

HCL Informix 14.10 - InformixHQ





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Chapter 1. InformixHQ Guide

InformixHQ is a modern web console for visualizing, monitoring, and managing your Informix server instances. It is purpose built for ease-of-use, scaling out, and optimizing DevOps needs. It 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. Its monitoring system feeds directly into a customizable alerting system so you can be immediately alerted via email, Twilio, or PagerDuty whenever an issue occurs on one of your Informix database server instances. InformixHQ is designed to be scalable to efficiently manage and monitor as many Informix database server instances as you need. Moreover, it's a tool that can be shared by the DBAs, the app developers, the ops engineers, and management and accessed from any desktop, laptop, or mobile device. InformixHQ is the centralized hub for graphical monitoring, alerting, and administration of your Informix database servers.

What's new in InformixHQ

This topic includes information about new features in InformixHQ.

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What's new in InformixHQ 14.10.xC8

Administration

InformixHQ H2 Database migration: InformixHQ 2.0.0 (Informix Server 14.10.xC8) has upgraded its H2 Database version due to certain security vulnerabilities present in the older versions of H2 Database. Between H2 Database version 1.4.192 and the latest version 2.1.210, there have been considerable changes and direct upgrade of H2 Database is not possible. For existing users, H2 Database (InformixHQ 1.6.3 or lower) is created with version 1.4.192, hence data needs to be migrated to 2.1.210 manually.

If users using InformixHQ 1.6.3 or lower try to move to InformixHQ 2.0.0 or above they will get an error and they will not be able to start InformixHQ until the data is migrated to the newer version of H2 Database.

For new users who are using InformixHQ for the first time (version 2.0.0 or higher), no upgrade is needed as InformixHQ will create new H2db with the latest version.

For more information, see H2 Database on page , H2 Database

, H2 Database Migration on page



Note: InformixHQ version 2.1.0 is available with the latest H2 database version 2.1.214. It is recommended to use the latest InformixHQ version.

Ease of use

• View Agents drop-down and Shutdown button: View Agents feature in InformixHQ helps users to see consolidated view of all the agents. It displays the list of all the Agents' information and their status at one place, depending on user privilege to specific instance/server added in InformixHQ. A user can now shutdown an Agent based on user privileges using the new Shutdown button added to Informix HQ UI.

For more information, see InformixHQ View Agents and Shutdown on page

• Server Shutdown : Using the new Shutdown button is an easy way to shut down the InformixHQ server directly from the InformixHQ UI instead of command prompt.

For more information, see InformixHQ Server Shutdown on page

What's new in InformixHQ 14.10.xC7

Administration

 InformixHQ has been enhanced with HDR Secondary Operations through which InformixHQ allows or restricts certain actions on specific server types. HDR cluster consists of Primary and Secondaries. InformixHQ treats every server added as an individual server. Depending upon server type in cluster, Informix Server allows or restricts certain actions on specific server types. From 14.10.xC7 release, InformixHQ has handled all such operations on secondary servers in the cluster.

For more information, see HDR Secondary Operations on page

• Documentation updates for starting the InformixHQ server with server.log4j.xml.

For more information, see Starting the InformixHQ Server on page

• Documentation updates to include InformixHQ setup in secure mode (SSL).

For more information, see InformixHQ in secure mode on page

• Documentation updates for logging in InformixHQ.

For more information, see Logging in InformixHQ on page

Customization

• Documentation updates to include **Custom Reports** sub-menu provided under **InformixHQ UI**. InformixHQ provides many built-in reports to monitor Informix server effectively. To provide further flexibility, there is an option of creating customized reports to meet specific needs of users.

For more information, see Custom Reports on page

Ease of use

• The **Schema Manager** has been enhanced with **SQL Editor** to enable user to write custom SQL and display query tree plan in the graphical format. To view execution plan, SQL tracing should be enabled on Informix Server. If it is disabled, SQL editor provides an option for easiness to enable it.

For more information, see SQL Editor on page

• Documentation updates to include **Sensors** sub-menu provided under **InformixHQ UI**. Sensors are provided in InformixHQ to collect the data for metric which users want to monitor over a period. Once Sensor is configured, and InformixHQ agent is configured and Online, Sensor data will be collected at specified interval and stored in Repository database in Informix Server.

For more information, see Sensors on page

What's new in InformixHQ 14.10.xC6

Administration

The Schema Manager page has been enhanced to:
 • Create and Drop Table with advanced options

For more information, see Schema Manager on page

• The InformixHQ server and agent now use the log4j2 library for logging. By default, the InformixHQ server and agent will log messages at INFO level to an informixhq-server.log file and an informixhq-agent.log file respectively. You can customize the logging behavior by providing a server.log4j.xml when starting the InformixHQ server or an agent.log4j.xml file when starting the InformixHQ agent in the current directory or classpath. Use these log4j2 configuration files to change the logging level (ERROR, WARN, INFO, or DEBUG), change the log file location, or enable rolling window logging.

For more information, see #unique_15.

Ease of use

• Provision is made for the user to specify connection properties for InformixHQ agent separately.

For more information, see InformixHQ Agent Setup on page

What's new in InformixHQ 14.10.xC5

Administration

• Enhanced to support stronger hash algorithm for passwords by adding a new config property **user.password.algorithm**.

For more information, see InformixHQ Server Configuration on page

Customization

· Customized to save dashboard preferences in Custom Dashboard page

For more information, see Custom Dashboards on page

Ease of use

• Script to start or stop the server has been enhanced to support AIX platform.

For more information, see Getting Started on page

What's new in InformixHQ 14.10.xC4

Administration

- 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
 - $\circ\,$ Create, Enable, Disable and Drop Index with advanced options

For more information, see Schema Manager on page

• The Connection Manager page allows you to visualize and manage CM unit, SLA and FOC for any CM.

For more information, see *Connection Manager* on page

Ease of use

• New script has been added to start or stop the server which is available in \${INFORMIXDIR}/HQ directory.

For more information, see *Getting Started* on page

What's new in InformixHQ 14.10.xC2

Administration

- The **Schema Manager** page allows you to browse and view detailed information about the various tables and indexes in each of your databases.
- The **Storage > Tables and Indexes** page allows you to analyze the storage characteristics of the tables and indexes in each of your databases, perform storage optimization actions such as compress, shrink, repack, defragment, and manage your automatic storage optimization policies.
- 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 **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.
- The **Privileges** page allows you to manage privileges on your database server, including database level privileges, table level privileges, SQL Admin API privileges, and internal users.

- The **System Reports** page provides a full set of detailed reports on various aspects of your database server's performance.
- The Task Scheduler pages allows you to manage and customize tasks for your database server.
- 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 Backups page has been enhanced to display a history timeline of your most recent database server backups.

Ease of use

- Centralized user permission management, on the redesigned System Settings > User Management page, allows you to view and manage user's permissions within InformixHQ in a single place.
- The group incidents page allows you to view all the alerting incidents that occurs on an entire group of Informix servers from one centralized page.
- The **new logging framework** allows not only for a better out of the box logging experience, but also provides enhanced options for logging customization.

For more information, see *Logging in InformixHQ* on page

Customization

• Build **custom dashboards** for a single database server or for multiple database servers, configuring what monitoring data is displayed on the dashboard and how that data is arranged and visualized. Custom dashboards allow you to define UI pages that show you the Informix monitoring data that is most important to you.

For more information, see *Custom Dashboards* on page

• Create your own **custom SQL sensors** for monitoring your Informix instances. Any sysmaster SQL query can now be turned into a sensor that will integrate directly into InformixHQ's monitoring and alerting systems.

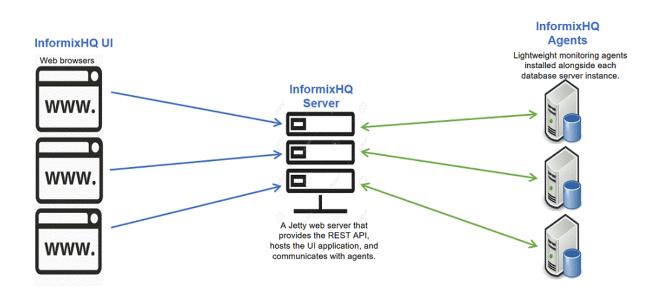
For more information, see Custom SQL Sensors on page

• A new **extensible alerting** option allows you to define a custom script to be executed whenever an alerting incident occurs.

For more information, see *Alerting incident* on page

Architecture

InformixHQ consists of three distinct pieces that come together to give you a comprehensive monitoring and administering experience for Informix.



InformixHQ Server

- Java 8 based Jetty web server
- · Monitors and administers many Informix database servers
- · Connects directly to Informix databases servers to
 - · Gather live data from the system
 - Perform administration
- · Connects to the InformixHQ agents regarding
 - Monitored data
 - · Alerts/events

InformixHQ Agent

- · Lightweight Java 8 based monitoring agent
- · Installed alongside each of your Informix database instances
- Only needs read access to database server
- · Can perform native command execution to gather OS statistics as well as database statistics

InformixHQ User Interface (UI)

Modernized web UI for monitoring, managing, visualizing, and assessing your Informix database servers

System Compatibility

Before you install InformixHQ, make sure that your computer meets the system requirements.

InformixHQ Prerequisites

The following table lists the software prerequisites for InformixHQ.

Software	Required Version
Informix Database Server	12.10 or higher
Java	1.8



In Debian environment, InformixHQ requires "haveged" service to be up and running. To start the service, follow these steps:

- sudo apt-get install haveged
- update-rc.d haveged defaults
- service haveged start

Java flavor

Requires Java version 1.8 (Java 8). InformixHQ supports all the flavors of Java version 1.8 on all platforms.

The following table lists the Java flavors and versions that InformixHQ has been tested with:

Java flavors	Tested on version	Tested on platform
IBM Java	1.8.0_331, 1.8.0_351(Windows)	AIX, Linux, Windows
Oracle Java	1.8.0_202	Linux, Windows
Open JDK	1.8.0_352	Linux, Windows

Secured connection

1. With Informix server

When connecting to Informix server having SSL connection in InformixHQ, following keystore formats are compatible:

Keystore type	Extensions
Java KeyStore	.keystore, .jks
PKCS KeyStore	.p12

Note: GSKit version 8.0.55.17 available with Informix server bundle is used for creating p12 keystore.

The recommended keystore is p12 created using GSKit.

SSLCONNECTION	true	×
SSL_TRUSTSTORE	/opt/IBM/Informix_Software_Bundle/ssl/ol_informix_on.p12	×
SSL_TRUSTSTORE_PASSWORD		×
+ Add Connection Property		
Test Connection		
Test connection		
Surrent Server Status: Online		

2. Within InformixHQ

Keystores supported for HTTPS connection:

Case 1: Browser with InformixHQ Server.

Case 2: InformixHQ Server and Agent.

Keystore type	Extensions
Java KeyStore	.jks

Supported Web Browsers

InformixHQ supports all the latest browsers. The following table lists the web browsers that InformixHQ has been tested with:

Web Browser	Version
Google Chrome	110
Mozilla Firefox	110
Microsoft Edge	110

Getting Started

This topic provides a brief tutorial to help you get started with InformixHQ.

Prerequisites

The following table lists the software prerequisites for InformixHQ.

Software	Required Version
Informix Database Server	12.10 or higher

Software	Required Version
Java	1.8

Starting InformixHQ

InformixHQ Server or Agent can be started using any of following methods:

- Java Command
- Script

Using Java Command

For more information about using Java Command, see Starting the InformixHQ Server on page 13 and Starting the InformixHQ Agent on page 14.

Using the Script:

The script to start the server or agent is in the form of *InformixHQ.bat* (Windows), *InformixHQ.sh* (Bash Shell for Linux) and *InformixHQ.ksh* (Korn shell for AIX) file on various operating system as per the requirement of the user.

Note: This script is indicative and users are free to modify/tune the scripts as per their requirements/environments.

Script Prerequisites

- Server and Agent jar file names should end with .jar and also must contain keyword "informixhq" in its name
- If using default filename option with scripts, jar and properties files with default names should be present in same folder as that of script
- User running the script must have read and write access to informixhq-server.log and informixhq-agent.log files
- If log files don't exist in the same folder from where HQ jar is running, HQ will create these files, so user running the script should have permissions to be able to create these files.
- Environment variable JAVA_HOME should be set correctly to JAVA 1.8 and should be included in PATH variable.

This script support BASH shell on linux (.sh), KORN shell on AIX (.ksh) and command prompt on windows (.bat). This command starts/stops InformixHQ Server and Agent.

Syntax:

```
InformixHQ [startserver|startagent] [encoding=<value>] [jvmmemx=<value>] [jarfile=<value>] [propfile=<value>]
InformixHQ [stop <processid>]
InformixHQ [stopagent] [<properties filename search string>]
InformixHQ [list] [<filename search string>]
startserver : Starts InformixHQ Server service
startagent : Starts InformixHQ Server/Agent with specified processid
stopserver : Stops InformiHQ Server process
stopagent : Stops InformixQ Agent process (default all processes or filtered list if
matching filename search string found)
```

list	: Lists InformixHQ running processes (default all processes, filtered list if
matching filename search st	ring found)
encoding (Optional)	: Default value is utf-8
jvmmemx (Optional)	: JVM's default value will be used, if not specified
jarfile (Optional)	: Default is informixhq-server.jar for startServer option and informixhq-agent.jar
for startAgent option	
	For user provided filename, it must contain keyword 'informixhq' and it should
end with .jar"	
propfile (Optional)	: Default is informixhq-server.properties for startServer option and
informixhq-agent.properties	s for startAgent option
	User can provide any custom name to properties file

For more information about using the script, see Starting the InformixHQ Server and the Agent on Windows on page 16 and Starting the InformixHQ Server and the Agent on Linux/AIX on page 20.

Starting the InformixHQ Server

This topic provides a brief tutorial to help you get started with InformixHQ Server.

- 1. Locate the *informixhq-server.jar* and the *server.log4j.xml* file in the *\$INFORMIXDIR/hq* directory of your Informix database server installation.
- 2. Create an InformixHQ server configuration on page 39 file. You can refer to the \$INFORMIXDIR/

hq/informixhq-server-example.properties file as an example.

The InformixHQ server configuration file must contain an initialAdminPassword . All other configuration properties are optional.

Sample configuration file

```
# required initial password for the admin user
initialAdminPassword=myPassword123
# optionally, uncomment these properties to have InformixHQ encrypt its internal H2
database
#h2.encrypt.enable=true
#h2.encrypt.password=password
```

Note: The **initialAdminPassword** property is only required the very first time you start the InformixHQ server, when it performs its start-up initialization and creates the first user named **admin**. Afterwards, you can remove the **initialAdminPassword** property from the **informixhq-server.properties** file.



Note: Password must be at least 8 characters and must contain at least one lowercase character, one uppercase character, and one number.

3. Optionally, edit the server.log4j.xml file to configure logging in the InformixHQ.

Note: By default InformixHQ runs on 8080 port. For more information, see InformixHQ Server Configuration on page

4. Start the InformixHQ server using the following command:

java -jar informixhq-server.jar informixhq-server.properties &

where informixhq-server.properties is the name of the InformixHQ server configuration file.



Note: Staring from 14.10.xC4 onwards, you can start the server using an alternate method. For more information on this, see Starting the InformixHQ Server and the Agent on Windows on page and Starting the InformixHQ Server and the Agent on Linux on page .

Sample output after starting the InformixHQ server with server.log4j.xml:

Informix:~/HQ\$ java -jar informixhq-server.jar informixhq-server.properties & [2] 377019 Informix:~/HQ\$

Sample output after starting the InformixHQ server without server.log4j.xml:

Informix:-/HQ\$ java -jar informixhq-server.jar informixhq-server.properties & [1] 376883 Informix:-/HQ\$ 2021-10-19 14:44:16,176 main INFO Log4j appears to be running in a Servlet environment, but there's no log4j-web module av ailable. If you want better web container support, please add the log4j-web JAR to your web archive or server lib directory. 2021-10-19 14:44:16,189 main INFO Log4j appears to be running in a Servlet environment, but there's no log4j-web module av want better web container support, please add the log4j-web JAR to your web archive or server lib directory. Informix:-/HQ\$

When the InformixHQ server is started for the first time, a user with system administrator privileges for InformixHQ is created with the username **admin** and the password as specified in the **initialAdminPassword** property from your configuration file.

- 5. Using a web browser, go to the InformixHQ UI at http://localhost:8080/ and login with the user admin and the password specified in your configuration file.
- 6. Once logged in, click Add Server to add an Informix server that you want to monitor.

Starting the InformixHQ Agent

This topic covers the two ways of starting the InformixHQ Agent.

To get the most out of InformixHQ, you should have an InformixHQ agent running for each Informix database server that you will be monitoring through the tool. While the InformixHQ agent is not required to view information about your database server in the InformixHQ UI, the agent is required if you want to gather monitoring data and configure alerts for that server.

There are two options for starting the InformixHQ agent. You can use the InformixHQ UI to automatically deploy and start the InformixHQ agent or you can manually start the InformixHQ agent on the command line.

Deploying and starting the InformixHQ agent automatically from the UI:

Before you deploy and start the InformixHQ agent automatically from the UI, you must meet the following prerequisites:

Prerequisites

- 1. SSH must be installed on the database server's host machine.
- 2. The *informixhq-agent.jar* file and the *informixhq-server.jar* file must be located in the same directory. For customized logging, the *agent.log4j.xml* file must also be included in the same directory.

To deploy and start the InformixHQ agent automatically from the UI:

- 1. The Informix database server that the agent will be monitoring must first be defined in InformixHQ. If the database server has not been defined yet, in the UI, navigate to an InformixHQ group, click **Add Server** and define the server's connection properties.
- Navigate to the Informix database server's Setup > Agent page and define a repository server and database. The repository database is where the monitored data will be stored.
- 3. From the server's **Setup > Agent** page, you can also try to deploy the agent with default configuration by clicking the **Deploy Agent** button. If the automatic deployment is successful, you are done. Otherwise, proceed to the next step.
- 4. Configure agent deployment:
 - ${\scriptstyle \circ}$ Username: remote user which will own and run the agent
 - Password or Identity File/Passphrase: remote user's passphrase or remote user's identity file (e.g. private key) and its optional passphrase.
 - Remote directory: Directory to deploy the agent files to. This directory will be created if it does not exist.
- 5. If SSL is enabled, keystore configuration may be required as well. If keystore configuration is not provided,
 - InformixHQ will try to generate and deploy a keystore for you.
 - Keystore file: Location of an existing keystore on the remote machine (can be relative to the remote directory)
 - $\circ\,$ Keystore password: Password used to access the existing keystore
 - Keystore type: Existing keystore's type. Default is JKS
- 6. Click Deploy Agent
- 7. Once the agent is ready, use the InformixHQ UI in your web browser to configure the monitoring profile and alerts for this server.

Starting an InformixHQ agent manually on the command line:

- The Informix database server that the agent will be monitoring must first be defined in InformixHQ. If the database server has not been defined yet, in the UI, navigate to an InformixHQ group, click Add Server and define the server's connection properties.
- 2. Navigate to the Informix database server's **Setup > Agent** page and define a repository server and database. The repository database is where the monitored data will be stored
- 3. Locate the *informixhq-agent.jar* and the *agent.log4j.xml* file in the \$INFORMIXDIR/hq directory of the InformixHQ database server installation.

Note: Staring from 14.10.xC4 onwards, you can start the agent using an alternate method. For more information on this, see and Starting the InformixHQ Server and the Agent on Windows on page and Starting the InformixHQ Server and the Agent on Linux on page .

- 4. Copy the agent jar file and the log4j2 configuration file to the Informix database server host machine.
- 5. Create an agent configuration file.

Sample agent configuration file:



Note: You can find the id of your Informix database server by navigating to the server's Setup page in the UI.

- 6. Optionally, edit the *agent.log4j.xml* file to configure logging in the InformixHQ. If agent.log4j.xml is not provided, default logging configuration is set and it gives warning as shown below.
- 7. Start the InformixHQ agent using the following command

java -jar informixhq-agent.jar agent.properties

where agent.properties is the name of your InformixHQ agent configuration file.

Sample output after starting the agent with agent.log4j.xml:



Sample output after starting the agent without providing agent.log4j.xml:



8. At this point the agent is ready and running. Use the InformixHQ UI in your web browser to configure the monitoring profile and alerts for this server.

Starting the InformixHQ Server and the Agent on Windows

This topic provides a brief tutorial about the script used to get started with InformixHQ Server and Agent on Windows.

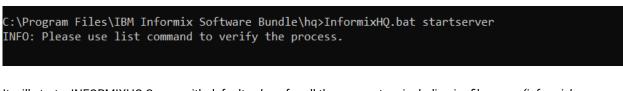
- 1. Locate your *informixHQ.bat* for Windows (default path is %INFORMIXDIR%/hq).
- 2. Use command InformixHQ help to see sample syntax: e.g- InformixHQ.bat help.



Figure 1. InformixHQ help

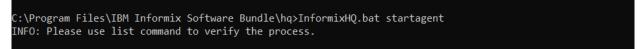
Command: InformixHQ	mix Software Bundle\hq>InformixHQ.bat InformixHQ Server and Agent.
InformixHQ [stop <proc InformixHQ [stopserver InformixHQ [stopagent]</proc 	
<pre>startserver startagent stop stopserver stopagent list encoding (Optional) jvmmemx (Optional) jarfile (Optional) propfile (Optional)</pre>	: Starts InformixHQ Server service : Starts InformixHQ Server/Agent with specified processid : Stops InformixHQ Server process : Stops InformiMQ Server process : Stops InformiMQ Agent process (default all processes or filtered list if matching filename search string found) : Lists InformiMUQ running processes (default all processes, filtered list if matching filename search string found) : Lists InformiMUQ running processes (default all processes, filtered list if matching filename search string found) : Lists InformiMUQ running processes (default all processes, filtered list if matching filename search string found) : Default value is utf-8 : JWM's default value will be used, if not specified : Default is informixhq-server.jar for startServer option and informixhq-agent.jar for startAgent option For user provided filename, it must contain keyword 'informixhq' and it should end with .jar" : Default is informixhq-server.properties for startServer option and informixhq-agent.properties for startAgent option User can provide any custom name to properties file

3. Use command to start InformixHQ server with default file names. e.g- InformixHQ.bat startserver .



It will start a INFORMIXHQ Server with default values for all the parameters including jar file name (*informixhq-server.jar*) and properties filename (*informixhq-server.properties*)

4. Use command to start InformixHQ agent with default filenames. e.g- InformixHQ.bat startagent.



It will start a INFORMIXHQ Agent with default values for all the parameters including jar file name (*informixhq-agent.jar*) and properties filename (*informixhq-agent.properties*).

- 5. List the Java processes running. It will list all the InformixHQ processes running with ProcessID e.g. InformixHQ.bat
 - list .

```
C:\Program Files\IBM Informix Software Bundle\hq>InformixHQ.bat list

CommandLine ProcessId

java -Dfile.encoding=utf-8 -jar informixhq-server.jar informixhq-server.prod.properties 153308

java -Dfile.encoding=utf-8 -jar informixhq-server.jar informixhq-server.properties 142952

java -Dfile.encoding=utf-8 -jar informixhq-agent.jar informixhq-agent-prod.properties 84388

java -Dfile.encoding=utf-8 -jar informixhq-agent.jar informixhq-agent.properties 150032

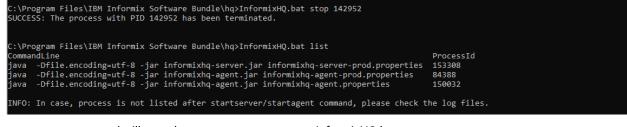
INFO: In case, process is not listed after startserver/startagent command, please check the log files.
```

6. Additionally user can filter the list by passing search keyword to the list command. e.g. - InformixHQ.bat list prod .

Note: It is recommended that properties file name should be unique which will help users to search specific processes.

C:\Program Files\IBM Informix Software Bundle\hq>InformixHQ.bat list prod ProcessId java -Dfile.encoding=utf-8 -jar informixhq-server.jar informixhq-server-prod.properties 153308 java -Dfile.encoding=utf-8 -jar informixhq-agent.jar informixhq-agent-prod.properties 84388 INFO: In case, process is not listed after startserver/startagent command, please check the log files.

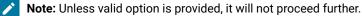
7. Stop the InformixHQ server or agent by providing processID to stop command. It will stop InformixHQ process with provided processID. e.g. –InformixHQ.bat stop 142952.



8. stopserver command will stop the server processes. e.g. - InformixHQ.bat stopserver .

C:\Program Files\IBM Informix Software Bundle\hq>InformixHQ.bat stopserver	
INFO: This command has found 1 server process. CommandLine java -Dfile.encoding=utf-8 -jar informixhq-server.jar informixhq-server-prod.properties	ProcessId 156572
Please Press: 0: exit 1: terminate Please enter one of the above options [1/0]:1 SUCCESS: The process with PID 156572 has been terminated.	

- 0. exit: It will exit from the command.
- 1. Terminate: It will terminate server process.



9. stopagent command will stop the agent processes. e.g. - InformixHQ.bat stopagent .

C:\Program Files\IBM Informix Software Bundle\hq>InformixHQ.bat stopagent	
INFO: This command has found 2 agent processes. CommandLine java -Dfile.encoding=utf-8 -jar informixhq-agent.jar informixhq-agent.properties java -Dfile.encoding=utf-8 -jar informixhq-agent.jar informixhq-agent-prod.properties	ProcessId 145904 125040
Please Press: 0: exit 1: terminate all 2: terminate one by one Please enter one of the above options [1/2/0]:	

- 0: exit It will exit from the command.
- 1: Terminate all It will terminate all the agent processes.

2: Terminate one by one - It will terminate agent processes one by one after user confirmation.

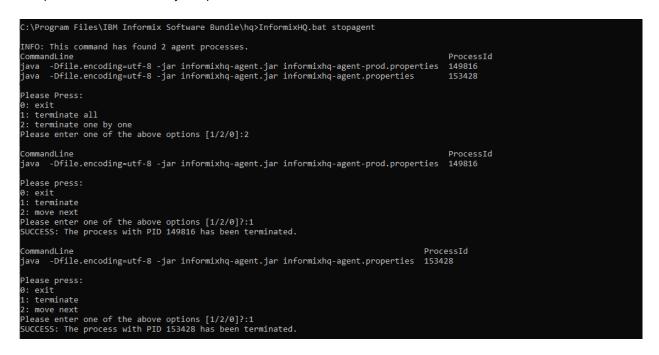


Note: Unless valid option is provided it will not proceed further.

Sample screenshot for 'terminate all processes' :



Sample screenshot for 'one-by-one process termination' :



Additionally, user can search specific agent process using stopagent command. e.g. - stopagent prod .



Example

Following are sample commands where user can provide custom values (similar commands will work with agent)

• optional jar and properties filename to start InformixHQ server:

InformixHQ.bat startserver jarfile=informixhq-myinstance1.jar propfile=hqserver.properties





• Use all input:

InformixHQ.bat startserver Encoding=utf-8 JVMMemx=1004m jarfile=informixhq-server.jar propfile=hqserver.properties C:\Program Files\IBM Informix Software Bundle\hq>InformixHQ.bat startserver Encoding=utf-8 JWMemx=1004m jarfile=informixhq-server.jar propfile=hqserver.properties INFO: Please use list command to verify the process. C:\Program Files\IBM Informix Software Bundle\hq>InformixHQ.bat list CommandLine ProcessId java -Xmx1004m -Dfile.encoding=utf-8 -jar informixhq-server.jar hqserver.properties 3668

FO: In case, process is not listed after startserver/startagent command, please check the log files.

Starting the InformixHQ Server and the Agent on Linux/AIX

This topic provides a brief tutorial about the script used to get started with InformixHQ Server and Agent on Linux/AIX.

1. Locate your informixHQ.sh for Linux and InformixHQ.ksh for AIX (default path is \${INFORMIXDIR}/hq).



Note: Following examples are shown on bash shell, however those will run exactly same on korn shell with .ksh script.

2. Use command InformixHQ help to see sample syntax: e.g- InformixHQ.sh help .



i **Tip:** User can only run InformixHQ.sh for help menu

Figure 2. InformixHQ help

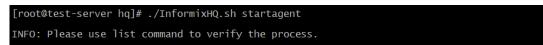
[root@test-server hq]# ./InformixHQ.sh		
Command: InformixHQ			
• • • • • • • • • • • • • • • • • • •	This command starts/stops InformixHQ Server and Agent.		
Ct.			
	Syntax: InformixHQ startserver startagent [encoding= <value>] [jvmmemx=<value>] [jarfile=<value>] [propfile=<value>]</value></value></value></value>		
	Informianty stor correctsides		
	InformixHQ stopserver		
	: [properties filename search string]		
InformixHQ list [fil	ename search string]		
startserver	: Starts InformixHQ Server service		
startagent	: Starts InformixHQ Agent service		
stop	: Stops InformixHQ Server/Agent service with processId		
stopserver	: Stops InformiHQ Server process		
stopagent	: Stops InformixQ Agent process (default all processes or filtered list if matching filename search string found)		
list	: Lists InformixHQ running processes (default all processes, filtered list if matching filename search string found)		
	: Default value is utf-8		
	: JVM's default value will be used If not specified		
jarfile (Optional)	: Default is informixhq-server.jar for startserver option and informixhq-agent.jar for startagent option. For user provided filename, it must contain keyword 'informixhq' and it should end with .jar		
propfile (Optional)	: Default is informixhq-server.properties for startserver option and informixhq-agent.properties for startagent option. User can provide any custom name to properties file		

3. Use command InformixHQ startserver to start InformixHQ server with default file names. e.g- ./InformixHQ.sh startserver .

```
[root@test-server hq]# ./InformixHQ.sh startserver
INFO: Please use list command to verify the process.
```

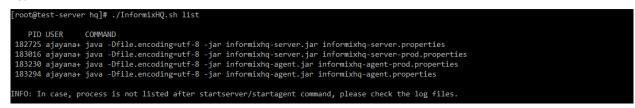
It will start INFORMIXHQ Server with default values for all the parameters including jar file name (*informixhq-server.jar*) and properties filename (*informixhq-server.properties*).

4. Use command InformixHQ startagent to start InformixHQ agent with default filenames. e.g- ./InformixHQ.sh startagent



It will start an INFORMIXHQ Agent with default values for all the parameters including jar file name (informixhq-agent.jar) and properties filename (informixhq-agent.properties).

5. List the Java processes running. It will list all the InformixHQ processes running with ProcessID e.g: ./InformixHQ.sh list.



6. Additionally user can filter the list by passing search keyword to the list command. e.g. - InformixHQ.bat list prod .

Note: It is recommended that properties file name should be unique which will help users to search specific processes.



7. Stop the InformixHQ server or agent by providing processID to stop command. It will stop InformixHQ process with

provided processID. e.g: ./InformixHQ.sh stop 183230 .
[root@test-server hq]# ./InformixHQ.sh stop 183230
SUCCESS: The process with PID 183230 has been terminated.
[root@test-server hq]# ./InformixHQ.sh list
PID USER COMMAND
182725 ajayana+ java -Dfile.encoding=utf-8 -jar informixhq-server.jar informixhq-server.properties
183016 ajayana+ java -Dfile.encoding=utf-8 -jar informixhq-server.jar informixhq-server.prod.properties
183294 ajayana+ java -Dfile.encoding=utf-8 -jar informixhq-agent.jar informixhq-agent.properties
INF0: In case, process is not listed after startserver/startagent command, please check the log files.

8. stopserver command will stop the server processes. e.g. - InformixHQ.bat stopserver .



- 0. exit: It will exit from the command.
- 1. Terminate: It will terminate server process.



Note: Unless valid option is provided, it will not proceed further.

9. stopagent command will stop the agent processes. e.g. - InformixHQ.bat stopagent .



0: exit - It will exit from the command.

- 1: Terminate all It will terminate all the agent processes.
- 2: Terminate one by one It will terminate agent processes one by one after user confirmation.

Note: Unless valid option is provided, it will not proceed further.

Sample screenshot for 'terminate all processes' :



Sample screenshot for 'one-by-one process termination' :



Additionally, user can search specific agent process using stopagent command. e.g. - stopagent prod .



Example

User can use different properties filenames (with appropriate informixServer.id for different servers) to run agents for different instances as follows

Following are sample commands where user can provide custom values (similar commands will work with agent)

• optional jar and properties filename to start InformixHQ server:

./InformixHQ.sh startserver jarfile=informixhq-myinstance1.jar propfile=hqserver.properties

```
[root@test-server hq]# ./InformixHQ.sh startserver jarfile=informixhq-myinstance1.jar propfile=hqserver.properties
INFO: Please use list command to verify the process.
[root@test-server hq]# ./InformixHQ.sh list
ProcessId Name Jar Properties
112911 java informixhq-myinstance1.jar hqserver.properties
INFO: In case, process is not listed after startserver/startagent command, please check the log files.
```

• Use encoding and JVM value:

./InformixHQ.sh startserver Encoding=utf-8 JVMMemx=1004m

```
[root@test-server hq]# ./InformixHQ.sh startserver encoding=utf-8 jvmmemx=1004m
INFO: Please use list command to verify the process.
```

• Use all input:

```
InformixHQ.bat startserver Encoding=utf-8 JVMMemx=1004m jarfile=informixhq-server.jar
propfile=hqserver.properties
```

[root@test-server hq]# ./InformixHQ.sh startserver encoding=utf-8 jvmmemx=1004m jarfile=informixhq-server.jar propfile=hqserver.properties INFO: Please use list command to verify the process.

```
[root@test-server hq]# ./InformixHQ.sh list
ProcessId Name Jar Properties
114005 java informixhq-server.jar hqserver.properties
INFO: In case, process is not listed after startserver/startagent command, please check the log files.
```

Exception Reporting

If options are not provided correctly then script will report error as follows

• If jarfile/propfile option is not specified

[root@test-server hq]# ./InformixHQ.sh startserver abc.jar ERROR: The syntax of the commmand is incorrect. Invalid Parameters : [abc.jar,]

INFO: Use command InformixHQ.sh help to see the help.

· filename is not specified with jarfile/propfile option

```
[root@test-server hq]# ./InformixHQ.sh startserver jarfile
ERROR: The syntax of the commmand is incorrect.
Invalid Parameters : [jarfile,]
INFO: Use command InformixHQ.sh help to see the help.
```

• incorrect filename provided

```
[root@test-server hq]# ./InformixHQ.sh startserver jarfile=abc.jar
ERROR: abc.jar doesn't exist.
```

• If specified or default files are not found also if custom filename is specified and file is not found in the folder, it will

inform accordingly

```
[root@test-server hq]# ./InformixHQ.sh startagent jarfile=informixhq-inst1.jar propfile=agent-inst1.properties
ERROR: informixhq-inst1.jar doesn't exist.
ERROR: agent-inst1.properties doesn't exist.
```

• If IDS Server is not reachable by Agent. This is not related to script, however sometimes you might get exception if Server or Agent Java process encountered error. While starting agent process, if agent is not able to connect to IDS server specified in HQ then it might show error on screen as follows with message. Socket connection to server (Server IP:Port) failed. Check your server is reachable from this client on the host:port specified.

[root@test-server hq]# ./InformixHQ.sh startagent
INFO: Please use list command to verify the process.
[rootStest-server hg]# Exception in thread "ServerStatusMonitor" com, zaxxer.hikaripool JRoolInitalizationException: Failed to initialize pool: Socket connection to server (192 68.150.130:16761) filled Check your server is reachable From this client on the host;port specified. at com.zaxxer.hikari.pool.hikariPool.checkFailFast(HkariPool.java:570) at com.zaxxer.hikari.pool.HikariPool.checkFailFast(HkariPool.java:520) at com.zaxxer.hikari.pool.HikariPool.checkFailFast(HkariPool.java:520) at com.zaxxer.hikari.pool.HikariPool.checkFailFast(HkariPool.java:520) at com.zaxxer.hikari.pool.HikariPool.checkFailFast(HkariPool.java:510) at com.zaxxer.hikari.pool.HikariPool.checkFailFast(HkariPool.java:510) at com.zaxxer.hikari.pool.HikariPool.checkFailFast(HkariPool.java:510) at com.informix.hq.agent.InformixconnectionManager.pavaConnectionManager.java:88) at com.informix.hq.agent.InformixserverStatusMonitor.checkStatusOnJdbcConnectionManager.java:130) at com.informix.hq.agent.InformixServerStatusMonitor.checkStatusOnJdbcConnection(ChromixServerStatusMonitor.java:151) at com.informix.hq.agent.InformixServerStatusMonitor.checkStatusOnJdbcConnection(ChromixServerStatusMonitor.java:151)
<pre>Gaused by: java.sql.sQLException: Socket connection to server (192.168.150.130:16761) failed. Check your server is reachable from this client on the host:port specified. at com.informix.jdbc.TrSqliGionect.sinti:5253) at com.informix.jdbc.TrSqliGionect.sinti:5253) at com.zaxer.nikari.ydbl.problemse.newcommect(Java:168) at com.zaxer.nikari.ydbl.problemse.newcommect(Java:168) at com.zaxer.nikari.ydbl.problemse.newcommect(Java:168) at com.zaxer.nikari.pool.Photlemse.newcommect(Java:168) at com.zaxer.nikari.pool.exter.setConnect(Java:168) at com.zaxer.nikari.pool.exter.setConnect(Java:168) at com.zaxer.nikari.pool.exter.setFormetry(Kikar)Pool.java:467) at com.zaxer.nikari.pool.hikar)Pool.checkFailFast(Hikar)Pool.java:541) 6 more</pre>
<pre>Caused by: com.informix.asf.IfXASFException: Socket connection to server (192,168,150.130:16761) failed. Check your server is reachable from this client on the host:port specified. at com.informix.asf.connection.connect(Connection.java:13655) at com.informix.asf.connection.connect(Connection.java:333) at com.informix.jdbc.IfXsqllconnect.java:2001) 2 Zmore</pre>
Gaused by: java.net.ConnectException: Connection refused (Connection refused) at java.net.AbstractPlainSocketImpl.SocketConnect(Native Method) at java.net.AbstractPlainSocketImpl.JoConnect(Native AustractPlainSocketImpl.java:350) at java.net.AbstractPlainSocketImpl.ConnectIoAddress(AbstractPlainSocketImpl.java:206) at java.net.SocketImpl.ConnectIoAddress(AbstractPlainSocketImpl.java:208) at java.net.Socket.connectIoSocketImpl.SocketImpl.Java:380 at java.net.Socket.connectIoSocketImpl.SocketImpl.Java:390 at java.net.Socket.connectIoSocketImpl.SocketImpl.SocketImpl.Java:390 at java.net.Socket.connectIon.copenSocket(Connection, java:1661) 55 more

In such case, ensure, server added in InformixHQ server is configured correctly and is reachable and online.

Starting the InformixHQ Server and the Agent on Windows

This topic provides a brief tutorial about the script used to get started with InformixHQ Server and Agent on Windows.

- 1. Locate your informixHQ.bat for Windows (default path is %INFORMIXDIR%/hq).
- 2. Use command InformixHQ help to see sample syntax: e.g- InformixHQ.bat help.

1

Tip: User can only run InformixHQ.bat for help menu



Command: InformixHQ	rmix Software Bundle\hq>InformixHQ.bat InformixHQ Server and Agent.		
Syntax:			
InformixHQ [startserver startagent] [encoding= <value>] [jvmmemx=<value>] [jarfile=<value>] [propfile=<value>]</value></value></value></value>			
InformixHQ [stop <processid>]</processid>			
InformixHQ [stopserver]			
	InformixHQ [stopagent] [<properties filename="" search="" string="">]</properties>		
InformixHQ [list] [<f< td=""><td>ilename search string>]</td></f<>	ilename search string>]		
startserver	: Starts InformixHQ Server service		
startagent			
stop	: Stops InformixHQ Server/Agent with specified processid		
stopserver	: Stops InformiHQ Server process		
stopagent	: Stops InformixQ Agent process (default all processes or filtered list if matching filename search string found)		
list	: Lists InformixHQ running processes (default all processes, filtered list if matching filename search string found)		
encoding (Optional)	: Default value is utf-8		
jvmmemx (Optional)	: JVM's default value will be used, if not specified		
jarfile (Optional)	: Default is informixhq-server.jar for startServer option and informixhq-agent.jar for startAgent option		
· · · ·	For user provided filename, it must contain keyword 'informixhg' and it should end with .jar"		
propfile (Optional)	: Default is informixhd-server.properties for startServer option and informixhd-agent.properties for startAgent option		
(· · · · · · · · · · · · · · · · · · ·	User can provide any custom name to properties file		

3. Use command to start InformixHQ server with default file names. e.g- InformixHQ.bat startserver .

C:\Program Files\IBM Informix Software Bundle\hq>InformixHQ.bat startserver INFO: Please use list command to verify the process.

It will start a INFORMIXHQ Server with default values for all the parameters including jar file name (*informixhq-server.jar*) and properties filename (*informixhq-server.properties*)

4. Use command to start InformixHQ agent with default filenames. e.g- InformixHQ.bat startagent.

```
C:\Program Files\IBM Informix Software Bundle\hq>InformixHQ.bat startagent
INFO: Please use list command to verify the process.
```

It will start a INFORMIXHQ Agent with default values for all the parameters including jar file name (*informixhq-agent.jar*) and properties filename (*informixhq-agent.properties*).

5. List the Java processes running. It will list all the InformixHQ processes running with ProcessID e.g. – InformixHQ.bat list .

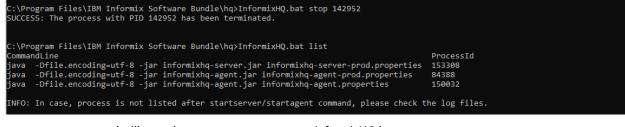
C:\Pr	pgram Files\IBM Informix Software Bundle\hq>InformixHQ.bat list	
Comma	ndLine	ProcessId
java	-Dfile.encoding=utf-8 -jar informixhq-server.jar informixhq-server-prod.properties	153308
java	-Dfile.encoding=utf-8 -jar informixhq-server.jar informixhq-server.properties	142952
java	-Dfile.encoding=utf-8 -jar informixhq-agent.jar informixhq-agent-prod.properties	84388
java	-Dfile.encoding=utf-8 -jar informixhq-agent.jar informixhq-agent.properties	150032
INFO:	In case, process is not listed after startserver/startagent command, please check t	he log files.

6. Additionally user can filter the list by passing search keyword to the list command. e.g. - InformixHQ.bat list prod .

Note: It is recommended that properties file name should be unique which will help users to search specific processes.

C:\Program Files\IBM Informix Software Bundle\hq>InformixHQ.bat list prod CommandLine ProcessId java -Dfile.encoding=utf-8 -jar informixhq-server.jar informixhq-server-prod.properties 153308 java -Dfile.encoding=utf-8 -jar informixhq-agent.jar informixhq-agent-prod.properties 84388 INFO: In case, process is not listed after startserver/startagent command, please check the log files.

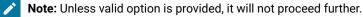
7. Stop the InformixHQ server or agent by providing processID to stop command. It will stop InformixHQ process with provided processID. e.g. –InformixHQ.bat stop 142952.



8. stopserver command will stop the server processes. e.g. - InformixHQ.bat stopserver .

C:\Program Files\IBM Informix Software Bundle\hq>InformixHQ.bat stopserver	
INFO: This command has found 1 server process. CommandLine java -Dfile.encoding=utf-8 -jar informixhq-server.jar informixhq-server-prod.properties	ProcessId 156572
Please Press: 0: exit 1: terminate Please enter one of the above options [1/0]:1 SUCCESS: The process with PID 156572 has been terminated.	

- 0. exit: It will exit from the command.
- 1. Terminate: It will terminate server process.



9. stopagent command will stop the agent processes. e.g. - InformixHQ.bat stopagent .



0: exit - It will exit from the command.

1: Terminate all - It will terminate all the agent processes.

2: Terminate one by one - It will terminate agent processes one by one after user confirmation.

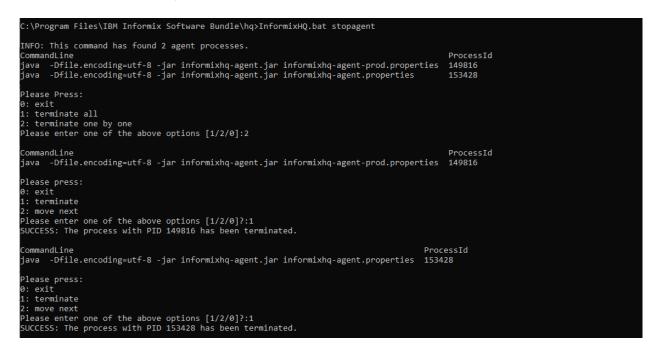


Note: Unless valid option is provided it will not proceed further.

Sample screenshot for 'terminate all processes' :



Sample screenshot for 'one-by-one process termination' :



Additionally, user can search specific agent process using stopagent command. e.g. - stopagent prod .

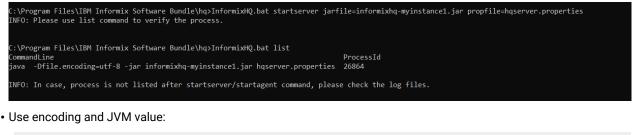


Example

Following are sample commands where user can provide custom values (similar commands will work with agent)

• optional jar and properties filename to start InformixHQ server:

InformixHQ.bat startserver jarfile=informixhq-myinstance1.jar propfile=hqserver.properties



InformixHQ startserver Encoding=utf-8 JVMMemx=1004m

C:\Program Files\IBM Informix Software Bundle\hq>InformixHQ startserver Encoding=utf-8 JVMMemx=1004m INFO: Please use list command to verify the process. C:\Program Files\IBM Informix Software Bundle\hq>InformixHQ.bat list CommandLine ProcessId java -Xmx1004m -Dfile.encoding=utf-8 -jar informixhq-server.jar informixhq-server.properties 26448 INFO: In case, process is not listed after startserver/startagent command, please check the log files.

• Use all input:



Starting the InformixHQ Server and the Agent on Linux/AIX

This topic provides a brief tutorial about the script used to get started with InformixHQ Server and Agent on Linux/AIX.

1. Locate your informixHQ.sh for Linux and InformixHQ.ksh for AIX (default path is \${INFORMIXDIR}/hq).



Note: Following examples are shown on bash shell, however those will run exactly same on korn shell with .ksh script.

2. Use command InformixHQ help to see sample syntax: e.g- InformixHQ.sh help .

1

Tip: User can only run InformixHQ.sh for help menu

Figure 4. InformixHQ help

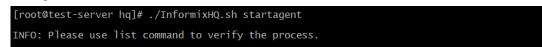
[root@test-server hq]# ./InformixHQ.sh					
Command: InformixHQ					
• • • • • • • • • • • • • • • • • • •	This command starts/stops InformixHQ Server and Agent.				
Syntax:					
	InformixHQ startserver startagent [encoding= <value>] [jvmmemx=<value>] [jarfile=<value>] [propfile=<value>]</value></value></value></value>				
	InformixHQ stop <processid></processid>				
	InformixHQ stopserver				
	[properties filename search string]				
THIOLIUTYHÁ TIEC LITT	InformixHQ list [filename search string]				
startserver	: Starts InformixHQ Server service				
startagent	: Starts InformixHQ Agent service				
stop	: Stops InformixHQ Server/Agent service with processId				
stopserver	: Stops InformiHQ Server process				
stopagent	: Stops InformixQ Agent process (default all processes or filtered list if matching filename search string found)				
list	: Lists InformixHQ running processes (default all processes, filtered list if matching filename search string found)				
	: Default value is utf-8				
jvmmemx (Optional)	: JVM's default value will be used If not specified				
jarfile (Optional)	: Default is informixhq-server.jar for startserver option and informixhq-agent.jar for startagent option.				
(i)- (0-+i1)	For user provided filename, it must contain keyword 'informixhq' and it should end with .jar				
proptile (Optional)	: Default is informixhq-server.properties for startserver option and informixhq-agent.properties for startagent option.				
	User can provide any custom name to properties file				

3. Use command InformixHQ startserver to start InformixHQ server with default file names. e.g- ./InformixHQ.sh startserver .

```
[root@test-server hq]# ./InformixHQ.sh startserver
INFO: Please use list command to verify the process.
```

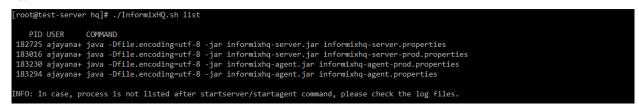
It will start INFORMIXHQ Server with default values for all the parameters including jar file name (*informixhq-server.jar*) and properties filename (*informixhq-server.properties*).

 Use command InformixHQ startagent to start InformixHQ agent with default filenames. e.g- ./InformixHQ.sh startagent



It will start an INFORMIXHQ Agent with default values for all the parameters including jar file name (informixhqagent.jar) and properties filename (informixhq-agent.properties).

5. List the Java processes running. It will list all the InformixHQ processes running with ProcessID e.g: ./InformixHQ.sh list.



6. Additionally user can filter the list by passing search keyword to the list command. e.g. - InformixHQ.bat list prod .

Note: It is recommended that properties file name should be unique which will help users to search specific processes.

[root@test-server hq]# ./InformixHQ.sh list prod
PID USER COMMAND
183016 ajayana+ java -Dfile.encoding=utf-8 -jar informixhq-server.jar informixhq-server-prod.properties
183230 ajayana+ java -Dfile.encoding=utf-8 -jar informixhq-agent.jar informixhq-agent-prod.properties
INFO: In case, process is not listed after startserver/startagent command, please check the log files.

7. Stop the InformixHQ server or agent by providing processID to stop command. It will stop InformixHQ process with

provided processID. e.g: ./InformixHQ.sh stop 183230 .
[root@test-server hq]# ./InformixHQ.sh stop 183230
SUCCESS: The process with PID 183230 has been terminated.
[root@test-server hq]# ./InformixHQ.sh list
PID USER COMMAND
182725 ajayana+ java -Dfile.encoding=utf-8 -jar informixhq-server.jar informixhq-server.properties
183016 ajayana+ java -Dfile.encoding=utf-8 -jar informixhq-server.jar informixhq-server.prod.properties
183294 ajayana+ java -Dfile.encoding=utf-8 -jar informixhq-agent.jar informixhq-agent.properties
INFO: In case, process is not listed after startserver/startagent command, please check the log files.

8. stopserver command will stop the server processes. e.g. - InformixHQ.bat stopserver .



- 0. exit: It will exit from the command.
- 1. Terminate: It will terminate server process.



Note: Unless valid option is provided, it will not proceed further.

9. stopagent command will stop the agent processes. e.g. - InformixHQ.bat stopagent .



0: exit - It will exit from the command.

1: Terminate all - It will terminate all the agent processes.

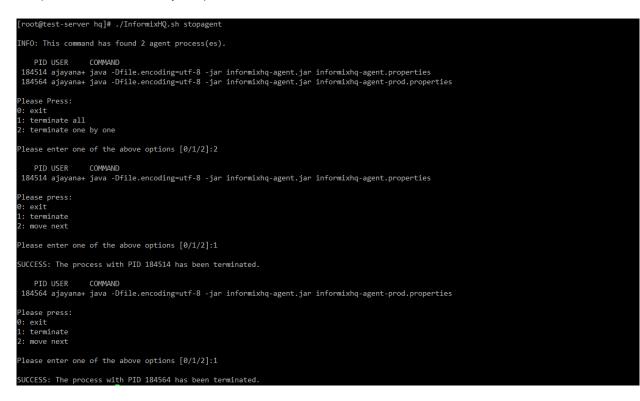
2: Terminate one by one - It will terminate agent processes one by one after user confirmation.

Note: Unless valid option is provided, it will not proceed further.

Sample screenshot for 'terminate all processes' :



Sample screenshot for 'one-by-one process termination' :



Additionally, user can search specific agent process using stopagent command. e.g. - stopagent prod .



Example

User can use different properties filenames (with appropriate informixServer.id for different servers) to run agents for different instances as follows

Following are sample commands where user can provide custom values (similar commands will work with agent)

• optional jar and properties filename to start InformixHQ server:

./InformixHQ.sh startserver jarfile=informixhq-myinstance1.jar propfile=hqserver.properties

```
[root@test-server hq]# ./InformixHQ.sh startserver jarfile=informixhq-myinstance1.jar propfile=hqserver.properties
INFO: Please use list command to verify the process.
[root@test-server hq]# ./InformixHQ.sh list
ProcessId Name Jar Properties
112911 java informixhq-myinstance1.jar hqserver.properties
INFO: In case, process is not listed after startserver/startagent command, please check the log files.
```

• Use encoding and JVM value:

./InformixHQ.sh startserver Encoding=utf-8 JVMMemx=1004m

```
[root@test-server hq]# ./InformixHQ.sh startserver encoding=utf-8 jvmmemx=1004m
INFO: Please use list command to verify the process.
```

• Use all input:

```
InformixHQ.bat startserver Encoding=utf-8 JVMMemx=1004m jarfile=informixhq-server.jar
propfile=hqserver.properties
```

[root@test-server hq]# ./InformixHQ.sh startserver encoding=utf-8 jvmmemx=1004m jarfile=informixhq-server.jar propfile=hqserver.properties INFO: Please use list command to verify the process.

```
[root@test-server hq]# ./InformixHQ.sh list
ProcessId Name Jar Properties
114005 java informixhq-server.jar hqserver.properties
INFO: In case, process is not listed after startserver/startagent command, please check the log files.
```

Exception Reporting

If options are not provided correctly then script will report error as follows

• If jarfile/propfile option is not specified

[root@test-server hq]# ./InformixHQ.sh startserver abc.jar ERROR: The syntax of the commmand is incorrect. Invalid Parameters : [abc.jar,]

INFO: Use command InformixHQ.sh help to see the help.

· filename is not specified with jarfile/propfile option

```
[root@test-server hq]# ./InformixHQ.sh startserver jarfile
ERROR: The syntax of the commmand is incorrect.
Invalid Parameters : [jarfile,]
INFO: Use command InformixHQ.sh help to see the help.
```

• incorrect filename provided

```
[root@test-server hq]# ./InformixHQ.sh startserver jarfile=abc.jar
ERROR: abc.jar doesn't exist.
```

• If specified or default files are not found also if custom filename is specified and file is not found in the folder, it will

inform accordingly

```
[root@test-server hq]# ./InformixHQ.sh startagent jarfile=informixhq-inst1.jar propfile=agent-inst1.properties
ERROR: informixhq-inst1.jar doesn't exist.
ERROR: agent-inst1.properties doesn't exist.
```

• If IDS Server is not reachable by Agent. This is not related to script, however sometimes you might get exception if Server or Agent Java process encountered error. While starting agent process, if agent is not able to connect to IDS server specified in HQ then it might show error on screen as follows with message. Socket connection to server (Server IP:Port) failed. Check your server is reachable from this client on the host:port specified.

[root@test-server hq]# ./InformixHQ.sh startagent
INFO: Please use list command to verify the process.
<pre>[rootstest-server hq]# Exception in thread "ServerStatusMonitor" com zaxxer hikaripoolSpoolInitializationException: Failed to initialize pool: Socket connection to server (192.1 68.150.130:16761) failed. check your server is reachable from this client pacefield. at com.zaxxer.hikari.pool.HikariPool.thromPoolInitializationException(HikariPool.java:576) at com.zaxxer.hikari.pool.HikariPool.chits(HikariPool.java:502) at com.zaxxer.hikari.pool.HikariPool.chits(HikariPool.java:502) at com.zaxxer.hikari.pool.HikariPool.chits(HikariPool.java:115) at com.zaxxer.hikari.pool.HikariPool.chits(HikariPool.java:502) at com.informix.hq.agent.InformixConnectionManager.java:81) at com.informix.hq.agent.InformixServerStatusMonitor.checkStatusOn30BCCOntectionManager.java:180) at com.informix.hq.agent.InformixServerStatusMonitor.checkStatusOn30BCCONTECtionServerStatusMonitor.java:151) at com.informix.hq.agent.InformixServerStatusMonitor.relton(InformixServerStatusMonitor.java:151)</pre>
Caused by: java.sql.sQLException: Socket connection to server (192.168.150.130:16761) failed. Check your server is reachable from this client on the host:port specified. at com.informix.jdbc.TrSqliGonnect.infict.jtSqliGonnect.java:169) at com.axex.hikari.jtDiver.java:169 at com.axex.hikari.jtDiver.java:169 at com.axex.hikari.jtDiver.java:169.java:369 at com.axex.hikari.jtDiver.java:169.java:467) at com.axex.hikari.jool.hikariPool.checkFailFast(HikariPool.java:467) at com.axex.hikari.jool.hikariPool.checkFailFast(HikariPool.java:541)
<pre>Caused by: com.informix.asf.IFASFException: Socket connection to server (192.168.150.130:16761) failed. Check your server is reachable from this client on the host:port specified. at com.informix.asf.Connection.connect(Connection, java:1605) at com.informix.asf.Connection.connect(Connection, java:333) at com.informix.jdbc.Ifxsqliconnect.cinits(IfxSqliConnect.java:1250) </pre>
Caused by: java.net.ConnectException: Connection refused (Connection refused) at java.net.AbstractPlainSocketImpl.SocketConnect(AbstractPlainSocketImpl,java:350) at java.net.AbstractPlainSocketImpl.Oconnect(AbstractPlainSocketImpl,java:350) at java.net.SocketImpl.ConnectIoAbstractPlainSocketImpl.java:350) at java.net.SocketImpl.Connect(SocketImpl.SocketImpl.java:350) at java.net.Socket.connectIoSocketImpl.SocketImpl.Java:350) at java.net.Socket.connect(SocketSocketImpl.SocketImpl.Java:350) at java.net.Socket.connectIoSocketImpl.SocketImpl.SocketImpl.Java:350) at java.net.Socket.connectIoSocketJistoPl at java.net.Socket.connectIon.openSocket(Connection.java:166) JS more

In such case, ensure, server added in InformixHQ server is configured correctly and is reachable and online.

InformixHQ in secure mode

InformixHQ – HTTPS Secured Connection:

InformixHQ setup as Secured Server (SSL)

About this task

This topic explains steps for setting up InformixHQ as Secured Server (SSL)

- 1. Create SSL keystore with self-signed certificate.
 - Use the following command to create jks keystore with self-signed certificate on HQ server at desired path:

keytool -genkey -keyalg RSA -alias selfsigned -keystore keystore.jks

- Modify -alias and -keystore values as needed.
- \circ User will be prompted to set keystore password, enter the password of your choice.
- Remember to note the password as this will be needed at a later stage.
- Password can also be set using argument -storepass in the keytool command given above.
- User must type the HQ server hostname in response to keytool's first prompt in which it asks for first and last names. InformixHQ agent will check for this value while attempting a secured connection.
- After this user will be asked a few more questions about unit, organization, locality, province, country. Provide values as per your choice, any values are fine.
- Once all the values are entered, user will be asked for confirmation, type "yes".
- Now, user will be asked password for certificate in keystore. If you wish to keep this password same as keystore (entered in step 1), press enter. If different password, remember to note it down for later use.

For further details on how to generate jks self-signed certificate, refer How to use keytool to create a server certificate and How to create a self signed certificate using Java Keytool

- 2. Note down SSL keystore path, filename just created.
- 3. Modify informixhq-server.properties to add/modify following properties:
 - httpPort=8080
 - httpsPort=8082 (HQ server port serving secured connections)
 - redirectHTTPtoHTTPS=true (if true, redirects http request to https)
 - ssl.keystore.file=<Keystore absolute path with file name>
 - ssl.keystore.password=<password>
 - #ssl.key.password=<password> (Use this only if you have set different password for certificate within keystore)
- 4. Now start InformixHQ server as usual.
- 5. Open a browser and enter the following url:

http://<HQserverhost>:8080 OR https://<HQserverhost>:8082

If redirectHTTPtoHTTPS is set to true, it will automatically direct http request to https port.



1) Internally InformixHQ server uses self-signed certificate to authenticate secured connection.

2) User can verify by providing incorrect values for ssl.keystore.file or ssl.keystore.password in parameter file informixhq-server.properties. After this, if user tris to access HQ server from a browser, it will respond with "connection refused.?

3) On a windows machine, add double slash for keystore path such as D:\\SSL\\keystore\\key.jks

InformixHQ Agent setup for secured connection (SSL)

About this task

This topic explains steps for setting up InformixHQ Agent for secured socket connection (SSL).

- 1. Create client keystore for HQ Agent connection:
 - Extract self-signed certificate from HQ server keystore using following command:

keytool -export -alias selfsigned -file server.cer -keystore keystore.jks

- Same alias should be used as that of server keystore.
- Keystore name would be server keystore.
- This command will extract certificate to file **server.cer** (value provided for -file argument)
- Copy this certificate to client machine (where HQAgent would be running).
- Import this certificate to client keystore on HQAgent box using following command:

keytool -import -v -trustcacerts -alias selfsigned -file server.cer -keystore cacerts.jks

- Ensure alias is same as used in server keystore.
- This will ask to set keystore password, enter the password of your choice.
- Note the password as this will be needed at a later stage.
- 2. Note down client SSL keystore path, filename just created.
- 3. Modify informixhq-agent.properties to add/modify following properties:
 - informixServer.id=<ID of the Informix Server defined in InformixHQ>
 - server.host=<InformixHQ server host>
 - server.port=<InformixHQ server port> (for above example, it would be 8082)
 - ssl.enable=true
 - ssl.keystore.file=<client keystore absolute path and file name>
 - ssl.keystore.password=<password>
 - ssl.keystore.type=jks
- 4. Start InformixHQ agent as usual.

Note:

1) In case, InformixHQ server and agent are running on the same machine, Server keystore can also be used as client keystore for Agent. This means same Keystore path and password will be used in both **informixhq-server.properties** and **informixhq-agent.properties** files.

2) In case InformixHQ server and agent are running on different machines, users can also copy server keystore to agent machine and use the same keystore, instead of extracting certificate and creating new client keystore.

3) If any changes are done to keystore or properties file while HQ server or agent is running, ensure to restart InfomrixHQ server or Agent appropriately.

4) On windows machine, add double slash for keystore path such as D:\\SSL\\keystore\\key.jks

InformixHQ Concepts

This topic covers some of the conceptual aspects of InformixHQ.

Group

InformixHQ provides the ability to create groups of servers to make them easier to manage and monitor. InformixHQ's groups are based on a hierarchy. The base "root" group is the top level group for all InformixHQ groups and servers. From this root group, you can add as many servers and sub-groups as you desire, nesting them to whatever level makes sense for your organization.

You can define monitoring and alerting profiles for groups, simplifying the task of managing monitoring for all of your database servers.

Agent

The InformixHQ agent is a lightweight Java based program that is designed to run alongside each Informix database server, gathering data about the performance of the system. The data gathered by the agent is fully configurable and is defined by the list of **sensors** in the server's **monitoring profile**. The data gathered by the agent is stored in a **repository database**.

Repository Database

A repository database holds information collected by the InformixHQ agent about the Informix database server. The repository database can either be local to the database server that is being monitored or it can be on a remote Informix instance. You can define a common repository database shared by multiple Informix database server instances, or you can define a separate repository database for each monitored instance.

The repository database must be an Informix database and must exist before the agent is started. You must define the database server to be used as a repository in the InformixHQ UI, using the **Add Server** action on any group dashboard, before it can be defined as a repository.

To define a repository database for a particular Informix database server, go to the server's **Setup** page in the UI and click on the **Agent** tab.

Sensor

A sensor defines a metric or set of metrics for the agent to gather. An example is the "DBSpace Usage" sensor that gathers metrics on used and free space for all database server spaces.

Monitoring Profile

A monitoring profile defines the list of sensors that the agent runs to gather data about and Informix database server instance or about its host operating system.

For each sensor in a monitoring profile, you can configure the frequency at which that sensor will run and how long that sensor's data will be kept in the repository database.

Monitoring profiles can be configured for groups as well as servers. InformixHQ uses the concept of inheritance for determining a particular server's or group's monitoring profile. All servers and groups inherit monitoring profile information from its parent group in the hierarchy. Servers or groups can also disable or override the configuration of any sensors inherited from a parent group.

Alert

An alert defines a condition that should trigger an alerting incident in InformixHQ. An example would be an alert defined for when the Informix database server goes offline.

Alerting profile

An alerting profile defines the set of alerts configured for a particular server or group. Alerting profiles follow an inheritance model similar to monitoring profiles.

Alerting incident

While the monitoring data is collected by the InformixHQ agent, it is the InformixHQ server that is tasked with evaluating alerting conditions. As data is collected by the agent, the InformixHQ server evaluates each new incoming data point against the alert definitions in the server's alerting profile. Any data point that meets an alerting condition triggers an alerting incident.

Alerting incidents are shown in the InformixHQ UI for that server. Alerting incident counts are also aggregated and highlighted on the group dashboards. Alerting incidents can be acknowledged as read or even deleted from the Incidents page in the UI. Users of InformixHQ can configure their own alerting preferences to automatically receive alerting incidents directly via email, Twilio, or PagerDuty.

InformixHQ Server

The InformixHQ server is a Java 8 based Jetty web server. The server is the heart of InformixHQ. It manages the monitoring profiles for all instances, communicates with agents, handles all alerting activities, hosts the web UI, and provides the REST services that the web UI depends on.

InformixHQ Server Configuration

A properties file is required to run the InformixHQ server. When starting the InformixHQ server, you can pass the properties file name as part of the start command. Otherwise, InformixHQ will look for a properties file named informixhq-server.properties in the classpath.

An example configuration file documenting all supported InformixHQ server configuration properties can be found in \$INFORMIXDIR/hq/informixhq-server-example.properties.

- · Required configuration properties on initial startup
 - initialAdminPassword on page 39
- Optional configuration properties
 - alert.numberConditionCheckThreads on page 40
 - alert.startNumberAlertSendThreads on page 40
 - dataSource.IFX_ISOLATION_LEVEL on page 40
 - hostname on page 40
 - httpPort on page 40
 - httpsPort on page 40
 - h2.encrypt.algorithm on page 41
 - h2.encrypt.enable on page 41
 - h2.encrypt.password on page 41
 - pool.connectionTimeout on page 41
 - pool.maximumPoolSize on page 41
 - pool.minimumIdle on page 41
 - pool.idleTimeout on page 41
 - redirectHTTPtoHTTPS on page 41
 - rest.session.timeout on page 42
 - ssl.keystore.file on page 42
 - ssl.keystore.password on page 42
 - ssl.key.password on page 42
 - user.password.algorithm on page 42
 - user.password.maxAge on page 42
 - user.password.minLength on page 42
 - user.password.requireLowerCase on page 42
 - user.password.requireNumber on page 42
 - user.password.requireSpecialCharacterFromSet on page 43
 - user.password.requireUpperCase on page 43

initialAdminPassword

When starting the InformixHQ server for the first time, an **admin** user will be created with the password specified in the **initialAdminPassword** property. This user will have system administrative privileges on the InformixHQ server which includes the ability to create other users, grant privileges, and make configuration changes to the server.

This property is only required the very first time you start the InformixHQ server. For security reasons, it is recommended that you remove this property from your InformixHQ server configuration file after the InformixHQ server has been initialized for the first time.

alert.startNumberAlertSendThreads

Configures the number of threads in the thread pool that processes and dispatches alert notifications (by email, Twilio, Pager Duty, etc.) when an alerting incident occurs. The default number of threads is 4.

alert.numberConditionCheckThreads

Configures the number of threads in the thread pool that checks whether alerting conditions have been violated whenever new monitoring data comes in. The default number of threads is 4.

dataSource.IFX_ISOLATION_LEVEL

Specifies the isolation level to set on JDBC connections to the various Informix database servers. The default value is 1.

hostname

The host name of the InformixHQ server. The host name determines the network adapter or interface that the InformixHQ server binds the server socket to.

The default value is an empty string. When set to an empty string, the InformixHQ server will bind to all available network interfaces on the host machine.

httpPort

The HTTP port to run the InformixHQ server on. This port will serve both the InformixHQ web UI and the InformixHQ REST API. Set this value to -1 to disable the HTTP protocol for InformixHQ. If httpPort is set to -1, make sure that httpsPort is set to something other than -1. The default value is 8080.

httpsPort

The HTTPS port to run the InformixHQ server on. This port will serve both the InformixHQ web UI and the InformixHQ REST API.

Set this value to -1 to disable the HTTPS protocol for InformixHQ. If httpsPort is set to -1, make sure that httpPort is set to something other than -1.

If httpsPort is something other than -1, you must set the **ssl.keystore.file** and **ssl.keystore.password** properties, and potentially also the **ssl.key.password** property if your key password is different from the keystore password.

The default value is -1 indicating that HTTPS is disabled by default.

h2.encrypt.algorithm

Sets the algorithm for H2 database file encryption. The encryption algorithms supported by H2 are AES, XTEA, and FOG. The default value is AES.

h2.encrypt.enable

Controls whether the H2 database file which holds InformixHQ server's internal metdata is encrypted. If you set this property to true, you must also set the h2.encrypt.password property. The default value is false.

h2.encrypt.password

Sets the password to use for H2 database file encryption. If h2.encrpyt.enable is set to true, you must set the password for encryption.

pool.connectionTimeout

Specifies the number of milliseconds to wait for a JDBC connection to an Informix database server to be established before it times out. The default value is 5000 (5 seconds).

pool.idleTimeout

Specifies the number of milliseconds that a JDBC connection can be idle in the connection pool before it is closed. The default value is 60000 (1 minute).

pool.maximumPoolSize

The maximum number of JDBC connections in each connection pool. The InformixHQ server will maintain a connection pool for each Informix database that it needs to connect to. The **pool.maximumPoolSize** puts a cap on the total number of open JDBC connections that can be established to each database.

The default value is 5.

pool.minimumIdle

The minimum number of idle JDBC connections in each connection pool. The InformixHQ server will maintain a connection pool for each Informix database server that it needs to connect to. Setting **pool.minimumIdle** to zero indicates that all JDBC connections in the connection pool should be closed when they have been sitting idle for longer than the **pool.idleTimeout** threshold. Setting **pool.minimumIdle** to a positive integer indicates the number of connections that should be kept open in the connection pool even when they exceed the **pool.idleTimeout**. The default and recommended value is 0.

redirectHTTPtoHTTPS

If set to true, HTTP traffic to InformixHQ will automatically be redirected to HTTPS. This will include web socket communication between the InformixHQ server and agent. If this value is set to true, you will be required to configure SSL in your agent configuration properties.

The default value is false.

rest.session.timeout

Specifies the number of milliseconds that a REST session can be idle before it is closed. The default value is 3600000 (60 minutes).

ssl.keystore.file

The path to the keystore file that contains the certificate to use for network encryption. This property must be set if **httpsPort** is set to something other than -1. Use Java keytool tool to create a Java keystore and a certificate.

ssl.keystore.password

The password to unlock the keystore file for network encryption. If this property is not set and the HTTPS is configured, you will be prompted on the command line to enter the keystore password when starting the InformixHQ server.

ssl.key.password

The password to unlock the entry into the keystore. The default value is no password, which means to use the keystore password. If the entry into the keystore requires a password that is different from the keystore password, set this property to the entry password.

user.password.algorithm

Sets the algorithm for InformixHQ login password. The encryption algorithms supported by InformixHQ are SHA-1, SHA-256, SHA-384, SHA-512. The default value is SHA-256.

user.password.maxAge

Controls the maximum age (in days) of a user password. User passwords that are older than the max age will be considered as expired. Setting this property to zero, which is the default value, specifies that user passwords never expire. Setting this property to a value greater than zero specifies the maximum age (in days) of a user password before it expires. A user will start receiving notifications in the InformixHQ UI when the difference between the current date and the password expiration date is less than or equal to 15 days.

user.password.minLength

Controls the minimum length for a user password. The default value is 8.

user.password.requireLowerCase

Controls whether user passwords are required to include at least one lowercase character. The default value is true.

user.password.requireNumber

Controls whether user passwords are required to include at least one number. The default value is true.

user.password.requireSpecialCharacterFromSet

Controls whether user passwords are required to include at least one special character. An empty string indicates that no special characters are required. Setting this value to !@#\$%^&*() would require user passwords to include at least one of those characters. The default value is an empty string.

user.password.requireUpperCase

Controls whether user passwords are required to include at least one uppercase character. The default value is true.

InformixHQ UI

This topic highlights important aspects of the InformixHQ user interface. The InformixHQ UI is run by the Jetty web server that is embedded in the InformixHQ server. The default URL for the InformixHQ server is http://localhost:8080/ but the InformixHQ server configuration on page 39 file can be used to change the port and configure whether https is enabled.

Exploring Groups

On a group dashboard, you will see all of the servers and sub-groups that belong to the group. For each sub-group, the UI will show a card indicating the number of servers in the group (the first number is the number of servers directly in the group; the number in parenthesis is the total number of servers under it in the hierarchy). It will also show if and how many unread incidents exist for servers within the group.

There will also be a card for each server in the current group indicating the server and agent status. Since the agent monitors server status information, the server status will be unknown if the agent is offline.

From the group dashboard, you can use the **Add Server** and **Add Group** buttons to add servers or groups to the hierarchy. Each server or group also has additional actions to rename, edit connection information (for servers only), move, or delete that object. To drill down on any server or group, click on the server or group card.

From the group dashboard, you can also access the monitoring and alerting profiles for the group by selecting those menu items from the left-hand sidebar. If you are a System Administrator, you will also see a link for granting/revoking permissions on the group.

Exploring Informix Database Servers

Clicking on any server card from a group dashboard will take you to the server's dashboard. The dashboard includes sections on server status and any alerting incidents that have occurred, as well as information on high availability, threads, storage performance metrics, host memory and CPU usage, etc. If the agent is not running or sensors are not enabled, you will see the latest measurement for these metrics queried directly from the live database server. If the corresponding sensors are running, the server dashboard will show the recent history of each of these metrics graphically to give you a visual indication of how the database server is performing.

Note: If you see a triangular exclamation icon in the top right of any dashboard, that is an indication that the dashboard uses sensors that do not exist in the server's monitoring profile. Clicking on that icon will open a pop-up detailing the sensors used by the dashboard and providing a one-click button to enable all of those sensors.

For a particular database server, use the left-hand sidebar menu to continue to explore the server.

Configuring Monitoring

After clicking on a server or group from the dashboard, you can use the Monitoring link on the left-hand sidebar menu to configure the monitoring profile for that server or group. The Monitoring page lists the sensors currently configured in the server or group's monitoring profile.

Clicking the **Add Sensors** button will open a pop-up displaying the list of sensors not yet configured for this server or group. You can add custom sensors to this list from the Sensor Management on page 104 page.

Click the Edit (pencil) icon to modify the run interval or data retention interval.

For servers or groups that inherit sensors from parent groups, there will also be a list of Inherited Sensors. The buttons next to the inherited sensors allow you to disable or override properties of the inherited sensors.

Configuring Alerting

Alerts in InformixHQ can be fully customized. You can configure not only what you want to be alerted on, but also the threshold or condition that should trigger that alert.

Alerts defined for a group are automatically inherited by the child groups and child servers of that group. Defining alerts at the group level simplifies the process of managing alerts for multiple servers.

To create alerts:

- 1. Click on a server or a group from the dashboard and then select the **Alerting** link on the left-hand sidebar menu. The **Alerting** page lists the alerts configured in the server or group's alerting profile.
- 2. Click the **Add Alert** to open a form that guides you through the process of defining an alert. Provide an alert name to identify it.
- 3. Select what you want to alert on: Informix server status, agent status, or data from a sensor metric.
- 4. Define the alerting condition. For example, alert me when the Informix server status is offline or alert me when the number of sessions connected to Informix is greater than 200.

For servers or groups that inherit alerts from parent groups, there will also be a list of Inherited Alerts. The buttons next to the inherited alerts allow you to disable inherited alerts. While you cannot override parent alerts like you can do for sensors (due to the complexities of alerts), there is a clone button provided to make it easy to clone and modify an inherited alert if changes are required.

Once alerts are defined, the InformixHQ server will evaluate the applicable alerting condition for each new data point collected by the InformixHQ agent in the process of monitoring your database server. If an alerting condition is met, an

alerting incident is created. Alerting incidents are automatically displayed in the InformixHQ UI, both in the dashboard and the **Incidents** pages for the server and for the parent group(s) it belongs to.

You can enable alert notifications to be sent through email, PagerDuty, Twilio, or a custom alerting script. To enable alerting notifications, a system administrative user for InformixHQ must enable the desired alerting notification service on the System Settings->Alerting Configuration page. For certain alerting notification services, including email and Twilio, each individual user who wants to receive alerting notifications must enable it for their user on the My Settings->Alerting Configuration page like their email address or phone number.

Custom Reports

About this task

InformixHQ provides many built-in reports to monitor Informix server effectively. To provide further flexibility, there is an option of creating customized reports to meet specific needs of the users. Using the Custom Reports option, users can create a report from any query that they want to analyse the data for. Once such custom report is created, this report is made available in System Reports, from where users can easily access the report and analyse the data.

There are two options to create custom reports in InformixHQ:

- 1. System Settings -> Report Management
- 2. Server Page -> System Reports



- 1. Custom report can ONLY be created by InformixHQ user with system administrator privileges.
- 2. Normal InformixHQ user (without admin privileges) created by admin user, will NOT be able to create new custom report. However, such user will be able to run custom report and view data.

To create a custom report:

- 1. Login to InformixHQ as user 'admin' (any user with administrative privilege in InformixHQ)
- 2. Navigate to System settings -> Report Management -> Create Report

Informix HQ		🚯 ~ 💄 adm
Dashboards	Root Group	My Settings
		System Settings
Monitoring	Root Group	Log Out
Alerting	✓ Groups (1)	
Permissions	Manager	:
ncidents	My server	:
	() INCIDENTS	1 SERVER
Informix <mark>H []</mark>	✓ Servers (0)	🔁 - 👤 adr
Informix		⊕- ≗adr ement Create Report
and an al specific specific data and a specific specific specific specific specific specific specific specific	 Servers (0) Report Manage Define and manage custom sy 	ment Create Report
Alerting Configuration	Report Manage	ment Create Report
Alerting Configuration Data Cleanup Configuration Report Management	Report Manage Define and manage custom sy	ment Create Report
Alerting Configuration Data Cleanup Configuration Report Management Sensor Management	Report Manage Define and manage custom sy Q. Search	ment Create Report
Alerting Configuration Data Cleanup Configuration	Report Manage Define and manage custom sy Q. Search Name *	ment Create Report

3. Alternatively, navigate to **Open Server page -> System Reports** from side menu.

InformixHC					
Replication	>	Root Group > My server > MyData			
Schema Manager		MyData	Server Data	Agent Data	
Server Administration	>				
Storage	>	Status			
	58		Server:	Online	
SQL Tracing			Agent:	Online	
		0.0	Server type:	Standard	
System Reports			Online log:	0 errors,	
				0 warnings	
System Resources	>		AF files:	0	

4. Click on Create Custom Report button on System Reports page.

InformixHO		0· 2	
۹			
MyData	~	System Reports	Create Custom Report
Setup		Q Search for report	
Dashboards		Name *	
Monitoring		Lock List	
Alecting		Locks per Session	
Alerting		Locks per Table	
Derminolono		Locks with Waiters	

5. After clicking on Create Custom Report button, user will navigate to Create Report page.

nformixHQ			
Alerting Configuration	Create Report		
Data Cleanup Configuration	Save Report		
Report Management	SQL Columns	Report	Preview
Sensor Management	An InformixHQ system repor	rt is based on a s	ingle SQL query rur
Server Configuration	Selected server:	MyData	Select
Jser Management	Selected Database:	sysm	aster v

6. In SQL tab, select server from Selected Server dropdown & Selected Database from dropdown.

Note: While creating a custom report, user needs to select server and database to validate and run query to create the report.

InformixHO		
Alerting Configuration	Create Report	
Data Cleanup Configuration	Save Report	
Report Management	SQL Columns	Report Preview
Sensor Management	An InformixHQ system report	is based on a single SQL query
Server Configuration	Selected server:	MyData Select

7. Type customized query in text area & click on the **Run** button.

InformixHQ				
Alerting Configuration	SQL Columns	Report F	Preview	
Data Cleanup Configuration	An InformixHQ system report	rt is based on a si	ingle SQL quer	ry run aga
Report Management	Selected server: Selected Database:	MyData sysmi	Select	
Sensor Management	select * from flag:	s_text		
Server Configuration				
User Management				11.
	Run			

8. Output of the query will be shown after clicking **Run** button. Validate query result & click on the **Next** button.

InformixHQ		
Alerting Configuration	select * from flags_text	
Data Cleanup Configuration		
Report Management		14.
Sensor Management	Run	
Server Configuration	Next >	
User Management	Report Preview	
	systwaits	

9. On clicking Next button, screen will navigate to Columns tab.

InformixHQ	
Alerting Configuration	Create Report
Data Cleanup Configuration	Save Report
Report Management	SQL Columns Report Preview
Sensor Management	txt
Server Configuration	unit
User Management	None
	Next >

- 10. In **Columns** tab, there is an option for users to select specific column to show in a report or **Show ALL** option to include all the columns in a report.
- 11. Also, there is an option to rename columns (the way user wants them in a report) and select unit as desired. Click **Next** button.
 - : Name The display name of this column.
 - : **Unit** The unit determines how this column will be displayed in the report. A byte value is converted in human readable value (KB, MB, GB etc.). A unit time value (seconds since the unit epoch) will be converted in timestamp.
- 12. On clicking Next button, you will navigate to Report tab.

Alerting Configuration	Create Report	
Data Cleanup Configuration	Save Report	
Report Management	SQL Columns Report Preview	
Sensor Management		
Server Configuration	Category	
User Management	Miscellaneous	3

- 13. From Report tab, add ID, Name, Description & select Category from dropdown.
 - **ID** The ID to uniquely identify this report. Can only use lowercase characters, digits, and single underscores (e.g.: my_custom_report)
 - Name The display name of this report
 - Description Add detailed description of purpose of the report
 - Category Select report category e.g. lock , storage, miscellaneous, etc.
- 14. On clicking **Next** button, screen will navigate to **Preview** tab. **Preview** tab will show report query and columns in JSON format.

InformixHQ	
Alerting Configuration Data Cleanup Configuration	Create Report
Report Management	SQL Columns Report Preview
Sensor Management	Report JSON Preview
Server Configuration	{ id: "123456" name: "Cust_Report"
User Management	<pre>description: "Test Description" meta: { database: "sysmaster" sql: "select * from flags_text"</pre>

15. View and verify the changes on **Preview** tab, then click on **Save Report** button. If user wishes to change anything, navigate back to respective tabs, do the correction and come back to the **Preview** tab.

Informix HQ	
Alerting Configuration	Create Report
Data Cleanup Configuration Report Management	Save Report SQL Columns Report Preview
Sensor Management	Report JSON Preview
Server Configuration	{ id: "123456" name: "Cust_Report"
User Management	<pre>description: "Test Description" meta: { database: "sysmaster" sql: "select * from flags_text"</pre>

16. On clicking Save Report button, you will navigate back to System Reports page.

17. Find newly created custom report on System Reports page.

Note:

- Though the report was created by selecting one server, once custom report is successfully created, this report will be available for all the servers added in InformixHQ.
- In case, the database used to create custom report does not exist (or doesn't have permissions) on another server and user tries to run custom report on such server, InformixHQ will report an error similar to this:

"Could not connect to Informix: jdbc:informix-sqli://<server>:<port>:<database>. Database (<database>) not found or no system permission.

Informix		Could not connect to informic piloc informic eqluit 0.1.1.10.16635.
Alerting	fol_atd > System Reports > Demo DB Customer Report	demo,,db. Database (demo,,db) not found or no system permission.
Permissions	Demo DB Customer Report	
Incidents	O No data available.	

Editing and deleting custom reports

About this task

It is very easy to modify or delete custom reports.

Similar to create report, admin user needs to login into InformixHQ and navigate to Report Management. System
Settings-> Report Management, where user can find list of all the custom reports created. Edit and Delete icons are
available for each of the custom reports.

InformixHQ		🚯 • 🛛 👤 admin •
Alerting Configuration Data Cleanup Configuration	Report Management	
Report Management	Q Search	
Sensor Management	Name *	
Server Configuration	Cust_Report	/ 亩
User Management	Test_repot_Test	/ =
	TestSystemReportSysmasterr	1 =

- 2. If user chooses to edit, same navigation will have to be followed as that of Create Report as detailed out above.
- 3. If user chooses to delete, there will a confirmation pop-up, if clicked yes, report will be deleted.

InformixHO			
Re Confirm		×	leport
Are you sure you want	to delete the report: Cust_Report?		
Cur		No Yes	•
Test_repot_Test	test report	Ż	Ť
TestSystemReportSysmasterr	TestSystemReportSysmasterr	1	10

Sensors

Sensors in InformixHQ

Sensor : A sensor defines a metric or set of metrics for the agent to gather. An example is the "DBSpace Usage sensor that gathers metrics on used and free space for all database server spaces.

Sensors are provided in InformixHQ to collect the data for metric which users want to monitor over a period. Once Sensor is configured, and InformixHQ agent is configured and Online, Sensor data will be collected at specified interval and stored in Repository database in Informix Server.

List of InformixHQ built-in sensors

Sensors in InformixHQ

InformixHQ provides many built-in sensors to monitor Informix server performance. User can configure a sensor from the list of built-in sensors or create a custom sensor based on a specific requirement. User can also monitor all the built-in sensors' list or custom sensors by adding them to the Dashboard or by creating alerts for them, and a few sensors can be monitored in HQ screens, which are mentioned in the table given below.

By default, there are no sensors added to InformixHQ for an instance of Informix Server. Users need to add sensors as per the monitoring requirements for each of the Informix servers defined in HQ.

When sensors are added to InformixHQ, corresponding tables in the repository database are created to store the sensor's data. These tables are named as <s>_<informix_server_id>_<sensor_name>.

For example, if an AF files sensor is added to a server instance with the Informix server ID "1," (Informix server ID can be found on the server setup page or in the URL), then the table name in the repository database will be "s_1_af_files," where "s" stands for sensor.

All the information regarding sensor tables and their storage details (like the number of rows, space utilization, size, etc.) is available on the Tables & Indexes page under the Storage menu.

Use the following steps to view the sensor data storage information:

- 1. Go to Storage -> Table & Indexes page in InformixHQ.
- 2. Select Dbspace -> select repository dbspace.
- 3. Select Database -> Select repository database from dropdown.
- 4. All the storage details regarding sensor will be shown in a table format.

Se Sensor Name	T Description	Sensor data availability on the
r	уре	InformixHQ screen
ial		
No.		

1	AF files	files	Monitors for the presence of AF (assert fail) files in the Informix database server's DUMPDIR.	• Generated AF files' count can be seen on Server details page under status.
2	Informix Server Status	ifx_ sta tus	Monitors the status of the Informix database server (online, offline, etc.)	
3	Operating System CPU	cmd	Monitors CPU usage on the operating system	 On Server details page On System Resource page
4	Operating System CPU per Core	cmd	Monitors CPU usage per core on the operating system	
5	Operating System Disk I/O	cmd	Monitors Disk I/O activity on the operating system	• On System Resource page
6	Operating System Disk Utilization	cmd	Monitors operating system disk usage for the storage devices used by the Informix database server.	On Server details pageOn Storage page
7	Operating System Memory	cmd	Monitors memory usage on the operating system	 On Server details page On System Resource page On Memory page under System Resource
8	Operating System Network I/O	cmd	Monitors network i/o activity on the operating system	• On System Resource page
9	Session Statistics	sql	Monitors the number of sessions connected to the Informix database server and the average and maximum amount of memory used by each session	• On Server details page

10	Checkpoint	sql	Monitors checkpoint statistics for the Informix database server	 On Server details page On Checkpoints page under Performance
11	Memory	sql	Monitors memory usage by the Informix database server	On Memory page under System Resource
12	Memory Segments	sql	Monitors the memory segments used by the Informix database server	
13	Buffer and Disk I/O	ifx_ dis kio	Monitors buffer and disk I/O activity on the Informix database server	• On Server details page
14	Chunk Writes	sql	Monitors chunk writes by the Informix database server	
15	Foreground Writes	sql	Monitors foreground writes by the Informix database server	• On Server details page
16	LRU Writes	sql	Monitors LRU writes by the Informix database server	
17	Sequential Scans	sql	Monitors the number of sequential scans performed on the Informix database server	• On Server details page
18	Thread Counts	sql	Monitors the number of Informix database server threads, keeping track of thread counts for each state (running, ready, waiting on mutex, etc.).	• On Server details page
19	Virtual Processors	sql	Gathers statistics about each virtual processor (vp) class.	
20	DBSpace Usage	sql	Monitors the space usage for dbspaces on the Informix database server	• On Storage page
21	Backups per dbspace	sql	Monitors the time of the last backups run for each dbspace on the Informix database server	• On Backups page
22	Online Log	log	Monitors the Informix database server's log file.	 In Online log, under Agent data
23	High Availability Workload	sql	Monitors the cpu workload % for each server in a high availability cluster. This sensor should be run on the primary server of a cluster.	

24	High Availability Lagtime	sql	Monitors the lagtime in seconds for each server in a high availability cluster. This sensor should be run on the primary server of a cluster.
25	High Availability Connection Status	sql	Monitors the connection status for each secondary server in a high availability cluster. This sensor can be run on any server of a cluster.
26	High Availability Logical Log Rate	sql	Monitors logical logs of a high availability cluster. This sensor should be run on the primary server of a cluster.
27	High Availability Approximate Log Backlog	ons tat	Monitors the approximate log backlog in seconds for each secondary server in a high availability cluster. This sensor should be run on the primary server of a cluster.
28	High Availability Transaction Latency	ons tat	Monitors the transaction latency in seconds for each secondary server in a high availability cluster. This sensor should be run on each secondary server of a cluster.
29	High Availability Apply Rate	sql	Monitors the apply rate for each secondary server in a high availability cluster. This sensor should be run on each secondary server of a cluster.
30	SLA Connections	sql	Monitors the number of connections for each SLA. This sensor should be run on those servers which are being managed by Connection Manager.

Note:

- 1. sql type of sensors collect database level information and run over jdbc connection with sysmaster database of monitored server.
- 2. "ifx_status and "ifx_diskio types of sensors collect database related information from server and runs over jdbc connection with sysmaster database of monitored server.
- 3. "cmd, "files and "log types of sensors collect OS level information and run as command on host OS.
- 4. "Onstat" type of sensor collects data from onstat command and monitors based on that data.
- 5. The InformixHQ Agent can be started in two modes:



- Local mode: It means that the InformixHQ Agent is running on a host machine for Informix Server, where all types of sensors can be run i.e. server-level sensors (sql and ifx) as well as OS-level sensors (cmd, files, and log).
- Remote mode: It means running the InformixHQ Agent from another machine that is not an Informix Server host machine, where only server-level sensors (sql and ifx) can be run due to a limitation that OS-level sensors (cmd, files, and log) can not log data since data is collected by executing commands on the host OS for these types of sensors.

Creating sensors from InformixHQ built-in sensors

Using InformixHQ, sensors can be added in two ways:

Adding a sensor for a specific Informix server

About this task

Follow given steps to add a sensor for a specific Informix server:

1. Click on Server card to navigate to Server Dashboard page.

Dashboards	Root Group
Monitoring	Root Group
Alerting	✓ Groups (0)
Permissions	 Servers (1)
Incidents	lo_20211011153958
	SERVER STATUS

2. From the Server Dashboard page, click on Monitoring tab from the menu.

InformixHQ		
Q	Root Group > lo_20211011153958	
lo_20211011153958	V lo_20211011153958 Server Data Agent	Dal
Setup	Status	
Dashboards	Server: Online	
	Agent: Online	
Monitoring	Server type: Standard	
Alerting	Online log: 0 errors, 0 warnings	
P		

3. Click on **+ Add sensors** button.

InformixHQ	⊕ - 👤 admin -
Q	Root Group > Io_20211011153958 > Monitc
lo_20211011153958	Sensors + Add Sensors
Setup	No sensors defined.
Dashboards	Inherited Sensors (View parent profile)
Monitoring	Parent group has no sensors defined.
Alerting	
Dormineione	

4. By clicking on **+ Add sensors** button, a model appears with available built-in sensors which is by default provided by InformixHQ.

Note: User can add multiple sensors based on the requirements or can also add custom sensors by clicking on Create Custom Sensor button. For more details on creating custom sensors, refer Creating custom sensors on page 67.

Add S	ensors								
Creat	e Custorn Sen	sor							
Q S	earch								
	Name *			Descrip	tion				
	AF files			Monitors	s for the	presence of	AF (assert	fail) files in	the Informix datab
	Operating S Memory	system		Monitors	s memo	ry usage on t	the operatin	ig system	
First	Previous	2	3 4	Next	Last				
Add	Sensors	Cancel							

- 5. Select sensors from existing sensor list to monitor your Informix server performance from the model window & then click on **Add Sensors** button.
- 6. Once sensors are added based on the requirements, click on Save Changes button to save all added sensors.

Name * Run Interval Data Retention Interval	dd Senso
Operating System Memory 🔤 15 seconds 30 days 💉	0 1
Parent group has no sensors defined.	

7. After saving changes, on Monitoring tab, user can view all added sensors.

InformixHO				0 -	👤 admin 🕞
Q	Sensors		+	Add S	ensors
lo_20211011153958	Name *				
Setup	Operating System Memory	/	C	\odot	ŧ
Dashboards	Memory	1	S	0	đ
Monitoring	Inherited Sensors (View paren	t profile)			
	Parent group has no sensors define	ed.			
Alerting	✓ Save Changes × Discard Chan	ges			
Desertionisme					

Note: On **Monitoring** tab, user can view all added sensors & custom added sensors if any sensors already exist for selected database or root group.

Adding a sensor on a root group

About this task

Follow given steps to add a sensor on a root group:

1. To add a sensor for all available Informix servers at root group, click on **Monitoring** tab and then click on **+ Add Sensors** button from root group.

InformixHQ		🕒 - 🚊 admin -
Dashboards	Root Group > Monitoring	
Monitoring	Sensors	+ Add Sensors
Alerting	No sensors defined.	
Permissions		
Incidents		
Incidents		

2. All added sensors can be viewed from **Monitoring** tab for root group.

InformixHQ					
Dashboards	Root Group > Monitoring				
Monitoring	Sensors		+	Add S	ensors
Alerting	Name *		1		
Permissions	AF files	/	£	$^{\circ}$	ā
Incidents	Backups per dbspace	/	Q	\odot	Ū
	DBSpace Usage	/	0	\odot	ŧ

Note: Once sensors are added in root group, all root group sensors will be available for each of the Informix server in InformixHQ.

3. To view all available sensors for root group from a specific server, click on **View parent profile**. **View parent profile** link will navigate to **Monitoring** page on root group.

0	No sensors defined.			
nher	rited Sensor	S (View parent	profile)	
	Name *	Ren Internal	Data Referition Interval	
	DBSpace Usage	5 minutes	30 days	\circ \uparrow

Overriding a sensor for a specific Informix Server

About this task

Based on the requirements

- 1. sensors can be inherited from root group
- 2. sensors can be overridden for a specific Informix server
- 1. Select server card as per the requirement.
- 2. Click on **Monitoring** tab menu.

Note: User can view all available sensors for root group in Inherited Sensors section. User can also view sensors in Sensors section, if sensors already existed for a specific Informix server.

real
\odot \uparrow

3. Clicking on Override & Disable icon will make inherited sensor override for your specific server with disabled.

	ors	1 of 1 sensor(s) selected	~	0	ш		Add S	ensor
	Name *							
	DBSpace Usag	Conseile Here Disailard			1	P	~	Ō
Inheri	ted Senso	OFS (View parent profile)						
Inheri	ted Senso	OFS (View parent profile)						

4. Clicking on Override icon will make inherited sensor override for your specific server with enable state.

0	No sensors defined.			
nhei	rited Sensor	S (View parent	profile)	
	Name *	Ren Internal	Data Relation Interval	
	DBSpace Usage	5 minutes	30 days	\circ \uparrow

5. After clicking on Override icon,

~	Name *				
	DBSpace Usa	10 Greenide Harr		1	∩ ✓ ₫
Inher	ited Sens	OFS (View parent profile)			
Inher	ited Sens	OFS (View parent profile)			

Note: All override sensors checkboxes are disabled after overriding for a specific server in Inherited Sensors section. If user deletes any inherited sensors from Sensors section, those sensors will be available in the inherited sensors again in enable state.

Modifying sensors

Using InformixHQ, user can take following actions related to the sensors:

Editing sensors

About this task

To edit an added sensor follow the given steps:

1. Click on Pencil icon.

nfo	rmixHQ			⊕ - ≜ adn
ens	ors			+ Add Sensors
	Name *	Run Interval	Data Retention Interval	
	Operating System Memory	15 seconds	30 days	00 1
	rited Sensors (View pare Parent group has no sensors defin			
✓ Si	ave Changes × Discard Cha	nges		

- 2. Default values for parameters are provided by the InformixHQ. User can modify those as needed.
 - **Run Interval :** A Sensor will run after specified time period (based on the selection), e.g. seconds, minutes, hours, days, weeks, months.
 - Data Retention Interval Days: InformixHQ will retain collected sensor data for specified number of days from the date of collection, after which data will be deleted or
 - Indefinite : InformixHQ will retain data forever without deleting it.

InformixHQ	🕒 - 🙎 admin -
Sensors	
Name *	
Operating System Memory	
Configure Operating System Memory Sensor Run Interval: 15 seconds v	
Data Retention Interval: 30 C day(s) Indefinite	

Deleting sensors

About this task

To delete an added sensor follow the given steps:

Click on **Delete** icon. User can delete multiple sensors also.

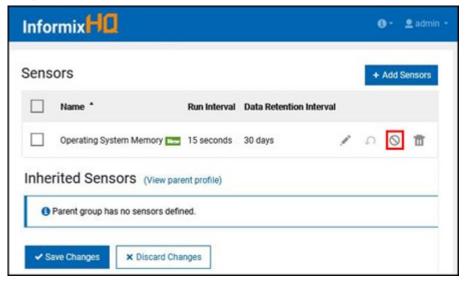
Info	rmixHQ				(👤 admin
Sens	ors				+	Add S	Sensors
	Name *	Run Interval	Data Retention Interval				
	Operating System Memory	15 seconds	30 days	/	S	0	亩
	rited Sensors (View pare	ent profile)	30 Gays	/	\$)	0	

Enabling/Disabling sensors

About this task

Follow the given steps for enabling/disabling an added sensor:

- 1. Click on **enable/disable** icon. Check images given below carefully to notice different icons based on enable/disable actions. Based on the modified state, InformixHQ notifies the user by putting tag next to sensor name.
- 2. Save changes after modification by clicking on **Save Changes** button. **New** tag next to the sensor name indicates a newly added sensor as shown below.



3. Similarly, Modified tag indicates a modified sensor.

InformixHQ Sensors				
Name *	Run Interval	Data Retention	_	Add Sensors
Operating System Me	mory Modified Domitiand	30 days	10	✓ 亩
nherited Sensors	(View parent profile)			
Parent group has no set	nsors defined.			

Undo editing done on sensors

About this task

To revert back to the default InformixHQ sensor parameters, follow the given steps:

Click on Undo edits icon.

				+ Add S	Sensors
• •	Run Interval	Data Retention Interval			
iting System Memory 🔛	15 seconds	30 days	/	0	亩
			e * Run Interval Data Retention Interval	_	e * Run Interval Data Retention Interval

Creating custom sensors

This topic explains how to create a custom sensor using InformixHQ. A custom sensor can be created in the following two ways:

Creating a custom sensor using Monitoring option

About this task

This topic explains how to create a custom sensor using InformixHQ Monitoring option.

- 1. Select the desired server from InformixHQ.
- 2. Click on **Monitoring** option from side menu.

InformixHQ		
<u>م</u>	Root Group > ol_20210819110628	
ol_20210819110 ∨	ol_20210819110628 Server Data	ent Data
Setup	Status	
Dashboards	Server: Online	Database spaces Last backup
Monitoring	Agent: Offline Server type: Standard	Spaces not backed up Auto Update Statistics
Alerting	Online log: 0 errors, 0 warnings	Auto opuate statistica
Permissions	highAvailability.pageTitle	
Incidents	A highAvailability.serverNotInHA	

3. Click on + Add Sensors button.

InformixHQ		() - <u>.</u> admin -
٩	Root Group > ol_20210819110628 > Monitoring	
ol_202108191106 🗸	The monitoring agent is not running. You can configure se	
Setup	Sensors	
Dashboards		+ Add Sensors
Monitoring	No sensors defined.	
Alerting	Inherited Sensors (View parent profile)	
Permissions	Parent group has no sensors defined.	
Incidents		

4. Add Sensors pop up appears. For creating a custom sensor, click on Create Custom Sensor button.

boar	Add S	ensors	×
torin	Create	e Custorn Sensor	1
ing	Q st	ate	×
iissio		Name *	Description
nts		sensors_state	sensors_for_state
		Thread Counts	Monitors the number of Informix database server threads, keeping tr(running, ready, waiting on mutex, etc.).
	Add S	Sensors Cano	el

5. Create Custom Sensor button will navigate user to Create Sensor setup page.

InformixHQ		 👤 admin 👻
Alerting Configuration	Create Sensor	
Data Cleanup Configuration	Save Sensor	
Report Management	SQL Metrics Sensor Preview	
Sensor Management	An InformixHQ SQL Sensor is based on a single SQL statement th	
Server Configuration	Selected server: None Select	
User Management		
	Run	

6. Click on the **Select** button to view the list of servers.

Informix	a		
Alerting Configurati	ion	Create Sensor	
Data Cleanup Confi	iguration	Save Sensor	
Report Manageme	Select a se	rver	
Sensor Manageme	K Root	Group	
User Management	₿ ol_20210	319110628	
		Run	
6			

- 7. Select the desired server from the server list.
- 8. After selecting the desired server , write a query in text area & click on **Run** button to execute the query.

InformixHQ	🕲 - 🙎 admin
Alerting Configuration	Create Sensor
Data Cleanup Configuration	Save Sensor
Report Management	SQL Metrics Sensor Preview
Sensor Management	An InformixHQ SQL Sensor is based on a single SQL statement that the a
Server Configuration	Selected server: ol_20210819110628 Select
User Management	select * from syscdr_state
	Run

- 9. Clicking on **Run** button will show query data preview.
 - Transpose : Transpose (or pivot) will transform rows into columns based on the selected columns.
 - **Primary Key :** If a query returns multiple rows describing multiple objects (e.g.: dbspaces), the primary key will be used to uniquely identify each object. Null and duplicate values will be ignored.

Informix			🕒 * 💆 admin *
Alerting Configuration	Run		
Data Cleanup Configuration	Data configuration		
Report Management	Disabled 🗸		
Sensor Management	Transpose requires a query which re Primary Key	turns exactly 2 columns.	
Server Configuration	None 🗸		
User Management	Next > Data preview		
	er_state	er_capture_state	er_network_state
	Uninitialized	Uninitialized	Down

- 10. Click on **Next** button to navigate to **Metrics** tab. Metrics tab defines metrics for your columns. Change values as per the requirements.
 - Name : The display name of metric.
 - Unit : The unit determines how will this metric be displayed by default.
 - **Default value :** The default value of this metric if the query returns a null or invalid value. If blank, an invalid value will be ignored.
 - Calculate delta : If enabled, the sensor will calculate and store the difference per second between the latest reading and the previous reading.

Informix		❻ • 👲 admin •
Alerting Configuration	SQL Metrics Sensor Preview	
Data Cleanup Configuration	Show All 🗸	
	er_state	
Report Management	Name 0	
Sensor Management	er_state	
	Unit 😧	
Server Configuration	None	~
User Management	Default value 🕐	
	Calculate delta Next >	

- 11. After making the changes click on **Next** button to navigate to the **Sensor** tab. **Sensor** tab provides all the related details for a sensor as per the requirements.
 - ID : The ID to uniquely identify this sensor. Can only use lowercase characters, digits, and single underscores
 - (e.g.: my_custom_sensors).
 - \circ Name : The display name of this sensor.
 - Descriptions : Add detailed description of the sensor.
- 12. User can change Default run interval and Data retention interval as per the requirements.

Informix		🚯 - 🚊 admin -
Alerting Configuration	SQL Metrics Sensor Preview	
Data Cleanup Configuration	ID my_custom_sensors	
Report Management	Name 🕢	
Sensor Management	sensors_state	
Server Configuration	Description	
User Management	Default run interval 1 minute Default data retention interval 30 day(s) Next >	

13. Click on Next button to navigate to Preview tab. Preview tab shows query preview for a custom sensor.

InformixHQ		🕒 - 👱 admin -
Alerting Configuration	Create Sensor	
Data Cleanup Configuration	Save Sensor	
Report Management	SQL Metrics Sensor Preview	
Sensor Management	Sensor JSON Preview	
Server Configuration	{ id: "my_custom_sensors"	
User Management	<pre>name: "sensors_state" description: "sensors_for_state" meta: { default: { type: "sql" type: "sql"</pre>	
	<pre>sql: "select " from syscdr_state"</pre>	
	sleepBetweenExecution: 60 dataRetentionInterval: 30	
	- defaults: {	
	er_state: 0	

- 14. View your Sensor JSON Preview.
- 15. Click on **Save Sensor** button and **Confirm** to create a custom sensor.
- 16. After confirming, user can view list of all custom sensors created for a selected server on **Sensor management** page.

Informix HQ			⊕ - <u>●</u> admin -
Alerting Configuration	Sensor Manage	ment	Create Sensor
Data Cleanup Configuration	Q. Search		
Report Management	Search		
Sensor Management	Name *	Description	
	sensors_state	sensors_for_state	面
Server Configuration			
User Management			

17. User can view recently added custom sensors in the sensor list from **Monitoring** page using **+ Add Sensors** model pop up.

Inform	e a state a sta)- 👱 admin
Dashboar	Add Sensors X	
Monitorin	Create Custom Sensor	
Alerting	Q state X	Group
Permissio	Name * Description	
Incidents	sensors_state sensors_for_state	Server
 	Thread Counts Monitors the number of Informix database server threads, keeping tr(running, ready, waiting on mutex, etc.).	
	Add Sensors Cancel	

Creating a custom sensor from admin menu

About this task

This topic explains how to create a custom sensor using InformixHQ admin menu.

- 1. Click on admin dropdown.
- 2. Click on System Settings.

Dashboards	Root Group		My Settings
			System Settings
Monitoring	Root Group		Log Out
Alerting	✓ Groups (0)	Search groups	Add Group
Permissions			
Incidents	✓ Servers (1)	Search servers	Add Server
	ol_20210819110	628 :	
	? SERVER STATUS	O AGENT STATUS	
	0.	NCIDENTS	

- 3. Click on Sensor Management.
- 4. Click on Create Sensor.

Informix			🚯 - 🙎 admin -
Alerting Configuration	Sensor Manage	ement	Create Sensor
Data Cleanup Configuration	Q. Search		Greate Serisor
Report Management	Name *		
Sensor Management		Description	
Server Configuration	sensors_state	sensors_for_state	Ť
User Management			

Schema Manager

The **Schema Manager** page allows you to browse and view detailed information about the various tables and indexes in each of your databases.

Use the Schema Manager to:

- View detailed information about Databases
- View detailed information about Tables
- Create a Database
- Create a Demo Database
- Drop a Database
- Create a Table
- Drop a Table
- Create an Index
- Delete an Index

Viewing Database Information

You can view detailed information about database using different tabs like Stored Procedures, Sequences, User Defined Types, Data Blades etc.

To view database information:

- 1. Go to the Schema Manager page in InformixHQ.
- 2. Select any table from the list.
- 3. Click on each tab to view the information like Stored Procedures, Sequences, User Defined Types, Data Blades.

Viewing Table Information

You can view detailed information about tables using different tabs like Indexes, References, Constraints, Triggers etc

To view information about table:

- 1. Go to the Schema Manager page in InformixHQ.
- 2. Select any table from the list.
- 3. Click on each tab to view the information like Indexes, References, Constraints, Triggers.

Creating a Database

To create a database:

- 1. Go to the Schema Manager page in InformixHQ.
- 2. Select any database from the list.
- 3. Click ... and Select Create Database

- 4. Enter the required details.
- 5. Click the Finish button. The new database will be created.

Creating a Demo Database

To create a demo database:

- 1. Go to the **Schema Manager** page in InformixHQ.
- 2. Select any database from the list.
- 3. Click ... and Select Create Demo Database
- 4. Enter the required details.
- 5. Click the **Create** button. The demo database will be created.

Dropping a Database

To drop a database:

- 1. Go to the Schema Manager page in InformixHQ.
- 2. Select the database you want to drop.
- 3. Click ... and Select Drop Database
- 4. Click **Yes** to confirm. The database will be dropped.

Creating a Table

About this task

This topic explains the steps to create a table using InformixHQ UI.

There are five types of tables:

- 1. Standard table
- 2. Raw table
- 3. External Fixed table
- 4. External Delimited table
- 5. External Informix table

Standard & Raw table types are almost similar & three external table types are almost similar. This topic explains how to create both table types.

To create a table, follow the steps given below:

- 1. Go to the Schema Manager in InformixHQ.
- 2. Select desired database and click on menu option (3 dots) next to Select Database dropdown.
- 3. Click on Create Table option from dropdown to create a table

Q sche	NYC_server > Schema Mana	sger		
Performance ;	Select Database	er ~ <u>5</u>		
Schema Manager	Q Search		Database Editor	
Server Administration	bld_registered	Drop D	Demo Database atabase	Stored Procedures & Functions Seque
	bldi_provided View : bldi_prov	Create	Database Name	Owner
	bldi_required			
	calendarpatterns		Logging Mode Unbuffered	Locale en_US.819
	calendartable		GLS Disabled	Load Task 0

To create a Standard or Raw type table:

- a. Enter mandatory fields such as Table Name and Table Owner.
- b. Select Standard(default) or Raw type from **Table Type** dropdown.
- c. Click on Add Column for adding columns to the table.
- d. To cancel Create Table operation click on Cancel button.

e. Next button will be enabled after user is done adding columns to the table.

Table Name	* Table Owner	Table Type	
testTable	informix	Standard 🗸	
able Columns			Add Columns
No columns define	d.		
Table Check Constra			
Table Check Constra			
Table Check Constra			
Table Check Constra			

- a. By clicking on **Add Columns** button pop up will appear to add column details.
- b. Enter values for all mandatory fields(*).
- c. To give a constraint on any column, click on **Column Check Constraint** checkbox.
- d. Multiple columns can be added using the same pop up.
- e. To go back to the main screen, click on Close button or cross icon in the upper right corner.

Add Columns			×
Column Name	Select DataType		
charColumn	CHAR 🗸	Allow Null Values	
efault Value	Length (bytes)		
abd 🔻	32		
Column Check Constraint			
			Close Add

- a. Once columns are added, user can view, edit, delete any of the columns.
- b. Table level constraint can be added on this screen by clicking on Table Check Constraint checkbox.
- c. Once details related to the columns are finalized, clicking on Next button takes user to add constraint page.

Table Name	* Table Owner	Table Type	
testTable	informix	Standard V	
able Columns			Add Columns
Table Columns	Data Type	Length/Attribute	
charColumn	CHAR	Length: 32 (bytes)	/ 亩
intColumn	BIGINT		/ 1

- a. This screen is for adding a constraint like primary key, foreign key, unique key to a table.
- b. To assign primary key to a table, give Primary Key Name & select Primary Key Columns.

primaryKey		
O No more columns available.	Primar	y Key Columns
	> intColu	mn
Foreign Key	Add Unique Key	Add
 No foreign key defined. 	No unique	key defined.

- a. To add Foreign key constraint, click on **Add** button in Foreign key section.
- b. To assign a foreign key for a table, give Foreign Key Name & map Referenced Column with Table Column.

Add Foreign Key * Foreign Key Name			×
foreignKey			
Primary Key Onique Key	Map the referenced columns	to the table columns.	
Select a key to reference	Referenced Column	Table Column	
 informix.table2 	bigintcolumn	intColumn	~
• pk11			
Disable the index for this foreign key			
			Close Add

- a. To add a Unique key constraint, click on Add button in Unique key section.
- b. To assign a unique key for a table, give **Unique Key Name** & select **Available Columns** from the list. This will enable the **Add** button.

Add Unique Key	×
* Unique Key Name Insert unique key name	
Available Columns	
intColumn	A
	↑ ↓
	Close Add

a. Once constraints are added user can go to either View SQLor Advance Table Options

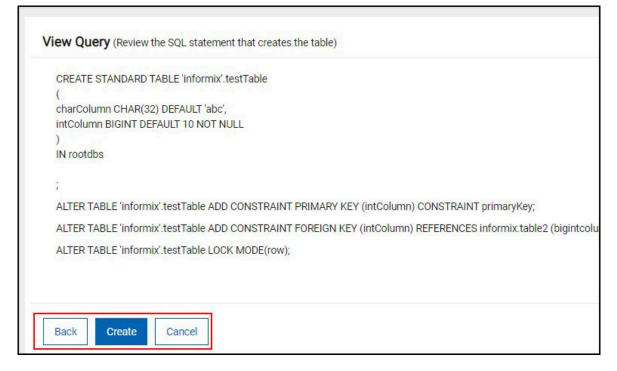
Back	Advance Table Options	View SQL	Cancel		

a. Modify advance table level options using the screen given below. For example, changing lock mode, storage scheme, update statistics, etc.

Table Advance Options		
Lock Mode O Page	Row	
Table Options		
Row versions columns (V	ERCOLS)	Primary key columns for ER (ERKEY)
Conflict resolution colum	ns for ER (CRCOLS)	Selective row-level auditing (AUDIT)
Consistency checking col	lumns for ER (REPLCHECK)	Automatic compression (COMPRESSED)
Auto Update Statistics Options		
Specify the minimum change thre	shold: 🔘 Use the system setting 🤇	Set the threshold
Enter the Extent Size or use Exten Extent Size Estimator Expected number of rows	Growth Rate Static Estimate	
Extent Size(KB)		
First Extent	Next Extent	
Index Storage Options	Follow the table storage scheme 🔘 Specify	the storage scheme
Back View Query & Creat	e Cancel	

- a. Once advance table option are set, click on **View Query & Create** button to view SQL query for creating the table.
- b. After clicking on **View Query & Create** button from Advance Table Options or on **View SQL**button from **Add Constraints** screen, user will be able to view 'create table' query as shown in the screen given below.
- c. Click Create button to create the table.
- d. If table is created successfully, information status message will be shown and user will be taken back to **Schema Manager** page.
- e. If table creation fails, error status message is displayed and all the create table related queries will be rolled back

f. To go back to modify any properties click **Back** button and to cancel the operation of create table click on **Cancel** button.



External table type:

To create an External type table:

- a. Enter mandatory fields such as Table Name and Table Owner.
- b. Select one of External Fixed, External delimited, External Informix table type from Table Type dropdown.
- c. Click on Add Columns for adding columns to the table.
- d. To cancel Create Table operation, click on Cancel button.

e. Next button will be enabled once user adds columns to the table.

* Table Name	* Table Owner	Table Type	_
testingTable	informix	External Fixed	~
 No columns defined 			
No columns defined	•		

- a. By clicking on Add Column button, a pop up will appear to add column details.
- b. Enter all the mandatory field values(*).
- c. User can add multiple columns using the same pop up.
- d. To go back to the main screen, click on **Close** button or **Cross** icon.

Add Columns				
Column Name	Select DataType	2		
charColumn	CHAR	~		
Default Value	Length (bytes)			
abd	32			

- a. Once columns are added, user can view, edit , delete any of the columns.
- b. Once column details are finalized click on Next button to go to External Table Options

Table Name	* Table Owner	Table Type		
user	informix	External Fixed 🗸		
able Columns			Add Col	umns
Table Columns	Data Type	Length/Attribute		
charcolu	CHAR	Length: 32 (bytes)		靣
inter	CHAR	Length: 32 (bytes)		đ

a.	Provide information f	or external t	able options &	add mandatory	data file by	clicking on +Add button.
----	-----------------------	---------------	----------------	---------------	--------------	---------------------------------

Format Date Format	Money Format		
MDY4/	~		
oad Options			
Number of Rows	Maximum Error	Reject File	
50	50		
Data Files			+ Add
No data available.			

a. Following pop up is used to add data files to an external table.

Add Data Files	×
Type Disk Pipe * File Name diskname	
Options BLOB Directory	
/temp	
CLOB Directory	
	Cancel Add

- a. Once data files are added, user can view, edit , delete any of the data files.
- b. Once External table options are finalized click on **View Query & Create** button to view SQL query for creating the table.

c. User can either go Back or Cancel	the operation u	sing respective buttons.
--------------------------------------	-----------------	--------------------------

Format			
Date Format	Money Format		
MDY4/	~		
Load Options			
Number of Rows	Maximum Error	Reject File	
50	50		
* Data Files			+ Add
Туре	File Name		
disk	PATH:diskname;BLOBDIR:/	'temp	/ 亩

- a. After clicking on **View Query & Create** button from the external table option, user will be able to view create table query as shown in the screen below.
- b. Click Create button to create the table.
- c. If table is created successfully information status message will be shown and user will be taken back to **Schema Manager** page.
- d. If table creation fails, error status message will be displayed and all the create table queries will be rolled back.

e. To go back to modify any properties, click **Back** button and to cancel the operation of create table click on **Cancel** button.

CREATE External TABLE 'informix'.testingTable	
(
charColumn CHAR(32) EXTERNAL CHAR(32) DEFAULT 'abc',	
integerColumn INTEGER EXTERNAL CHAR(32) DEFAULT 10	
USING	
(
DATAFILES('DISK:diskname'),	
FORMAT 'FIXED',	
Deluxe,	
NUMROWS 50,	
MAXERRORS 50,	
REJECTFILE ",	
DBDATE 'MDY4/'	
);	

Dropping a Table

- 1. Click on Schema Manager in InformixHQ.
- 2. Select a desired database from Select Database dropdown which contains the table to be dropped.
- 3. From the table list shown, locate the table to be dropped.
- 4. Click on menu option (3 dots) next to this table and select Drop Table from the dropdown menu to drop a table.

5. Confirm action on pop over (confirmation pop up for dropping a table).

elect Database					
sysmaster 🗸	··· <u>6</u> 2				
Q, Search	Y (5	Info SQL E	ditor		
flags_text	î	sysmaster > flags_:	lext		
Table : flags_text	Creat	e Index	rmation Columns	Indexes	References
logmessage	* Drop	Table	as_text		
smi_build_status		Information			
		Table name:			Owner:

Creating an Index

To create an index:

- 1. Go to the Schema Manager page in InformixHQ.
- 2. Select the table.
- 3. Click ... and Select Create Index
- 4. Enter the required details.
- 5. Click the View SQL button to review the SQL statement.
- 6. Click the Create button, index will be created.



Note: You can also enable or disable the index.

Deleting an Index

To delete an index:

- 1. Go to the Schema Manager page in InformixHQ.
- 2. Select the table for which you want to delete the index.
- 3. Click the Indexes tab.
- 4. Select the index you want to delete.
- 5. Click the Delete icon.
- 6. Click Yes to confirm. Index will be deleted.

SQL Editor

Why use the SQL Editor?

The SQL editor allows user to run Structured Query Language (SQL) statements in a InformixHQ for the Informix database server. User may use SQL editor to retrieve, create, change, or delete data in a database, if user has database permissions to perform these actions. In short, it creates a way for managing and manipulating data in the database.



Note: SQL Editor supports single query execution only. Execution of multiple queries and other editor features will be considered for forthcoming releases.

How to use the SQL Editor?

Follow the steps given below to navigate to the SQL editor:

- Select server in informixHQ on which you have to run SQL query.
- Select Schema Manager from side menu.

InformixHQ				
Q		Root Group > My	server > MyData	
Performance	>	MyData	Server Data	Agent Data
Replication	>			
Schema Manager		Status		
outerna manager			Server:	Online
Server Administration	>		Agent:	Offline
			Server type:	Standard
Storage	>		Online log:	0 errors, 0 warnings
SQL Tracing			AF files:	0

• Once user clicks on Schema Manager menu, Schema Manager page shows below tabs:

- 1. Info : Tab will show all the details (Properties) for selected database & table.
- 2. SQL Editor : Tab allows user to run SQL query for selected database & table.

elect Database		
sysmaster	· ··· <u>(</u> 5	Logged in as: informix Change L
Q Search	¥ 5	Info SQL Editor
flags_text		select * from flags text
logmessage		
smi_build_status		Run Query History

Changing logged in user

About this task

This topic explains steps for changing logged in as user.

1. User can change 'logged in as' by clicking on **Change User** button.

elect Database	-				
sysmaster	~ ***	5⊇		Logged in as: informix	L Change Us
Q. Search	Ŧ	<u>5</u>	Info	SQL Editor	
flags_text		^	selec	t * from flags text	
logmessage					
smi_build_status			Run	Query History	

2. Click on Change User button to navigate to the Schema Manager screen where user can select credentials.

Select credentials	
O Monitoring O Admin O Other	
Username	
Password	
Log In Cancel	

Using SQL Editor to view table records

About this task

This topic explains how to use SQL Editor for viewing table records and SQL execution plan.

1. Select the required database & table from the Schema Manager page.

InformixHQ						
٩		MyData > Schema Manager				
MyData	>	Schema Manager				
Incidents		Select Database sysmaster ~]	<u>د</u> 5		
Configuration		Q. Search	, T	<u>5</u>	Info	SQL
Logs	>	flags_text]	^	Database	Details
Performance	>				Inform	nation
Doplication	~	logmessage				

- 2. On Info tab, InformixHQ will show properties for database & table based on user's selection.
- 3. Click on SQL Editor tab, write the query in the text area and click on Run button.

Data > Schema Manag	er					
Schema Mana	ger					
sysmaster	×	<u>ç</u> 5				
Q Search	7	<u>5</u>	Info	SQL Editor		
		^	-		ext	_

- 4. Clicking on **Run** button, will show results in the following two tabs:
 - a. Result : Tab will show all the records available for the given query.
 - b. **Execution Plan :** Tab will show SQL query execution plan in a tree format if plan is available for the given query.
- 5. To view last 10 queries, click on Query History button.

elect Database				
sysmaster	• •••	<u>5</u>	Logged in as: informix Change	Us
Q, Search	Ŧ	<u>5</u>	Info SQL Editor	
flags_text		^	select * from flags text	
logmessage				
smi_build_status			Run Query History	

6. Clicking on Query History button, model will appear to select a query and run (last 10 queries).

Query History		×
Select from the list below to re-run any of the last 10 SQL statements.		
Last 10 SQL Statements		
select * from flags_text		
select * from flags_text		
	Cancel	Select

7. Select query from **Query History** model and click on **Select** button. Selected query will appear in SQL Editor in text area.

elect Database						
sysmaster	× "	٠	52		Logged in as: informix	L Change U
Q, Search	7	*	<u>5</u>	Info	SQL Editor	
flags_text	4		^	selec	t * from flags text	
logmessage	2					
smi_build_status				Run	Query History	

Note:

- a. InformixHQ saves last 10 executed queries for each database.
- b. Saved queries will clear from history once user logs out from InformixHQ.

Using SQL Editor to view SQL execution plan

About this task

New feature of viewing query execution plan is now available in InformixHQ v1.6.0 onwards.

• **Pre-requisite:** For Informix server to generate execution plan, **SQL tracing should be enabled**. Once execution plan is generated by server, it will be available in the **Execution plan** tab of the SQL editor.

1. To view SQL execution plan, click on **Execution Plan** tab.

Informix HQ	
bldi_provided	
bldi_required	 Run Query History
calendarpatterns	 Result Execution Plan
calendartable	 < 1/- > 5 Run time:
	order_num order_date custor
call_type	 1001 5/20/2008, 12:00:00 AM 104
catalog	 1002 5/21/2008, 12:00:00 AM 101

2. If SQL tracing is disabled, user can enable SQL tracing from **Execution Plan** tab also. Click on **Click here** option from **Execution Plan** tab.

Info	SQL Editor
select *	from customer
Run	Query History
Result	Execution Plan
	o view query execution plan enable SQL tracing. Currently SQL tracing is disable for demo_db database Click here to enable SQL tracing & configure.

3. Clicking on Click here, shows SQL tracing Configuration option. Click on **Edit Configuration icon** (Pencil icon).

Query History		
tesuit Execution Plan		
A To view query execution plan en	able SQL tracing. Currently SQL tracing is disable for repodb dat	abase. Click here to enable SQL tracing & configu
A To view query execution plan en	able SQL tracing. Currently SQL tracing is disable for repodb dat	tabase. Click here to enable SQL tracing & configu

4. Clicking on Edit Configuration icon shows below SQL tracing option to configure.

Configuration		B 0
Status:	Enable Disable	1
Mode:	Global	v
Level:	Low	~
Number of traces:	500	0
Trace Size:	2 🗘 KB 🗸	
Traced databases:	All databases	

Note: Any selected database from the Schema Manager can be added in the traced databases list. User can remove selected database from the list by clicking Enable button.

5. For enabling SQL Tracing on for selected databases or for all databases, click on **Enable**.

Configuration			B 0
	Status:	Enable Disable	
	Mode:	Global	
	Level:	Low	
	Number of traces:	500	0
	Trace Size:	2 С КВ ч	

6. To turn on SQL tracing for the selected databases, click on the **databases drop-down** & select databases from the list OR select all databases based on the requirement.

Configuration		B 0
Status:	Enable Disable	
Mode:	Global	~
Level:	Low	~
Number of traces:	500	C
Trace Size:	2 🔅 КВ 🗸	
Traced databases:	All databases	
	repodb x sysadmin x sysuser x	
	Search	
	repodb	
	sysadmin	
	sysmaster	
	sysuser	
	sysutils	

7. Click on **Save** icon to save the configuration after changes are made.

Configuration		BO
Status:	Enable Disable	النا النا
	Claure Place	
Mode:	Global	~
Level:	Low	~
Number of traces:	500	0
Trace Size:		
	2 C KB ~	
Traced databases:	All databases	
	repodb x sysadmin x sysuser x	~
SQL tracing is currently enabled. To disable SQL tracing pl Configuration	ease click here.	
		/
Configuration Status:	Enabled	<u>/</u>
Configuration Status: Mode:	Enabled Global	/
Configuration Status:	Enabled	/
Configuration Status: Mode: Level:	Enabled Global Low	/

8. If SQL tracing is enabled from **Execution plan** tab, query needs to be re-executed for Informix server to generate execution plan. InformixHQ will ask user for the same, once SQL tracing is enabled form execution tab.

InformixHC				
Q	- 1	Schema Manager		
std_server	~	Select Database		
		demo_db 🗸 🗸	··· (5	
Setup			-	Info SQL Editor
Dashboards		Q, Search	¥ 52	
Monitoring		call_type		Fetching Execution Plan
Alerting		catalog		A To view execution plan, query must be re-executed. Do you want to run the query?
Permissions		classes		No Yes
Incidents				
Configuration		cust_calls		CUI
Logs	>	customer		SQL tracing is currently enabled. To disable SQL tracing please click here.

- \circ If user chooses Yes, query will be re-executed and plan will be displayed if available.
- If user chooses No, then user needs to re-run the query to view query execution plan.

Note: If execution plan is readily available, InformixHQ will fetch and display the query plan for given query. InformixHQ will try fetching SQL execution plan within first 10 seconds. If SQL execution is not shown within couple of tries, it is recommended to run the query from the SQL Editor.

9. User can terminate fetching SQL execution plan by clicking on **Terminate** button.

Inform	nixHQ		
7	Fetching Execution Plan		
ion Plan	Fetching SQL execution Plan		
ently enat			
		Terminate)

10. User can retry fetching SQL execution plan by clicking on **Try Again** button if InformixHQ is unable to fetch SQL execution plan.

Infor	mixHQ
ry	Fetching Execution Plan
tion Plan	 Fetching SQL execution plan taking more time than usual. Do you want to try again ? Alternate solution : Re-run the same query from SQL editor.
	Cancel Try Again

	nixHQ			
		1. Hash Join		
•••		Cost Estimated rows	124653 2180635	
		Actual rows Elapsed Time	26 0.0066	
	2. Hash Join			
	Cost Estimated rows Actual rows	61214 276976 26		

11. Once InformixHQ fetches SQL execution plan successfully, result will be shown in the Execution Plan tab.

Connection Manager

. The **Connection Manager** page allows you to visualize and manage CM unit, SLA and FOC for any CM.

Use the Connection Manager to:

View all connection units

- 1. Go to the **Connection Manager** page in InformixHQ.
- 2. Click on any CM row. All CM units will be displayed.
- 3. Click on any CM unit name. CM unit detail page will be displayed.

View/add/modify/delete SLA within connection units

- 1. Go to the **Connection Manager** page in InformixHQ.
- 2. Click on any CM row. All CM units will be listed.
- 3. Click on any CM unit name. SLA table will be displayed.
- 4. Click the Modify/Delete button on any row to edit or delete the existing SLA.
- 5. Click the Add SLA button to create new SLA.

View/add/modify FOC within connection units

- 1. Go to the **Connection Manager** page in InformixHQ.
- 2. Click on any CM row. FOC details will be displayed in the Cluster CM unit detail page.
- 3. Click the **Modify** button to Modify FOC values. Use the Slider to enable or disable FOC.
- 4. To change the FOC order, click the **Click here** button in CM unit page.

View or get alerts for number of SLA connections

- 1. Go to the **Monitoring** page in InformixHQ.
- 2. Click the **+Add Sensor** button.
- 3. Search for SLA connections. The existing SLA Connections sensor details will be displayed in the Add sensor page.

InformixHQ Server Settings

Users with System Administrator privileges, including the initial admin user created when InformixHQ is started for the very first time, will have a **System Settings** link in the drop-down menu shown when they click on the user icon in the top right corner of the application title bar. This link is used for making changes to the global InformixHQ Configuration.

The InformixHQ Configuration page includes settings for:

- Alerting Configuration enable and configure InformixHQ to be able to send alerts to users via email, Twilio, or PagerDuty
- Data Cleanup Configuration configure the schedule and settings for when InformixHQ runs its repository data cleanup jobs
- Sensor Management on page 104 create and manage custom SQL sensors for monitoring your Informix database servers
- Server Configuration configure system-wide settings for the InformixHQ server, including the REST SQL session timeout.
- User Management add users and edit their InformixHQ privileges

Creating Custom Sensors

Use the **System Settings > Sensor Management** page to create and manage custom SQL sensors. Custom sensors allow you to define data to be collected by the InformixHQ agent. Data from custom sensors can be graphed on a custom dashboard. You can also use custom sensors to define alerting conditions in InformixHQ.

Each custom SQL sensor is based on a single SQL query to be run by the agent on the sysmaster database of the Informix server being monitored. Any data that can be returned by a SQL query against sysmaster can be monitored by the agent.

Only System Administrative users of InformixHQ can define custom SQL sensors. Once defined, custom sensors can be added to any server or group's monitoring profile.

To define a custom SQL sensor, go to the System Settings > Sensor Management page and click Create Sensor.

For each custom sensor, define the following:

• SQL

- Define the SQL query to be run against the sysmaster database on the Informix server being monitored.
 Select a sample server to run the query against to preview the data.
- Optionally, specify the **Transpose** option to have the agent transpose (or pivot) the data returned by your SQL query based on a selected column.

- Optionally, specify a Primary Key column for your query.
 - If your query returns multiple rows describing multiple objects (e.g. dbspaces), use the primary key
 - column to define the unique identifier for each object.

Metrics

- Define a metric for each column returned by your query. Each metric will have:
 - Name: A display name for the metric which will be used to display this metric's data in the InformixHQ UI.
 - Unit: Optional. Defining the unit as percentage or bytes will direct the InformixHQ UI to format the sensor data values before they are displayed in the UI.
 - **Default Value**: Optional. A default value to be used for the metric if the query returns null for that column.
 - Calculate Delta: Optional. If enabled, the agent will store the difference per second between the latest reading and the previous reading.

Sensor Metadata

- $\,{}^{\circ}$ A unique id for the sensor
- A display name for the sensor
- An optional description of the sensor
- A default run interval
- A default data retention interval

User Settings

Each user will have a Settings link in the drop-down menu shown when they click on the user icon in the top right corner of the application title bar. This link is where users can configure their own personal settings.

The user settings page includes links for:

- Alerting Configuration enable alerts for your username and choose how to get alerts (email or Twilio). This requires that the InformixHQ administrator has configured the corresponding alerting services.
- Changing your password

Users and Permissions

Only users with System Administrator privileges can add or delete users or modify their privileges. The initial **admin** user that is created when the InformixHQ server starts for the first time has System Administrator privileges. Additional users with System Administrator privileges can be created.

To add a user, delete a user, or modify their InformixHQ system privileges and permissions, a System Administrator user should click on their user icon in the top right corner of the title bar and go to the **System Settings > User Management** page.

When adding a user, you can optionally make the new user a System Administrator if you want them to manage users and configure InformixHQ. System Administrators automatically have full access (**Read**, **SQL**, and **Admin** permissions) on all servers and groups. When creating a new non-System Administrator, you have the option to grant **Read**, **SQL**, and/or **Admin** permissions for that user to any servers and groups that have been added to InformixHQ.

Read permissions allow a user to view information about a server in the UI, **Admin** permissions allow a user to execute administrative actions to make changes to a server, and **SQL** permissions allow a user to run SQL queries against that database server on the **Schema Manager** page.



Note: These three permissions are mutually exclusive. Granting **Admin** permissions does not automatically include **Read** permission.

In order to run administrative actions on an Informix database server, a user must have **Admin** permissions on that server and admin credentials must have been provided when adding that server to InformixHQ. You can review and edit server credentials by going to the server's **Setup** page or by going to the group dashboard, selecting the server's card, and clicking **Edit**.

Permissions for a server or a group in InformixHQ are inherited. If a user is granted **Read** or **Admin** privilege on a group, the same privilege will be granted on all servers and sub-groups within that group.

While the **System Settings > User Management** page allows you to view and edit the complete permissions for each individual user of InformixHQ, there is also a **Permissions** page specific to each server or group that allows to you to see (and edit) all users who have permissions to that particular server or group. You can access this page by navigating to a particular server or group and clicking on **Permissions** in the side-bar menu.

HDR Secondary Operations

Introduction

HDR cluster consists of Primary and Secondaries. InformixHQ treats every server added as individual server. Depending upon server type in cluster, Informix Server allows or restricts certain acions on specific server types.

From 14.10.XC7 (InformixHQ v.1.6.0) onwards, InformixHQ has handled all such operations on secondary servers in the cluster.

User needs to add primary as well as secondaries in InformixHQ as different servers.

HDR Secondary in Informix HQ

Server type is available on server card with different colour for each type. Servers apart from Primary & Standard types have "Updatable" or "Read-Only" access mode.

Informix Server 1	Informix Server 2	Informix Server 3	Informix Server 4	Informix Server 5
PRIMARY	SECONDARY READ-ONLY	RSS UPDATABLE	STANDARD	SDS UPDATABLE
? SERVER STATUS	? SERVER STATUS 8 AGENT STATUS	? SERVER STATUS 8 AGENT STATUS	? SERVER STATUS 3 AGENT STATUS	? SERVER STATUS O AGENT STATUS
A 1371 INCIDENTS	O INCIDENTS	() INCIDENTS	() INCIDENTS	0 INCIDENTS
Informix Server 6	Informix Server 7			
RSS READ-ONLY	STANDARD			
? SERVER STATUS O AGENT STATUS	? SERVER STATUS 8 AGENT STATUS			
0 INCIDENTS	0 INCIDENTS			

N/A will be shown for the server that is offline since InformixHQ can not determine the type of the Informix server if unable to connect with it in the first place. It will be updated in scenarios mentioned in Server types and access mode update scenarios on page 108.

Note: Informix server should be online or HQ agent should be connected to get correct server type instead of N/A.					
Informix Server 1	Informix Server 2	Informix Server 3			
N/A	SECONDARY READ-ONLY	RSS UPDATABLE			
? SERVER STATUS SAGENT STATUS	? SERVER STATUS O AGENT STATUS	? SERVER STATUS Ø AGENT STATUS			
A 1371 INCIDENTS	0 INCIDENTS	() INCIDENTS			

HDR banner on each page is shown for servers apart from Primary & Standard types. HDR banner contains server type and server access mode.

InformixHQ			
Q	Secondary :	Read-Only	
	Root Group > Informix Server 6		
Informix Server 6 \vee			
Setup	Informix Server 6 Server Data Agent Data		A *
Dashboards	Status	Incidents	
Monitoring	Server: Online Database spaces: O spaces < 5% free Agent: Office Last backup: A NEVER	No incidents have occurred yet.	
Alerting	Spaces not backed up: Allo Server type: Secondary Auto Update Statistics: Chabled		
Permissions	Onine log: O serrors,	Storage Performance	
Incidents	High Availability		quential Scans
Configuration	Connection Manager		
Logs >	1 No Connection Managers defined.	0.004 seconds 97.77% 98.15% 0	40
Performance >			

Operations that are not allowed on HDR Secondary are disabled in UI with a pop-up message that shows server type and access mode. For more details, refer HDR Secondary operations allowed/disallowed on page 107.

Manage Privileges	Schema Manager					
Database Table SQL Admin API Internal Users	Select Database					
Select Database	sysmaster 🗸 🚥 了					
sysadmin V	Q Search Create Database Create Demo Database Secondary : Read-Only server.					
Grant New Privilege This operation is not allowed on	flags_text Drop Database Information Stored Procedures & Fu					
User Name for Privilege Select Privilege Secondary : Read-Only server.						
Ifx_User CONNECT V Grant	Create Table					

HDR Secondary operations allowed/disallowed

Following table lists the HDR operations allowed/disallowed based on different types of the Informix servers and its access modes in InformixHQ.

Operation	Pri mary	Secondary		RSS	SDS		
		Upda table	Read-o nly	Upda table	Read-o nly	Upda table	Read-o nly
Run Checkpoints, Automatic checkpoints ON/OFF	Yes	No	No	No	No	No	No
Privileges: SQL Admin API -> Grant, Edit and Revoke Privileges	Yes	Yes	No	Yes	No	Yes	No
Privileges: Databases -> Grant, Edit and Revoke	Yes	Yes	No	Yes	No	Yes	No
Privileges: Tables -> Grant, Edit and Revoke	Yes	Yes	No	Yes	No	Yes	No
SQL Tracing: Enable, Suspend, Resume and Disable	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Memory-> Low Memory Manager Edit	Yes	Yes	No	Yes	No	Yes	No
Schema Manager-> Create, Drop Database	Yes	Yes	No	Yes	No	Yes	No
Virtual Processor-> Add and Drop VPs	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Spaces-> Create, Edit, Delete, Add Chunk and Extend Space	Yes	No	No	No	No	No	No
Chunks->Add, Edit, Delete, and Extend Chunk	Yes	No	No	No	No	No	No
Pools->Add, Edit, and Delete Entry	Yes	Yes	No	Yes	No	Yes	No
Backup: Configuration-> Edit and Delete	Yes	No	No	Yes	Yes	No	No
Backup: Status-> Run Level 0,1,2 backup	Yes	No	No	Yes	Yes	No	No
Recovery Logs-> Move, Add, Delete and Switch Log	Yes	No	No	No	No	No	No
Session-> Kill Session	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Note: Above table is based on InformixHQ v1.6.0. Some permissions may vary depending on specific Informix server version.

Server types and access mode update scenarios

Following are the cases when Informix server type and access mode are updated in UI on root page in InformixHQ:

- On running InformixHQ server post v1.5.0 --> When InformixHQ server is started (run HQ Jar) post version 1.5.0, it connects and fetches Informix server types and access mode of all the Informix servers which are added in InformixHQ and are online.
- InformixHQ Agent is connected --> If Informix server is online and InformixHQ Agent is connected to it. Agent fetches Informix server type and access mode and following are the cases for it:

- 1. Case 1 Via JDBC connection: If InformixHQ agent is running on a remote host other than Informix server.
- 2. Case 2 Via onstat command : If InformixHQ agent is running on the same host where Informix server is running.
- Open server card:-> When user opens server information page and Informix server is online.

Failover scenarios in InformixHQ

User needs to add both primary and secondary servers in InformixHQ to monitor them separately. In case of failover InformixHQ Agent will not be able to connect to failed server and there will be no monitoring data collection. User needs to take corrective action as explained below to continue with HQ Agent data collection.

1. Case 1 - Primary & Secondary servers have same repository database on primary server:

In this case if primary server fails/is offline, user has to manually change the repository database server configuration in secondary server which is added in InformixHQ. For example:

Root Group > Primary Server > Setup				
Setup Server Agent				
Repository Database Configuration				
* Select Repository Server	* Select Database			
■ Primary Server Select	repository_db 🗸			
Connection Properties				
InformixHQ agent connects with sysmaster and repository database (repository_db) on same server (I	Primary Server). See more			
Primary Server : Connection Properties				
Use existing connection properties (Uncheck to modify properties)				
Save				
Root Group > Secondary Server > Setup				
Setup				
Server Agent				
Repository Database Configuration				
* Select Repository Server * Sele	tct Database			
Primary Server Select	repository_db 🗸			
Connection Properties				
InformixHQ agent connects with sysmaster database on "Secondary Server" and repository database (reposited to the second	itory_db) on "Primary Server ' See more			
Secondary Server: Connection Properties	Primary Server : Repository Database Server Connection Properties			
Use existing connection properties (Uncheck to modify properties)	✓ Use existing connection properties (Uncheck to modify properties)			
Save				

As primary server is offline, changed repository server to secondary.

etup		
Server Agent		
Repository Database Configuration		
Select Repository Server	* Select Database	
Secondary Server Select	repository_db	~
Connection Properties		
nformixHQ agent connects with sysmaster and repository databas	e (repository_db) on same server (Secondary Server). See more	
econdary Server: Connection Properties		
 Use existing connection properties (Uncheck to modify properties) 	ties)	

2. Case 2 - Primary & Secondary servers have same repository database on secondary(updatable) server:

In this case if secondary server fails/is offline, user manually has to change the repository database server configuration in the primary server which is added in InformixHQ. This case is just vice versa of case 1 which is described above.

3. Case 3 - Primary & Secondary servers have their respective repository database on their server itself:

In this case each server has its own repository database, so user does not need to do any configuration changes in HQ agent setup page in case of failover.

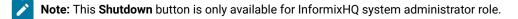
InformixHQ Server Shutdown

About this task

Using **InformixHQ Server Shutdown** button is an easy way to shut down the InformixHQ server directly from the InformixHQ UI instead of command prompt.

Use the following steps to shut down InformixHQ server:

1. New option to shut down InformixHQ server is available in the top right corner from InformixHQ UI.



Click here to shutdown informixHQ server	InformixHQ Server	👌 Shutdown	View Agents -	•	👤 admin 👻
	 Click her		mixHQ		

2. Once user clicks on the **Shutdown** button, InformixHQ will show a pop up to confirm the shutdown action.

Demo1	: :	
	1 SERVER	
	Confirm ×	
	Are you sure you want to shutdown the informixHQ server ?	
server 5	10 To re-start InformixHQ server, use startup scripts or execute informixhq-server.jar For more details on starting InformixHQ server, please click here	serverAgen
STANDARD		STANDARD
? SERVER STATUS	No Yes, Shutdown	? SERVER ST
C		

- 3. Clicking on **No** button will cancel the InformixHQ shutdown request and user will remain logged in InformixHQ.
- 4. Clicking on Yes, shutdown button will shut down the InformixHQ server.
- 5. As InformixHQ server URL will not be accessible anymore, browser will show **refused to connect** message as shown below.



This site can't be reached

localhost refused to connect.

_				
Т	n	U		
		Y		

- Checking the connection
- Checking the proxy and the firewall

ERR_CONNECTION_REFUSED

	00	
Re	Oн	

Details

InformixHQ Agent

The InformixHQ agent is a lightweight Java 8 based monitoring agent. It should be installed on the host machine for each Informix database server that you want monitored by InformixHQ.

The agent runs alongside the database server, gathering database statistics through JDBC connections to sysmaster. The InformixHQ agent only needs read access to the database server.

By running the agent directly on the Informix server host machine, the agent is also able to gather and monitor OS statistics which can be just as critical in evaluating and tuning the Informix database server performance metrics.

InformixHQ Agent Setup

This topic explains how to configure InformixHQ agent from InformixHQ UI.

Select repository database

Repository server is the server which contains Repository database, which will be used to store all the monitoring data collected by InformixHQ agent. Without selecting a repository database, user is not allowed to save agent setup changes. Repository database server can be any Informix server specified in InformixHQ User Interface.

TIP: User should create a dedicated database to store metrics to be captured by InformixHQ agent. A new database can easily be created from Schema Manager on page 76 page. Similarly metrics can be defined by adding Sensors from Motitoring page.

Following are two scenarios if repository database is not available for any reason:

1. InformixHQ Agent is not configured yet:

In this scenario, InformixHQ agent configuration is not set yet by the user, probably user is setting up InformixHQ agent for the first time. InformixHQ agent connects with monitoring server using existing Informix server connection properties.

R	epository Database Configuration			
•:	Select Repository Server	* Selec	rt Database	
	E Informix Server 1 Select		There was a problem retrieving the repository's list of databases	
C	onnection Properties			
By	default InformixHQ agent connects with sysmaster database using existing server c	nnectio	on properties. To modify agent connection properties, repository database n	nust be configured first. See less
In	formix Server 5: Connection Properties			
	Use existing connection properties (Uncheck to modify properties)			
	Save			

2. InformixHQ Agent is already configured:

In this scenario, previously saved InformixHQ agent configuration will be shown in read only mode. Basically, whenever user runs agent jar, it will connect using already saved configuration.

Informix Server 1 Sele	ct	There was a probler	n retrieving the repository's list of databases	
nnection Proper				
ormixHQ agent connects with ormix Server 1: Connection P	•	repository database (repo_db) on "	Informix Server 5". By default Agent uses respecti Informix Server 5: Repository Dat	ve server connection properties. See less tabase Server Connection Properties
Use existing connection pr	operties (Uncheck to modify properties)		Use existing connection pro	operties (Uncheck to modify properties)
SSL_TRUSTSTORE	C:\SSL\Server1\informix\.keystore	×	SSL_TRUSTSTORE	C:\SSL\Server2\informix\.p12
SSL_TRUSTSTORE_P/		*	SSL_TRUSTSTORE_P/	
SSLCONNECTION	true	×	SSLCONNECTION	false
			+ Add Connection Property	

Add Connection Properties

Separate connection properties can be specified for the InformixHQ agent. Users can specify connection properties for monitoring server and repository database server, respectively. Following are two cases while specifying connection properties.

1. Repository database is located on monitoring Server:

In this scenario, InformixHQ agent will connect with monitoring server and repository database using the same connection properties.

By default, InformixHQ agent will use Informix server connection properties (from Informix server setup page) to connect with monitoring server and repository database. (When checkbox is checked)

Repository Database Configuration						
* Select Repository Server * Select Database						
Select	repo_db	-				
Connection Properties						
InformixHQ agent connects with sysmaster and repository database (r	repo_db) on same server (Informix Server 1). See more					
Informix Server 1: Connection Properties						
✓ Use existing connection properties (Uncheck to modify properties)						
Save						

If needed user can add/modify InformixHQ agent connection properties by unchecking the checkbox as follows:

		* Select Database	
Selection Server 1	ot	repo_db	*
Connection Propert	lies		
nformixHQ agent connects with	sysmaster and repository database (repo_db)	on same server (Informix Server 1). See more	
nformix Server 1: Connection Pr	roperties		
Use existing connection pro	operties (Uncheck to modify properties)		
SSL_TRUSTSTORE	C:\SSL\Server1\informix\.keystore	×	
SSL_TRUSTSTORE_PA		×	
	true	×	
SSLCONNECTION	0.0e		

This will be specifically useful for providing different SSL keystore path for InformixHQ agent.

2. Repository database server is located on a different server:

In this scenario, InformixHQ agent will connect with monitoring server and repository database using different connection properties.

By default, InformixHQ agent will use connection properties of respective Informix servers to connect with monitoring server and repository database, respectively. (When checkbox is checked)

Repository Database Configuration		
* Select Repository Server	* Select Database	
Select	repo_db	~
Connection Properties		
InformixHQ agent connects with sysmaster database on "Informix Dynamic Server" an	d repository database (repo_db) on "Informix Server 2". See mo	ore
Informix Dynamic Server: Connection Properties	Informix Server 2: F	Repository Database Server Connection Properties
Vse existing connection properties (Uncheck to modify properties)	🗾 Use existing c	connection properties (Uncheck to modify properties)
Save		

If needed user can add/modify InformixHQ agent connection properties for monitoring server and repository database separately by unchecking respective checkboxes as follows:

Connection Proper		rver" and repository database (repo_db) on "Inform	ix Server 2". See more	
Informix Dynamic Server: Connection Properties Informix Server 2: Repository Database Server Connection Properties				
Use existing connection p	roperties (Uncheck to modify properties)		Use existing connection pr	operties (Uncheck to modify properties)
SSL_TRUSTSTORE	C:\S8L\Server1\informix\.keystore	×	SSLCONNECTION	true
SSL_TRUSTSTORE_F		×	SSL_TRUSTSTORE	C:\SSL\Server2\informix\.p12
SSLCONNECTION	true		SSL_TRUSTSTORE_F	
+ Add Connection Propert	v		+ Add Connection Propert	y
Save				

This will be specifically useful for providing different SSL keystore path for monitoring server and repository database, respectively. See (Compatibility matrix for Java with SSL Keystore format on page 115).

In both scenarios, if checkbox is unchecked, at least one connection property should be added to enable save button.

Connection Properties	
InformixHQ agent connects with sysmaster database on "Informix Dynamic Server" and repository database (repo_db) on "Infor	mix Server 2". See more
Informix Dynamic Server: Connection Properties	Informix Server 2: Repository Database Server Connection Properties
Use existing connection properties (Uncheck to modify properties)	Use existing connection properties (Uncheck to modify properties)
* At lease one connection property is mandatory	* At lease one connection property is mandatory
+ Add Connection Property	+ Add Connection Property
Save	

Note:

If Repository database is not configured or could not be connected due to any reason, then user will not be able to add/modify agent connection properties.

If already configured Repository server is removed from InformixHQ, then such server will not be visible in agent setup page under "Select Repository server". In this scenario, all the custom agent connection properties previously saved, will reset and user needs to re-enter all the custom connection properties in Agent Setup page once new repository server is selected.

Compatibility matrix for Java with SSL Keystore format

Following are keystore formats supported based on Java providers:

Java Provider	Туре
IBM Java(v1.8)	JKS
Oracle Java(v1.8)	JKS, PKCS

Related information

Schema Manager on page 76 Secure sockets layer protocol on page

InformixHQ Agent Configuration Parameters

A properties file is required to run the InformixHQ agent.

When starting the agent, you can pass the properties file name as part of the start command. Otherwise, the agent will look for a properties file named **agent.properties** in the classpath.

An example configuration file documenting the supported InformixHQ agent configuration properties can be found at \$INFORMIXDIR/hq/informixhq-agent-example.properties.

• Required configuration properties

- informixServer.id on page 116
- server.host on page 116
- server.port on page 117
- Optional configuration properties
 - dataSource.IFX_ISOLATION_LEVEL on page 117
 - pool.connectionTimeout on page 117
 - pool.idleTimeout on page 117
 - pool.maximumPoolSize on page 117
 - pool.minimumIdle on page 117
 - ssl.enable on page 117
 - ssl.keystore.file on page 118
 - ssl.keystore.password on page 118
 - target.informixdir on page 118
 - target.onlinelog on page 118
 - target.ping.frequency on page 118
 - user.password.minLength on page 118
 - user.password.requireLowerCase on page 118
 - user.password.requireUpperCase on page 118
 - user.password.requireNumber on page 118
 - user.password.requireSpecialCharacterFromSet on page 119

informixServer.id

The id of the Informix database server in InformixHQ. You find the server's id on the server's Setup page in the InformixHQ UI.

server.host

The host name on which the InformixHQ server is running.

server.port

The port on which the InformixHQ server is running.

dataSource.IFX_ISOLATION_LEVEL

Specifies the isolation level to set on JDBC connections to the target and repository Informix database servers.

The default value is 1 (DIRTY READ).

pool.connectionTimeout

Specifies the number of milliseconds to wait for a JDBC connection to the target or repository Informix database server to be established before it times out. The default value is 5000 (5 seconds).

pool.idleTimeout

Specifies the number of milliseconds that a JDBC connection can be idle in the connection pool before it is closed.

The default value is 60000 (1 minute).

pool.maximumPoolSize

The maximum number of JDBC connections in each connection pool. The InformixHQ agent will maintain a connection pool for the target database server and another a connection pool for the repository database server. The **pool.maximumPoolSize** puts a cap on the total number of open JDBC connections that can be established to each database. The default value is 3.

pool.minimumIdle

The minimum number of idle JDBC connections in each connection pool. The InformixHQ agent will maintain a connection pool for the target database server and another a connection pool for the repository database server. Setting **pool.minimumIdle** to zero indicates that all JDBC connections in the connection pool should be closed when they exceed the **pool.idleTimeout**. Setting **pool.minimumIdle** to a positive integer indicates the number of connections that should be kept open in the connection pool even when they exceed the **pool.idleTimeout**.

The default and recommended value is 0.

ssl.enable

Whether SSL should be enabled to secure web socket communication between the agent and the InformixHQ server. Set this value to true if the InformixHQ server port specified in **server.port** is an HTTPS port.

Note: if **redirectHTTPtoHTTPS** is set to true in the InformixHQ server configuration file, you must set this value to true in the agent configuration file.

If ssl.enable is set to true, you must also configure the ssl.keystore.file and ssl.keystore.password configuration properties.

The default value is false.

ssl.keystore.file

The path to the keystore file that contains the certificate to use for encrypting web socket communication between the agent and the InformixHQ server. This property must be set if **ssl.enable** is set to true.

ssl.keystore.password

The password to unlock the keystore file for used for encrypting web socket communication between the agent and the InformixHQ server.

This property must be set if **ssl.enable** is set to true.

target.informixdir

Optionally, specify the directory on the local machine where Informix is installed. If left empty, the agent will query the server for the INFORMIXDIR property. This property is used by sensors that gather data from onstat or other Informix utilities

target.onlinelog

Optionally specify the path to the **online.log** file for the target Informix database server.

If this is left empty and the Online Log monitoring sensor is enabled for this server, the agent will lookup the **online.log** file path by querying the database server.

There is no default value.

target.ping.frequency

Specifies the interval, in seconds, between pings to the target database server to see if it is still online. When the agent is running, it will regularly monitor whether the target database server is online or offline. This property controls the duration between these checks.

The default value is 1, indicating to check the server status every second.

user.password.minLength

Controls the minimum length for a user password. The default value is 8.

user.password.requireLowerCase

Controls whether user passwords are required to include at least one lowercase character. The default value is true.

user.password.requireUpperCase

Controls whether user passwords are required to include at least one uppercase character. The default value is true.

user.password.requireNumber

Controls whether user passwords are required to include at least one number. The default value is true.

user.password.requireSpecialCharacterFromSet

Controls whether user passwords are required to include at least one special character. An empty string indicates that no special characters are required. Setting this value to "!@#\$%^&*()" would require user passwords to include at least one of those characters. The default value is an empty string.

InformixHQ View Agents and Shutdown

About this task

View Agents feature in InformixHQ displays the list of all the Agents' information and their status at one place, depending on user privilege to specific instance/server added in InformixHQ. This feature helps users to see consolidated view of all the agents.



- If users have admin access to Informix server in InformixHQ, those users can initiate shutdown agent from this list.
- If users have only read access to Informix server in InformixHQ, those users can only view agent status in this list.
- If users don't have any privilege to specific instances, Agent status for such instances won't be visible to those users.

Use the following steps to shut down an InformixHQ agent:

1. View Agents drop-down option is available in InformixHQ top right corner.

InformixHQ Server	🔿 Shutdown	View Agents 🝷	i -	👱 admin 👻

2. Clicking on View Agents will display the list of Agents with their respective status.

			InformixHQ Server	Shutdown	View Agents 🝷	6-	👤 admin 👻
	Vie	ew Agents Status			×		
	a	Search (Use','OR'+')	operator for multiple key	View A	.11 ~		
	0	Group Name 🍦	Server name	Ą	gents Status 🍦		
		Root Group	serverAgent2	N	ot configured	Ad	d Group
		Root Group	serverAgent1	Of	ffline		
		Root Group	Server 5	Of	ffline		
		Root Group	server 5	Ot	ffline		
		Root Group	Demo123	N	ot configured		
		Root Group > Demo	serverAgent3	Of	ffline	Ad	d Server
:	ser	Root Group > Demo	serverAgent4	Of	ffline	:	
	STAN	Root Group > Demo	> Server12	Ot	ffline		
O AGENT STATUS	? :	Root Group > Demo	> remote server f	from UK Of	ffline	STATUS	
NTS		Root Group > Demo	> child Server 1	01	nline		
	Fi	irst Previous 1 2	Next Last	Rows pe	er page: 10 🗸		

- 3. View Agents also displays the information about filters, pagination, and sorting columns availability.
 - Searching: search for the data available using mentioned operators/key words.
 - View Selection: Select the drop-down values to filter out the data.
 - **Pagination and Page limit:** Move from one page to another page and count of records availability per each page with page limit.

		InformixHQ Server O Shutdow	n View Agents 👻	€ • _ admin •
	View Agents Status		2 ×	
	Q Search (Use','OR'+')	operator for multiple key View	All 🗸	
	Group Name 🗦	Server name 🖕	All Offline Online	
	Root Group	serverAgent2	Not configured	Add Group
	Root Group	serverAgent1	Offline	
	Root Group	Server 5	Offline	
	Root Group	server 5	Offline	
	Root Group	Demo123	Not configured	
	Root Group > Demo		Offline	Add Server
se		-	Offline	:
STA			Offline	
GENT STATUS ?	Root Group > Demo		Offline	STATUS
	Root Group > Demo	> child Server 1	Online	
	First Previous 1 2	Next Last Ro	ws per page: 10 🗸	

4. Once any agent record is selected, **Shutdown Agent** button will be displayed (applicable only for users with admin access to that instance) and the count of selected records is also displayed as an information message.

		InformixHQ Server 👌 Sh	View Agents	• 🚯 • 👤 admin •
	View Agents Status	[Shutdown Agents	×
\sim	 2 agents selected. 			
	Q Search (Use','OR'+	' operator for multiple key	View All	·
	Group Name 🗘	Server name 💂	Agents Status 🍦	Add Group
	Root Group	serverAgent2	Not configured	
	Root Group	serverAgent1	Offline	
	Root Group	Server 5	Offline	
	Root Group	server 5	Offline	
	Root Group	Demo123	Not configured	Add Server
s	er Root Group > Dem	no serverAgent3	Offline	:
ST		no serverAgent4	Offline	
O AGENT STATUS	Root Group > Dem	no > Server12	Offline	STATUS
VTS	Root Group > Dem	no > remote server from	UK Offline	
	Root Group > Dem	no > child Server 1	Online	
	First Previous 1 2	Next Last	Rows per page: 10 🔹	•

5. On clicking **Shutdown Agents** button, confirmation pop-up will be displayed. **Yes, shutdown** will shut down the InformixHQ agent and **No** will cancel the InformixHQ Agent shutdown request and it will be remain on the same page.

Demo1		
() INCIDENTS	1 SERVER	
	Confirm	×
	A Are you sure you want to shutdown the Agents?	
server 5		ser 🗌
STANDARD	No	Yes, Shutdown
? SERVER STATUS		? :
C) INCIDENTS O INCIDENTS	

6. If any error occurs while shutting down Agent, View Agents Status will show warning messages with warning icon.

			InformixHQ Server 👌 Shutdow	n View Agents 👻	€ • Ladmin •
		View Agents Status		×	
		▲ 2 out of 2 agents havin			
		Q Search (Use','OR'+'o	perator for multiple key View	All 🗸	
	-	Group Name 💂	Server name $\frac{4}{\pi}$	Agents Status	Add Group
		Root Group	serverAgent2	Not configured 🛕	
		Root Group	serverAgent1	Offline	
		Root Group	Server 5	Offline	
		Root Group	server 5	Offline	
	-	Root Group	Demo123	Not configured 🛦	Add Server
:	ser	Root Group > Demo	serverAgent3	Offline	:
	STAP	Root Group > Demo	serverAgent4	Offline	
TATUS	?:	Root Group > Demo	> Server12	Offline	STATUS
		Root Group > Demo	> remote server from UK	Offline	
		Root Group > Demo	> child Server 1	Online	
		First Previous 1 2	Next Last Ro	ows per page: 10 🗸	

7. If requested agents shut down successfully, then those agents will be available in offline mode.

		InformixHQ Server	Shutdown View A	Agents -	€ – admin –
	View Agents Status			×	
	Q Search (Use','OR'+'	operator for multiple key	View All	~	
	Group Name 💂	Server name	Agents Stat	tus 🗘	
	Root Group	serverAgent2	Offline		Add Group
	Root Group	serverAgent1	Offline		
	Root Group	Server 5	Offline	_	
	Root Group	server 5	Offline	_	
	Root Group	Demo123	Offline		
	Root Group > Demo	serverAgent3	Offline	_ 1	Add Server
s	Root Group > Demo	serverAgent4	Offline	- 1	:
ST	Root Group > Demo	> Server12	Offline	- 1	
STATUS	Root Group > Demo	> remote server	from UK Offline	STA	ATUS
	Root Group > Demo	> child Server 1	Offline		
	First Previous 1 2	Next Last	Rows per page:	10 🗸	

8. If a user has only read access, that user will only view the agents but will not be able to select agent to shutdown from **View Agents**.

					View Ager	nts 👻	•	👤 demo 1 👻
	View A	Agents Status				×		
	Users with admin privileges can only perform agent shutdown for corresponding group/server							
[Q Se	arch (Use ' , ' OR ' + ' operator	r for multiple key	View	All	~	A	dd Group
		Group Name $\stackrel{\scriptscriptstyle \diamond}{_{\scriptscriptstyle \mp}}$	Server name 🍦		Agents Status	* *		
		Root Group	serverAgent2		Not configured			
		Root Group	Demo123		Not configured			
		Root Group > Demo >	child Server 1		Online			
							A	ld Server
Se								
	-			-		-		

H2 Database

This topic provides a brief tutorial on what is H2 Database and how you can migrate your old version of h2db data to new version of h2db in InformixHQ.

What is H2 Database?

H2 Database is a light weight java database. InformixHQ uses H2 Database as an embedded database where it stores all the details related to InformixHQ users, informix servers' connections, connection properties, repository database name, alerting configurations, etc.

Where can you find h2db.mv.db in InformixHQ?

h2db is located in the directory from where you are running informixhq-server.jar. If you are running informixhq-server.jar for the first time, InformixHQ will create the h2db.mv.db file.

Default location of informixhq-server.jar and h2db.mv.db is \$INFROMIXDIR/hq.

H2 Database Migration

Why is h2db migration required?

InformixHQ 2.1.0 has upgraded its H2 Database version due to the following security vulnerabilities present in the older versions of H2 Database:

- CVE-2021-42392
- CVE-2021-23463
- CVE-2022-23221

Between H2 Database version 1.4.192 and the latest H2 Database version 2.1.214, there have been considerable changes and direct upgrade of H2 Database is not possible. For existing users, H2 Database (InformixHQ 1.6.3 or lower) is created with version 1.4.192, hence data needs to be migrated to 2.1.214 manually. Two options for this manual migration are explained in this tutorial.

For new users who are using InformixHQ for the first time (version 2.1.0 or higher), there is no impact, and no upgrade is needed as InformixHQ will create new H2 database with the latest version.

What is the impact if you have not migrated to the new version of H2 Database?

If users using InformixHQ 1.6.3 or lower try to move to InformixHQ 2.1.0 or above, they will not be able to start InformixHQ until the data is migrated to the newer version of H2 Database. If users try to run InformixHQ 2.1.0 or above without this migration done, they will get the following error in the InformixHQ log file:

"org.h2.mvstore.MVStoreException: The write format 1 is smaller than the supported format 2 [2.1.214/5]"

Users will also get a console message providing steps of migration along with a documentation link for reference.

For new users who are using InformixHQ for the first time (version 2.1.0 or higher), there is no impact and no upgrade is needed as InformixHQ will create new H2db with the latest version.



1. If existing users start InformixHQ (2.1.0 or higher) using java -jar command as shown below, InformixHQ will not be started and the information given below is shown to the users on console.

java -jar informixhq-server.jar informixhq-server.properties Unable to start InformixHQ server as H2db version is older and needs upgrade. Please run below command to upgrade H2db to newer version.

```
Please note:
1) Path of the old InformixHQ server jar (version 1.6.3 or lower) should be known, and should be
supplied where ${OLDHQDIR} is referenced in
the command below.
2) If ${OLDHQDIR} jar path is not available, then this upgrade needs to be completed using a few
manual steps. For details of this migration,
refer Manual steps on page 129.
3) Optional second parameter -> Path of the properties file. If any H2db configuration properties
are set previously, then this should be
supplied where ${PROPERTIES_DIR} is referenced in the command below.
4) Current directory should contain old h2db.mv.db file.
5) ${NEWHQDIR} referenced below is the current InformixHQ (2.1.0 or higher) jar path. Default
informixhq-server.jar path is {INFORMIXDIR}/hq/
Migration command:
1) java -cp {NEWHQDIR}/informixhq-server.jar com.informix.hq.server.h2.upgrade.H2Upgrade
${OLDHQDIR}/informixhq-server.jar
OR
2) java -cp {NEWHQDIR}/informixhq-server.jar com.informix.hq.server.h2.upgrade.H2Upgrade
${OLDHQDIR}/informixhq-server.jar
 ${PROPERTIES_DIR}/informixhq-server.properties
```

2. If users start InformixHQ using startup scripts, InformixHQ will not be started and there will be no information on the console. Users need to check the hq server logs for details.

H2 Database Migration Steps

There are two ways user can do h2db migration:

1. Old InformixHQ (1.6.3 or lower) where old jar file should be available:

In this case, user needs to simply run one command for upgrade and data migration:

```
java -cp {NEWHQDIR}/informixhq-server.jar com.informix.hq.server.h2.upgrade.H2Upgrade
{OLDHQDIR}/informixhq-server.jar
OR
java -cp {NEWHQDIR}/informixhq-server.jar com.informix.hq.server.h2.upgrade.H2Upgrade
{OLDHQDIR}/informixhq-server.jar
{PROPERTIES_DIR}/informixhq-server.properties
```



- Path of the old InformixHQ server jar(version 1.6.3 or lower) should be known, and should be supplied where {OLDHQJAR} is referenced in the command above.
- If {OLDHQJAR} jar path is not available, then this upgrade needs to be completed using few manual steps. Please refer section 2 on page 129 below.

- Optional second parameter -> Path of the properties file. If any H2 Database properties (encrypt.enable, encrypt.algorithm, encrypt.password) is set previously, then this should be supplied where {PROPERTIES_DIR} is referenced in the command above.
- Current directory should contain old H2 Database file (h2db.mv.db).
- {NEWHQJAR} referenced above is current InformixHQ (2.1.0 or higher) jar path. Default InformixHQ jar path is {INFORMIXDIR}\hq\
- Ensure old h2db.mv.db has correct file permission for InformixHQ jar to access the same.
- After running above command with required parameters successful output will be:

```
Backup of old h2db file is completed successfully, now old h2db file name is h2db_old.mv.db.
Alter process executed successfully.
Data export process executed successfully.
Data import process executed successfully.
Clean-up for import and export process completed successfully.
```

2. If Old InformixHQ (1.6.3 or lower) jar path NOT available:

In this case, manual steps given below need to be followed for H2 Database Upgrade and migration:

Prerequisites for manual upgrade:

In order to migrate from H2 Database 1.4.192 to H2 Database 2.1.214, both versions of H2 Database are needed.

Download the jars version 2.1.214 (h2-2.1.214.jar) and version 1.4.192(h2-1.4.192.jar) from H2 site or from maven repo https://mvnrepository.com/artifact/com.h2database/h2

Ensure that the downloaded H2 jar files have appropriate file permissions for migration process. If any of the commands given below fails, migration can be started again with backup taken in step 1 below.

Software	Required Version
h2-1.4.192.jar	1.4.192
h2-2.1.214.jar	2.1.214
Java	1.8

Procedure:

Follow these steps in order to migrate the H2 Database:

1. Backup existing database

Find the existing h2 database (h2db.mv.db).

For InformixHQ, database can be found at <installation_Path>/explore/server/h2db.mv.db

By default, InformixHQ installation path is \$INFORMIXDIR/hq

H2 Database file name is h2db.mv.db.

Make a copy of h2db.mv.db to some other directory for backup before starting the migration.

2. Create a SQL File migrate.sql

Create an SQL file migrate.sql with the following ALTER TABLE statements.

Save the file in the same folder where h2db.mv.db file is present.

ALTER TABLE IF EXISTS users ALTER COLUMN ID SET NOT NULL; ALTER TABLE IF EXISTS users ADD PRIMARY KEY (ID); ALTER TABLE IF EXISTS informix_servers ALTER COLUMN ID SET NOT NULL; ALTER TABLE IF EXISTS informix_server_groups ALTER COLUMN ID SET NOT NULL; ALTER TABLE IF EXISTS informix_server_groups ADD PRIMARY KEY (ID); ALTER TABLE IF EXISTS informix_server_groups ADD PRIMARY KEY (ID); ALTER TABLE IF EXISTS alerting_incidents ALTER COLUMN ID SET NOT NULL; ALTER TABLE IF EXISTS alerting_incidents ADD PRIMARY KEY (ID);

3. Run the Script migrate.sql and Export data in Zip file

Open a command line window in the path where H2 db file is present and run the java command. Replace <h2_path> with the path where h2-1.4.192.jar is present.

• If h2db encryption is **NOT** enabled in InformixHQ properties file:

```
java -cp <h2_path>/h2-1.4.192.jar org.h2.tools.RunScript -url jdbc:h2:./h2db -script
migrate.sql
java -cp <h2_path>/h2-1.4.192.jar org.h2.tools.Script -url jdbc:h2:./h2db -script h2db.zip
-options compression zip
```

• If h2db encryption is **Enabled** in InformixHQ properties file:

If h2.encrypt.enable, h2.encyrpt.password, and h2.encrypt.algorithm parameters are set in InformixHQ server properties file, then the commands will be modified as shown below.

Example: If h2.encrypt.enable=true, h2.encyrpt.password=password123, and h2.encrypt.algorithm= AES, h2 database URLs should be modified as shown below:

(Add a space after the password, since the format is <file_password> space <user_password>)

```
java -cp <h2_path>/h2-1.4.192.jar org.h2.tools.RunScript -url "jdbc:h2:./h2db;CIPHER=AES"
-password "password123 "
-script migrate.sql
java -cp <h2_path>/h2-1.4.192.jar org.h2.tools.Script -url "jdbc:h2:./h2db;CIPHER=AES"
-password "password123 " -script h2db.zip
-options compression zip
```

4. Rename altered H2db

Rename the existing h2db.mv.db database.

mv h2db.mv.db h2db_old.mv.db

5. Create new H2 Database (2.1.214) and restore data

Run following java command to create new H2 Database file (h2db.mv.db) and to restore data from zip file created in step 3. Replace <h2_path> with the path where h2-2.1.214.jar is present.

If h2db encryption is NOT enabled in InformixHQ properties file:

```
java -cp <h2_path>/h2-2.1.214.jar org.h2.tools.RunScript -url jdbc:h2:./h2db -script
h2db.zip -options compression zip FROM_1X
```

• If h2db encryption is **Enabled** in InformixHQ properties file:

If h2.encrypt.enable, h2.encyrpt.password, and h2.encrypt.algorithm parameters are set in InformixHQ server properties file, then the commands will be modified as shown below.

Example : If h2.encrypt.enable=true, h2.encyrpt.password=password123, and h2.encrypt.algorithm= AES, h2 database URLs should be modified as shown below:

(Add a space after the password, since the format is <file_password> space <user_password>)

```
java -cp <h2_path>/h2-2.1.214.jar org.h2.tools.RunScript -url "jdbc:h2:./h2db;CIPHER=AES"
-password "password123 " -script h2db.zip
-options compression zip FROM_1X
```

Once all the above steps are completed without any error, data is successfully migrated to h2db.mv.db.

6. Cleanup Migration files (Optional)

At this point h2db.zip , h2db_old.mv.db, and migrate.sql files can be deleted.

Frequently asked questions (FAQs) about InformixHQ

These topics provide short answers to some frequently asked questions about InformixHQ.

High level architecture and functionality

This topic provides answers to some frequently asked questions about high level architecture and functionality.

- What is the difference between the InformixHQ server and agent? on page 131
- Is it necessary to start the agent to use InformixHQ? on page 132
- I have multiple Informix database instances running on the same host machine. Do I need one agent per host or one agent per database server? on page 132

What is the difference between the InformixHQ server and agent?

The InformixHQ server is a Java 8 based Jetty web server that hosts both the web user interface (UI) portion of the tool and the REST web services. The InformixHQ server also connects directly to the Informix database server instances to gather live data and run administration commands, manages connections to all agents, and evaluates and dispatches alerts when new monitored data comes in, among other things. You only need to run a single instance of the InformixHQ server to manage and monitor all of your Informix database server instances.

The InformixHQ agent is a lightweight Java program that runs alongside each of your Informix database server instances and gathers monitoring data. The agent is intended to be installed on the same host machine as the Informix database server that you want monitored by InformixHQ, which allows it to also gather operating system statistics about the host machine. Unlike the InformixHQ server, you will have one instance of the InformixHQ agent running for each Informix database server that you want the tool to monitor.

For information, see InformixHQ Architecture on page 8.

Is it necessary to start the agent to use InformixHQ?

The agent is not required to use InformixHQ. However, it is important to note that the agent process is the one responsible for gathering all of the monitoring data. Therefore, if you choose not to connect the agent, the tool will not be monitoring your Informix database servers when you close your web browser. You will not be able to see graphs in the UI of how various performance metrics are trending over time and you will not be able to configure alerting conditions if you are not using the agent.

I have multiple Informix database instances running on the same host machine. Do I need one agent per host or one agent per database server?

There is a one-to-one relationship between the InformixHQ agent and the Informix database server. Each agent monitors just one Informix database server instance. If you have multiple Informix database server instances on the same host and you want to monitor each of them, then you will need to have multiple agents on that same host machine, one for each database server instance.

Getting Started

This topic provides answers to some frequently asked questions on getting started with InformixHQ.

- Where can I get InformixHQ? on page 132
- What should I do before upgrading to the latest version of InformixHQ? on page 132
- Where can I find sample configuration files for the server and agent? on page 133
- How can I configure the logging for the server or agent? How do I change the logging level? on page 133

Where can I get InformixHQ?

InformixHQ is available as part of the Informix database server installation for versions 12.10.xC13 or higher.

For information, see Getting Started on page 11.

What should I do before upgrading to the latest version of InformixHQ?

Before upgrading to the latest version, it is suggested to make a backup copy of the old database file i.e. a backup copy of h2db.mv.db file. This is required in case if you ever want to revert to the previous version of InformixHQ with previous InformixHQ jar.

Where can I find sample configuration files for the server and agent?

Sample configuration files for both the InformixHQ server and agent are available in the **\$INFORMIXDIR/hq** directory of your Informix database server installation.

For information, see InformixHQ Server Configuration on page 39 and InformixHQ Agent Configuration on page 116.

How can I configure the logging for the server or agent? How do I change the logging level?

InformixHQ uses the log4j2 library for logging. By default, the InformixHQ server and agent will log messages at INFO level to an informixhq-server.log file and an informixhq-agent.log file respectively.

You can customize the logging behavior by providing a server.log4j.xml file in the current directory or classpath when starting the InformixHQ server or an agent.log4j.xml file in the current directory or classpath when starting the InformixHQ agent. Use these Log4j configuration files to change the logging level (ERROR, WARN, INFO, or DEBUG), change the log file location, or enable rolling window logging. For more information, see log4j2 and Logging in InformixHQ.

How do you stop the server and how do you stop the agent?

You can stop both the InformixHQ server and agent by terminating the java process that is running them.

Monitoring and the Repository Database

This topic provides answers to some frequently asked questions on monitoring and the repository database in InformixHQ.

- Where is the monitored data stored? on page 133
- Does the repository database need to exist ahead of time? Do I need to run any DDL statements to initialize the repository database? on page 133
- If I add a new database server instance to a group and start an agent for that new server, do I have to do anything to enable all of the group's sensors on the new server? on page 134

Where is the monitored data stored?

The monitored data is stored in the repository database as defined in the InformixHQ UI. The repository database must be an Informix database, but it can be located wherever you choose. You can store the monitored data within the same Informix instance that is being monitored or you can choose to use a central repository database to store all of the monitored data for all of your Informix database server instances.

Does the repository database need to exist ahead of time? Do I need to run any DDL statements to initialize the repository database?

The repository database must exist before you define it as a repository database. You define a repository database in the InformixHQ UI on a server's **Setup > Agent** page.

You do not need to run any DDL statements to initialize the schema for the repository database. The agent will automatically create the tables it needs to store the monitored data.

If I add a new database server instance to a group and start an agent for that new server, do I have to do anything to enable all of the group's sensors on the new server?

No, this happens automatically. Sensors defined in a group's monitoring profile are automatically applied to all database servers within the group. When a new server is added to the group, it will automatically inherit all of the sensors enabled in the group's monitoring profile. No additional step is needed to make this happen. The same thing applies to a group's alerting profile.

Security

This topic provides answers to some frequently asked questions on InformixHQ security.

- Do I need to keep the initialAdminPassword in the properties file after the InformixHQ server is started for the first time? Isn't it a security issue to keep the password in plain text in the properties file? on page 134
- How can I configure HTTPS and/or SSL for InformixHQ? on page 134
- How can I encrpyt the internal H2 database that the InformixHQ server uses? on page 135
- How can I configure InformixHQ to use SSL when connecting to my database server? on page 136

Do I need to keep the initialAdminPassword in the properties file after the InformixHQ server is started for the first time? Isn't it a security issue to keep the password in plain text in the properties file?

The initialAdminPassword property is only required in the InformixHQ server properties file the first time it is started. When the server is started for the very first time, it initializes its internal H2 database and creates the initial admin user. For all subsequent starts of the InformixHQ server, the admin user will already exist and therefore the initialAdminPassword will be ignored if it is present in the properties file. This means that after the server is started for the first time, you can safely remove the initialAdminPassword property from the properties file. This allows you to avoid having that password continue to sit around in plain text in your properties file.

How can I configure HTTPS and/or SSL for InformixHQ?

To use the Secure Sockets Layer (SSL) protocol to encrypt communication with InformixHQ, you will need a keystore and certificate. You can use the method that best fits your environment for creating the keystore and certificate, for example Java keytool, OpenSSL, or even the IBM Global Security Kit (GSKit).

Configuring HTTPS in the InformixHQ server

Once you have the keystore, secure the InformixHQ web user interface and REST API by configuring HTTPS in the InformixHQ server. To configure HTTPS in the InformixHQ server, in your InformixHQ server properties file, set the httpsPort on page 40, ssl.keystore.file on page 42, and ssl.keystore.password on page 42 properties and potentially also the ssl.key.password on page 42 property if your key password is different from the keystore password.

Additionally, if you want to disable HTTP access to the InformixHQ so that all communication to and from the InformixHQ server uses HTTPS, set the httpPort on page 40 to -1 in your properties file. If instead you would like

the InformixHQ server to automatically redirect all HTTP traffic to the HTTPS port, set the redirectHTTPtoHTTPS on page 41 property to true.

Sample InformixHQ server properties file with HTTPS enabled:

```
# The initialAdminPassword is only required the first time the InformixHQ server is started
initialAdminPassword=myAdminPassword
# configure ports
httpPort=-1
httpsPort=8088
redirectHTTPtoHTTPS=false
# configure keystore
ssl.keystore.file=/opt/informixhq/mykeystore.jks
ssl.keystore.password=myStorePassword
# uncomment the following line if a separate key password is required for your keystore
#ssl.key.password=myKeyPassword
```

 Once you have HTTPS enabled in the InformixHQ server, you must configure your InformixHQ agents to encrypt their web socket communication with the InformixHQ server. If you use the **Deploy Agent** button in the UI to have the InformixHQ server automatically deploy the agent, it will automatically configure the agent to use SSL if the InformixHQ server has HTTPS enabled.

If you are starting your agents manually to enable SSL, set the ssl.enable on page 117 property to true in your agent configuration file and then set the ssl.keystore.file on page 118 property, the ssl.keystore.password on page 118 property.

Sample agent configuration file with SSL enabled:

```
# host and port of the InformixHQ server
server.host=localhost
server.port=8088
# The id of the Informix database server as defined in InformixHQ
informixServer.id=1
# SSL configuration
ssl.enable=true
ssl.keystore.file=/opt/informixhq/mykeystore.jks
ssl.keystore.password=myStorePassword
```

How can I encrpyt the internal H2 database that the InformixHQ server uses?

The InformixHQ server creates an H2 database to store its internal metadata. The H2 database file, **h2db.mv.db** will be created in the directory where you start the InformixHQ server. It will store information about the groups and servers you define in the tool (including the database server connection credentials), the monitoring and alerting profiles, and alerting incidents.

You can configure encryption for this H2 database file by setting the following properties in your InformixHQ server configuration file.

h2.encrypt.enable=true h2.encyrpt.password=some_password

Optionally, you can also set the h2.encrypt.algorithm property if you want to set the encryption algorithm to something other than AES.



Note: If you want to encrypt the H2 database, you must set these properties the first time you start the InformixHQ server when the H2 database is first created and initialized. You cannot change your H2 encryption configuration after the H2 database has been created. If you want to encrypt an H2 database that has already been created, you can use H2's ChangeFileEncryption tool as described in http://www.h2database.com/html/features.dital#file_encryption or you can delete your h2db.mv.db file and have the InformixHQ server recreate it from scratch the next time you start it.

How can I configure InformixHQ to use SSL when connecting to my database server?

If your database supports or requires SSL connections, you can setup SSL using the connection properties on the **Add Server** page when adding the server or on the server's **Setup** page after it is created.

You must add the following connection properties in order to use SSL on InformixHQ's JDBC connections to your database server:

```
SSLCONNECTION=true
SSL_TRUSTSTORE=/path/to/truststore
SSL_TRUSTSTORE_PASSWORD=password
```

The truststore/keystore file that you specify must be present both where InformixHQ server is running as well as the machine where the InformixHQ agent is running.

For more information, see Adding Severs and Groups.

Users and Permissions

This topic provides answers to some frequently asked questions on InformixHQ users and permissions.

- What's the difference between monitoring/admin credentials and Read/SQL/Admin permissions? on page 136
- What privileges are required on the Informix database server? on page 137
- Is there any relationship between the users I create in InformixHQ and OS users? on page 137

What's the difference between monitoring/admin credentials and Read/SQL/Admin permissions?

The monitoring and admin credentials are used by the InformixHQ server itself as part of the JDBC connection whenever it needs to connect to the database server. The Read, SQL, and Admin permissions are those that are assigned to users in the tool and therefore control what users can see and do in the UI.

Monitoring and admin credentials

When you click **Add Server** from a group dashboard page to add a new Informix database server to InformixHQ, you are asked to provide the InformixHQ tool with not only the host and port, but also user and password information that will be used when establishing a JDBC connection to that database server instance.

The monitoring credentials are used by the InformixHQ server whenever it needs to query for data to be displayed in the UI or by the InformixHQ agent data it monitors your database server instance.

The admin credentials are used whenever a user in the UI requests that an administration action be performed on the database server, for example creating a dbspace, editing an onconfig parameter, or deploying an agent. The user provided for the admin credentials should be a DBSA and needs access to the sysadmin database and permissions to run SQL Admin API commands on the database server.

The required privileges for the monitoring and admin users can also be found in Adding Severs and Groups.

It is required that you provide monitoring credentials when adding your Informix database server information to InformixHQ. Admin credentials need only be provided if you want to use InformixHQ to run administrative actions on your database server or if you want that server to be used as a repository database.

• Read, SQL, and Admin permissions

The Read, SQL, and Admin permissions are the permissions assigned to the users that are created in InformixHQ itself. These permissions determine what kinds of access that a user has on various Informix servers and groups in the UI and also which REST services that user is authorized to run. Therefore, these permissions control what each user can see or do in the tool.

Read permission provides the ability to view information about a server. SQL permission provides the ability to run any SQL query or statement (including DML) against the database server on its Schema Manager page in the UI. Admin permission provides the ability run administrative actions on the server, for example creating a dbspace or editing and onconfig parameter. Read, SQL, and Admin permissions are mutually exclusive, so be sure to grant each user the full set of permissions that they will need.

Read, SQL, and Admin permissions can be granted to InformixHQ users by a System Administrator user in InformixHQ on the **System Settings > User Management** page or on the **Permissions** page for any server or group.

What privileges are required on the Informix database server?

The required privileges for the monitoring and admin users can be found in Adding Severs and Groups.

Is there any relationship between the users I create in InformixHQ and OS users?

There is no relationship between the users you create in InformixHQ and the operating system users on the host machine it is running on. Users that are created in InformixHQ are users that are specific to the InformixHQ tool. They have no relationship to operating system users or even Informix database server users.

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