Table of Contents

1 Preparing for Installation ......................................................... 5
   1.1 About SAP IQ .............................................................. 5
      1.1.1 Supported Server Platforms .................................. 5
      1.1.2 Supported Client Platforms .................................. 5
      1.1.3 Licensing Requirements ....................................... 5
      1.1.4 Installation Media ............................................... 6
   1.2 Planning Your Installation .................................................. 6
      1.2.1 Installing for the First Time ................................... 6
      1.2.2 Upgrading From an Earlier Version ........................... 6
      1.2.3 Avoiding Environmental Issues ............................... 7
      1.2.4 Changing Hardware Platforms ................................. 7
      1.2.5 Planning for Distributed Query Processing or High Availability .......................................................... 7
   1.3 Preinstallation Tasks .......................................................... 8
      1.3.1 Check for Operating System Patches .......................... 8
      1.3.2 Increase the Swap Space ....................................... 8
      1.3.3 License Server Requirements ................................. 8
      1.3.4 Windows Support Issues ....................................... 9
      1.3.5 Verify Network Functionality ................................. 10
      1.3.6 Windows Installer Requires Microsoft Visual C++ Redistributable Packages ........................................ 11

2 Licensing Your Software .......................................................... 12
   2.1 Available Licenses ......................................................... 12
      2.1.1 Enterprise Edition ............................................... 12
      2.1.2 Express Edition .................................................. 13
      2.1.3 Evaluation Edition ............................................... 14
   2.2 Before You Generate Your License ....................................... 14
      2.2.1 Read the SySAM Documentation ................................ 14
      2.2.2 Decide On the License Model You Want To Use ............. 14
      2.2.3 Get Your Host ID ............................................... 14
      2.2.4 Determine the Host Name ...................................... 15
      2.2.5 Choose a Port Number .......................................... 15
   2.3 Generating a SySAM License ............................................... 15
   2.4 Installing a New License Server ......................................... 16
   2.5 Starting a License Server ............................................... 17

3 Server Installations ................................................................. 18
   3.1 Server Components ....................................................... 18
   3.2 What a Server Installation Does ....................................... 19
   3.3 SAP Database Administration Tools .................................... 21
<table>
<thead>
<tr>
<th>Section</th>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>6.3.3</td>
<td>Connecting Using OLE DB.</td>
<td>49</td>
</tr>
<tr>
<td>6.3.4</td>
<td>Connecting Using Open Client.</td>
<td>50</td>
</tr>
<tr>
<td>6.3.5</td>
<td>Running the Client and Server On the Same System.</td>
<td>50</td>
</tr>
<tr>
<td>6.3.6</td>
<td>Network Issues for SAP IQ Servers.</td>
<td>51</td>
</tr>
<tr>
<td>6.3.7</td>
<td>Connecting Across a Firewall.</td>
<td>52</td>
</tr>
<tr>
<td>7</td>
<td>Important Disclaimers on Legal Aspects.</td>
<td>53</td>
</tr>
</tbody>
</table>
1 Preparing for Installation

Read this section before you install SAP® IQ.

1.1 About SAP IQ

SAP® IQ is a high-performance decision-support server designed specifically for mission-critical business intelligence, analytics, and data warehousing. Component Integration Services within SAP IQ provide direct access to relational and non-relational databases on mainframe, UNIX, or Windows servers.

1.1.1 Supported Server Platforms

SAP IQ is compatible with these platforms and operating systems.

- Microsoft Windows Server 2012 R2 for 64-bit systems
- Microsoft Windows 2008 R2 for 64-bit systems - Service Pack 1
- Microsoft Windows 7 for 64-bit systems - Service Pack 1

1.1.2 Supported Client Platforms

SAP IQ includes a network client for all supported server platforms.

SAP IQ Network Client for Windows includes 32-bit ODBC Windows drivers, which allow you to connect to SAP IQ from third-party 64-bit Windows applications, and 64-bit Windows applications written in C++. Platform support for the Windows network client includes Windows 2008 R2 SP1, Windows 7 SP1, and Windows 2012.

1.1.3 Licensing Requirements

All product editions except the Evaluation Edition require a license. Optional features are sold and licensed separately.

Whether you install a licensed or evaluation edition, you have 30-day access to all features and options. To use an option beyond the 30-day evaluation period, you must purchase and install an appropriate SAP Software Asset Management (SySAM) license.

The e-mail message or Web key you receive when you purchase an SAP product provides specific product and licensing information. Before installing and configuring any product edition, know which features you are licensed to use.
1.1.4 Installation Media

SAP IQ installation media includes software for server and client installations.

Table 1: SAP IQ Installation Media.

<table>
<thead>
<tr>
<th>Media</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>SAP IQ Server Suite</td>
<td>Installs server components and other support tools.</td>
</tr>
<tr>
<td>SAP IQ Client Suite</td>
<td>Installs the components required for client connections to a SAP IQ server.</td>
</tr>
</tbody>
</table>

1.2 Planning Your Installation

The installation process depends on whether you are installing for the first time, upgrading from a previous version, or migrating your databases to a new hardware platform.

1.2.1 Installing for the First Time

Follow these steps to install SAP IQ for the first time.

- Read the release bulletin for the latest information. See the special installation instructions section for any installation instructions not included in this document.
- Complete all pre-installation tasks. Apply any required operating system patches, check to see that there is sufficient disk space and memory, and update any necessary configuration changes.
- Determine the license model you want to use. SySAM supports served and unserved license models. See the Sybase Software Asset Management (SySAM) 2 Users Guide to determine which model is best suited for your environment.
- Use the product and licensing information you received from SAP to log in to the SAP Service Marketplace at http://service.sap.com/licensekeys and generate a license key for your software.
- Install SAP IQ server components, activate your license, then start and test your server.
- Install and configure SAP IQ client components.

1.2.2 Upgrading From an Earlier Version

Follow these general guidelines when you install a new version of SAP IQ.

- Uninstall the version currently installed on your system. Install the new version as if you were installing for the first time.
- Upgrade your client tools. Although you can use the current version of the client tools to connect to an earlier server version, some options, tools, and objects may not be available.
1.2.3 Avoiding Environmental Issues

Installing SAP SQL Anywhere and SAP IQ on different machines avoids potential start-up problems. Install SAP SQL Anywhere and SAP IQ on different host machines. When you install both products on the same machine, the environment variables for the product installed last overwrite those of the product installed first, causing start-up problems for the first product.

1.2.4 Changing Hardware Platforms

Although SAP IQ Server Suite is no longer available for 32-bit platforms, you can move a 32-bit database to a 64-bit platform.

Additional Information

- Migration > Database Upgrades
- Migration > Hardware Changes > Moving 32-Bit Databases to 64-bit Platforms
- Migration > Hardware Changes > Converting to a new hardware platform

1.2.5 Planning for Distributed Query Processing or High Availability

Distributed query processing can benefit from an optional high-speed interconnect. Use scalable interconnect technology to connect multiplex nodes.

For best performance, use:

- A high-speed network interconnect providing a local network that connects all multiplex nodes. Use an interconnect bandwidth of 1Gb or higher or the highest bandwidth, lowest latency interconnect available.
- Two physically separate network interfaces for each multiplex node:
  - A public network for multiplex interconnection traffic and client traffic.
  - A private network for multiplex interconnect traffic only, excluding external client traffic. Currently, multiplex interconnects support only the TCP/IP standard.

  These two networks improve security, fault-tolerance, and performance.
- A switch that enables high-speed communication between nodes.
- Network cards that reside on different fabrics so that the multiplex survives network failure. Separate the public and private networks physically.
• Private interconnect fabrics that contain only links to machines participating in the multiplex. Private interconnect for all multiplex nodes should connect to the same switch, which connects to no other public switches or routers.
• Redundant network interface cards added to private or public networks if desired. The private and public connection information allows for multiple IP addresses on each.

1.3 Preinstallation Tasks

Perform the following tasks before you install SAP IQ.

1.3.1 Check for Operating System Patches

Check with your vendor and apply the latest operating system patches. Do not use a patch that is earlier than the version suggested for your operating system.

1.3.2 Increase the Swap Space

The recommended minimum swap space is at least 1GB. Certain operations may cause the memory usage to grow dynamically. Changing the way SAP IQ uses buffers can dramatically change the way it uses memory.

Depending on the load, swap requirements may exceed space allotted. Insufficient swap space may result in the system supporting fewer users, and large processes that cannot acquire sufficient swap space may be prematurely killed by the operating system.

See your operating system documentation for information about extending swap space.

1.3.3 License Server Requirements

SAP IQ requires SySAM license server version v11.6.1 or later, which is distributed on the SAP IQ Server Suite installation media. Using an older SySAM server can cause the server to become unresponsive. Install the license server before you install SAP IQ.

The SySAM license server is installed as part of a custom install. To check the version of your current SySAM license server, open a console or command prompt, change to %SYBASE%\SYSAM-2_0\bin, and enter:

```
lmutil lmver lmgrd
``` 

If you currently use a license server to host SySAM licenses for other Sybase products:
• Uninstall your current license server
• Install the license server distributed on the SAP IQ Server Suite DVD
Rehost your licenses

Rehost your SySAM licenses after you install the new license server.

Additional Information

Sybase Software Asset Management (SySAM) 2 Users Guide

1.3.4 Windows Support Issues

Review these issues related to running SAP IQ on Windows 2008.

Windows Security

Windows 2008 incorporates a new security model. User Account Control (UAC) is enabled by default and may affect the behavior of programs that expect to be able to write files, especially when the computer supports more than one user. Depending on where and how files and directories are created, a file created by one user may have permissions that do not allow another user to read or write to that file. If you install SAP IQ in the default directories, files and directories that require read/write access for multiple users are set up appropriately.

SAP IQ Elevated Operations Agent

Certain actions require privilege elevation to execute when run under User Account Control. The programs dbelevatell.exe and iqdsn.exe may require elevation in SAP IQ. The following dll files require elevation when they are registered or unregistered: dbodbc16.dll and dboledb16.dll.

Certain actions require privilege elevation to execute when run under User Account Control. The following programs may require elevation in SAP IQ: SybaseIQservice16.exe, dbelevatell.exe, and iqdsn.exe. The following dlls require elevation when they are registered or unregistered: dbodbc16.dll and dboledb16.dll.

On a system with User Account Control activated, you may receive an elevation prompt for the SAP IQ elevated operations agent. The prompt is issued by the User Account Control system to confirm that you want to continue running the identified program (if logged on as an administrator) or to provide administrator credentials (if logged on as a non-administrator).
Deployment Changes

The program `dbelevate16.exe` is used internally by SAP IQ components to perform operations that require elevated privileges. This executable must be included in deployments of SAP IQ. Administrator privileges are required to run `dbelevate`.

SAP IQ Executables Signed

SAP IQ executables are signed by Sybase, Inc.

Using an AWE Cache

To use an AWE (Address Windowing Extensions) cache on Windows 2008, you must run the database server as administrator. Starting a non-elevated database server with an AWE cache results in a warning that the database server must be run as an administrator to use AWE.

Samples

Samples now correctly handle SAP IQ installation path names that contain one or more spaces.

Windows Services

Windows 2008-compliant services are not allowed to interact with the desktop. SAP IQ services do not interact with the desktop (even if Allow Interaction with Desktop is enabled in the service definition). SAP IQ database servers can be monitored using the `dbconsole` utility or SAP IQ Control Center.

1.3.5 Verify Network Functionality

Make sure your network devices can communicate before you install SAP IQ.

SAP IQ uses networking software whenever the client and server components are installed on different systems. Use the `ping` command to and from another computer to verify that the server where you plan to install SAP IQ can use TCP/IP to communicate with other devices on your network.
1.3.6 Windows Installer Requires Microsoft Visual C++ Redistributable Packages

Launching the installer may return the following exception: Windows error 14001 occurred while loading the Java VM.

Context

If you get this error, install the Microsoft Visual C++ Redistributable Package MFC Security Updates before launching the installer again. These service packs are included as part of the installation package.

Procedure

1. Open Windows Explorer.
2. Change to the \archives directory on the installable image.

   The MS Visual C++ Redistributable Packages are located in three subdirectories:
   ○ ms-redist-2005
   ○ ms-redist-2008
   ○ ms-redist-2010

   You must install the packages from each subdirectory.
3. Change to the appropriate directory, and do this:
   ○ On 32-bit machines, run `vcredist_x86.exe`
   ○ On 64-bit machines, run `vcredist_x86.exe` and `vcredist_x64.exe`
2 Licensing Your Software

When you purchase a SAP product, you receive an e-mail message or a Web key that tells you how to generate SAP IQ license keys on the Web. The e-mail message or Web key also provides specific product and licensing information. Use this information when you generate your licenses.

2.1 Available Licenses

Available licenses are determined by product edition. All product editions except the Evaluation Edition require a license. Optional features are sold and licensed separately.

Whether you install a licensed or evaluation edition, you have 30-day access to all features and options. To use an option beyond the 30-day evaluation period, you must purchase and install an appropriate SAP Software Asset Management (SySAM) license.

Because using an unlicensed option on a licensed server can cause the server to shutdown when the initial grace period expires, the DBA must explicitly authorize access to an optionally licensed feature. SAP IQ will not attempt to check-out an optional license by default. Unless the DBA grants access to an option, the option will not be available.

See the sp_iqlmconfig stored procedure in Reference: Building Blocks, Tables, and Procedures for information about authorizing optional features and other issues related to license management configuration.

2.1.1 Enterprise Edition

SAP IQ Enterprise Edition requires a CPU license and supports several licensing options.

Table 2: Enterprise Edition.

<table>
<thead>
<tr>
<th>Orderable License</th>
<th>Actual License</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>CPU</td>
<td>IQ_CORE</td>
<td>Restricts the number of cores (not CPUs) that a server can use.</td>
</tr>
<tr>
<td>VLDB MO</td>
<td>IQ_VLDBMGMT</td>
<td>Allows you to create multiple tablespaces and additional dbspaces beyond the defaults:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- You are allowed one IQ_SYSTEM_TEMP dbspace, one IQ_SYSTEM_MAIN dbspace, one IQ_SHARED_TEMP, and one additional user defined main store dbspace.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Additional dbspaces require the IQ_VLDBMGMT license, which restricts the ability to create table partitions. An IQ_VLDBMGMT is required whenever an SAP IQ server creates or starts with two or more IQ user dbspaces.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Each VLDB license allows for 1 TB of storage. You will need to purchase one license for each additional TB of storage in the main store.</td>
</tr>
<tr>
<td>Orderable License</td>
<td>Actual License</td>
<td>Description</td>
</tr>
<tr>
<td>-------------------</td>
<td>----------------</td>
<td>-------------</td>
</tr>
<tr>
<td>ASO</td>
<td>IQ_SECURITY</td>
<td>Allows you to use column encryption, ECC Kerberos and FIPS. The number of ASO licenses must match cores.</td>
</tr>
<tr>
<td>MPXO</td>
<td>IQ_MPXNODE</td>
<td>Allows you to start secondary multiplex nodes (readers/writers). The number of nodes must always be less than cores, as each multiplex server must have at least one core.</td>
</tr>
<tr>
<td>IDBA-PSO</td>
<td>IQ_UDF</td>
<td>Allows you to define and run high-performance scalar and aggregate user-defined functions. This license is only available with approved third-party libraries.</td>
</tr>
<tr>
<td></td>
<td>IQ_IDA</td>
<td>Allows you to build, deploy and run your own C/C++ V4 User-Defined Functions (UDF). The IQ_IDA license will function as both the InDatabase Analytics Option and Partner Solutions license.</td>
</tr>
<tr>
<td>UDA</td>
<td>IQ_UDA</td>
<td>Allows you to use the IQ Text Search functionality, which lets SAP IQ search unstructured and semi-structured data. An IQ_UDA also includes an IQ_LOB license. This license applies to TEXT indexes.</td>
</tr>
</tbody>
</table>

### 2.1.2 Express Edition

Unlike the Evaluation Edition, the Express Edition does not expire, but does place some limits on the way you deploy your server.

Available at no cost, the SAP IQ Express Edition supports all options and features available in the Evaluation Edition, and includes an IQ_XE SySAM license, which is installed as part of the Express Edition server package.

Unlike the Evaluation Edition, which limits server access to a 30-day appraisal period, the IQ_XE SySAM license does not expire. However, the IQ_XE license restricts the aggregated size of all IQ main dbspaces to a size of 5GB or less. The SAP IQ Express Edition is not eligible for production deployment and is not supported by SAP Customer Service and Support (CS&S).
2.1.3 Evaluation Edition

The Evaluation Edition does not require a license. The Evaluation Edition is an unlicensed server, which provides full access to all features and options available in the Enterprise Edition. To run an unlicensed database beyond a 30-day evaluation period, however, you must purchase and install an appropriate license.

2.2 Before You Generate Your License

Follow these steps before you generate your license.

2.2.1 Read the SySAM Documentation

Review the SySAM documentation for specific information about SySAM licensing, license models, and procedures.

- **Sybase Software Asset Management (SySAM) 2 Users Guide** introduces asset management concepts and provides instructions for establishing and administering SySAM 2 licenses.
- **SySAM 2 Quick Start Guide** tells you how to get your SySAM-enabled SAP product up and running quickly.
- **FLEXnet Licensing End User Guide** explains FLEXnet Licensing for administrators and end users and describes how to use the tools which are part of the standard FLEXnet Licensing distribution kit from SAP.

2.2.2 Decide On the License Model You Want To Use

A license model refers to the way you set up your license files for your licensed programs. License files can reside on a central, networked license server in a served license model or on the machine running the licensed program in an unserved license model.

Decide on the license model you want to use before you generate your license file. For information about served and unserved licenses, and which model is best suited for your environment. See the **Sybase Software Asset Management (SySAM) 2 Users Guide**.

2.2.3 Get Your Host ID

To install or use a license server, you need the license server host ID.

FLEXnet Licensing uses different machine identifications for different machine architectures. If you have a copy of the FLEXnet licensing utilities installed, you can use the `lmhostid` utility to print the exact host ID that FLEXnet Licensing expects to use on any given machine. `lmutil` is included in your product distribution, or you can download a copy from the FLEXnet Publisher download page at: [http://www.globes.com/support/fnp_utilities_download.htm#unixdownload](http://www.globes.com/support/fnp_utilities_download.htm#unixdownload)
You can also use a system-level command to find the host ID. For platform-specific commands and examples, see Hostids for FLEXnet Licensing-Supported Platforms at: http://www.flexerasoftware.com/products/flexnet-publisher/requirements.htm.

Note
Some platforms derive the host ID from the network adapter address. If your machine has multiple network adapters, the command you use to get the host ID may return one host ID for each network adapter. If this occurs, choose only one from the list of host IDs. Use the value associated with the primary wired Ethernet adapter. Do not use values associated with internal loopback adapters.

2.2.4 Determine the Host Name

You must specify the host name of the license server for served licenses. Although the host name is optional for unserved license models, providing the host name for all license types can simplify future license administration tasks.

2.2.5 Choose a Port Number

If you plan to install a license server or use an existing license server, you need to know the TCP/IP port number that the license server will use to serve your licenses.

If you do not specify a port number, the license server uses the first available port in the range of 27000 to 27009. If you are using three-server redundancy, specify a port number outside of this range.

2.3 Generating a SySAM License

Login to SAP Service Marketplace to generate a license key for SAP products that use SySAM 2-based licenses. Refer to the Web key or email you received for information about your account.

Context

When you purchase SySAM 2–enabled SAP products, you must generate, download, and deploy SySAM product licenses.

- Before you generate your license, you need the host ID and host name of the server where you plan to install SAP IQ.
- Served licenses require a license server. If you do not plan to use an existing license server, you must install one before you install SAP IQ.
Procedure

2. Follow the online instructions.
3. Save your license to a temporary location on the local file system. You must save the license file with a `.lic` extension.

### 2.4 Installing a New License Server

The SAP IQ Server Suite installation media includes SySAM Network License Server utilities you can use to install a new license server.

**Prerequisites**

- Use an account with Administrator privileges to log in to Windows.
- Stop and shut down all programs before you run the installation.

**Procedure**

1. Insert the installation media into the drive.
   
   If the installer does not start automatically, start Windows Explorer, change to your DVD drive, and choose:
   ```
   setup.exe
   ```

2. On the Welcome screen, click Next.
3. Choose an installation directory, then click Next.
4. Choose Custom as the installation type you want to perform, click Next.
5. Unselect all installation options except SySAM License Utilities.
6. Select SySAM License Server, click Next.
7. Follow the instructions on the screen.
Starting a License Server

Copy your license to the license directory, and start the license server from a console or command line.

Prerequisites

If you installed your license server on Windows 7, you must use the Run as Administrator command to start and stop the license server.

Procedure

1. From a console or command line, copy the license file you generated to the %SYBASE%\SYSAM-2.0\licenses directory on the network license server.
2. Change to %SYBASE%\SYSAM-2.0\bin, then refresh or restart the license server:

<table>
<thead>
<tr>
<th>Option</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>sysam start</td>
<td>Start the license server. Perform this step if the license server is not running. After you perform this step, repeat step 2 to verify that the server is running.</td>
</tr>
<tr>
<td>sysam reread</td>
<td>Make the license server read the new license file. Perform this step if the license server is already started.</td>
</tr>
</tbody>
</table>
3. To verify that the license server is running, enter sysam status.

Note

The SySAM License Server Installer installs both IPv4-only and IPv4/IPv6 dual-stack license server binaries during installation and configures use of IPv4-only binaries.

Use the sysam configure [IPv6 | IPv4] to configure the appropriate version of the license server. For example, sysam configure IPv6 will configure use of the IPv4/IPv6 dual stack binaries. For more information, see SySAM Users Guide.
3 Server Installations

Read this section for step-by-step server installation instructions.

3.1 Server Components

Server components are grouped by feature. Items marked as default are installed in typical installations. Optional items can be installed in custom installations.

Table 3: SAP IQ Server Components.

<table>
<thead>
<tr>
<th>Feature</th>
<th>Components</th>
<th>Default</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>SAP IQ</td>
<td>SAP IQ Server</td>
<td>•</td>
<td>Installs server software, client tools, ODBC drivers, and Web application development tools.</td>
</tr>
<tr>
<td></td>
<td>SAP IQ Client</td>
<td>•</td>
<td></td>
</tr>
<tr>
<td></td>
<td>SAP IQ Web Drivers</td>
<td>•</td>
<td></td>
</tr>
<tr>
<td></td>
<td>SAP IQ ODBC Driver</td>
<td>•</td>
<td></td>
</tr>
<tr>
<td>SAP Control Center</td>
<td>Management User Interface for SAP IQ</td>
<td>•</td>
<td>SAP Control Center (SCC) is a Web-based administrative console for Sybase products. At least one SCC server is required to deploy SAP Control Center.</td>
</tr>
<tr>
<td></td>
<td>Remote Command and Control Agent for SAP IQ</td>
<td>•</td>
<td>SAP Control Center Agent is required to manage SAP IQ servers within SAP Control Center.</td>
</tr>
<tr>
<td>Cockpit Framework</td>
<td>SAP IQ Cockpit</td>
<td>•</td>
<td>SAP IQ Cockpit is a personalized work center for SAP IQ, which provides SAP IQ SP08 management capabilities in a graphical environment.</td>
</tr>
<tr>
<td>jConnect</td>
<td>jConnect 7.0 for JDBC</td>
<td>•</td>
<td>jConnect is a Type 4 JDBC driver, which is entirely Java-based. jConnect 7.0 is JDBC 4.0 compliant</td>
</tr>
<tr>
<td>SySAM</td>
<td>SySAM License Server</td>
<td>•</td>
<td>Installs FLEXnet Licensing utilities to support your licensing model.</td>
</tr>
<tr>
<td></td>
<td>SySAM License Utilities</td>
<td>•</td>
<td></td>
</tr>
</tbody>
</table>
3.2 What a Server Installation Does

A typical installation installs the server and other components into a parent directory on the host machine.

Directory Variables

SAP IQ uses environment variables that point to different installation directories.

Table 4: Directory Variables.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;%SYBASE%&gt;</td>
<td>Points to the parent installation directory. This variable is set by the installer.</td>
</tr>
<tr>
<td>&lt;%IQDIR16%&gt;</td>
<td>Points to the product installation directory. This variable is set by the installer.</td>
</tr>
<tr>
<td>&lt;%ALLUSERSPROFILE%&gt;</td>
<td>Points to the Windows local resources directory. The location of these resources depends on the Windows version. On Windows 7, these resources are located in the C:\ProgramData\SybaseIQ directory.</td>
</tr>
</tbody>
</table>

**Note**

Do not install SAP IQ into a destination directory or path that contains spaces. The GUI installer warns you if you try to install to an invalid path; other installation methods do not display this warning.

Parent Installation Directory

The <%SYBASE%> directory contains the files, scripts, and other objects required to support the server.

Table 5: Parent Installation Directory.

<table>
<thead>
<tr>
<th>Directory</th>
<th>Contents</th>
</tr>
</thead>
<tbody>
<tr>
<td>charsets</td>
<td>Character sets available for compatibility with Adaptive Server Enterprise.</td>
</tr>
<tr>
<td>COCKPIT-4</td>
<td>SAP IQ Cockpit startup and configuration files.</td>
</tr>
<tr>
<td>collate</td>
<td>Collation sequences available for compatibility with Adaptive Server Enterprise.</td>
</tr>
<tr>
<td>ini</td>
<td>Various configuration files.</td>
</tr>
<tr>
<td>IQ-16_0</td>
<td>Subdirectories, scripts, and property files required to run the server.</td>
</tr>
<tr>
<td>jConnect-7_0</td>
<td>JDBC 4.0 compliant driver for SAP IQ.</td>
</tr>
<tr>
<td>jre</td>
<td>Java runtime environment.</td>
</tr>
<tr>
<td>jutils-3_0</td>
<td>Version 3.0 Java-based utilities, including Ribo, a Tabular Data Streams utility.</td>
</tr>
<tr>
<td>Directory</td>
<td>Contents</td>
</tr>
<tr>
<td>--------------------------</td>
<td>--------------------------------------------------------------------------</td>
</tr>
<tr>
<td>locales</td>
<td>Language modules for system messages and date/time formats.</td>
</tr>
<tr>
<td>log</td>
<td>Installation log files.</td>
</tr>
<tr>
<td>OCS-15_0</td>
<td>Open Client tools and utilities.</td>
</tr>
<tr>
<td>SCC-3_3</td>
<td>SAP Control Center startup and configuration files. Visible only if SAP Control Center is installed.</td>
</tr>
<tr>
<td>Shared</td>
<td>Objects and libraries shared by other components, including the Java Runtime Environment (JRE).</td>
</tr>
<tr>
<td>Sybase_Install_Registry</td>
<td>Server registry file that holds information related to the installed products. Do not modify.</td>
</tr>
<tr>
<td>sybuninstall</td>
<td>Subdirectories for scripts that uninstall SAP IQ and SySAM.</td>
</tr>
<tr>
<td>SYSAM-2_0</td>
<td>SySAM licenses and utilities. This directory contains three subdirectories: bin, licenses, and log.</td>
</tr>
<tr>
<td>ThirdPartyLegal</td>
<td>Third party license terms and agreements.</td>
</tr>
</tbody>
</table>

**Product Installation Directory**

`<%IQDIR16%>` is a `<%SYBASE%>` subdirectory that contains the files, scripts, and other objects required to run the server.

Table 6: Product Installation Directory.

<table>
<thead>
<tr>
<th>Directory</th>
<th>Contents</th>
</tr>
</thead>
<tbody>
<tr>
<td>Assembly</td>
<td>ADO.NET and .NET assembly files.</td>
</tr>
<tr>
<td>Bin32</td>
<td>Libraries required for 32-bit compatibility.</td>
</tr>
<tr>
<td>Bin64</td>
<td>Utilities you use to start and manage your server.</td>
</tr>
<tr>
<td>DBACOCKPIT</td>
<td>Stores query plans generated by DBA Cockpit.</td>
</tr>
<tr>
<td>demo</td>
<td>A readme that identifies the location of the demo database and other local resources.</td>
</tr>
<tr>
<td>install</td>
<td>Installation history file.</td>
</tr>
<tr>
<td>java</td>
<td>Different JAR files.</td>
</tr>
<tr>
<td>logfiles</td>
<td>SAP IQ writes log files to this directory.</td>
</tr>
<tr>
<td>Isunload</td>
<td>Local Store Unload utility.</td>
</tr>
<tr>
<td>Scripts</td>
<td>Sample scripts and stored procedures.</td>
</tr>
<tr>
<td>SDK</td>
<td>Subdirectories for various language utilities.</td>
</tr>
<tr>
<td>SNMP</td>
<td>Not supported by SAP IQ.</td>
</tr>
<tr>
<td>support</td>
<td>A Web page with links to online resources.</td>
</tr>
</tbody>
</table>
### Local Resources Directory

The `%ALLUSERSPROFILE%\SybaseIQ` directory contains local resources, including the demo database, server logs, and utilities.

<table>
<thead>
<tr>
<th>Directory</th>
<th>Contents</th>
</tr>
</thead>
<tbody>
<tr>
<td>demo</td>
<td>Sample data and scripts for the demo database.</td>
</tr>
<tr>
<td>logfiles</td>
<td>Server log files.</td>
</tr>
<tr>
<td>Samples</td>
<td>Sample scripts, drivers, and utilities.</td>
</tr>
</tbody>
</table>

### 3.3 SAP Database Administration Tools

SAP IQ database administration tools include SAP Control Center 3.3 and SAP IQ Cockpit 4.0. Both tools provide a Web-based interface, but differ in scope. SAP Control Center provides a landscape view of all available servers in the enterprise, but is not fully compatible with SAP IQ SP08. SAP IQ Cockpit provides a view specific to SAP IQ and full access to SP08 features.

#### 3.3.1 SAP Control Center

SAP Control Center is a Web-based administrative console, which lets you manage and monitor SAP IQ in a graphical environment.

SAP Control Center (SCC) includes a Management User Interface, Remote Command and Control Agent, and Web client. The Management User Interface, or SCC server, manages communication between the SCC agent and client. The SCC agent is installed with the SAP IQ server, and continually broadcasts information about the server to subscribing clients via the SCC server. Messages from an SCC client pass through the SCC server to the agent, which in turn, processes the request on the SAP IQ server.

SCC activities range from simple resource monitoring to complete database administration. Specific user activities are determined by the role assigned to the user initiating the request.

### Server Deployment

A single SCC server can monitor up to 250 resources. (The number of resources one SCC server can effectively monitor depends on the complexity of the monitored resources, the frequency of data collection, the number of...
concurrent SCC users, and the hardware configuration of the host on which SCC is running.) To monitor more resources, install additional SCC servers and distribute the resources among them. The monitoring limit applies whether you install SCC on the same machine as a managed server or on a dedicated machine.

### Installation locations

SCC may collect and store performance data for every server it monitors. Because data collection can use significant quantities of CPU cycles, disk space, and network resources, SCC can affect the performance of other servers sharing the same host machine. Choose your installation location carefully before installing an SCC server on the same host as a managed server in a production environment.

Table 7: SCC Installation Locations.

<table>
<thead>
<tr>
<th>Location</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dedicated SCC Host</td>
<td>Installing an SCC server on a dedicated host lets you manage all SAP servers from a single location. This method is recommended for production environments.</td>
</tr>
<tr>
<td>Shared SCC and SAP IQ Host</td>
<td>Installing an SCC and SAP IQ server on the same host. This deployment method is suitable for test environments, but not recommended for production.</td>
</tr>
<tr>
<td>Existing SCC server</td>
<td>Unless the current SCC server is approaching the resource limit or requires an upgrade, a separate SCC server installation may not be necessary.</td>
</tr>
</tbody>
</table>

If you install SCC on the same machine as an SAP IQ server, consult the system requirements for both SCC and the SAP IQ server and make sure that the host machine provides ample CPU, RAM, disk, and network resources for both products. The resources required by an SAP IQ server vary a great deal based on the server’s configuration, as do the resources required by SCC. In general, SCC uses more resources to manage more complex servers. SCC also uses more resources when it is configured to run more frequent data collections.

### SAP Control Center (SCC) Authentication

Initial passwords for SCC administrator and SCC agent are set in the SAP IQ installer. SCC passwords must have at least 6 characters.

<table>
<thead>
<tr>
<th>Role</th>
<th>Requirements</th>
</tr>
</thead>
<tbody>
<tr>
<td>SCC Administrator</td>
<td>SCC Administrator is a preconfigured login with access to all SCC administration features. The default SCC Administrator user name is &lt;sccadmin&gt;.</td>
</tr>
<tr>
<td>SCC Agent User</td>
<td>SCC Agent User name for authentication of the agent. The default SCC Agent User name is &lt;uafadmin&gt;.</td>
</tr>
</tbody>
</table>
Network Ports

SCC uses TCP ports for a variety of services. Choose new RMI, HTTP, or HTTPS port numbers in the installer if the default ports are unavailable.

Table 8: SAP Control Center Port Numbers.

<table>
<thead>
<tr>
<th>Port Name</th>
<th>Default Port Number</th>
<th>Required?</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>RMI</td>
<td>9999</td>
<td>•</td>
<td>SCC server port used for Remote Method Invocation (RMI) protocol access.</td>
</tr>
<tr>
<td>HTTP</td>
<td>8282</td>
<td>•</td>
<td>SCC server port used for HTTP Web access to the server. All HTTP traffic is redirected to the secure HTTPS channel.</td>
</tr>
<tr>
<td>HTTPS</td>
<td>8283</td>
<td>•</td>
<td>SCC server port used for secure HTTPS Web access to the server. All HTTP traffic is redirected to the secure HTTPS channel.</td>
</tr>
<tr>
<td>Database</td>
<td>3638</td>
<td>•</td>
<td>SCC server repository database port; used by several services.</td>
</tr>
<tr>
<td>Messaging Service</td>
<td>2000</td>
<td>•</td>
<td>SCC server messaging port.</td>
</tr>
<tr>
<td>TDS</td>
<td>9998</td>
<td>•</td>
<td>SCC server port used for Tabular Data Stream™ (TDS) protocol access.</td>
</tr>
<tr>
<td>Jini HTTP</td>
<td>9092</td>
<td></td>
<td>Jini HTTP port for Jini discovery services.</td>
</tr>
<tr>
<td>Jini RMID</td>
<td>9095</td>
<td></td>
<td>Jini RMID server port for Jini discovery services.</td>
</tr>
<tr>
<td>LDAP</td>
<td>389</td>
<td></td>
<td>LDAP discovery service adapter port.</td>
</tr>
</tbody>
</table>

SCC Server Start Up Option

If you install an SCC server, the SAP IQ installer includes an option that lets you start the server from within the installer.

3.3.2 SAP IQ Cockpit

SAP IQ Cockpit is a personalized work center for SAP IQ. The SAP IQ Cockpit Framework is installed as part of an SAP IQ server installation.

The SAP IQ Cockpit Framework manages communication between an SAP IQ Cockpit command and control agent, SAP IQ server, and Web client. The SAP IQ Cockpit agent continually broadcasts information about the server to subscribing clients via the SAP IQ Cockpit framework. Messages from the Web client pass through the SAP IQ Cockpit framework to the agent, which in turn, processes the request on the SAP IQ server.

SAP IQ Cockpit activities range from simple resource monitoring to complete database administration. Specific user activities are determined by the role assigned to the user initiating the request.
Installation Options

Installation location and options depend on server type.

Table 9: Server Installation Locations

<table>
<thead>
<tr>
<th>Server Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Simplex</td>
<td>Install the SAP IQ Cockpit Framework as part of a typical installation. This is default behavior for the SAP IQ installer.</td>
</tr>
<tr>
<td>Multiplex</td>
<td>Install the SAP IQ Cockpit Framework on each multiplex node.</td>
</tr>
</tbody>
</table>

TCP Ports

SAP IQ Cockpit uses TCP ports to provide a variety of services. Choose new RMI, HTTP, or HTTPS port numbers in the installer if the default ports are unavailable.

Table 10: SAP IQ Cockpit Port Configuration

<table>
<thead>
<tr>
<th>Port Name</th>
<th>Default</th>
<th>Range</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>HTTP Port</td>
<td>4282</td>
<td>1025 - 65535</td>
<td>Provides HTTP Web access. All HTTP traffic is redirected to the secure HTTPS channel.</td>
</tr>
<tr>
<td>HTTPS Port</td>
<td>4283</td>
<td>1025 - 65535</td>
<td>Provides secure HTTPS Web access. All HTTP traffic is redirected to the secure HTTPS channel.</td>
</tr>
<tr>
<td>RMI Port</td>
<td>4992</td>
<td>1025 - 65535</td>
<td>Provides Remote Method Invocation (RMI) protocol access.</td>
</tr>
<tr>
<td>TDS Port</td>
<td>4998</td>
<td>1025 - 65535</td>
<td>Provides Tabular Data Stream™ (TDS) protocol access</td>
</tr>
</tbody>
</table>

3.4 Other SAP IQ Installation Options

Installing a licensed copy of SAP IQ Server Suite includes configuration options not available in the evaluation edition.

License Keys

The license you download from the SAP Service Marketplace Web site contains the license key(s) for your software.
Email Alerts

Email alerts notify recipients about SySAM events that may require administrator attention. To configure email alerts, provide:

- SMTP server host name
- SMTP server port number
- Sender email
- Recipient emails (for multiple recipients, separate each email address with a comma)
- Message severity for email alerts (Information, Warning, Error)

3.5 Installing Server Software

Server installation media supports GUI, console, and unattended (silent) installs.

3.5.1 Installing in GUI Mode

Use this option to set up your software in a graphic user interface (GUI) environment. The GUI installer is wizard-driven and supports all product editions and installation types.

Procedure

1. Insert the installation media into the drive.
   If the installer does not start automatically, start Windows Explorer, change to your drive, and choose:

   *setup.exe*
2. Follow the instructions on the screen.
3. Remove the installation media from the drive.

### 3.5.2 Installing from the Command Line

Choose a command-line installation if you prefer a non-GUI interface or for developing custom installation scripts. Installing components in console mode is similar to installing in GUI mode, except that you run the installer from the command line, and enter text to select the installation options.

**Procedure**

1. Insert the installation media into the drive.
   If the installation program launches automatically, click Cancel to stop the installer.
2. From a command line, change to the setup directory.
   The setup directory is the directory that contains `setupConsole.exe`, `installer.properties`, and other installation files.
3. Enter:
   ```
   setupConsole.exe -i console
   ```
4. Follow the instructions on the screen.

   **Note**

   Selecting or deselecting a product feature typically installed with SAP IQ also selects or deselects all child components associated with that feature. To select individual components, omit the number of the main product feature, and choose the child components you want to install.

### 3.5.3 Installing in Unattended (Silent) Mode

Unattended or silent installations are typically used to update multiple systems. Except for the absence of the GUI screens, all actions of InstallAnywhere are the same, and the result of an installation in silent mode is exactly the same as one done in GUI mode with the same responses.

**Prerequisites**

A response file is a text file that contains installation options. You can override or edit the default response file, `installer.properties`, for use in subsequent installations. To override the default installation options, use the `-f` argument to point to a custom response file.
To create a response file:

1. From the command line, enter:

   ```
   setup.exe -r <<responseFileName>>
   ```

   Where `<<responseFileName>>` includes the absolute path and file name of the response file.

2. Run the installer in GUI mode to record your actions in the response file. Use an editor to change any responses for subsequent installations, if necessary.

### Procedure

1. Insert the installation media into the drive.
   If the installation program launches automatically, click Cancel to stop the installer.

2. From a command line, change to the setup directory.
   The setup directory contains `setupConsole.exe`, `installer.properties`, and other installation files.

3. Enter:

   ```
   setupConsole.exe -f <responseFileName> -i silent
   -DAGREE_TO_SYBASE_LICENSE=true
   -DSYBASE_PRODUCT_LICENSE_TYPE=license
   ```

### Table 11: Response File Arguments.

<table>
<thead>
<tr>
<th>Argument</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>-f &lt;responseFileName&gt;</td>
<td>Optional argument that includes the absolute path and file name of the response file. If you omit this argument, the installer defaults to <code>installer.properties</code> or other <code>.properties</code> file in the same installation directory.</td>
</tr>
<tr>
<td>-i silent</td>
<td>Switch that starts the silent installer.</td>
</tr>
<tr>
<td>-DAGREE_TO_SYBASE_LICENSE=true</td>
<td>Argument that indicates you accept Sybase end-user license agreement.</td>
</tr>
<tr>
<td>-DSYBASE_PRODUCT_LICENSE_TYPE=license</td>
<td>Required to install a licensed version of the software.</td>
</tr>
<tr>
<td>-DUNINSTALL_DELETE_DATA_FILES=true</td>
<td>Deletes unnecessary files after installation.</td>
</tr>
</tbody>
</table>
3.5.4 Install Logs

The installer writes a general log that records all installation activity and individual logs for each installed component. If an installation problem occurs, start with the IQ_Suite.log, then refer to the component log for specific details.

The installer also creates a set of corresponding .out files for each component .log file. These files capture different component installation activities. If the installer runs normally, these files may remain empty.

Table 12: SAP IQ Log Files.

<table>
<thead>
<tr>
<th>File Name</th>
<th>Contents</th>
</tr>
</thead>
<tbody>
<tr>
<td>conn_add_lang.log</td>
<td>Additional Connectivity Language Modules</td>
</tr>
<tr>
<td>conn_lang.log</td>
<td>Connectivity Language Modules</td>
</tr>
<tr>
<td>iq_agent.log</td>
<td>SAP IQ Agent Plug-in</td>
</tr>
<tr>
<td>iq_client_common.log</td>
<td>Client components</td>
</tr>
<tr>
<td>iq_client_ms.log</td>
<td>Windows client components</td>
</tr>
<tr>
<td>iq_client_web.log</td>
<td>Web Drivers</td>
</tr>
<tr>
<td>iq_odbc.log</td>
<td>ODBC Driver</td>
</tr>
<tr>
<td>iq_server.log</td>
<td>Server components</td>
</tr>
<tr>
<td>iq_shared.log</td>
<td>Shared SAP IQ Configuration files</td>
</tr>
<tr>
<td>IQ_Suite.log</td>
<td>SAP IQ Server Suite installation summary</td>
</tr>
<tr>
<td>IQ_Suite_Variable_Reference.log</td>
<td>InstallAnywhere installation variables</td>
</tr>
<tr>
<td>iqcmapi.log</td>
<td>SAP IQ Cockpit installation summary</td>
</tr>
<tr>
<td>iqmap.log</td>
<td>SAP Control Center agent installation summary</td>
</tr>
<tr>
<td>jconnect7.log</td>
<td>jConnect7 installation summary</td>
</tr>
<tr>
<td>jre7.log</td>
<td>Java Runtime Environment v7 installation</td>
</tr>
<tr>
<td>lang.log</td>
<td>Language Modules</td>
</tr>
<tr>
<td>scc_cfw.log</td>
<td>Cockpit framework installation summary</td>
</tr>
<tr>
<td>open_client.log</td>
<td>Open Client installation summary</td>
</tr>
<tr>
<td>scc_server.log</td>
<td>SAP IQ Cockpit user interface installation summary</td>
</tr>
<tr>
<td>sysam_util.log</td>
<td>SySAM License Utilities installation summary</td>
</tr>
</tbody>
</table>
3.6 Solutions to Common Installation Problems

Check this section for solutions to common installation issues.

Table 13: Troubleshooting installation problems

<table>
<thead>
<tr>
<th>Problem</th>
<th>Possible Cause and Solution</th>
</tr>
</thead>
</table>
| Install fails | Check the installer log: %SYBASE%/log/IQ_Suite.log  
The install log can help you trace the install progress and troubleshoot failed installations. The installer also writes individual logs for components included as part of the install to this directory. |

3.7 Uninstalling SAP IQ

Instructions apply to server and network client software.

GUI Mode

1. On the Control Panel, choose Add or Remove Programs.
2. Choose SAP IQ from the program list.
3. Click Remove.
4. Follow the instructions on the screen.

Silent Mode

1. From the command line, change to %SYBASE%\sybuninstall\IQSuite.
2. Enter:
   
```
   uninstall -i silent
   ```

**Note**

The silent uninstaller does not display status messages.

User files are not deleted by default. To delete user files, pass the \-DUNINSTALL_DELETE_DATA_FILES=true flag as part of the uninstall -i silent command.
4 Testing Installed Products

This section tells you how to start SAP IQ and use the demo database to test your installation.

4.1 Demo Database

Many of the examples throughout the documentation use the demo database (iqdemo.db) as a data source. The demo database is installed as part of the SAP IQ Server Suite and resides on the server. Client access is provided by tools installed as part of the SAP IQ Client Suite.

4.1.1 Starting the Demo Database

Use the demo database to test your installation.

Procedure

From the SAP IQ program group, choose SAP IQ 16.0 Start SAP IQ Demo Database. The first time you use this option, SAP IQ may prompt you for some additional information. Scripts that create and load the demo database are located in the %ALLUSERSPROFILE%\SybaseIQ\demo directory.

4.1.2 Table Names

Demo database table names and owners.

GROUPO Tables

GROUPO tables in iqdemo contain internal information about a fictional company that sells athletic clothing.

Table 14: GROUPO Table Names

<table>
<thead>
<tr>
<th>Table Name</th>
<th>Owner</th>
</tr>
</thead>
<tbody>
<tr>
<td>Contacts</td>
<td>GROUPO</td>
</tr>
<tr>
<td>Customers</td>
<td>GROUPO</td>
</tr>
<tr>
<td>Departments</td>
<td>GROUPO</td>
</tr>
</tbody>
</table>
### DBA Table Names

The DBA user is the default SAP IQ user and owns these tables.

#### Table 15: DBA Table Names

<table>
<thead>
<tr>
<th>Table</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>iq_dummy</td>
<td>iq_dummy is a one-row, one-column utility table that you can use to extract information from the database. For example, running the NOW() function against iq_dummy returns the current date and time: SELECT NOW() FROM iq_dummy Use of the DUMMY system table in SAP IQ is implied for all queries that do not have a FROM clause. For more information, see DUMMY system table in Reference.</td>
</tr>
<tr>
<td>emp1</td>
<td>Sample employee table that includes dept_id, start_date, name, and salary columns.</td>
</tr>
<tr>
<td>sale</td>
<td>Sample sales table that includes prod_id, month_num, rep_id, and sales columns.</td>
</tr>
</tbody>
</table>

### SYSOPTION - DEFAULTS Table

SYSOPTIONDEFAULTS is a utility table owned by DBO that contains all option names and values. Query this table to see all default option values:

```
SELECT * FROM SYSOPTIONDEFAULTS
```
4.2 Running SAP IQ Server

Use the startup utility, `start_iq`, to start your server. `start_iq` is a command line utility that runs on all platforms and ensures that all required parameters are set correctly.

Starting a Server or Database

To use `start_iq` to start a server or database from the command line, change to a directory where the configuration and database files are located, and use the following command format:

```
start_iq [< server-options> ] [ <database-file >
[< database-options >]..., ...]
```

- `<server-options>` include the database server name and other options that control the behavior of the server, for all databases that are running on that server.
- `<database-file>` is the file name of the catalog store. You can omit this option, or enter one or more database file names on the command line. Each of these databases is loaded and available for applications. If the starting directory contains the database file, you do not need to specify the path; otherwise, you must specify the path. You need not specify the `.db` file extension.
- `<database-options>` are options that you can specify for each database file you start, that control certain aspects of its behavior.

Default Startup Parameters

`start_iq` uses a default configuration file (`%IQDIR16%\scripts\default.cfg`) to set the default start-up parameters.

Table 16: Parameters set by `start_iq`

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>-c</td>
<td>48MB</td>
<td>Catalog store cache size.</td>
</tr>
<tr>
<td>-gc</td>
<td>20</td>
<td>Checkpoint interval.</td>
</tr>
<tr>
<td>-gd</td>
<td>all</td>
<td>Allows all users to start the database by connecting.</td>
</tr>
<tr>
<td>-gl</td>
<td>all</td>
<td>Allows all users to load or unload tables.</td>
</tr>
<tr>
<td>-gm</td>
<td>10</td>
<td>Default number of connections.</td>
</tr>
<tr>
<td>-gp</td>
<td>4096</td>
<td>Catalog store page size.</td>
</tr>
<tr>
<td>-ti</td>
<td>4400</td>
<td>Client timeout set to 72 hours. Prevents users with long queries from being logged off over a long weekend.</td>
</tr>
</tbody>
</table>
If SAP SQL Anywhere is installed on the same subnet as SAP IQ, the server must have a unique name. Both SAP SQL Anywhere and SAP IQ servers default to the port 2638.

Use a new port number for each server. Set each new port number in the %IQDIR16%\scripts\default.cfg file. Change the following line in each IQ database configuration file (for example, %ALLUSERSPROFILE%\SybaseIQ\demo\iqdemo.cfg) to update the port number:

```
-x tcpip{port=2638}
```

### Configuration Files

To override the default start-up parameters, store your options in a configuration file.

To start a server with a configuration file, use this syntax:

```
start_iq @<configuration_filename>.cfg <dbname>.db
```

This command starts the database and sets parameters named in the (optional) configuration (.cfg) file.

On the start_iq command line, the last option you specify takes precedence, so to override your configuration file, list any options you want to change after the configuration file name. For example:

```
start_iq @iqdemo.cfg -x 'tcpip{port=1870}' iqdemo.db
```

The -x parameter here overrides connection information in the iqdemo.cfg file.

A configuration file for the demo database (iqdemo.cfg) is installed in the %ALLUSERSPROFILE%\SybaseIQ\demo directory as an example.

### Default Server Directories

The directory where the server is started becomes the default directory for all server files created by SAP IQ.

### Startup and Server Logs

SAP IQ writes start-up and server logs in the %ALLUSERSPROFILE%\SybaseIQ\logfiles directory:

- Startup information is saved in the iq_startup_nt.log file.
- Server status is logged in the servername.nnnn.srvlog file.

The <nnnn> variable in the file name indicates the number of times the server has been started. For example, localhost.0004.srvlog  localhost_iqdemo.0006.srvlog.
4.3 Starting SAP Database Administration Tools

Commands to start SAP Control Center and SAP IQ Cockpit.

4.3.1 Starting the SCC Agent

To use SCC to manage your server, start the SCC agent.

Procedure

1. Use the `scc` script to start the SCC agent.
   
   `%SYBASE%\SCC-3_3\bin\scc.bat`


3. Log in.
   When logging in to a newly installed SAP IQ Cockpit for which secure authentication has not been configured, use the sccadmin account—the password is set during installation. For more information, see the SAP Sybase Control Center Installation Guide.

   **Tip**

   If you use a Windows account to log in to SCC, enter your user name in the format `username@domain`. Omit top-level domain extensions such as `.com` or `.net`—for example, enter `fred@sap`, not `fred@sap.com`.

4. In SCC, register and authenticate your SCC agent.

   If you use SCC to manage your SAP IQ server, leave the SCC agent running whenever SAP IQ is running. The easiest way to do this is to run the SCC agent as a service that restarts automatically. See the SAP Control Center product documentation at [http://help.sap.com/iq](http://help.sap.com/iq) for additional information.

   To stop the SCC agent from the `scc-console` prompt, enter `shutdown`.

Related Information

SAP Control Center [page 21]
4.3.2 Starting SAP IQ Cockpit

Start SAP IQ Cockpit to test your installation.

Procedure

Next Steps

To stop SAP IQ Cockpit, enter: shutdown from the cockpit prompt.

4.4 Running Interactive SQL

Interactive SQL is a utility that ships with SAP IQ that lets you execute SQL statements, build scripts, and display database data.

Context

To use Interactive SQL to run a sample query, the demo database must be up and running. The connection parameters in this procedure use default login credentials and assume that iqdemo is running locally. If you installed iqdemo in another location or changed the default login, use those values instead.

Procedure

1. From the SAP Program Group, select SAP IQ 16.0 Interactive SQL.
2. On the Connect dialog, enter:

<table>
<thead>
<tr>
<th>Tab Name</th>
<th>Field</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Identification</td>
<td>Authentication</td>
<td>Database</td>
</tr>
<tr>
<td>User ID</td>
<td></td>
<td>DBA or dba (case-insensitive)</td>
</tr>
<tr>
<td>Password</td>
<td></td>
<td>sql (case-sensitive)</td>
</tr>
<tr>
<td>Action</td>
<td></td>
<td>Connect to a running database on this computer</td>
</tr>
<tr>
<td>Tab Name</td>
<td>Field</td>
<td>Value</td>
</tr>
<tr>
<td>----------</td>
<td>----------------------------</td>
<td>------------------------</td>
</tr>
<tr>
<td></td>
<td>Server name</td>
<td>&lt;&lt;localhost&gt;_iqdemo&gt;</td>
</tr>
<tr>
<td></td>
<td>Database name</td>
<td>iqdemo</td>
</tr>
<tr>
<td>Network</td>
<td>TCP/IP protocol options</td>
<td>Host &lt;&lt;localhost&gt;&gt;</td>
</tr>
<tr>
<td></td>
<td>Port</td>
<td>2638</td>
</tr>
</tbody>
</table>

3. In the **SQL Statements** window, enter:

   ```sql
   SELECT * FROM Employees
   ```

4. Press **F9** to run the query.

### Results

**Note**

Interactive SQL uses the deprecated iAnywhere JDBC driver.

### 4.5 Post-Installation Tasks

Perform these tasks after you install and test SAP IQ.

#### 4.5.1 Verify and Authorize Licenses

All product editions except the Evaluation Edition require a license. Optional features are sold and licensed separately.

Whether you install a licensed or evaluation edition, you have 30-day access to all features and options. To use an option beyond the 30-day evaluation period, you must purchase and install an appropriate SAP Software Asset Management (SySAM) license.

Using an unlicensed option on a licensed server can throw the server into grace mode, which can cause the server to shutdown when the grace period expires. The DBA or other equivalent user must explicitly authorize access to an optionally licensed feature. A server will not attempt to check-out an optional license by default. Unless the DBA grants access to an option, the option will not be available.

Authorizing access to a separately licensed option, grants access to that option by all users system-wide. Separately licensed features continue to be available as licensed options after the grace period expires.
Verifying Your License

To verify your license, connect to the server, start Interactive SQL (dbisql), and run `sp_iqlmconfig` without parameters to return a set of properties and values that indicate the state of your licenses:

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Edition</td>
<td>EE</td>
</tr>
<tr>
<td>License Type</td>
<td>DT</td>
</tr>
<tr>
<td>Application Type</td>
<td>IQ</td>
</tr>
<tr>
<td>IQ_CORE License Count in use</td>
<td>2 (CPU core based)</td>
</tr>
<tr>
<td>Optional license in use: IQ_LEA</td>
<td>No</td>
</tr>
<tr>
<td>Optional license in use: IQ_ADD</td>
<td>No</td>
</tr>
<tr>
<td>Optional license in use: IQ_SECURITY</td>
<td>No</td>
</tr>
<tr>
<td>Optional license in use: IQ_VLDBMGT</td>
<td>No</td>
</tr>
<tr>
<td>IQ_VLDBMGT License Count in use</td>
<td>0</td>
</tr>
<tr>
<td>Optional license in use: IQ_UDF</td>
<td>No</td>
</tr>
<tr>
<td>Optional license in use: IQ_TS_FSF</td>
<td>No</td>
</tr>
<tr>
<td>Email Severity</td>
<td>NONE</td>
</tr>
<tr>
<td>SMTP Host</td>
<td>smtp</td>
</tr>
<tr>
<td>SMTP Port</td>
<td>25</td>
</tr>
<tr>
<td>Email Sender</td>
<td></td>
</tr>
<tr>
<td>Email Recipients</td>
<td></td>
</tr>
</tbody>
</table>

Authorizing Optional Features

Run `sp_iqlmconfig` with the `allow` or `disallow` parameter to enable or disable an optional license. The `ALL` keyword enables or disables all optional licenses, except `IQ_VLDBMGT`:

- `sp_iqlmconfig 'allow', 'ALL'` // enable all, except `IQ_VLDBMGT`
- `sp_iqlmconfig 'disallow', 'IQ_SECURITY'` // disable `IQ_SECURITY`

Use the `IQ_VLDBMGT` and `<quantity>` parameters to change the number of available `IQ_VLDBMGT` licenses:

- `sp_iqlmconfig 'allow', 'IQ_VLDBMGT', '8'` // increase by 8
- `sp_iqlmconfig 'disallow', 'IQ_VLDBMGT', '2'` // decrease by 2

See the `sp_iqlmconfig` stored procedure in Reference: Building Blocks, Tables, and Procedures for information about authorizing optional features and other issues related to license management configuration.

**Note**

The `disallow` parameter can only disable an unlicensed option if the option is not in use. If the server checks out an unlicensed option, the option cannot be unauthorized and the server may fall into grace mode.

License Server Issues

All license server status and error messages are written to the `SYBASE.log` in the `log` directory. To diagnose issues with a license server, check the `%SYBASE%\SYSAM-2_0\log\SYBASE.log` file. You can use `iqdemo.db` to perform this task.

A line that begins with “Checked out license...” indicates a successful license configuration. If you see a “Sysam: FLEXnet Licensing error:” message, check with your SAP representative to resolve the issue.
4.5.2 Change the Default Connection Parameters

Change the default connection parameters to protect your system against unauthorized access.

Do not rely on the default connection parameters to secure your database against unauthorized access. Change these parameters to protect your data.

Table 17: Default Connection Parameters

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Default Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>User ID</td>
<td>DBA or dba (case insensitive)</td>
</tr>
<tr>
<td>Password</td>
<td>sql (case sensitive)</td>
</tr>
<tr>
<td>Port Number</td>
<td>2638</td>
</tr>
</tbody>
</table>

4.5.3 Remove Sample Application Files

Before you deploy your server in a production environment, remove the sample client applications.

The SAP IQ Server Suite installation may include directories that contain sample client applications, which are included for training purposes only. Remove the $IQDIR16\SybaseIQ\Samples directory before you deploy your server in a production environment.
5  Client Installations

Installing client components lets you connect a client to a network server.

5.1  Client Components

Client components are grouped by feature. Items marked as default are installed in a typical installation. Optional items can be installed in a custom installation.

Table 18: SAP IQ Client Components.

<table>
<thead>
<tr>
<th>Feature</th>
<th>Components</th>
<th>Default</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>SAP IQ</td>
<td>SAP IQ Client</td>
<td>•</td>
<td>Installs client software, Web application development tools, and ODBC drivers.</td>
</tr>
<tr>
<td></td>
<td>SAP IQ Web Drivers</td>
<td>•</td>
<td></td>
</tr>
<tr>
<td></td>
<td>SAP IQ ODBC Driver</td>
<td>•</td>
<td></td>
</tr>
<tr>
<td>jConnect</td>
<td>jConnect 7.0 for JDBC</td>
<td>•</td>
<td>jConnect is a Type 4 JDBC driver, which is entirely Java-based. jConnect 7.0 is JDBC 4.0 compliant</td>
</tr>
</tbody>
</table>

5.2  What a Client Installation Does

A typical client installation installs the network client components into a parent directory on a client machine.

Directory Variables

SAP IQ uses environment variables to point to different installation directories.

Table 19: Directory Variables.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Contents</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;%SYBASE%&gt;</td>
<td>Points to the parent installation directory. This variable is set by the installer.</td>
</tr>
<tr>
<td>&lt;%IQDIR16%&gt;</td>
<td>Points to the SAP IQ installation directory</td>
</tr>
<tr>
<td>&lt;%ALLUSERSPROFILE%&gt;</td>
<td>Points to the Windows local resources directory. The location of local resources depends on the Windows version. On Windows 7, these resources are located in the C:\ProgramData\SybaseIQ directory.</td>
</tr>
</tbody>
</table>
Parent Installation Directory

The `<%SYBASE%>` directory contains the files, scripts, and other objects required to support the client. The default `<%SYBASE%>` directory is `C:\Sybase`.

Table 20: Parent Installation Directory.

<table>
<thead>
<tr>
<th>Directory</th>
<th>Contents</th>
</tr>
</thead>
<tbody>
<tr>
<td>IQ-16_0</td>
<td>SAP IQ client components.</td>
</tr>
<tr>
<td>jConnect-7_0</td>
<td>JDBC 4.0 compliant driver for SAP IQ.</td>
</tr>
<tr>
<td>Shared</td>
<td>Shared software components.</td>
</tr>
<tr>
<td>Sybase_Install_Registry</td>
<td>Client component registry file.</td>
</tr>
<tr>
<td>jre</td>
<td>Java Runtime Environment directory.</td>
</tr>
<tr>
<td>jutils-3_0</td>
<td>Version 3.0 Java-based utilities, including Ribo, a Tabular Data Streams utility.</td>
</tr>
<tr>
<td>log</td>
<td>Client log file directory.</td>
</tr>
<tr>
<td>ThirdPartyLegal</td>
<td>Third-party license agreements.</td>
</tr>
<tr>
<td>sybuninstall</td>
<td>Subdirectories for scripts that uninstall SAP IQ and SySAM.</td>
</tr>
</tbody>
</table>

Product Installation Directory

`<%IQDIR16%>` is a `<%SYBASE%>` subdirectory that contains the files, scripts, and other objects required to run the client.

Table 21: Product Installation Directory.

<table>
<thead>
<tr>
<th>Directory</th>
<th>Contents</th>
</tr>
</thead>
<tbody>
<tr>
<td>Assembly</td>
<td>SAP SQL Anywhere support files.</td>
</tr>
<tr>
<td>bin&lt;&lt;platform&gt;&gt;</td>
<td>Utilities you use to start and manage your server. &lt;&lt;platform&gt;&gt; value is 64 or 32, depending on your installation.</td>
</tr>
<tr>
<td>install</td>
<td>Installation history file.</td>
</tr>
<tr>
<td>Java</td>
<td>Different JAR files.</td>
</tr>
<tr>
<td>support</td>
<td>A Web page with links to online resources.</td>
</tr>
</tbody>
</table>

Local Resources Directory

The `%ALLUSERSPROFILE%\SybaseIQ` directory contains local resources, including the demo database, server logs, and utilities.
Table 22: Local Resources Directory.

<table>
<thead>
<tr>
<th>Directory</th>
<th>Contents</th>
</tr>
</thead>
<tbody>
<tr>
<td>Samples</td>
<td>Sample scripts, drivers, and utilities.</td>
</tr>
</tbody>
</table>

5.3 Installing Client Software

Client installation media supports GUI, console, and unattended installations. Use an account with Administrator privileges to install the software. Shut down all programs before you begin the installation.

5.3.1 Installing in GUI Mode

Use this option to set up your software in a graphic user interface (GUI) environment. The GUI installer is wizard-driven and supports all product editions and installation types.

Procedure

1. Insert the installation media into the drive.
   If the installer does not start automatically, start Windows Explorer, change to your DVD drive, and choose:
   ```
   setup.exe
   ```
2. Follow the instructions on the screen.
3. Remove the installation media from the drive.

5.3.2 Installing from the Command Line

Choose a command-line installation if you prefer a non-windowing interface or for developing custom installation scripts. Installing components in console mode is similar to installing in GUI mode, except that you run the installer from the command line, and enter text to select the installation options.

Procedure

1. Insert the installation media into the drive.
   If the installation program launches automatically, click Cancel to stop the installer.
2. From a command line, change to the setup directory.
The setup directory is the directory that contains `setupConsole.exe`, `installer.properties`, and other installation files.

3. Enter:

   `setupConsole.exe -i console`

4. Follow the instructions on the screen.

### 5.3.3 Installing in Unattended (Silent) Mode

Unattended or silent installations are typically used to update multiple systems. Except for the absence of the GUI screens, all actions of InstallAnywhere are the same, and the result of an installation in silent mode is exactly the same as one done in GUI mode with the same responses.

#### Prerequisites

A response file is a text file that contains installation options. You can override or edit the default response file, `installer.properties`, for use in subsequent installations. To override the default installation options, use the `-f` argument to point to a custom response file.

To create a response file:

1. From the command line, enter:

   ```bash
   setup.exe -r <<responseFileName>>
   ```

   Where `<<responseFileName>>` includes the absolute path and file name of the response file.

2. Run the installer in GUI mode to record your actions in the response file. Use an editor to change any responses for subsequent installations, if necessary.

#### Procedure

1. Insert the installation media into the drive.
   
   If the installation program launches automatically, click Cancel to stop the installer.

2. From a command line, change to the setup directory.

   The setup directory contains `setupConsole.exe`, `installer.properties`, and other installation files.

3. Enter:

   ```bash
   setupConsole.exe -f <responseFileName> -i silent
   -DAGREE_TO_SYBASE_LICENSE=true
   -DSYBASE_PRODUCT_LICENSE_TYPE=license
   ```
Table 23: Response File Arguments.

<table>
<thead>
<tr>
<th>Argument</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>-f &lt;responseFileName&gt;</td>
<td>Optional argument that includes the absolute path and file name of the response file. If you omit this argument, the installer defaults to installer.properties or other .properties file in the same installation directory.</td>
</tr>
<tr>
<td>-i silent</td>
<td>Switch that starts the silent installer.</td>
</tr>
<tr>
<td>-DAGREE_TO_SYBASE_LICENSE=true</td>
<td>Argument that indicates you accept Sybase end-user license agreement.</td>
</tr>
<tr>
<td>-DSYBASE_PRODUCT_LICENSE_TYPE=license</td>
<td>Required to install a licensed version of the software.</td>
</tr>
<tr>
<td>-DUNINSTALL_DELETE_DATA_FILES=true</td>
<td>Deletes unnecessary files after installation.</td>
</tr>
</tbody>
</table>
6  Configuration

This section outlines basic configuration concepts and procedures.

6.1  Using Configuration Files

Use a configuration file to store server startup options.

To start a server or database with a configuration file, change to a directory where you have write privileges, and use the following command format:

```
start_iq @<configuration_filename>.cfg <dbname>.db
```

If a startup parameter is passed from the command line and the same parameter exists in the .cfg file, the value in the command line overrides the value in .cfg file.

Configuration files can contain line breaks, and can include any set of options, including the @data option. Use a number sign (#) to designate lines as comments. An ampersand (&) character that appears by itself at the end of a line indicates that the previous token is continued on the next line. See the Utility Guide for a complete list of startup parameters.

Default Configuration File

When you start a server and do not include any command line parameters or specify a configuration file, SAP IQ retrieves the start-up parameters from a default configuration file, default.cfg, in the <%IQDIR16%>\scripts directory. The default.cfg file is also the source of parameters for the Service Manager and multiplex configurations. You can maintain consistency by editing parameters in default.cfg.

To increase the amount of virtual memory, change the parameters in default.cfg. To reduce the virtual memory that other programs use, add swap space to machines or reduce SAP IQ memory demands (cache sizes, thread count, stack size, etc.).

Security and Configuration Files

You can use the dbfhide (File Hiding) utility to encrypt your configuration files. If you specify log file parameters (-o<logfile>) in encrypted files, the log is not available to the start_iq utility. You may want to add parameters that do not require encryption on the command line or in a separate configuration file. For example:

```
start_iq @encrypt_params @other_params
```

or
6.2 Running SAP IQ as a Windows Service

Running SAP IQ as a Windows service starts the server whenever you restart your computer. Windows services runs in the background as long as Windows is running.

6.2.1 Creating a New Windows Service

Run SAP IQ as a Windows service to start the server whenever you restart your computer. Services run in the background as long as Windows is running.

Procedure

1. Start Sybase IQ Service Manager.
2. Choose Create a New Service.
3. Name the new service.
4. Add the appropriate start-up parameters.
   Include the full path to the database file. The server cannot start without a valid database path name.
5. Click Apply.

Because Window service manager reads environmental variables only at system startup, you must restart Windows after you configure SAP IQ as a Windows service.

Results

Note

- Copy any input files that you use to load your databases into the directory where the service starts, not where the database files are located. On most systems, the services start-up defaults to the `<%SYSTEMROOT%>` directory.
- To use SAP IQ as a Windows service when raw device access is required, you must grant the service Administrator privileges.
- Use Modify an Existing Service or Delete an Existing Service to change or delete SAP IQ services.
### 6.2.2 Suppressing Windows Event Log Messages

If you run the database server as a Windows service, you can set the SAP SQL Anywhere registry entry to suppress event log entries.

**Procedure**

To control event log entries, set the EventLogMask key, which is of type REG_DWORD.

The value is a bitmask containing the internal bit values for the different types of event messages:

- `errors EVENTLOG_ERROR_TYPE 0x0001`
- `warnings EVENTLOG_WARNING_TYPE 0x0002`
- `information EVENTLOG_INFORMATION_TYPE 0x0004`

If the EventLogMask, for example, is set to 0, no messages appear at all. Setting EventLogMask to 1 logs all errors messages, but suppresses informational and warning messages. The default setting (no entry present) logs all message types.

### 6.2.3 Granting Administrator Privilege to the SAP IQ Service

Assign Administrator privileges to a SAP IQ service when raw device access is required.

**Procedure**

1. On the **Control Panel**, click **Administrative Tools** > **Services**.
2. On the **Services** dialog, right-click **Sybase IQ**, choose **Properties**.
3. On **Properties**, choose **Automatic** as the **Startup type**.
4. Click the **Log On** tab, then click **This account**.
5. Assign the account to a user with Administrative privileges. In **This account**, type the administrator’s user ID, then enter and confirm the user’s password.
6. Click **OK** to close **Properties**.
7. Click **File** > **Close**.
6.3 Configuring Client Connectivity

SAP IQ supports ODBC and JDBC connectivity.

6.3.1 Connecting Using ODBC

Open Database Connectivity (ODBC) is a standard API that allows a single application to access a variety of data sources through ODBC–compliant drivers.

6.3.1.1 ODBC Conformance

ODBC drivers manufactured by different vendors may vary widely in the functions they provide. SAP IQ supports ODBC 3.5.2.

Table 24: ODBC Conformance Levels.

<table>
<thead>
<tr>
<th>Conformance level</th>
<th>Sybase IQ support</th>
</tr>
</thead>
<tbody>
<tr>
<td>Core conformance</td>
<td>All core features.</td>
</tr>
<tr>
<td>Level 1 conformance</td>
<td>All level 1 features, except for asynchronous execution of ODBC functions.</td>
</tr>
<tr>
<td></td>
<td>SAP IQ does support multiple threads sharing a single connection. The requests</td>
</tr>
<tr>
<td></td>
<td>from the different threads are serialized by SAP IQ.</td>
</tr>
<tr>
<td>Level 2 conformance</td>
<td>All level 2 features, except:</td>
</tr>
<tr>
<td></td>
<td>• Three-part names of tables and views. This is not applicable for SAP IQ.</td>
</tr>
<tr>
<td></td>
<td>• Asynchronous execution of ODBC functions for specified individual statements.</td>
</tr>
<tr>
<td></td>
<td>• Ability to time out login requests and queries.</td>
</tr>
</tbody>
</table>

Note

- Although you can use new ODBC 3.5.x features such as descriptors in your ODBC applications, ODBC 2.x applications will continue to work with SAP IQ.
- For more information about ODBC, see the ODBC Programmer’s Reference, available from Microsoft Corporation as part of the ODBC software development kit, or from the Microsoft Web site at: http://msdn.microsoft.com/en-us/library/windows/desktop/ms714177(v=vs.85).aspx.
6.3.1.2 Installing ODBC Drivers

Server and client installations include ODBC drivers. Platform-specific drivers are available from the SAP Product Download Center and SAP Service Marketplace.

6.3.1.3 Using UNIX or Linux-Based Query Tools Through ODBC

There are several ways to use ODBC to connect to UNIX or Linux-based query tools.

UNIX-like operating systems do not provide a standard ODBC driver manager, but you can use the driver manager emulation capabilities provided by the SAP IQ ODBC driver to connect to the driver.

Tools that do not require extensive driver manager services can use symbolic links to connect directly to the driver. Tools that require a driver manager may ship with a driver manager.

For information and recommendations about compatible driver managers available for specific applications, see the documentation for the application.

6.3.1.4 Creating an ODBC Data Source

On UNIX-like operating systems, ODBC data sources are stored in .odbc.ini. Use a text editor to update this file manually, or use the cross-platform iqdsn utility to create an ODBC data source. On Windows, use ODBC Administrator to add a new ODBC data source.

Procedure

1. From the SAP IQ 16.0 program group, choose the option appropriate for your operating system:
   - ODBC Data Source Administrator 32 bit
   - ODBC Data Source Administrator 64 bit
2. On the ODBC Data Source Administrator dialog, click Add.
3. On the Create New Data Source dialog, choose the Server IQ driver, then click Finish.
4. When you return to the ODBC Configuration dialog, type a Data Source Name in the Data Source Name box.
5. Click the Login tab, type a database User ID and Password in the appropriate text boxes.
6. Click the Database tab. What you do next depends on the data source location:
   - If the data source is on a remote machine, type the <server name> and <database file name>. (The database file is used only if the database is not started automatically on server start-up.)
   - If the data source is on your local machine, type a start line and database name (without the .db extension).
6.3.1.5 Command Line Connections to 32-bit Applications

Use `dbisql` to connect to 32-bit applications from the command line.

To connect to a 32-bit application without using a data source, use `dbisql` to connect from the command line. To connect to the `iqdemo.db` you would use a command similar to this:

```
dbisql -c "UID=DBA;PWD=sql;AUTOSTOP=no;ENG=<engine name>;DBF=%ALLUSERSPROFILE%\SybaseIQ\demo\iqdemo.db"
```

6.3.2 Connecting Using JDBC

JDBC and jConnect provide access to SAP IQ for Java-based applications.

Java Database Connectivity (JDBC) is a Java application programming interface (API) that provides programmatic access to SAP IQ. jConnect is a SAP utility that provides high-performance native access to all SAP products as a standard installation option.

Interactive SQL (`dbisql`) can use either JDBC or ODBC connectivity.

The iAnywhere JDBC driver is the default driver for Interactive SQL.

> **Note**
>
> The iAnywhere JDBC driver is deprecated.

6.3.3 Connecting Using OLE DB

SAP IQ includes an OLE DB provider as an alternative to ODBC. OLE DB is a data access model from Microsoft that uses the Component Object Model (COM) interfaces. Unlike ODBC, OLE DB does not assume that the data source uses a SQL query processor. Although OLE DB requires a Windows client, you can use OLE DB to access Windows and UNIX servers.

SAP IQ supports Dynamic (dynamic scroll), Static (insensitive) and Forward only (no–scroll) cursors, but does not support Keyset (scroll) cursors. In SAP IQ the isolation level is always 3, no matter what you specify.

SAP IQ does not support Windows CE or remote updates through a cursor.
6.3.4 Connecting Using Open Client

Clients require a server object in the interfaces file to access server properties and methods. Use the SAP IQ Directory Services Editor (dsedit) to create the interfaces file entries. These instructions apply to server installations only.

Prerequisites

- You must be the owner of the SAP IQ home directory ($SYBASE$) to run dsedit.
- Make a copy of the interfaces file before you make any changes.

Procedure

1. From the command line, change to $SYBASE$/OCS-15_0/bin.
2. Start dsedit.
3. On the Directory Service dialog, select a directory service to open (the interfaces file or interfaces driver is default), then click OK.
4. From the Server Object menu, choose Add, then enter the server name.
5. On the InterfacesDriver window, double click the Server Address row.
6. On the Network Address Attribute dialog, click Add.
7. Choose TCP as the Protocol, enter the Network Address, then click OK.
8. On the Network Address Attribute dialog, click OK, then click OK to return to the main InterfacesDriver window.

6.3.5 Running the Client and Server On the Same System

SAP IQ uses a shared memory segment and several semaphores for communication between the client and server on the same machine.

Shared memory is the default communications mechanism when the client and server are on the same system. Shared memory is configured automatically, and starts automatically.
Additional Information

Administration: Database > Connection and Communication Parameters

6.3.6 Network Issues for SAP IQ Servers

Properly configured UNIX servers run under the TCP/IP protocol, which enables non–UNIX clients to communicate with the server.

Verified TCP/IP Protocol Stacks

For SAP IQ to run properly, the protocol stack on the client and server computers must be compatible at each layer. Many vendors supply TCP/IP protocol stacks and associated software. SAP IQ communications have been explicitly verified with these TCP/IP implementations:

- TCP/IP For NetWare
- Microsoft Winsock version 2.0

Using TCP/IP with Windows

Windows ships with TCP/IP software that uses NDIS network drivers. This software allows an SAP IQ server for Windows or an SAP IQ client application to use Windows TCP/IP. Install TCP/IP Protocol from the Network Settings options on the Control Panel.

User Datagram Protocol

There are several entries into the TCP/IP protocol stack. SAP IQ employs the User Datagram Protocol (UDP). While it is called a transport protocol here and elsewhere, UDP provides little more than a user interface to the network layer IP. In particular, UDP is not a guaranteed transmission protocol.

Tuning Performance Under TCP/IP

Although the default packet size for TCP/IP is 1460 bytes, a larger packet size may improve query response time, especially for queries that transfer a large amount of data between a client and a server process. You can set the maximum packet size using the database server command lines or CommBufferSize (CBSIZE) in the client connection string. This option may be used with the start_iq command.
6.3.7 Connecting Across a Firewall

Set the CommLinks connection parameters in your application's connection string to connect across a firewall.

There are restrictions on connections when the client application is on one side of a firewall and the server is on the other. Firewall software filters network packets according to network port. Also, it is common to disallow UDP packets from crossing the firewall.

When connecting across a firewall, you must use a set of communication parameters in the CommLinks connection parameter of your application's connection string.

- Set the `UseUDP` parameter to off to prevent UDP packets from being used to locate the server. You can use the short form `UDP`.
- Set the `ClientPort` parameter to a range of allowed values for the client application to use. You can then configure your firewall to allow these packets across. You can use the short form `CPort`.
- Set the `HOST` parameter to the host name on which the database server is running. You can use the short form `IP`.
- If your database server is not using the default port of 2638, you must specify the port it is using, in the `ServerPort` parameter. You can use the short form `Port`.

In this example, the connection string fragment:

- Restricts the client application to ports 5050 through 5060
- Disables UDP packets
- Connects to a server named `myiq` running on the machine at address `myhost` using the server port 2020

```
CommLinks=tcpip(UseUDP=OFF;ClientPort=5050-5060;Host=myhost;Port=2020;Eng=myiq)
```

Additional Information

*Administration: Database > Connection and Communication Parameters*
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