracle Solaris Studio 12.6:

        Sun C 5.15 SunOS_sparc 2017/05/30
        Sun C++ 5.15 SunOS_sparc 2017/05/30

   The product was built with the following 64-bit compiler flag:

        "-m64"

2. ESQL/C support for static libraries

   ESQL/C product libraries are supported as both static and shared
   libraries. By default the script uses shared libraries.
   To use static libraries, the 'esql' script must be invoked with the
   -static option:

        esql -static

    To use ESQL/C shared libraries, the environment variable LD_LIBRARY_PATH
    must include $INFORMIXDIR/lib and $INFORMIXDIR/lib/esql. During runtime
    of the executable, the dynamic loader will look in this path for IBM
    Informix ESQL/C shared libraries.

     (for Bourne or Korn Shell)
     LD_LIBRARY_PATH=$INFORMIXDIR/lib:$INFORMIXDIR/lib/esql:$LD_LIBRARY_PATH
     export LD_LIBRARY_PATH

```
        (for C Shell)
        setenv LD_LIBRARY_PATH
$INFORMIXDIR/lib:$INFORMIXDIR/lib/esql:$LD_LIBRARY_PATH
```

3. **ESQL/C support for thread safe libraries**

   The thread safe ESQL/C libraries are supported on this platform using
   Native Solaris threads. The THREADLIB environment variable must be to
   SOL:

```
        (for Bourne or Korn Shell)
        export THREADLIB=SOL
```

```
        (for C Shell)
        setenv THREADLIB SOL
```

   To build thread safe ESQL/C programs, use the following command:

```
        esql -static -thread prog.ec -o prog
```

4. **Pluggable Authentication Module (PAM)**

   PAM functionality is supported on Solaris operating systems. The PAM is
   dependent on the libpam.so library supplied by the Operating System vendor.

   Use of PAM can be enabled or disabled by the system administrator. By
   default, IBM IDS will use the traditional authentication mechanism in
   order to avoid widespread changes required by the users.

   The PAM service identifies the PAM module. This PAM module typically
   resides in /usr/lib/security and its parameters are listed in
   /etc/pam.conf.

5. **IPv6 Support**

   IBM Informix Server supports Internet Protocol Version 6 (128 Bit Internet
   Addresses) as well as IPv4 (32 Bit Addresses).

   In order for the machine name specified in the SQLHOSTS file to resolve to
   the correct IP address, the name services files on the operating system
   should be correctly configured. If the machine has IPv6 address configured
   and the listener thread is bound to an IPv6 address, then the name
   resolution files /etc/nsswitch.conf should be configured to fetch IPv6
   address. Also use the appropriate /etc/hosts setting if local machine
   settings are used.

   For compatibility with older IBM Informix client and server products,
   assign the same hostname with both an IPv4 address and an IPv6 address.
   If the listener needs to be bound to an IPv4 address and the name services
   resolve the name in the order of the IPv6 address followed by IPv4 address,
   then an explicit IPv4 address needs to be put in nodename field of SQLHOSTS
   file. Client applications should also use the same setting.

Check the following web site for the latest Solaris system requirements:

   http://www-01.ibm.com/support/docview.wss?rs=630&uid=swg27016673

ESQL/C Version 4.50.FC4W1, Windows x64

```
                    ================================
                           MACHINE SPECIFIC NOTES
                                    FOR
                    IBM Informix Client-SDK 4.50.FC4W1 PRODUCT RELEASE
                          IBM INFORMIX-ESQL/C Version 4.50.FC4W1
                                  On Windows x64
                                 DATE: 15 Jun 2020
                    ================================
```

OS Information : Built on Windows Server 2016 x64.

Machine Specific Notes
======================

1. This product supports the following compiler:

        Microsoft Visual Studio 2017

    This product is built on Windows 2016 using the following compiler
    from Microsoft Visual Studio 2017:

        Microsoft Visual C++ 2017

2. Pluggable Authentication Module (PAM)

    PAM functionality is supported. Use of PAM can be enabled or disabled by
    the system administrator. By default, IBM IDS will use the traditional
    authentication mechanism in order to avoid widespread changes required
    by the users.

3. IPv6 Support

    IDS supports Internet Protocol Version 6 (128 Bit Internet Addresses)
    as well as IPv4 (32 Bit Addresses).

    In order for the machine name specified in the SQLHOSTS registry to resolve
    to the correct IP address, the name services files on the Operating System
    should be correctly configured.

    For compatibility with older IBM Informix client and server products,
    assign the same hostname with both an IPv4 address and an IPv6 address.
    If the listener needs to be bound to an IPv4 address and the name services
    resolve the name in the order of the IPv6 address followed by IPv4 address,
    then an explicit IPv4 address needs to be put in the nodename field of the
    server registry. Client applications should also use the same setting.

4. ESQL/C support for static libraries

    ESQL/C product libraries are supported as both static and dynamic
    libraries. By default the script uses dynamic libraries.
    To use static libraries, the 'esql' script must be invoked with the
    -static option:

        esql -static

    Currently this -static option only works with the Microsoft Compiler.
    The static library name is isqlt09s.lib. This library is installed in
    $INFORMIXDIR/lib.

```
        This version of CSDK is built and certified with Microsoft Visual
        Studio 2013 Version. Hence its recommended to use compiler version >= 2013.
        If you statically link (-static option) your ESQL/C application
        with Microsoft Visual Studio Version older than 2013, you may receive
        undefined symbol __report_rangecheckfailure() error. In order to avoid
        this error, you will need to use Microsoft Visual Studio Version 2013 or
later.

5.   Connectivity on Windows Vista

        To enable connections between database servers on the Vista operating
        system, you must enable network discovery and NetBIOS over TCP/IP.

        To enable connections:

        1) From the Control Panel, double-click Network and Sharing.
        2) In the Sharing and Discovery section of the Network and Sharing Center,
           click Network discovery and then Turn on network discovery.
        3) In the Network section, click View Status next to the Local Area
           Connection.
        4) In the Local Area Connection Status dialog box, click Properties.
        5) In the Local Area Connection Properties dialog box, choose the
           appropriate Internet Protocol Version and click Properties.
        6) In the Internet Protocol Version Properties dialog box, click Advanced.
        7) On the WINS page of the Advanced TCP/IP Settings dialog box, click
           Enable NetBIOS over TCP/IP and then click OK.
        8) Continue clicking OK or Close until all dialog boxes are closed.

6.   Host Variables (mlong datatype in Windows 64-bit)

        The mlong datatype is mapped to __int64 for Windows 64-bit. In Windows
        32-bit and 32/64-bit UNIX, mlong is mapped to long datatype.

Check the following web site for the latest Windows system requirements:

   http://www-01.ibm.com/support/docview.wss?rs=630&uid=swg27016673


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GLS API Machine Notes

Client SDK 4.50.xC4W1

15 Jun 2020

- [GLS API Version 7.0, AIX 7.2 64bit](#)
- [GLS API Version 6.0, HP Itanium 64bit](#)
- [GLS API Version 7.0, Linux ARMv7 (armhf)](#)
- [GLS API Version 7.0, openSUSE aarch64](#)
- [GLS API Version 7.0, Linux Power (little endian)](#)
- [GLS API Version 7.0, Linux Intel 64bit](#)
- [GLS API Version 7.0, Linux zSeries 64-Bit](#)

GLS API Version 7.0, AIX 7.2 64bit

```
================================
        MACHINE  SPECIFIC  NOTES
                FOR
   IBM Informix Client-SDK 4.50.FC4W1 PRODUCT RELEASE
            GLS API Version 7.0
              On AIX 7.2 64bit
            DATE: 15 Jun 2020
================================
```

OS Information : Built on AIX 7.2 Technology.

Machine Specific Notes
=====================

1. This product was built on AIX 7.2 Technology using the
   following compilers:

   IBM XL C/C++ for AIX, V13.1.3 (5765-J06)
   XL C/C++ Runtime   13.1.3

Check the following web site for the latest AIX system requirements:

   http://www-01.ibm.com/support/docview.wss?rs=630&uid=swg27016673

2. AIX patch requirement:

   AIX 7.1:

        September 2010 PTF for XL C for AIX, V11.1

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GLS API Version 6.0, HP Itanium 64bit

```
================================
        MACHINE  SPECIFIC  NOTES
                FOR
   IBM Informix Client-SDK 4.50.FC4W1 PRODUCT RELEASE
            GLS API Version 6.0
             On HP Itanium 64bit
            DATE: 15 Jun 2020
================================
```

```
OS Information : Built on HP-UX 11i V3 (aka 11.31) Itanium.

Machine Specific Notes
======================

1. This product was built on HP-UX 11i V3 (aka 11.31) Itanium using the
   following compilers:

   HP C/aC++ B3910B A.06.26 [Apr 12 2011]

   and with the following packages:

   Bundle Name      Description
   -----------      -----------
   B9007AA          C.11.31.06      HP C/aC++ Developer's Bundle
   BUNDLE           B.2011.08.04    Patch Bundle

Check the following web site for the latest HP-UX system requirements:

   http://www-01.ibm.com/support/docview.wss?rs=630&uid=swg27016673


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GLS API Version 7.0, Linux ARMv7 (armhf)

```
                    ================================
                         MACHINE SPECIFIC NOTES
                                 FOR
                 IBM Informix Client-SDK 4.50.UC4W1 PRODUCT RELEASE
                            GLS API Version 7.0
                             On Linux ARMv7 (armhf)
                            DATE: 15 Jun 2020
                    ================================

OS Information: Built on Raspbian 9 (stretch) armhf

Machine Specific Notes
======================

1.  This product was built on Raspbian Stretch 9 armhf
    (Kernel: 4.14.79-v7+, Glibc: 2.24-11) for ARMv7 compatible
    processors. The following compilers were used:

        gcc and g++ compiler 6.3.0 (Raspbian 6.3.0-18+rpi1+deb9u1)

    The following packages have to be installed on your Linux system:

        libc6
        libgcc1
        libstdc++6
        zlib1g
        krb5
        libcomerr2
        libkeyutils1
        libpcre3
```

```
          libselinux1
          openjdk-8


Check the following website for the latest Linux system requirements:

   http://www.ibm.com/support/docview.wss?rs=630&uid=swg27016673



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GLS API Version 7.0, openSUSE aarch64

```
                    ================================
                          MACHINE SPECIFIC NOTES
                                  FOR
                    IBM Informix Client-SDK 4.50.FC4W1 PRODUCT RELEASE
                            GLS API Version 7.0
                              On openSUSE aarch64
                              DATE: 15 Jun 2020
                    ================================
```

```
OS Information: Built on openSUSE Leap 42.3

Machine Specific Notes
======================

1.  Thin product was built on openSUSE Leap 42.3
    (Kernel: 4.4.162-78-default, Glibc: 2.22) for aarch64 compatible
    processors. The following compilers were used:

        gcc/g++ (SUSE Linux) 4.8.5

   The following packages have to be installed on your Linux system:

        glibc
        libgcc_s1
        libstdc++6
        libz1
        krb5
        libcom_err2
        libkeyutils1
        libpcre1
        libselinux1


Check the following website for the latest Linux system requirements:

   http://www.ibm.com/support/docview.wss?rs=630&uid=swg27016673



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GLS API Version 7.0, Linux Power (little endian)

```
================================
          MACHINE SPECIFIC NOTES
                  FOR
    IBM Informix Client-SDK 4.50.FC4W1 PRODUCT RELEASE
              GLS API Version 7.0
            On Linux Power (little endian)
                DATE: 15 Jun 2020
================================
```

OS Information : Built on Red Hat Enterprise Linux ES release 7.4 (Maipo)
                 Certified on SUSE SLES 12.3 and 15.

Machine Specific Notes
======================

1. This product was built on Red Hat Enterprise Linux ES 7.4 (Maipo)
   for 64-Bit Power Series Architecture little endian with Kernel version
   4.10.0 and glibc 2.17 using the following compilers:

        gcc/g++ 4.8.5 20150623

Check the following web site for the latest Linux system requirements:

   http://www-01.ibm.com/support/docview.wss?rs=630&uid=swg27016673

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GLS API Version 7.0, Linux Intel 64bit

```
================================
          MACHINE SPECIFIC NOTES
                  FOR
    IBM Informix Client-SDK 4.50.FC4W1 PRODUCT RELEASE
              GLS API Version 7.0
              On Linux Intel 64bit
                DATE: 15 Jun 2020
================================
```

OS Information : Built on Red Hat Enterprise Linux ES release 7.4 (Maipo)
                 Certified on SUSE SLES 12.3 and 15,
                 Ubuntu Server Edition 16.04 LTS and 17.10.

Machine Specific Notes
======================

1. This product was built on Red Hat Enterprise Linux ES release 7.4
   (Kernel: 3.10.0-693, Glibc: 2.17) for x86_64 compatible processors.
   The following compilers were used:

```
       gcc and g++ compiler 4.8.5 20150623 (Red Hat 4.8.5-16)

   Installing the product on Ubuntu or Debian requires RPM to be installed
   and initialized. After RPM installed, use the following commands to
   initialize RPM:

       mkdir -p /var/lib/rpm
       rpm --initdb

   The bc utility is required by the product installer, and needs to be
   installed on Ubuntu.

Check the following web site for the latest Linux system requirements:

   http://www-01.ibm.com/support/docview.wss?rs=630&uid=swg27016673


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```

GLS API Version 7.0, Linux zSeries 64-Bit

```
               ================================
                      MACHINE  SPECIFIC  NOTES
                                FOR
              IBM Informix Client-SDK 4.50.FC4W1 PRODUCT RELEASE
                        GLS API Version 7.0
                       On Linux zSeries 64-Bit
                         DATE: 15 Jun 2020
               ================================

OS Information : Built on Red Hat Enterprise Linux ES release 7.4 (Maipo).
                 Certified on SUSE SLES 12.3.

Machine Specific Notes
======================

1. This product was built on Red Hat Enterprise Linux ES release 7.4
   for zSeries mainframe with 64-bit Kernel  3.10.0-693.el7 and glibc
   glibc 2.17-307, using the following compilers:

       gcc version 4.8.5 20150623 (Red Hat 4.8.5-39)

Check the following web site for the latest Linux system requirements:

   http://www-01.ibm.com/support/docview.wss?rs=630&uid=swg27016673


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```

GLS API Version 7.0, Solaris Sparc 64bit

```
                        ==============================
                            MACHINE SPECIFIC NOTES
                                    FOR
                IBM Informix Client-SDK 4.50.FC4W1 PRODUCT RELEASE
                              GLS API Version 7.0
                            On Solaris Sparc 64bit
                              DATE: 15 Jun 2020
                        ==============================
```

OS Information : Built on Solaris 11.3.

Machine Specific Notes
=====================

1. This product was built on Solaris 11.3 using the following compilers
   from Oracle Solaris Studio 12.3:

        Sun C 5.12 SunOS_sparc December 2011
        Sun C++ 5.12 SunOS_sparc December 2011

   The product was built with the following 64-bit compiler flag:

        "-m64"

Check the following web site for the latest Solaris system requirements:

   http://www-01.ibm.com/support/docview.wss?rs=630&uid=swg27016673

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GLS API Version 7.0, Windows x64

```
                        ==============================
                            MACHINE SPECIFIC NOTES
                                    FOR
                IBM Informix Client-SDK 4.50.FC4W1 PRODUCT RELEASE
                              GLS API Version 7.00
                               On Windows x64
                              DATE: 15 Jun 2020
                        ==============================
```

OS Information : Built on Windows Server 2016 x64.

Machine Specific Notes
=====================

1. This product supports the following compiler:

        Microsoft Visual Studio 2017

   This product is built on Windows 2016 using the following compiler
   from Microsoft Visual Studio 2017:

        Microsoft Visual C++ 2017

```
2.  Connectivity on Windows Vista

    To enable connections between database servers on the Vista operating
    system, you must enable network discovery and NetBIOS over TCP/IP.

    To enable connections:

    1) From the Control Panel, double-click Network and Sharing.
    2) In the Sharing and Discovery section of the Network and Sharing Center,
       click Network discovery and then Turn on network discovery.
    3) In the Network section, click View Status next to the Local Area
       Connection.
    4) In the Local Area Connection Status dialog box, click Properties.
    5) In the Local Area Connection Properties dialog box, choose the
       appropriate Internet Protocol Version and click Properties.
    6) In the Internet Protocol Version Properties dialog box, click Advanced.
    7) On the WINS page of the Advanced TCP/IP Settings dialog box, click
       Enable NetBIOS over TCP/IP and then click OK.
    8) Continue clicking OK or Close until all dialog boxes are closed.

Check the following web site for the latest Windows system requirements:

    http://www-01.ibm.com/support/docview.wss?rs=630&uid=swg27016673



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```

ODBC Driver Machine Notes

Client SDK 4.50.xC4W1

15 Jun 2020

- Informix ODBC Driver Version 4.50.FC4W1, AIX 7.2 64bit
- Informix ODBC Driver Version 4.50.FC4W1, HP Itanium 64bit
- Informix ODBC Driver Version 4.50.FC4, Linux ARMv7 (armhf)
- Informix ODBC Driver Version 4.50.FC4, openSUSE aarch64
- Informix ODBC Driver Version 4.50.FC4W1, Linux Power (little endian)
- Informix ODBC Driver Version 4.50.FC4, Linux Intel 64bit
- Informix ODBC Driver Version 4.50.FC4, Linux zSeries 64-Bit
- Informix ODBC Driver Version 4.50.FC4W1, Solaris Sparc 64bit
- Informix ODBC Driver Version 4.50.FC4W1, Windows x64

Informix ODBC Driver Version 4.50.FC4W1, AIX 7.2 64bit

```
                        ================================
                              MACHINE SPECIFIC NOTES
                                       FOR
                   IBM Informix Client-SDK 4.50.FC4W1 PRODUCT RELEASE
                        Informix ODBC Driver Version 4.50.FC4W1
                                   On AIX 7.2 64bit
                                  DATE: 15 Jun 2020
                        ================================
```

OS Information : Built on AIX 7.2 Technology.

Machine Specific Notes
====================

1. This product was built on AIX 7.2 Technology using the
   following compilers:

   IBM XL C/C++ for AIX, V13.1.3 (5765-J06)
   XL C/C++ Runtime   13.1.3

2. AIX patch requirement:

3. For using the ODBC shared libraries, the application should be compiled
   with the -brtl linker option and the LIBPATH environment variable must
   be set as follows.

        (for Bourne or Korn Shell)
        LIBPATH=$INFORMIXDIR/lib:$INFORMIXDIR/lib/cli:$INFORMIXDIR/lib/esql:
            $LIBPATH
        export LIBPATH

        (for C Shell)
        setenv LIBPATH $INFORMIXDIR/lib:$INFORMIXDIR/lib/cli:
                    $INFORMIXDIR/lib/esql:$LIBPATH

4. The thread safe ODBC libraries are supported on this platform using
   POSIX threads and the applications must be compiled with xlc_r.
   For using the ODBC thread shared library, the application should be
   compiled with the -brtl linker option.

5. Migration of existing ODBC applications from 32 bit versions of
   IBM INFORMIX-Client SDK to IBM INFORMIX-Client SDK 4.50.FC4.

   ALL the existing 32-bit ODBC applications WILL need to be recompiled
   to make them work with IBM INFORMIX-Client SDK 4.50.FC4.
   Before recompiling these existing applications, changes will be
   required to be made to the application sources, if above mentioned ODBC
   API and/or ODBC Datatypes are being used. Also applications   should
   not have any "long" and/or "unsigned long" C-Data types declared
   which is being passed to any Informix ODBC APIs. Informix recommends
   use of SQLINTEGER/SQLUINTEGER, SDWORD/UDWORD standard ODBC types as
   defined in Informix header files.

5. IPv6 Support

   The product supports Internet Protocol Version 6 (128 Bit Internet Addresses)
   as well as IPv4 (32 Bit Addresses).

   In order for the machine name specified in the SQLHOSTS file to resolve
   to the correct IP address, the name services files on the Operating System
   should be correctly configured. If the machine has IPv6 address configured
   and the listener thread is bound to an IPv6 address, then the name
   resolution files /etc/netsvc.conf should be configured to fetch IPv6

address. Also use the appropriate /etc/hosts setting if local machine
settings are used.

For compatibility with older IBM Informix client and server products,
assign the same hostname with both an IPv4 address and an IPv6 address.
If the listener needs to be bound to an IPv4 address and the name services
resolve the name in the order of the IPv6 address followed by IPv4 address,
then an explicit IPv4 address needs to be put in nodename field of SQLHOSTS
file. Client applications should also use the same setting.

6. Pluggable Authentication Module (PAM)

PAM functionality is supported on AIX 7.2 operating systems. The PAM is
dependent on the libpam.a library supplied by the Operating System vendor.

Use of PAM can be enabled or disabled by the system administrator. By
default, IBM IDS will use the traditional authentication mechanism in
order to avoid widespread changes required by the users.

The PAM service identifies the PAM module. This PAM module typically
resides in /usr/lib/security and its parameters are listed in
/etc/pam.conf.

Check the following web site for the latest AIX system requirements:

   http://www-01.ibm.com/support/docview.wss?rs=630&uid=swg27016673

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Informix ODBC Driver Version 4.50.FC4W1, HP Itanium 64bit

```
                    ===============================

                        MACHINE SPECIFIC NOTES
                                FOR
             IBM Informix Client-SDK 4.50.FC4W1 PRODUCT RELEASE
                IBM Informix ODBC Driver Version 4.50.FC4W1
                           On HP Itanium 64bit
                           DATE: 15 Jun 2020
                    ===============================
```

OS Information : Built on HP-UX 11i V3 (aka 11.31) Itanium.

Machine Specific Notes
======================

1. This product was built on HP-UX 11i V3 (aka 11.31) Itanium using the
   following compilers:

   HP C/aC++ B3910B A.06.26 [Apr 12 2011]

   and with the following packages:

```
   Bundle Name       Description
   -----------       -----------
   B9007AA           C.11.31.06      HP C/aC++ Developer's Bundle
   BUNDLE            B.2011.08.04    Patch Bundle
```

2. For shared library support, environment variable SHLIB_PATH needs to be set
   to include the $INFORMIXDIR/lib/cli directories where INFORMIX ODBC
   shared libraries are installed.

   (for Bourne or Korn Shell)
   SHLIB_PATH=$INFORMIXDIR/lib/cli:$INFORMIXDIR/lib/esql:$SHLIB_PATH
   export SHLIB_PATH

   (for C Shell)
   setenv SHLIB_PATH $INFORMIXDIR/lib/cli:$INFORMIXDIR/lib/esql:$SHLIB_PATH

3. The thread safe INFORMIX ODBC libraries are supported for the current
   release.

4. Migration of existing ODBC applications from 32 bit versions of
    IBM INFORMIX-Client SDK to IBM INFORMIX-Client SDK 4.50.FC4.

    ALL the existing 32-bit ODBC applications WILL need to be recompiled
    to make them work with IBM INFORMIX-Client SDK 4.50.FC4.
    Before recompiling these existing applications, changes will be
    required to be made to the application sources, if above mentioned ODBC
    API and/or ODBC Datatypes are being used. Also applications   should
    not have any "long" and/or "unsigned long" C-Data types declared
    which is being passed to any Informix ODBC APIs. Informix recommends
    use of SQLINTEGER/SQLUINTEGER, SDWORD/UDWORD standard ODBC types as
    defined in Informix header files.

5. Pluggable Authentication Module (PAM)

   PAM functionality is supported on HP-UX operating systems. The PAM is
   dependent on the libpam.so library supplied by the Operating System vendor.

   Use of PAM can be enabled or disabled by the system administrator. By
   default, IBM IDS will use the traditional authentication mechanism in
   order to avoid widespread changes required by the users.

   The PAM service identifies the PAM module. This PAM module typically
   resides in /usr/lib/security and its parameters are listed in
   /etc/pam.conf.

6. IPv6 Support

   The product supports Internet Protocol Version 6 (128 Bit Internet Addresses)
   as well as IPv4 (32 Bit Addresses).

   In order for the machine name specified in the SQLHOSTS file to resolve
   to the correct IP address, the name services files on the Operating System
   should be correctly configured. If the machine has IPv6 address configured
   and the listener thread is bound to an IPv6 address, then the name
   resolution files /etc/netsvc.conf should be configured to fetch IPv6
   address. Also use the appropriate /etc/hosts setting if local machine
   settings are used.

   For compatibility with older IBM Informix client and server products,
   assign the same hostname with both an IPv4 address and an IPv6 address.
   If the listener needs to be bound to an IPv4 address and the name services
   resolve the name in the order of the IPv6 address followed by IPv4 address,
   then an explicit IPv4 address needs to be put in nodename field of SQLHOSTS
   file. Client applications should also use the same setting.

Check the following web site for the latest HP-UX system requirements:

    http://www-01.ibm.com/support/docview.wss?rs=630&uid=swg27016673

Informix ODBC Driver Version 4.50.FC4, Linux ARMv7 (armhf)

```
================================
         MACHINE SPECIFIC NOTES
                 FOR
   IBM Informix Client-SDK 4.50.UC4W1 PRODUCT RELEASE
        IBM Informix ODBC Driver Version 4.50.UC4W1
                 On Linux ARMv7 (armhf)
                 DATE: 15 Jun 2020
================================
```

OS Information: Built on Raspbian 9 (stretch) armhf

Machine Specific Notes
======================

1. This product was built on Raspbian Stretch 9 armhf
    (Kernel: 4.14.79-v7+, Glibc: 2.24-11) for ARMv7 compatible
    processors. The following compilers were used:

        gcc and g++ compiler 6.3.0 (Raspbian 6.3.0-18+rpi1+deb9u1)

    The following packages are required on your Linux system:

        libc6
        libgcc1
        libstdc++6
        zlib1g
        krb5
        libcomerr2
        libkeyutils1
        libpcre3
        libselinux1
        openjdk-8

2. For shared library support, set the environment variable LD_LIBRARY_PATH
   to include the $INFORMIXDIR/lib/cli directories where IBM INFORMIX ODBC
   shared libraries are installed.

   (for C Shell)
   setenv LD_LIBRARY_PATH $INFORMIXDIR/lib:$INFORMIXDIR/lib/cli:
        $INFORMIXDIR/lib/esql:$LD_LIBRARY_PATH

   (for Bourne or Korn Shell)
   LD_LIBRARY_PATH=$INFORMIXDIR/lib/cli:$INFORMIXDIR/lib/esql:
                $LD_LIBRARY_PATH

```
    export LD_LIBRARY_PATH
```

3. The thread-safe ODBC libraries are supported on this platform using POSIX
   threads. Make sure that you set the THREADLIB environment variable to
   "POSIX" before linking your ODBC program using the esql command.

4. Pluggable Authentication Module (PAM)

   PAM functionality is supported on Linux operating systems. PAM requires
   the libpam.so library that is supplied by the Operating System vendor.

   Use of PAM can be enabled or disabled by the system administrator. By
   default, the Informix server will use the traditional authentication
   mechanism to avoid changes for the users.

   The PAM service identifies the PAM module. This PAM module usually is
   located in /usr/lib/arm-linux-gnueabihf and its parameters are listed
   in /etc/pam.conf.

5. IPv6 Support

   The Informix server supports Internet Protocol Version 6 (128 Bit Internet
   Addresses) as well as IPv4 (32 Bit Addresses).

   In order for the machine name that is specified in the SQLHOSTS file to
   resolve to the correct IP address, the name services files on the operating
   system must be configured correctly. If the machine has an IPv6 address
   configured, and the listener thread is bound to an IPv6 address, then the
   name service switch files /etc/nsswitch.conf must be configured to fetch
   an IPv6 address. Also any local machine settings must be set correctly in
   the /etc/hosts file.

   For compatibility with earlier version of Informix client and server
   products, assign each host name with both an IPv4 address and an IPv6
   address. If the listener needs to be bound to an IPv4 address, and the
   name services resolve the name in the order of the IPv6 address followed
   by the IPv4 address, then an explicit IPv4 address needs to be put in the
   host name field of SQLHOSTS file. Client applications should also use the
   same setting.

Check the following website for the latest Linux system requirements:

   http://www.ibm.com/support/docview.wss?rs=630&uid=swg27016673

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Informix ODBC Driver Version 4.50.FC4, openSUSE aarch64

```
                ===============================
                      MACHINE SPECIFIC NOTES
                              FOR
              IBM Informix Client-SDK 4.50.FC4W1 PRODUCT RELEASE
                  IBM Informix ODBC Driver Version 4.50.FC4W1
```

OS Information: Built on openSUSE Leap 42.3

Machine Specific Notes
=====================

1. This product was built on openSUSE Leap 42.3
    (Kernel: 4.4.162-78-default, Glibc: 2.22) for aarch64 compatible
    processors. The following compilers were used:

        gcc/g++ (SUSE Linux) 4.8.5

    The following packages are required on your Linux system:

        glibc
        libgcc_s1
        libstdc++6
        libz1
        krb5
        libcom_err2
        libkeyutils1
        libpcre1
        libselinux1

2. For shared library support, set the environment variable LD_LIBRARY_PATH
   to include the $INFORMIXDIR/lib/cli directories where IBM INFORMIX ODBC
   shared libraries are installed.

   (for C Shell)
   setenv LD_LIBRARY_PATH $INFORMIXDIR/lib:$INFORMIXDIR/lib/cli:
        $INFORMIXDIR/lib/esql:$LD_LIBRARY_PATH

   (for Bourne or Korn Shell)
   LD_LIBRARY_PATH=$INFORMIXDIR/lib/cli:$INFORMIXDIR/lib/esql:
                   $LD_LIBRARY_PATH
   export LD_LIBRARY_PATH

3. The thread-safe ODBC libraries are supported on this platform using POSIX
   threads. Make sure that you set the THREADLIB environment variable to
   "POSIX" before linking your ODBC program using the esql command.

4. Pluggable Authentication Module (PAM)

   PAM functionality is supported on Linux operating systems. PAM requires
   the libpam.so library that is supplied by the Operating System vendor.

   Use of PAM can be enabled or disabled by the system administrator. By
   default, the Informix server will use the traditional authentication
   mechanism to avoid changes for the users.

   The PAM service identifies the PAM module. This PAM module usually is
   located in /usr/lib/arm-linux-gnueabihf and its parameters are listed
   in /etc/pam.conf.

5. IPv6 Support

   The Informix server supports Internet Protocol Version 6 (128 Bit Internet
   Addresses) as well as IPv4 (32 Bit Addresses).

   In order for the machine name that is specified in the SQLHOSTS file to
   resolve to the correct IP address, the name services files on the operating

> system must be configured correctly. If the machine has an IPv6 address
> configured, and the listener thread is bound to an IPv6 address, then the
> name service switch files /etc/nsswitch.conf must be configured to fetch
> an IPv6 address. Also any local machine settings must be set correctly in
> the /etc/hosts file.
>
> For compatibility with earlier version of Informix client and server
> products, assign each host name with both an IPv4 address and an IPv6
> address. If the listener needs to be bound to an IPv4 address, and the
> name services resolve the name in the order of the IPv6 address followed
> by the IPv4 address, then an explicit IPv4 address needs to be put in the
> host name field of SQLHOSTS file. Client applications should also use the
> same setting.

Check the following website for the latest Linux system requirements:

http://www.ibm.com/support/docview.wss?rs=630&uid=swg27016673

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Informix ODBC Driver Version 4.50.FC4W1, Linux Power (little endian)

```
================================
        MACHINE SPECIFIC NOTES
               FOR
   IBM Informix Client-SDK 4.50.FC4W1 PRODUCT RELEASE
     IBM Informix ODBC Driver Version 4.50.FC4W1
           On Linux Power (little endian)
               DATE: 15 Jun 2020
================================
```

OS Information : Built on Red Hat Enterprise Linux ES release 7.4 (Maipo)
                Certified on SUSE SLES 12.3 and 15.

Machine Specific Notes
======================

1. This product was built on Red Hat Enterprise Linux ES 7.4 (Maipo)
   for 64-Bit Power Series Architecture little endian with Kernel version
   4.10.0 and glibc 2.17 using the following compilers:

        gcc/g++ 4.8.5 20150623

2. If you use the ODBC with shared libraries, you must make sure that the
   ODBC libraries are made available at run time by including the ODBC
   library directory ($INFORMIXDIR/lib/cli) in your LD_LIBRARY_PATH
   environment variable value.

   For example, a typical value for LD_LIBRARY_PATH in an Informix environment
   with ODBC use would look like this:

   (for Bourne or Korn Shell)
   LD_LIBRARY_PATH=$INFORMIXDIR/lib/cli:$INFORMIXDIR/lib/esql:$LD_LIBRARY_PATH

```
     export LD_LIBRARY_PATH

   (for C Shell)
   setenv LD_LIBRARY_PATH
         $INFORMIXDIR/lib/cli:$INFORMIXDIR/lib/esql:$LD_LIBRARY_PATH
```

3. Thread-safe ODBC libraries are supported on this platform using POSIX
   threads. Make sure that you set the THREADLIB environment variable to
   "POSIX" before linking your ODBC program using the esql script.

4. Pluggable Authentication Module (PAM)

   PAM functionality is supported on Linux for Power architecture systems.
   The PAM is dependent on the libpam.so library supplied by the Operating
   System vendor.

   Use of PAM can be enabled or disabled by the system administrator. By
   default, IBM IDS will use the traditional authentication mechanism in
   order to avoid widespread changes required by the users.

   The PAM service identifies the PAM module. This PAM module typically
   resides in /lib/security and its parameters are listed in /etc/pam.d.
   The pam.conf file is ignored on Linux, if the /etc/pam.d directory is
   present.

5. IPv6 Support

   IBM Informix Server supports Internet Protocol Version 6 (128 Bit Internet
   Addresses) as well as IPv4 (32 Bit Addresses).

   In order for the machine name specified in the SQLHOSTS file to resolve to
   the correct IP address, the name services files on the operating system
   should be correctly configured. If the machine has IPv6 address configured
   and the listener thread is bound to an IPv6 address, then the name
   resolution files /etc/nsswitch.conf should be configured to fetch IPv6
   addresss. Also use the appropriate /etc/hosts setting if local machine
   settings are used.

   For compatibility with older IBM Informix client and server products,
   assign the same hostname with both an IPv4 address and an IPv6 address.
   If the listener needs to be bound to an IPv4 address and the name services
   resolve the name in the order of the IPv6 address followed by IPv4 address,
   then an explicit IPv4 address needs to be put in nodename field of SQLHOSTS
   file. Client applications should also use the same setting.

Check the following web site for the latest Linux system requirements:

   http://www-01.ibm.com/support/docview.wss?rs=630&uid=swg27016673

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Informix ODBC Driver Version 4.50.FC4, Linux Intel 64bit

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                    ================================
                         MACHINE SPECIFIC NOTES
                                   FOR
                 IBM Informix Client-SDK 4.50.FC4W1 PRODUCT RELEASE
                     IBM Informix ODBC Driver Version 4.50.FC4W1
                              On Linux Intel 64bit
                              DATE: 15 Jun 2020
                    ================================
```

OS Information : Built on Red Hat Enterprise Linux ES release 7.4 (Maipo)
                 Certified on SUSE SLES 12.3 and 15,
                 Ubuntu Server Edition 16.04 LTS and 17.10.

Machine Specific Notes
====================

1. This product was built on Red Hat Enterprise Linux ES release 7.4
   (Kernel: 3.10.0-693, Glibc: 2.17) for x86_64 compatible processors.
   The following compilers were used:

        gcc and g++ compiler 4.8.5 20150623 (Red Hat 4.8.5-16)

   Installing the product on Ubuntu or Debian requires RPM to be installed
   and initialized. After RPM installed, use the following commands to
   initialize RPM:

        mkdir -p /var/lib/rpm
        rpm --initdb

   The bc utility is required by the product installer, and needs to be
   installed on Ubuntu.

2. For shared library support, environment variable LD_LIBRARY_PATH
   needs to be set to include the $INFORMIXDIR/lib/cli directories
   where IBM INFORMIX ODBC shared libraries are installed.

   (for C Shell)
   setenv LD_LIBRARY_PATH $INFORMIXDIR/lib:$INFORMIXDIR/lib/cli:
        $INFORMIXDIR/lib/esql:$LD_LIBRARY_PATH

   (for Bourne or Korn Shell)
   LD_LIBRARY_PATH=$INFORMIXDIR/lib/cli:$INFORMIXDIR/lib/esql:
                   $LD_LIBRARY_PATH
   export LD_LIBRARY_PATH

3. The thread safe ODBC libraries are supported on this platform using POSIX
   threads. Make sure that you set the THREADLIB environment variable to
   "POSIX" before linking your ODBC program using the esql script.

4. Pluggable Authentication Module (PAM)

   PAM functionality is supported on Linux operating systems. The PAM is
   dependent on the libpam.so library supplied by the Operating System vendor.

   Use of PAM can be enabled or disabled by the system administrator. By
   default, IBM IDS will use the traditional authentication mechanism in
   order to avoid widespread changes required by the users.

   The PAM service identifies the PAM module. This PAM module typically
   resides in /lib/security and its parameters are listed in /etc/pam.d.
   The pam.conf file is ignored on Linux, if the /etc/pam.d directory is
   present.

5. IPv6 Support

The product supports Internet Protocol Version 6 (128 Bit Internet Addresses)
as well as IPv4 (32 Bit Addresses).

In order for the machine name specified in the SQLHOSTS file to resolve
to the correct IP address, the name services files on the Operating System
should be correctly configured. If the machine has IPv6 address configured
and the listener thread is bound to an IPv6 address, then the name
resolution files /etc/netsvc.conf should be configured to fetch IPv6
address. Also use the appropriate /etc/hosts setting if local machine
settings are used.

For compatibility with older IBM Informix client and server products,
assign the same hostname with both an IPv4 address and an IPv6 address.
If the listener needs to be bound to an IPv4 address and the name services
resolve the name in the order of the IPv6 address followed by IPv4 address,
then an explicit IPv4 address needs to be put in nodename field of SQLHOSTS
file. Client applications should also use the same setting.

Check the following web site for the latest Linux system requirements:

   http://www-01.ibm.com/support/docview.wss?rs=630&uid=swg27016673

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Informix ODBC Driver Version 4.50.FC4, Linux zSeries 64-Bit

```
================================
        MACHINE SPECIFIC NOTES
                FOR
   IBM Informix Client-SDK 4.50.FC4W1 PRODUCT RELEASE
     IBM Informix ODBC Driver Version 4.50.FC4W1
            On Linux zSeries 64-Bit
              DATE: 15 Jun 2020
================================
```

OS Information : Built on Red Hat Enterprise Linux ES release 7.4 (Maipo).
                Certified on SUSE SLES 12.3.

Machine Specific Notes
======================

1. This product was built on Red Hat Enterprise Linux ES release 7.4
   for zSeries mainframe with 64-bit Kernel 3.10.0-693.el7 and glibc
   glibc 2.17-307, using the following compilers:

       gcc version 4.8.5 20150623 (Red Hat 4.8.5-39)

2. For shared library support, environment variable LD_LIBRARY_PATH
   needs to be set to include the $INFORMIXDIR/lib/cli directories
   where IBM INFORMIX ODBC shared libraries are installed.

   (for C Shell)

```
    setenv LD_LIBRARY_PATH $INFORMIXDIR/lib:$INFORMIXDIR/lib/cli:
            $INFORMIXDIR/lib/esql:$LD_LIBRARY_PATH


    (for Bourne or Korn Shell)
    LD_LIBRARY_PATH=$INFORMIXDIR/lib/cli:$INFORMIXDIR/lib/esql:
                    $LD_LIBRARY_PATH
    export LD_LIBRARY_PATH
```

3. Thread-safe ODBC libraries are supported on this platform using POSIX
   threads. Make sure that you set the THREADLIB environment variable to
   "POSIX" before linking your ODBC program using the esql script.

4. Pluggable Authentication Module (PAM)

   PAM functionality is supported on Linux zSeries operating systems. The
   PAM is dependent on the libpam.so library supplied by the Operating System
   vendor.

   Use of PAM can be enabled or disabled by the system administrator. By
   default, IBM IDS will use the traditional authentication mechanism in
   order to avoid widespread changes required by the users.

   The PAM service identifies the PAM module. This PAM module typically
   resides in /lib/security and its parameters are listed in /etc/pam.d.
   The pam.conf file is ignored on Linux, if the /etc/pam.d directory is
   present.

5. IPv6 Support

   IBM Informix Server supports Internet Protocol Version 6 (128 Bit Internet
   Addresses) as well as IPv4 (32 Bit Addresses).

   In order for the machine name specified in the SQLHOSTS file to resolve to
   the correct IP address, the name services files on the operating system
   should be correctly configured. If the machine has IPv6 address configured
   and the listener thread is bound to an IPv6 address, then the name
   resolution files /etc/nsswitch.conf should be configured to fetch IPv6
   addresss. Also use the appropriate /etc/hosts setting if local machine
   settings are used.

   For compatibility with older IBM Informix client and server products,
   assign the same hostname with both an IPv4 address and an IPv6 address.
   If the listener needs to be bound to an IPv4 address and the name services
   resolve the name in the order of the IPv6 address followed by IPv4 address,
   then an explicit IPv4 address needs to be put in nodename field of SQLHOSTS
   file. Client applications should also use the same setting.

Check the following web site for the latest Linux system requirements:

   http://www-01.ibm.com/support/docview.wss?rs=630&uid=swg27016673

Informix ODBC Driver Version 4.50.FC4W1, Solaris Sparc 64bit

```
                    ==============================
                       MACHINE SPECIFIC NOTES
                                FOR
            IBM Informix Client-SDK 4.50.FC4W1 PRODUCT RELEASE
               IBM Informix ODBC Driver Version 4.50.FC4W1
                        On Solaris Sparc 64bit
                         DATE: 15 Jun 2020
                    ==============================
```

OS Information : Built on Solaris 11.3.

Machine Specific Notes
=====================

1. This product was built on Solaris 11.3 using the following compilers
   from Oracle Solaris Studio 12.3:

        Sun C 5.12 SunOS_sparc December 2011
        Sun C++ 5.12 SunOS_sparc December 2011

   The product was built with the following 64-bit compiler flag:

        "-m64"

2. Setting the environment variable LD_LIBRARY_PATH (or LD_LIBRARY_PATH_64)

   (for Bourne or Korn Shell)
       LD_LIBRARY_PATH=
            $INFORMIXDIR/lib/cli:$INFORMIXDIR/lib/esql:$LD_LIBRARY_PATH
       export LD_LIBRARY_PATH

   (for C Shell)
       setenv LD_LIBRARY_PATH
          $INFORMIXDIR/lib/cli:$INFORMIXDIR/lib/esql:$LD_LIBRARY_PATH

   If there are 64-bit shared object libraries (.so files)
   which you want the runtime linkers ld and ild to link with your
   C++ API applications, you must either add the directory paths for
   these libraries to LD_LIBRARY_PATH or LD_LIBRARY_PATH_64.
   Note that if you add them to LD_LIBRARY_PATH but not to
   LD_LIBRARY_PATH_64 and you define LD_LIBRARY_PATH_64, they will not
   be found as LD_LIBRARY_PATH is ignored when searching for 64-bit
   libraries if LD_LIBRARY_PATH_64 is set.
   You should either set LD_LIBRARY_PATH to all 32-bit and 64-bit
   paths required by your applications and not set LD_LIBRARY_PATH_64
   at all, or set LD_LIBRARY_PATH to only 32-bit paths and
   LD_LIBRARY_PATH_64 to 64-bit paths.

   See the Solaris man pages for ld and ild for more information
   on the environment variables LD_LIBRARY_PATH and LD_LIBRARY_PATH_64.
   See also the Solaris Linker and Libraries Guide.

3. The thread safe ODBC libraries are supported on this platform using
   Native Solaris threads.

4. Migration of existing ODBC applications from 32 bit versions of
   IBM Informix Client-SDK to IBM Informix Client-SDK 4.50.FC4.

   ALL the existing 32-bit ODBC applications WILL need to be recompiled
   to make them work with IBM Informix Client-SDK 4.50.FC4.
   Before recompiling these existing applications, changes will be
   required to be made to the application sources, if above mentioned ODBC
   API and/or ODBC Datatypes are being used. Also applications   should

not have any "long" and/or "unsigned long" C-Data types declared
which is being passed to any Informix ODBC APIs. Informix recommends
use of SQLINTEGER/SQLUINTEGER, SDWORD/UDWORD standard ODBC types as
defined in Informix header files.

5. Pluggable Authentication Module (PAM)

   PAM functionality is supported on Solaris operating systems. The PAM is
   dependent on the libpam.so library supplied by the Operating System vendor.

   Use of PAM can be enabled or disabled by the system administrator. By
   default, IBM IDS will use the traditional authentication mechanism in
   order to avoid widespread changes required by the users.

   The PAM service identifies the PAM module. This PAM module typically
   resides in /usr/lib/security and its parameters are listed in
   /etc/pam.conf.

6. IPv6 Support

   IBM Informix Server supports Internet Protocol Version 6 (128 Bit Internet
   Addresses) as well as IPv4 (32 Bit Addresses).

   In order for the machine name specified in the SQLHOSTS file to resolve to
   the correct IP address, the name services files on the operating system
   should be correctly configured. If the machine has IPv6 address configured
   and the listener thread is bound to an IPv6 address, then the name
   resolution files /etc/nsswitch.conf should be configured to fetch IPv6
   address. Also use the appropriate /etc/hosts setting if local machine
   settings are used.

   For compatibility with older IBM Informix client and server products,
   assign the same hostname with both an IPv4 address and an IPv6 address.
   If the listener needs to be bound to an IPv4 address and the name services
   resolve the name in the order of the IPv6 address followed by IPv4 address,
   then an explicit IPv4 address needs to be put in nodename field of SQLHOSTS
   file. Client applications should also use the same setting.

Check the following web site for the latest Solaris system requirements:

   http://www-01.ibm.com/support/docview.wss?rs=630&uid=swg27016673

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Informix ODBC Driver Version 4.50.FC4W1, Windows x64

```
===============================
        MACHINE  SPECIFIC  NOTES
               FOR
   IBM Informix Client-SDK 4.50.FC4W1 PRODUCT RELEASE
       IBM Informix ODBC Driver Version 4.50.FC4W1
              On Windows x64
              DATE: 15 Jun 2020
```

```
                    ================================
```

OS Information : Built on Windows Server 2016 x64.

Machine Specific Notes
=====================

1. This product supports the following compiler:

        Microsoft Visual Studio 2017

    This product is built on Windows 2016 using the following compiler from
    Microsoft Visual Studio 2017:

        Microsoft Visual C++ 2017

2. Pluggable Authentication Module (PAM)

    PAM functionality is supported. Use of PAM can be enabled or disabled by
    the system administrator. By default, IBM IDS will use the traditional
    authentication mechanism in order to avoid widespread changes required
    by the users.

3. IPv6 Support

    IDS supports Internet Protocol Version 6 (128 Bit Internet Addresses)
    as well as IPv4 (32 Bit Addresses).

    In order for the machine name specified in the SQLHOSTS registry to resolve
    to the correct IP address, the name services files on the Operating System
    should be correctly configured.

    For compatibility with older IBM Informix client and server products,
    assign the same hostname with both an IPv4 address and an IPv6 address.
    If the listener needs to be bound to an IPv4 address and the name services
    resolve the name in the order of the IPv6 address followed by IPv4 address,
    then an explicit IPv4 address needs to be put in the nodename field of the
    server registry. Client applications should also use the same setting.

4. Connectivity on Windows Vista

    To enable connections between database servers on the Vista operating
    system, you must enable network discovery and NetBIOS over TCP/IP.

    To enable connections:

    1) From the Control Panel, double-click Network and Sharing.
    2) In the Sharing and Discovery section of the Network and Sharing Center,
       click Network discovery and then Turn on network discovery.
    3) In the Network section, click View Status next to the Local Area
       Connection.
    4) In the Local Area Connection Status dialog box, click Properties.
    5) In the Local Area Connection Properties dialog box, choose the
       appropriate Internet Protocol Version and click Properties.
    6) In the Internet Protocol Version Properties dialog box, click Advanced.
    7) On the WINS page of the Advanced TCP/IP Settings dialog box, click
       Enable NetBIOS over TCP/IP and then click OK.
    8) Continue clicking OK or Close until all dialog boxes are closed.

5. Workaround to list ODBC driver in Data Sources(ODBC Window)

    Warning: As we will be modifying the registry, performing a registry
              back-up is recommended.

```
1) Copy the lines between BEGIN and END block, save it as a
   file(for example, ifmx_odbc_driver.txt) in any location in your
   hard drive (for example in C:\MyFolder\).
   NOTE: All lines should start at column 1(no spaces before start of line)

   BEGIN Block
   Windows Registry Editor Version 5.00

   [HKEY_LOCAL_MACHINE\SOFTWARE\ODBC\ODBCINST.INI\ODBC Drivers]
   "IBM INFORMIX ODBC DRIVER"="installed"

   [HKEY_LOCAL_MACHINE\SOFTWARE\ODBC\ODBCINST.INI\IBM INFORMIX ODBC DRIVER]
   "Driver"="INFORMIXDIR\bin\iclit09b.dll"
   "Setup"="INFORMIXDIR\bin\iclit09b.dll"
   "SQLLevel"="1"
   "FileUsage"="0"
   "DriverODBCVer"="03.51"
   "ConnectFunctions"="YYY"
   "APILevel"="1"
   "CPTimeout"="<not pooled>"
    END    Block

2) Edit ifmx_odbc_driver.txt to replace INFORMIXDIR to the installed
   location of CSDK. For example, if CSDK is installed in c:\IBM\ folder,
   then replace INFORMIXDIR with c:\IBM.

3) Rename ifmx_odbc_driver.txt to  ifmx_odbc_driver.reg.  To update
   the registry, either double click on the ifmx_odbc_driver.reg file or
   type the following line from a command prompt.

   regedit c:\MyFolder\ifmx_odbc_driver.reg

   Click Yes, when you get the following message:
   "Are you sure you want to add the information in
   c:\MyFolder\ifmx_odbc_driver.reg file to the registry?"

   Click OK, when you get the following message:
   "Information in c:\MyFolder\ifmx_odbc_driver.reg file has been
    successfully entered into the registry."

4) You can now configure ODBC DSNs  by running odbcad32.exe

Check the following web site for the latest Windows system requirements:

   http://www-01.ibm.com/support/docview.wss?rs=630&uid=swg27016673
```

Informix .NET Provider Machine Notes

Client SDK 4.50.xC4W1

15 Jun 2020

- IBM Informix OLE DB Provider Version 4.50.FC4W1, Windows x64

IBM Informix OLE DB Provider Version 4.50.FC4W1, Windows x64

```
                  ================================
                       MACHINE SPECIFIC NOTES
                               FOR
             IBM Informix Client-SDK 4.50.FC4W1 PRODUCT RELEASE
               IBM Informix OLE DB Provider Version 4.50.FC4W1
                          On Windows x64
                          DATE: 15 Jun 2020
                  ================================
```

OS Information : Built on Windows Server 2016 x64.

Machine Specific Notes
======================

1. This product supports the following compiler:

        Microsoft Visual Studio 2017

    This product is built on Windows 2016 using the following compiler from
    Microsoft Visual Studio 2017:

        Microsoft Visual C++ 2017

2. IPv6 Support

    IDS supports Internet Protocol Version 6 (128 Bit Internet Addresses)
    as well as IPv4 (32 Bit Addresses).

    In order for the machine name specified in the SQLHOSTS registry to resolve
    to the correct IP address, the name services files on the Operating System
    should be correctly configured.

    For compatibility with older IBM Informix client and server products,
    assign the same hostname with both an IPv4 address and an IPv6 address.
    If the listener needs to be bound to an IPv4 address and the name services
    resolve the name in the order of the IPv6 address followed by IPv4 address,
    then an explicit IPv4 address needs to be put in the nodename field of the
    server registry. Client applications should also use the same setting.

3. Connectivity on Windows Vista

    To enable connections between database servers on the Vista operating
    system, you must enable network discovery and NetBIOS over TCP/IP.

    To enable connections:

    1) From the Control Panel, double-click Network and Sharing.
    2) In the Sharing and Discovery section of the Network and Sharing Center,
       click Network discovery and then Turn on network discovery.
    3) In the Network section, click View Status next to the Local Area
       Connection.
    4) In the Local Area Connection Status dialog box, click Properties.
    5) In the Local Area Connection Properties dialog box, choose the

```
             appropriate Internet Protocol Version and click Properties.
      6) In the Internet Protocol Version Properties dialog box, click Advanced.
      7) On the WINS page of the Advanced TCP/IP Settings dialog box, click
         Enable NetBIOS over TCP/IP and then click OK.
      8) Continue clicking OK or Close until all dialog boxes are closed.


Check the following web site for the latest Windows system requirements:

   http://www-01.ibm.com/support/docview.wss?rs=630&uid=swg27016673



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```

OLE DB Provider Machine Notes

Client SDK 4.50.xC4W1

15 Jun 2020

- IBM Informix OLE DB Provider Version 4.50.FC4W1, Windows x64

IBM Informix OLE DB Provider Version 4.50.FC4W1, Windows x64

```
              ================================
                       MACHINE SPECIFIC NOTES
                               FOR
              IBM Informix Client-SDK 4.50.FC4W1 PRODUCT RELEASE
               IBM Informix OLE DB Provider Version 4.50.FC4W1
                          On Windows x64
                          DATE: 15 Jun 2020
              ================================

OS Information : Built on Windows Server 2016 x64.

Machine Specific Notes
======================

1.  This product supports the following compiler:

        Microsoft Visual Studio 2017

    This product is built on Windows 2016 using the following compiler from
    Microsoft Visual Studio 2017:

        Microsoft Visual C++ 2017

2.  IPv6 Support
```

```
          IDS supports Internet Protocol Version 6 (128 Bit Internet Addresses)
          as well as IPv4 (32 Bit Addresses).

          In order for the machine name specified in the SQLHOSTS registry to resolve
          to the correct IP address, the name services files on the Operating System
          should be correctly configured.

          For compatibility with older IBM Informix client and server products,
          assign the same hostname with both an IPv4 address and an IPv6 address.
          If the listener needs to be bound to an IPv4 address and the name services
          resolve the name in the order of the IPv6 address followed by IPv4 address,
          then an explicit IPv4 address needs to be put in the nodename field of the
          server registry. Client applications should also use the same setting.

3.    Connectivity on Windows Vista

          To enable connections between database servers on the Vista operating
          system, you must enable network discovery and NetBIOS over TCP/IP.

          To enable connections:

          1) From the Control Panel, double-click Network and Sharing.
          2) In the Sharing and Discovery section of the Network and Sharing Center,
             click Network discovery and then Turn on network discovery.
          3) In the Network section, click View Status next to the Local Area
             Connection.
          4) In the Local Area Connection Status dialog box, click Properties.
          5) In the Local Area Connection Properties dialog box, choose the
             appropriate Internet Protocol Version and click Properties.
          6) In the Internet Protocol Version Properties dialog box, click Advanced.
          7) On the WINS page of the Advanced TCP/IP Settings dialog box, click
             Enable NetBIOS over TCP/IP and then click OK.
          8) Continue clicking OK or Close until all dialog boxes are closed.

Check the following web site for the latest Windows system requirements:

     http://www-01.ibm.com/support/docview.wss?rs=630&uid=swg27016673


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```

Release, documentation, and machine notes for IBM® Informix® Client SDK, v4.50.xC3

These are the release, documentation, and machine notes for Client SDK version 4.50.xC3.

- Release notes for IBM Informix Client Software Development Kit for Windows Operating Systems, 4.50.xC3
- Release notes for IBM Informix Client Software Development Kit for UNIX and Linux, 4.50.xC3

Release notes for IBM Informix Client Software Development Kit for Windows Operating Systems, 4.50.xC3

Contents

- [Description](#)
- [Announcement](#)
- [Compatibility](#)
- [System requirements](#)
- [Installing IBM Informix Client SDK 4.50.xC3](#)
- [Related information](#)

Description

The IBM® Informix® Client Software Development Kit Version 4.50 Release notes include information about the following component products:

- IBM Informix Connection Manager
- IBM Informix ESQL/C
- IBM Informix .NET Provider
- IBM Informix Object Interface for C++
- IBM Informix ODBC Driver
- IBM Informix OLE DB Provider

Announcement

The product announcement letters are available at http://www.ibm.com/common/ssi/index.wss. Search for Informix 14.10 and select Announcement letters. See the announcement for the following information:

- Detailed product description
- Product-positioning statement
- Packaging and ordering details
- International compatibility information

Compatibility

Version 4.50 of IBM Informix Client Software Development Kit is compatible with the following database servers:

Database server	Versions
IBM Informix Client Software Development Kit	11.70, 12.10, 14.10

Version 4.50 of Connection Manager is compatible with the following clients:

Client	Version
IBM Informix Client Software Development Kit (Client SDK)	3.70, 4.10, 4.50

IBM InformixConnect	3.70, 4.10, 4.50
IBM Informix JDBC Driver	3.70, 4.10, 4.50
Data Server Driver for JDBC and SQLJ	3.5.2 or later

System requirements

For information about hardware and software compatibility, see the detailed system requirements document at http://www.ibm.com/support/docview.wss?uid=swg27016673.

Installing IBM Informix Client SDK 4.50.xC3

For step-by-step installation instructions, see Installing Informix Client Products at http://www.ibm.com/support/knowledgecenter/SSGU8G/welcomeIfxServers.html.

Related information

- IBM Support Portal: http://www.ibm.com/support/entry/portal/
- The latest open source drivers for Informix can be found at https://github.com/OpenInformix.

Release notes for IBM Informix Client Software Development Kit for UNIX and Linux, 4.50.xC3

Contents

- Description
- Announcement
- Compatibility
- System requirements
- Installing IBM Informix Client SDK 4.50.xC3
- Related information

Description

The IBM® Informix® Client Software Development Kit Version 4.50 Release notes include information about the following component products:

- IBM Informix Connection Manager
- IBM Informix ESQL/C
- IBM Informix Object Interface for C++
- IBM Informix ODBC Driver

For a complete list of what's new and changed in this release, see For a complete list of what's new and changed in this release, go to

Information about the fixed defects for IBM Informix Client Software Development Kit 4.50.xC2 is available at: http://www.ibm.com/support/docview.wss?uid=ibm10871880..

Announcement

The product announcement letters are available at http://www.ibm.com/common/ssi/index.wss. Search for Informix 14.10 and select Announcement letters. See the announcement for the following information:

- Detailed product description
- Product-positioning statement
- Packaging and ordering details
- International compatibility information

Compatibility

Version 4.50 of IBM Informix Client Software Development Kit is compatible with the following database servers:

Database server	Versions
IBM Informix Client Software Development Kit	11.70, 12.10, 14.10

Version 4.50 of Connection Manager is compatible with the following clients:

Client	Version
IBM Informix Client Software Development Kit (Client SDK)	3.70, 4.10, 4.50
IBM InformixConnect	3.70, 4.10, 4.50
IBM Informix JDBC Driver	3.70, 4.10, 4.50
Data Server Driver for JDBC and SQLJ	3.5.2 or later

System requirements

For information about hardware and software compatibility, see the detailed system requirements document at http://www.ibm.com/support/docview.wss?uid=swg27016673.

Installing IBM Informix Client SDK 4.50.xC3

For step-by-step installation instructions, see Installing Informix Client Products at http://www.ibm.com/support/knowledgecenter/SSGU8G/welcomeIfxServers.html.

Related information

- IBM Support Portal: http://www.ibm.com/support/entry/portal/
- The latest open source drivers for Informix can be found at https://github.com/OpenInformix.

Release, documentation, and machine notes for IBM® Informix® Client SDK, v4.50.xC2

These are the release, documentation, and machine notes for Client SDK version 4.50.xC2.

- [Release notes for IBM Informix Client Software Development Kit for Windows Operating Systems, 4.50.xC2](#)
- [Release notes for IBM Informix Client Software Development Kit for UNIX and Linux, 4.50.xC2](#)

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Release notes for IBM Informix Client Software Development Kit for Windows Operating Systems, 4.50.xC2

Contents

- [Description](#)
- [Announcement](#)
- [Compatibility](#)
- [System requirements](#)
- [Installing IBM Informix Client SDK 4.50.xC2](#)
- [Related information](#)

Description

The IBM® Informix® Client Software Development Kit Version 4.10 Release notes include information about the following component products:

- IBM Informix Connection Manager
- IBM Informix ESQL/C
- IBM Informix .NET Provider
- IBM Informix Object Interface for C++
- IBM Informix ODBC Driver
- IBM Informix OLE DB Provider

Announcement

The product announcement letters are available at http://www.ibm.com/common/ssi/index.wss. Search for Informix 14.10 and select Announcement letters. See the announcement for the following information:

- Detailed product description
- Product-positioning statement
- Packaging and ordering details

- International compatibility information

Compatibility

Version 4.50 of IBM Informix Client Software Development Kit is compatible with the following database servers:

Database server	Versions
IBM Informix Client Software Development Kit	11.70, 12.10, 14.10

Version 4.50 of Connection Manager is compatible with the following clients:

Client	Version
IBM Informix Client Software Development Kit (Client SDK)	3.70, 4.10, 4.50
IBM InformixConnect	3.70, 4.10, 4.50
IBM Informix JDBC Driver	3.70, 4.10, 4.50
Data Server Driver for JDBC and SQLJ	3.5.2 or later

System requirements

For information about hardware and software compatibility, see the detailed system requirements document at http://www.ibm.com/support/docview.wss?uid=swg27016673.

Installing IBM Informix Client SDK 4.50.xC2

For step-by-step installation instructions, see Installing Informix Client Products at http://www.ibm.com/support/knowledgecenter/SSGU8G/welcomeIfxServers.html.

Related information

- IBM Support Portal: http://www.ibm.com/support/entry/portal/
- The latest open source drivers for Informix can be found at https://github.com/OpenInformix.

Release notes for IBM Informix Client Software Development Kit for UNIX and Linux, 4.50.xC2

Contents

- [Installing IBM Informix Client SDK 4.50.xC2](#)
- [Related information](#)

Description

The IBM® Informix® Client Software Development Kit Version 4.10 Release notes include information about the following component products:

- IBM Informix Connection Manager
- IBM Informix ESQL/C
- IBM Informix Object Interface for C++
- IBM Informix ODBC Driver

For a complete list of what's new and changed in this release, see For a complete list of what's new and changed in this release, go to
http://www.ibm.com/support/knowledgecenter/SSGU8G/welcomeIfxServers.html.

Information about the fixed defects for IBM Informix Client Software Development Kit 4.50.xC2 is available at: http://www.ibm.com/support/docview.wss?uid=ibm10871880..

Announcement

The product announcement letters are available at http://www.ibm.com/common/ssi/index.wss. Search for Informix 14.10 and select Announcement letters. See the announcement for the following information:

- Detailed product description
- Product-positioning statement
- Packaging and ordering details
- International compatibility information

Compatibility

Version 4.50 of IBM Informix Client Software Development Kit is compatible with the following database servers:

Database server	Versions
IBM Informix Client Software Development Kit	11.70, 12.10, 14.10

Version 4.50 of Connection Manager is compatible with the following clients:

Client	Version
IBM Informix Client Software Development Kit (Client SDK)	3.70, 4.10, 4.50
IBM InformixConnect	3.70, 4.10, 4.50
IBM Informix JDBC Driver	3.70, 4.10, 4.50
Data Server Driver for JDBC and SQLJ	3.5.2 or later

System requirements

For information about hardware and software compatibility, see the detailed system requirements document at http://www.ibm.com/support/docview.wss?uid=swg27016673.

Installing IBM Informix Client SDK 4.50.xC2

For step-by-step installation instructions, see Installing Informix Client Products at
http://www.ibm.com/support/knowledgecenter/SSGU8G/welcomeIfxServers.html.

Related information

- IBM Support Portal: http://www.ibm.com/support/entry/portal/
- The latest open source drivers for Informix can be found at https://github.com/OpenInformix.

Release, documentation, and machine notes for IBM Informix Client SDK, v4.50.xC1

These are the release, documentation, and machine notes for Client SDK version 4.50.xC1.

- Release notes for IBM Informix Client Software Development Kit for AIX and Linux 4.50.xC1
  The Release notes provide a list of useful topics and links for when you install the HCL® Informix® Client Software Development Kit Version 4.50.
- Release notes for IBM Informix Global Language Support (GLS), 7.00.xC1
  The Release notes provide a list of useful topics and links for when you install IBM® Informix® GLS library with an Informix product or fix pack.
- Machine notes for IBM Informix Client SDK, version 4.50
  These are the machine notes for version 4.50.

Release notes for IBM Informix Client Software Development Kit for AIX and Linux 4.50.xC1

The Release notes provide a list of useful topics and links for when you install the HCL® Informix® Client Software Development Kit Version 4.50.

Contents

- Description
- Compatibility
- System requirements
- Installing IBM Informix Client SDK 4.50.xC1
- #relnotes/rinfo

Description

The IBM® Informix® Client Software Development Kit Version 4.50 Release notes include information about the following component products:

- IBM Informix Connection Manager
- IBM Informix ESQL/C
- IBM Informix ODBC Driver

Compatibility

Version 4.50 of IBM Informix Client Software Development Kit is compatible with the following database servers:

Database server	Versions
IBM Informix Client Software Development Kit	4.10, 4.50
IBM InformixJDBC Driver	4.10, 4.50

System requirements

For information about hardware and software compatibility, see the detailed system requirements in machine notes.

Installing IBM Informix Client SDK 4.50.xC1

The informix Client Products Installation Guide (clinst.pdf) is also available in the product build in PDF format..

Release notes for IBM Informix Global Language Support (GLS), 7.00.xC1

The Release notes provide a list of useful topics and links for when you install IBM® Informix® GLS library with an Informix product or fix pack.

Contents

- [Description](#)
- [#relnotes/announce](#)
- [Compatibility](#)
- [System requirements](#)
- [Installing IBM Informix Global Language Support (GLS) Version 7.00.xC1](#)
- [Related information](#)

Description

IBM Informix GLS is an application programming interface (API) that provides functions and macros for the implementation of applications with multicultural support that are compatible with IBM Informix GLS globalization. This API allows applications to access information in IBM Informix locale files. The IBM Informix GLS 7.00 library incorporates the International Components for Unicode (ICU) 60.2 library.

Compatibility

The *IBM Informix GLS User's Guide* is written with the assumption that you are using IBM Informix version 14.10 with version 7.00 of the GLS library.

System requirements

For information about hardware and software compatibility, see the machine notes.

Installing IBM Informix Global Language Support (GLS) Version 7.00.xC1

The *Informix Client Products Installation Guide* (clinst.pdf) is also available in the product build in PDF format.

Related information

More information about other products and services from HCL Technologies can be found at: https://www.hcltech.com/products-and-platforms.

Machine notes for IBM® Informix® Client SDK, version 4.50

These are the machine notes for version 4.50.

To view the notes, expand the categories in the contents pane in the Release information subtopic under the Product overview topic.

- C++ Interface
- ESQL/C Machine Notes
- GLS API Machine Notes
- ODBC Driver Machine Notes

C++ Interface

Client SDK 4.50.xC1

14 March 2019

-
-

C++ Interface Version 4.50.FC1, AIX 7.2 64bit

```
                           ================================
                               MACHINE SPECIFIC NOTES
                                        FOR
                    IBM Informix Client-SDK 4.50.FC1 PRODUCT RELEASE
                           C++ Interface Version 4.50.FC1
                                  On AIX 7.2 64bit
                                 DATE: 14 March 2019
                           ================================

OS Information : Built on AIX 7.2 Technology.

Machine Specific Notes
======================

1. This product was built on AIX 7.2 Technology using the
   following compilers:

   IBM XL C/C++ for AIX, V13.1.3 (5765-J06)
   XL C/C++ Runtime       13.1.3

2. AIX patch requirement:


3. To use a specific shared library to link with your application, include
   the directories where the 64bit C++ shared libraries are installed by
   setting your environment as follows:

       (for Bourne or Korn Shell)
       LIBPATH=$INFORMIXDIR/lib:$INFORMIXDIR/lib/c++:$INFORMIXDIR/lib/esql:
           $INFORMIXDIR/lib/dmi:$LIBPATH
       export LIBPATH

       (for C Shell)
       setenv LIBPATH $INFORMIXDIR/lib:$INFORMIXDIR/lib/c++:
                $INFORMIXDIR/lib/dmi:$INFORMIXDIR/lib/esql:$LIBPATH

4. IPv6 Support

   The product supports Internet Protocol Version 6 (128 Bit Internet Addresses)
   as well as IPv4 (32 Bit Addresses).

   In order for the machine name specified in the SQLHOSTS file to resolve
   to the correct IP address, the name services files on the Operating System
   should be correctly configured. If the machine has IPv6 address configured
   and the listener thread is bound to an IPv6 address, then the name
   resolution files /etc/netsvc.conf should be configured to fetch IPv6
```

address. Also use the appropriate /etc/hosts setting if local machine
        settings are used.

        For compatibility with older HCL Informix client and server products,
        assign the same hostname with both an IPv4 address and an IPv6 address.
        If the listener needs to be bound to an IPv4 address and the name services
        resolve the name in the order of the IPv6 address followed by IPv4 address,
        then an explicit IPv4 address needs to be put in nodename field of SQLHOSTS
        file. Client applications should also use the same setting.

C++ Interface Version 4.50.FC1, Linux Intel 64bit

```
                    ================================
                         MACHINE  SPECIFIC  NOTES
                                    FOR
                HCL Informix Client-SDK 4.50.FC1 PRODUCT RELEASE
                         C++ Interface Version 4.50.FC1
                             On Linux Intel 64bit
                              DATE: 14 March 2019
                    ================================
```

OS Information : Built on Red Hat Enterprise Linux ES release 7.4 (Maipo)
                 Certified on SUSE SLES 11 and 12,
                 Ubuntu Server Edition 12.04 LTS and 14.04 LTS,
                 Asianux 3 SP3.

Machine Specific Notes
======================

1. This product was built on Red Hat Enterprise Linux ES release 7.4
   (Kernel: 3.10.0-693, Glibc: 2.17) for x86_64 compatible processors.
   The following compilers were used:

        gcc and g++ compiler 4.8.5 20150623 (Red Hat 4.8.5-16)

   Installing the product on Ubuntu or Debian requires RPM to be installed
   and initialized. After RPM installed, use the following commands to
   initialize RPM:

        mkdir -p /var/lib/rpm
        rpm --initdb

   The bc utility is required by the product installer, and needs to be
   installed on Ubuntu.

2. If you use the C++ Interface with shared libraries, setting the
   environment variable LD_LIBRARY_PATH:

```
       (for C Shell)
       setenv LD_LIBRARY_PATH $INFORMIXDIR/lib:$INFORMIXDIR/lib/esql:
       $INFORMIXDIR/lib/c++:$INFORMIXDIR/lib/dmi:$LD_LIBRARY_PATH

       (for Bourne or Korn Shell)
       LD_LIBRARY_PATH=$INFORMIXDIR/lib:$INFORMIXDIR/lib/esql:
       $INFORMIXDIR/lib/c++:$INFORMIXDIR/lib/dmi:$LD_LIBRARY_PATH
       export LD_LIBRARY_PATH

3. IPv6 Support

   The product supports Internet Protocol Version 6 (128 Bit Internet Addresses)
   as well as IPv4 (32 Bit Addresses).

   In order for the machine name specified in the SQLHOSTS file to resolve
   to the correct IP address, the name services files on the Operating System
   should be correctly configured. If the machine has IPv6 address configured
   and the listener thread is bound to an IPv6 address, then the name
   resolution files /etc/netsvc.conf should be configured to fetch IPv6
   address. Also use the appropriate /etc/hosts setting if local machine
   settings are used.

   For compatibility with older HCL Informix client and server products,
   assign the same hostname with both an IPv4 address and an IPv6 address.
   If the listener needs to be bound to an IPv4 address and the name services
   resolve the name in the order of the IPv6 address followed by IPv4 address,
   then an explicit IPv4 address needs to be put in nodename field of SQLHOSTS
   file. Client applications should also use the same setting.


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```

ESQL/C Machine Notes

Client SDK 4.50.xC1

14 March 2019

- ESQL/C Version 4.50.FC1, AIX 7.2 64bit
- ESQL/C Version 4.50.FC1, Linux Intel 64bit

ESQL/C Version 4.50.FC1, AIX 7.2 64bit

```
                     MACHINE SPECIFIC NOTES
                            FOR
          IBM Informix Client-SDK 4.50.FC1 PRODUCT RELEASE
              IBM INFORMIX-ESQL/C Version 4.50.FC1
                       On AIX 7.2 64bit
                     DATE: 15 March 2019
              ================================
```

OS Information : Built on AIX 7.2 Technology.

Machine Specific Notes
=====================

1. **This product was built on AIX 7.2 Technology using the**
   following compilers:

   IBM XL C/C++ for AIX, V13.1.3 (5765-J06)
   XL C/C++ Runtime   13.1.3

2. **AIX patch requirement:**

3. **ESQL/C support for static libraries**

   ESQL/C product libraries are supported as both static and shared
   libraries. By default the script uses shared libraries.
   To use static libraries, the 'esql' script must be invoked with the
   -static option:

   esql -static

   To use ESQL/C shared libraries, the environment variable LIBPATH
   must include $INFORMIXDIR/lib and $INFORMIXDIR/lib/esql. During
   runtime of the executable, the dynamic loader will look in this
   path for HCL Informix ESQL/C shared libraries.

   (for Bourne or Korn Shell)
   LIBPATH=$INFORMIXDIR/lib:$INFORMIXDIR/lib/esql:$LIBPATH
   export LIBPATH

   (for C Shell)
   setenv LIBPATH $INFORMIXDIR/lib:$INFORMIXDIR/lib/esql:$LIBPATH

4. **ESQL/C support for thread safe libraries**

   The thread safe ESQL/C libraries are supported on this platform using
   POSIX threads. The THREADLIB environment variable must be to POSIX:
   (for Bourne or Korn Shell)
   THREADLIB=POSIX
   export THREADLIB

   (for C Shell)
   setenv THREADLIB POSIX

   To build thread safe ESQL/C programs, use the following command:

   esql -thread prog.ec -o prog

   Applications that have not been compiled with the -thread option cannot be
   linked with applications that have been compiled with the -thread option.
   To do so, compile all applications with the -thread option.

5. IPv6 Support

   The product supports Internet Protocol Version 6 (128 Bit Internet Addresses)
   as well as IPv4 (32 Bit Addresses).

   In order for the machine name specified in the SQLHOSTS file to resolve
   to the correct IP address, the name services files on the Operating System
   should be correctly configured. If the machine has IPv6 address configured
   and the listener thread is bound to an IPv6 address, then the name
   resolution files /etc/netsvc.conf should be configured to fetch IPv6
   address. Also use the appropriate /etc/hosts setting if local machine
   settings are used.

   For compatibility with older HCL Informix client and server products,
   assign the same hostname with both an IPv4 address and an IPv6 address.
   If the listener needs to be bound to an IPv4 address and the name services
   resolve the name in the order of the IPv6 address followed by IPv4 address,
   then an explicit IPv4 address needs to be put in nodename field of SQLHOSTS
   file. Client applications should also use the same setting.

6. Pluggable Authentication Module (PAM)

   PAM functionality is supported on AIX 7.2 operating systems. The PAM is
   dependent on the libpam.a library supplied by the Operating System vendor.

   Use of PAM can be enabled or disabled by the system administrator. By
   default, HCL IDS will use the traditional authentication mechanism in
   order to avoid widespread changes required by the users.

   The PAM service identifies the PAM module. This PAM module typically
   resides in /usr/lib/security and its parameters are listed in
   /etc/pam.conf.

ESQL/C Version 4.50.FC1, Linux Intel 64bit

```
                    ==================================
                           MACHINE  SPECIFIC  NOTES
                                     FOR
                  IBM Informix Client-SDK 4.50.FC1 PRODUCT RELEASE
                        IBM INFORMIX-ESQL/C Version 4.50.FC1
                              On Linux Intel 64bit
                              DATE: 14 March 2019
                    ==================================
```

OS Information : Built on Red Hat Enterprise Linux ES release 7.4 (Maipo)

```
                Certified on SUSE SLES 11 and 12,
                Ubuntu Server Edition 12.04 LTS and 14.04 LTS,
                Asianux 3 SP3.

Machine Specific Notes
======================


1. This product was built on Red Hat Enterprise Linux ES release 7.4
   (Kernel:  3.10.0-693, Glibc: 2.17) for x86_64 compatible processors.
   The following compilers were used:

        gcc and g++ compiler 4.8.5 20150623 (Red Hat 4.8.5-16)

   Installing the product on Ubuntu or Debian requires RPM to be installed
   and initialized. After RPM installed, use the following commands to
   initialize RPM:

        mkdir -p /var/lib/rpm
        rpm --initdb

   The bc utility is required by the product installer, and needs to be
   installed on Ubuntu.

2. ESQL/C support for static libraries

   ESQL/C product libraries are supported as both static and shared
   libraries. By default the script uses shared libraries.
   To use static libraries, the 'esql' script must be invoked with the
   -static option:

        esql -static

   To use ESQL/C shared libraries, the environment variable LD_LIBRARY_PATH
   should be set to include $INFORMIXDIR/lib and $INFORMIXDIR/lib/esql.
   During runtime of the executable, the dynamic loader will look in this
   path for HCL Informix ESQL/C shared libraries.

        (for Bourne or Korn Shell)
        LD_LIBRARY_PATH=$INFORMIXDIR/lib:$INFORMIXDIR/lib/esql:$LD_LIBRARY_PATH
        export LD_LIBRARY_PATH

        (for C Shell)
        setenv LD_LIBRARY_PATH
$INFORMIXDIR/lib:$INFORMIXDIR/lib/esql:$LD_LIBRARY_PATH

3. ESQL/C support for thread safe libraries

   The thread safe ESQL/C libraries are supported on this platform using
   POSIX threads. The THREADLIB environment variable must be to POSIX:

        (for Bourne or Korn Shell)
        THREADLIB=POSIX
        export THREADLIB

        (for C Shell)
        setenv THREADLIB POSIX

   To build thread safe ESQL/C programs, use the following command:

        esql -thread  mythreadapp.ec -o mythreadapp

   Applications that have NOT been compiled with the -thread option CANNOT be
   linked with applications that HAVE been compiled with the -thread option.
   To use threads in an application, compile ALL of its modules with the
```

```
                   "-thread" option.

4. Pluggable Authentication Module (PAM)

   PAM functionality is supported on Linux operating systems. The PAM is
   dependent on the libpam.so library supplied by the Operating System vendor.

   Use of PAM can be enabled or disabled by the system administrator. By
   default, HCL IDS will use the traditional authentication mechanism in
   order to avoid widespread changes required by the users.

   The PAM service identifies the PAM module. This PAM module typically
   resides in /lib/security and its parameters are listed in /etc/pam.d.
   The pam.conf file is ignored on Linux, if the /etc/pam.d directory is
   present.

5. IPv6 Support

   The product supports Internet Protocol Version 6 (128 Bit Internet Addresses)
   as well as IPv4 (32 Bit Addresses).

   In order for the machine name specified in the SQLHOSTS file to resolve
   to the correct IP address, the name services files on the Operating System
   should be correctly configured. If the machine has IPv6 address configured
   and the listener thread is bound to an IPv6 address, then the name
   resolution files /etc/netsvc.conf should be configured to fetch IPv6
   address. Also use the appropriate /etc/hosts setting if local machine
   settings are used.

   For compatibility with older HCL Informix client and server products,
   assign the same hostname with both an IPv4 address and an IPv6 address.
   If the listener needs to be bound to an IPv4 address and the name services
   resolve the name in the order of the IPv6 address followed by IPv4 address,
   then an explicit IPv4 address needs to be put in nodename field of SQLHOSTS
   file. Client applications should also use the same setting.


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```

GLS API Machine Notes

Client SDK 4.50.xC1

14 March 2019

- GLS API Version 7.0, AIX 7.2 64bit
- GLS API Version 7.0, Linux Intel 64bit

GLS API Version 7.0, AIX 7.2 64bit

```
                    ================================
                         MACHINE SPECIFIC NOTES
                                  FOR
                 IBM Informix Client-SDK 4.50.FC1 PRODUCT RELEASE
                           GLS API Version 7.0
                             On AIX 7.2 64bit
                           DATE: 14 March 2019
                    ================================
```

OS Information : Built on AIX 7.2 Technology.

Machine Specific Notes
======================

1. This product was built on AIX 7.2 Technology using the
   following compilers:

   IBM XL C/C++ for AIX, V13.1.3 (5765-J06)
   XL C/C++ Runtime   13.1.3

2. AIX patch requirement:

   AIX 7.1:

        September 2010 PTF for XL C for AIX, V11.1

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GLS API Version 7.0, Linux Intel 64bit

```
                    ================================
                         MACHINE SPECIFIC NOTES
                                  FOR
                 IBM Informix Client-SDK 4.50.FC1 PRODUCT RELEASE
                           GLS API Version 7.0
                           On Linux Intel 64bit
                           DATE: 14 March 2019
                    ================================
```

OS Information : Built on Red Hat Enterprise Linux ES release 7.4 (Maipo)
                 Certified on SUSE SLES 11 and 12,

```
                 Ubuntu Server Edition 12.04 LTS and 14.04 LTS,
                 Asianux 3 SP3.

Machine Specific Notes
======================

1. This product was built on Red Hat Enterprise Linux ES release 7.4
   (Kernel:  3.10.0-693, Glibc: 2.17) for x86_64 compatible processors.
   The following compilers were used:

        gcc and g++ compiler 4.8.5 20150623 (Red Hat 4.8.5-16)

   Installing the product on Ubuntu or Debian requires RPM to be installed
   and initialized. After RPM installed, use the following commands to
   initialize RPM:

        mkdir -p /var/lib/rpm
        rpm --initdb

   The bc utility is required by the product installer, and needs to be
   installed on Ubuntu.


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```

ODBC Driver Machine Notes

Client SDK 4.50.xC1

14 March 2019

- Informix ODBC Driver Version 4.50.FC1, AIX 7.2 64bit
- Informix ODBC Driver Version 4.50.FC1, Linux Intel 64bit

Informix ODBC Driver Version 4.50.FC1, AIX 7.2 64bit

```
              =================================
                   MACHINE SPECIFIC NOTES
                           FOR
           IBM Informix Client-SDK 4.50.FC1 PRODUCT RELEASE
                Informix ODBC Driver Version 4.50.FC1
                        On AIX 7.2 64bit
                    DATE: 14 March 2019
              =================================

OS Information : Built on AIX 7.2 Technology.
```

```
Machine Specific Notes
======================


1. This product was built on AIX 7.2 Technology using the
   following compilers:

   IBM XL C/C++ for AIX, V13.1.3 (5765-J06)
   XL C/C++ Runtime      13.1.3

2. AIX patch requirement:


3. For using the ODBC shared libraries, the application should be compiled
   with the -brtl linker option and the LIBPATH environment variable must
   be set as follows.

       (for Bourne or Korn Shell)
       LIBPATH=$INFORMIXDIR/lib:$INFORMIXDIR/lib/cli:$INFORMIXDIR/lib/esql:
           $LIBPATH
       export LIBPATH

       (for C Shell)
       setenv LIBPATH  $INFORMIXDIR/lib:$INFORMIXDIR/lib/cli:
                  $INFORMIXDIR/lib/esql:$LIBPATH

4. The thread safe ODBC libraries are supported on this platform using
   POSIX threads and the applications must be compiled with xlc_r.
   For using the ODBC thread shared library, the application should be
   compiled with the -brtl linker option.


6. IPv6 Support

   The product supports Internet Protocol Version 6 (128 Bit Internet Addresses)
   as well as IPv4 (32 Bit Addresses).

   In order for the machine name specified in the SQLHOSTS file to resolve
   to the correct IP address, the name services files on the Operating System
   should be correctly configured. If the machine has IPv6 address configured
   and the listener thread is bound to an IPv6 address, then the name
   resolution files /etc/netsvc.conf should be configured to fetch IPv6
   address. Also use the appropriate /etc/hosts setting if local machine
   settings are used.

   For compatibility with older IBM Informix client and server products,
   assign the same hostname with both an IPv4 address and an IPv6 address.
   If the listener needs to be bound to an IPv4 address and the name services
   resolve the name in the order of the IPv6 address followed by IPv4 address,
   then an explicit IPv4 address needs to be put in nodename field of SQLHOSTS
   file. Client applications should also use the same setting.

7. Pluggable Authentication Module (PAM)

   PAM functionality is supported on AIX 7.2 operating systems. The PAM is
   dependent on the libpam.a library supplied by the Operating System vendor.

   Use of PAM can be enabled or disabled by the system administrator. By
   default, IBM IDS will use the traditional authentication mechanism in
   order to avoid widespread changes required by the users.

   The PAM service identifies the PAM module. This PAM module typically
   resides in /usr/lib/security and its parameters are listed in
   /etc/pam.conf.
```

Informix ODBC Driver Version 4.50.FC1, Linux Intel 64bit

```
================================
         MACHINE SPECIFIC NOTES
                  FOR
     HCL Informix Client-SDK 4.50.FC1 PRODUCT RELEASE
       HCL Informix ODBC Driver Version 4.50.FC1
                On Linux Intel 64bit
               DATE: 14 March 2019
================================
```

OS Information : Built on Red Hat Enterprise Linux ES release 7.4 (Maipo)
               Certified on SUSE SLES 11 and 12,
               Ubuntu Server Edition 12.04 LTS and 14.04 LTS,
               Asianux 3 SP3.

Machine Specific Notes
=======================

1. This product was built on Red Hat Enterprise Linux ES release 7.4
   (Kernel: 3.10.0-693, Glibc: 2.17) for x86_64 compatible processors.
   The following compilers were used:

        gcc and g++ compiler 4.8.5 20150623 (Red Hat 4.8.5-16)

   Installing the product on Ubuntu or Debian requires RPM to be installed
   and initialized. After RPM installed, use the following commands to
   initialize RPM:

        mkdir -p /var/lib/rpm
        rpm --initdb

   The bc utility is required by the product installer, and needs to be
   installed on Ubuntu.

2. For shared library support, environment variable LD_LIBRARY_PATH
   needs to be set to include the $INFORMIXDIR/lib/cli directories
   where HCL INFORMIX ODBC shared libraries are installed.

   (for C Shell)
   setenv LD_LIBRARY_PATH $INFORMIXDIR/lib:$INFORMIXDIR/lib/cli:
        $INFORMIXDIR/lib/esql:$LD_LIBRARY_PATH

```
        (for Bourne or Korn Shell)
    LD_LIBRARY_PATH=$INFORMIXDIR/lib/cli:$INFORMIXDIR/lib/esql:
                    $LD_LIBRARY_PATH
    export LD_LIBRARY_PATH
```

3. The thread safe ODBC libraries are supported on this platform using POSIX
   threads. Make sure that you set the THREADLIB environment variable to
   "POSIX" before linking your ODBC program using the esql script.

4. Pluggable Authentication Module (PAM)

   PAM functionality is supported on Linux operating systems. The PAM is
   dependent on the libpam.so library supplied by the Operating System vendor.

   Use of PAM can be enabled or disabled by the system administrator. By
   default, HCL IDS will use the traditional authentication mechanism in
   order to avoid widespread changes required by the users.

   The PAM service identifies the PAM module. This PAM module typically
   resides in /lib/security and its parameters are listed in /etc/pam.d.
   The pam.conf file is ignored on Linux, if the /etc/pam.d directory is
   present.

5. IPv6 Support

   The product supports Internet Protocol Version 6 (128 Bit Internet Addresses)
   as well as IPv4 (32 Bit Addresses).

   In order for the machine name specified in the SQLHOSTS file to resolve
   to the correct IP address, the name services files on the Operating System
   should be correctly configured. If the machine has IPv6 address configured
   and the listener thread is bound to an IPv6 address, then the name
   resolution files /etc/netsvc.conf should be configured to fetch IPv6
   address. Also use the appropriate /etc/hosts setting if local machine
   settings are used.

   For compatibility with older HCL Informix client and server products,
   assign the same hostname with both an IPv4 address and an IPv6 address.
   If the listener needs to be bound to an IPv4 address and the name services
   resolve the name in the order of the IPv6 address followed by IPv4 address,
   then an explicit IPv4 address needs to be put in nodename field of SQLHOSTS
   file. Client applications should also use the same setting.

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Release notes for IBM Informix JDBC Driver

These are the release notes for IBM Informix® JDBC Driver. Information about fixed and known defects is
included in the release notes.

- [Release notes for IBM Informix JDBC Driver, v4.50.JC1](#)
  These are the release notes for IBM Informix JDBC Driver version 4.50.JC1.

Release notes for IBM Informix JDBC Driver, v4.50.JC1

These are the release notes for IBM Informix® JDBC Driver version 4.50.JC1.

- [Release notes for IBM Informix JDBC Driver,4.50.JC1](#)
  The Release notes provide a list of useful topics and links for when you install the IBM Informix JDBC Driver, 4.50.

Release notes for IBM Informix JDBC Driver,4.50.JC1

The Release notes provide a list of useful topics and links for when you install the IBM Informix® JDBC Driver, 4.50.

Contents

- [Description](#)
- [Compatibility](#)
- [System requirements](#)
- [Installing JDBC Driver 4.50.JC1](#)
- [Related information](#)

Description

The IBM® Informix Java™ Database Connectivity (JDBC) Driver lets Java programmers access databases from within Java applications or applets. Programmers can create client applications that use JDBC to connect to an database server, retrieve data from the database, and handle errors. The Informix JDBC Driver can also be used for writing user-defined routines that are run on an database server. The IBM Informix JDBC Driver is compatible with the JavaSoft JDBC specifications. The Informix JDBC Driver maps standard Java data types and data types.

Compatibility

Version 4.50 of IBM Informix JDBC Driver is compatible with the following database servers:

Database server	Versions
IBM Informix	12.10, 14.10

System requirements

You must have Java Development Kit (JDK) 1.8 or later installed to use the IBM Informix JDBC Driver.

To use IBM Informix JDBC Driver is compliant with the JDBC 4.2 Specification. For more information, see http://jcp.org/en/home/index.

Installing JDBC Driver 4.50.JC1

The IBM Informix JDBC Driver Quickstart Guide (quickstart/quickstart.md) is also available in the product build in markdown (md) format which is viewable with any text viewer.

Related information

More information about other products and services from HCL Technologies can be found at: https://www.hcltech.com/products-and-platforms. For a complete list of what's new and changed in this release, go to https://informix.hcldoc.com.

Release notes for IBM Informix Warehouse Accelerator

These are the release notes for IBM® Informix® Warehouse Accelerator.

- [Release notes for IBM Informix Warehouse Accelerator, 14.10.xC6](#)
  These are the release, documentation, and machine notes for IBM Informix Warehouse Accelerator version 14.10.xC6.
- [Release notes for IBM Informix Warehouse Accelerator, 14.10.xC5](#)
  These are the release, documentation, and machine notes for IBM Informix Warehouse Accelerator version 14.10.xC5.
- [Release notes for IBM Informix Warehouse Accelerator, 14.10.xC4](#)
  These are the release, documentation, and machine notes for IBM Informix Warehouse Accelerator version 14.10.xC4.

Release notes for IBM Informix Warehouse Accelerator, 14.10.xC6

These are the release, documentation, and machine notes for IBM® Informix® Warehouse Accelerator version 14.10.xC6.

- [Release notes for IBM Informix Warehouse Accelerator, 14.10.xC6](#)

Release notes for IBM Informix Warehouse Accelerator, 14.10.xC6

Contents

The Release notes provide a list of useful topics and links for when you install an IBM® Informix® database product or fix pack.

- #iwa_relnotes_xc4_ibm/description
- #iwa_relnotes_xc4_ibm/announce
- #iwa_relnotes_xc4_ibm/system
- #iwa_relnotes_xc4_ibm/install
- #iwa_relnotes_xc4_ibm/rinfo

Description

Informix Warehouse Accelerator is an Informix product that delivers faster analytic query responses transparently to all Informix users. Informix Warehouse Accelerator integrates into an Informix environment, providing high-performance query software that is based on advanced data in-memory technology.

For a complete list of what's new in this release, go to http://www.ibm.com/support/knowledgecenter/SSGU8G/welcomeIfxServers.html.

Information about the fixed defects for IBM Informix 14.10.xC6 is available at: https://www.ibm.com/support/pages/node/6245770.

Announcement

The product announcement letters are available at http://www.ibm.com/common/ssi/index.wss.. Search for Informix® 14.10 and select Announcement letters. See the announcement for the following information:

- Detailed product description
- Product-positioning statement
- Packaging and ordering details
- International compatibility information

System requirements

IBM® Informix Warehouse Accelerator runs on Linux Intel x86_64(EM64T/AMD64) and IBM POWER (Little Endian) systems. The Informix database server can be collocated on those systems, or it can run on one of a number of UNIX operating systems.

Important:

- Both the Informix and Informix Warehouse Accelerator versions must be at the same release and fix pack level. For example: Informix 14.10.FC6 and Informix Warehouse Accelerator 14.10.FC6.
- Informix Warehouse Accelerator keeps compressed data in memory. The computer where Informix Warehouse Accelerator is installed must be configured with enough memory to accommodate the size

of the data marts. For information, see [Configuring memory for Informix Warehouse Accelerator](#) in the HCL Informix documentation:

The computer on which you install Informix Warehouse Accelerator must have a CPU with the Streaming SIMD Extensions 3 (SSE3) instruction set. To verify what is installed on the computer, you can run the **cat /proc/cpuinfo** command and look at the flags that are returned.

Informix Warehouse Accelerator can accelerate queries for an Informix database server that runs on one of the following operating systems:

- AIX® 64-bit
- Linux x86_64 64-bit
- Linux x86_64 64-bit
- Linux PPC64LE 64-bit
- Solaris SPARC 64-bit

Operating system requirements

Minimum supported Linux versions

RHEL = Red Hat Enterprise Linux

SLES = SUSE Linux Enterprise Server

Operating System version	Platform: Linux (Intel) Hardware: Intel® x86_64(EM64T/AMD64)	Platform: Linux (IBM POWER Little Endian) Hardware: IBM POWER8® for ppc64le
RHEL 7	- Minimum update 4 - Base kernel version 3.10.0 - Glibc version 2.17 - Xerces-C version 3.1.1 - Zlib version 1.2.7	- Minimum update 4 - Base kernel version 3.10.0 - Glibc version 2.17 - Xerces-C version 3.1.1 - Zlib version 1.2.7
RHEL 8	- Minimum update 0 - Base kernel version 4.18.0 - Glibc version 2.28 - Xerces-C version 3.1.1 - Zlib version 1.2.11	
SLES 15	- Base kernel version 4.12.14 - Glibc version 2.26 - Kerberos5 version 1.15.2 - cURL4 version 7.60.0 - ICU version 60.2 - OpenSSL version 1.1.0 - Xerces-C version 3.1.4 - Zlib version 1.2.11	

Cluster configurations

Following are the additional hardware requirements if you install the Informix Warehouse Accelerator on a cluster system:

- The number of CPUs and the amount of memory must be the same on each cluster node.
- You must have at least two cluster nodes. The maximum number of cluster nodes is 256.

Installing IBM Informix Warehouse Accelerator 14.10.xC6

For step-by-step installation instructions, see "Installation" topic in Informix Warehouse Accelerator information center: https://www.ibm.com/support/knowledgecenter/SSGU8G_14.1.0/com.ibm.acc.doc/acc.htm.

Related information

- IBM Support Portal: http://www.ibm.com/support/entry/portal/
- IBM Publications for Informix Warehouse Accelerator: http://www.ibm.com/e-business/linkweb/publications/servlet/pbi.wss

Release notes for IBM Informix Warehouse Accelerator, 14.10.xC5

These are the release, documentation, and machine notes for IBM® Informix® Warehouse Accelerator version 14.10.xC5.

- Release notes for IBM Informix Warehouse Accelerator, 14.10.xC5

Release notes for IBM Informix Warehouse Accelerator, 14.10.xC5

Contents

The Release notes provide a list of useful topics and links for when you install an IBM® Informix® database product or fix pack.

- Description
- Announcement
- System requirements
- Installing IBM Informix Warehouse Accelerator 14.10.xC5
- Related information

Description

The Informix Warehouse Accelerator is an Informix product that delivers faster analytic query responses transparently to all Informix users. Informix Warehouse Accelerator integrates into an Informix environment, providing high-performance query software that is based on advanced data in-memory technology.

For a complete list of what's new in this release, go to http://www.ibm.com/support/knowledgecenter/SSGU8G/welcomeIfxServers.html.

Information about the fixed defects for IBM Informix 14.10.xC5 is available at: http://www.ibm.com/support/docview.wss?uid=ibm10870226.

Announcement

The product announcement letters are available at http://www.ibm.com/common/ssi/index.wss.. Search for Informix® 14.10 and select Announcement letters. See the announcement for the following information:

- Detailed product description
- Product-positioning statement
- Packaging and ordering details
- International compatibility information

System requirements

Hardware requirements

IBM® Informix Warehouse Accelerator runs on Linux Intel x86_64(EM64T/AMD64) and IBM POWER (Little Endian) systems. The Informix database server can be collocated on those systems, or it can run on one of a number of UNIX operating systems.

Important:

- Both the Informix and Informix Warehouse Accelerator versions must be at the same release and fix pack level. For example: Informix 14.10.FC5 and Informix Warehouse Accelerator 14.10.FC5.
- Informix Warehouse Accelerator keeps compressed data in memory. The computer where Informix Warehouse Accelerator is installed must be configured with enough memory to accommodate the size of the data marts. For information, see Configuring memory for Informix Warehouse Accelerator in the HCL Informix documentation:

The computer on which you install Informix Warehouse Accelerator must have a CPU with the Streaming SIMD Extensions 3 (SSE3) instruction set. To verify what is installed on the computer, you can run the **cat /proc/cpuinfo** command and look at the flags that are returned.

Informix Warehouse Accelerator can accelerate queries for an Informix database server that runs on one of the following operating systems:

- AIX® 64-bit
- Linux x86_64 64-bit
- Linux x86_64 64-bit
- Linux PPC64LE 64-bit
- Solaris SPARC 64-bit

Operating system requirements

Minimum supported Linux versions

RHEL = Red Hat Enterprise Linux

SLES = SUSE Linux Enterprise Server

Operating System version	Platform: Linux (Intel) Hardware: Intel® x86_64(EM64T/AMD64)	Platform: Linux (IBM POWER Little Endian) Hardware: IBM POWER8® for ppc64le
RHEL 7	- Minimum update 4 - Base kernel version 3.10.0 - Glibc version 2.17 - Xerces-C version 3.1.1 - Zlib version 1.2.7	- Minimum update 4 - Base kernel version 3.10.0 - Glibc version 2.17 - Xerces-C version 3.1.1 - Zlib version 1.2.7
RHEL 8	- Minimum update 0 - Base kernel version 4.18.0 - Glibc version 2.28 - Xerces-C version 3.1.1 - Zlib version 1.2.11	
SLES 15	- Base kernel version 4.12.14 - Glibc version 2.26 - Kerberos5 version 1.15.2 - cURL4 version 7.60.0 - ICU version 60.2 - OpenSSL version 1.1.0 - Xerces-C version 3.1.4 - Zlib version 1.2.11	

Cluster configurations

Following are the additional hardware requirements if you install the Informix Warehouse Accelerator on a cluster system:

- The number of CPUs and the amount of memory must be the same on each cluster node.
- You must have at least two cluster nodes. The maximum number of cluster nodes is 256.

Installing IBM Informix Warehouse Accelerator 14.10.xC5

For step-by-step installation instructions, see "Installation" topic in Informix Warehouse Accelerator information center:
https://www.ibm.com/support/knowledgecenter/SSGU8G_14.1.0/com.ibm.acc.doc/acc.htm.

Related information

- IBM Support Portal: http://www.ibm.com/support/entry/portal/

- IBM Publications for Informix Warehouse Accelerator: http://www.ibm.com/e-business/linkweb/publications/servlet/pbi.wss

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Release notes for IBM Informix Warehouse Accelerator, 14.10.xC4

These are the release, documentation, and machine notes for IBM® Informix® Warehouse Accelerator version 14.10.xC4.

- [Release notes for IBM Informix Warehouse Accelerator, 14.10.xC4W1](#)

Release notes for IBM Informix Warehouse Accelerator, 14.10.xC4W1

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Description

The Informix Warehouse Accelerator is an Informix product that delivers faster analytic query responses transparently to all Informix users. Informix Warehouse Accelerator integrates into an Informix environment, providing high-performance query software that is based on advanced data in-memory technology.

For a complete list of what's new in this release, go to http://www.ibm.com/support/knowledgecenter/SSGU8G/welcomeIfxServers.html.

Information about the fixed defects for IBM Informix 14.10.xC4 is available at: http://www.ibm.com/support/docview.wss?uid=ibm10870226.

Announcement

The product announcement letters are available at http://www.ibm.com/common/ssi/index.wss.. Search for Informix® 14.10 and select Announcement letters. See the announcement for the following information:

- Detailed product description

- Product-positioning statement
- Packaging and ordering details
- International compatibility information

System requirements

Hardware requirements

IBM® Informix Warehouse Accelerator runs on Linux Intel x86_64(EM64T/AMD64) and IBM POWER (Little Endian) systems. The Informix database server can be collocated on those systems, or it can run on one of a number of UNIX operating systems.

Note:

- Both the Informix and Informix Warehouse Accelerator versions must be at the same release and fix pack level. For example: Informix 14.10.FC2 and Informix Warehouse Accelerator 14.10.FC2.
- Informix Warehouse Accelerator keeps compressed data in memory. The computer where Informix Warehouse Accelerator is installed must be configured with enough memory to accommodate the size of the data marts. For information, see [Configuring memory for Informix Warehouse Accelerator](#) in the HCL Informix documentation:

The computer on which you install Informix Warehouse Accelerator must have a CPU with the Streaming SIMD Extensions 3 (SSE3) instruction set. To verify what is installed on the computer, you can run the **cat /proc/cpuinfo** command and look at the flags that are returned.

Informix Warehouse Accelerator can accelerate queries for an Informix database server that runs on one of the following operating systems:

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- Linux x86_64 64-bit
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- Solaris SPARC 64-bit

Operating system requirements

Minimum supported Linux versions

RHEL = Red Hat Enterprise Linux

SLES = SUSE Linux Enterprise Server

Operating System version	Platform: Linux (Intel) Hardware: Intel® x86_64(EM64T/AMD64)	Platform: Linux (IBM POWER Little Endian) Hardware: IBM POWER8® for ppc64le
RHEL 7	Minimum update 4 Base kernel version 3.10.0 Glibc version 2.17 Xerces-C version 3.1.1 Zlib version 1.2.7	Minimum update 4 Base kernel version 3.10.0 Glibc version 2.17 Xerces-C version 3.1.1 Zlib version 1.2.7
RHEL 8	Minimum update 0 Base kernel version 4.18.0 Glibc version 2.28 Xerces-C version 3.1.1 Zlib version 1.2.11	

Operating System version	Platform: Linux (Intel) Hardware: Intel® x86_64(EM64T/AMD64)	Platform: Linux (IBM POWER Little Endian) Hardware: IBM POWER8® for ppc64le
SLES 15	- Base kernel version 4.12.14 - Glibc version 2.26 - Kerberos5 version 1.15.2 - cURL4 version 7.60.0 - ICU version 60.2 - OpenSSL version 1.1.0 - Xerces-C version 3.1.4 - Zlib version 1.2.11	

Cluster configurations

Following are the additional hardware requirements if you install the Informix Warehouse Accelerator on a cluster system:

- The number of CPUs and the amount of memory must be the same on each cluster node.
- You must have at least two cluster nodes. The maximum number of cluster nodes is 256.

Installing IBM Informix Warehouse Accelerator 14.10.xC4W1

For step-by-step installation instructions, see "Installation" topic in Informix Warehouse Accelerator information center:
https://www.ibm.com/support/knowledgecenter/SSGU8G_14.1.0/com.ibm.acc.doc/acc.htm.

Related information

- IBM Support Portal: http://www.ibm.com/support/entry/portal/
- IBM Publications for Informix Warehouse Accelerator: http://www.ibm.com/e-business/linkweb/publications/servlet/pbi.wss