



## Scan Prerequisites

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### Revisions

Name	Revision	Notes	Date
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PR	3.6.r2	Modification to Pre-requisites for Scan Engine	07-July-2015
PR	3.6.r1	Modification to Pre-requisites for Scan Engine	20-May-2015
PR	3.6.r1	Routine release	02-Mar-2015
PR	3.6	<a href="#">Report Manager Prerequisites</a> added.	1-Nov-2014
PR	3.5.r1	<a href="#">Process Port Mapping</a> information added.	28-Oct-2014
PR	3.5	Updated <a href="#">prerequisites</a> for iQDataHub 3.5.	10-Oct-2014
PR	2.14r10	Original document	29-Sept-2014

# 1 Overview

This document describes what you need to do to ensure the successful installation of the iQSonar suite. This is a technical document and it is assumed that the reader has knowledge of networking, operating systems, and database administration.

This document discusses prerequisites for the following products:

Product	Description
<b>iQSonar</b>	The iQuate Scan Engine with CMS and Scan Databases.
<b>iQDataHub &amp; Report Manager</b>	<b>iQDataHub</b> : The iQuate data warehouse. <b>Report Manager</b> : The web UI where you can customize reports based on the data sets from iQDataHub.
<b>iQExplore</b>	The UI for visualizing your data in user friendly graphs.

## 1.1 Document Structure

The table below will give you a brief description of each chapter in this document.

Chapter	Description
<a href="#">About iQSonar</a>	This chapter gives a description of what iQSonar does and the technology used in iQSonar.
<a href="#">Server Preparation</a>	This chapter outlines the hardware and software requirements for iQSonar and iQDataHub installation.
<a href="#">Estate Access</a>	This chapter explains requirements needed for accessing your estate including Windows and UNIX credentials.
<a href="#">Application Access</a>	This chapter discusses virtualization technology and database access.
<a href="#">iQExplore</a>	This chapter explains what steps need to be taken for installing iQExplore.
<a href="#">Report Manager</a>	This chapter explains what steps need to be taken for installing the Report Manager.
<a href="#">Additional Details</a>	This chapter outlines all additional considerations for installing iQuate products.
<a href="#">Testing Tool</a>	This chapter instructs you on running the Prerequisite Testing Tool.
<a href="#">References</a>	These chapters cover all references and appendices related to the information in this document.

## 2 About iQSonar

**iQSonar** is a highly scalable and secure [network inventory tool](#). iQSonar uses a number of protocols to access platforms and applications in order to securely gather information from your hardware and software estate.

The data gathered by iQSonar is typically used for:

- **Software License Management**
- **IT Asset Management**
- **IT Security**
- **IT Operations/Operational Management**
- **IT Support**
- **CMDB data population**

**iQSonar** is a three-tier web based application that consists of a web based presentation tier, an application logic tier and a database tier. These logical tiers map to the following components:

<b>Component</b>	<b>Description</b>
<b>iQSonar Scan Engine</b>	The Scan Engine uses one or more servers to discover and scan devices and applications.
<b>iQSonar Scan Database</b>	The Scan Database stores the data as reported by the devices from the Scan Engine.
<b>iQSonar CMS</b>	The Content Management System (CMS) drives the iQSonar User Interface (UI).

### 2.1 iQSonar Components

**iQSonar** is a Microsoft .NET application. The iQSonar CMS uses the Windows Server Internet Information Service (IIS) Web Service, and the iQSonar database requires the installation of Microsoft SQL Server (Express, Standard, or Enterprise Edition).

**Note:** In a standard installation of iQSonar, the iQSonar scan engine, the iQSonar database, and the iQSonar CMS are installed on a single server. However, for scalability and security, each of the three iQSonar components can be separated and run on individual servers. In addition, multiple iQSonar scan engine servers can be deployed to spread the load of scanning an estate.

### 3 Server Preparation

iQSonar runs on a Windows Server and uses a web-based UI and back-end IIS for its administration console. A SQL Server Instance is used as the local scan data repository. The Windows Server(s) can be a **physical** or **virtual** machine.

It is the responsibility of the client to provision the server(s) on which iQSonar will run.

#### 3.1 Hardware Requirements

It is **highly recommended** that you provide a [dedicated server](#) for the installation. When iQSonar is sharing an environment with other applications, you must ensure that sufficient resources are available to iQSonar for the duration of the scan.

The tables below outline the recommended software and hardware prerequisites for installing iQSonar. It assumes a target network of up to 10,000 nodes in size; larger networks will require further analysis.

##### 3.1.1 iQSonar Scan Engine

Component	Physical Recommended	Physical Minimum	Recommended if using a VM	Minimum if using a VM
<b>CPU Physical</b>	4 x Dual Core 2.6Ghz Xeon	1 x 2.4Ghz Quad core Xeon	8 x 2.6GHz	2 x 2.4Ghz
<b>RAM (Available)</b>	4Gb	2Gb	4Gb	2Gb
<b>HDD<sup>1</sup></b>	150mb + data (30Gb)	150MB + data (10Gb)	150MB + data (30Gb)	150MB + data (10Gb)

<sup>1</sup> For large networks (10,000+ nodes), or where there is a requirement to store several or more data sets in iQDataHub, additional hard disk space will be required.

# Prerequisites

## 3.1.2 iQDataHub

**iQDataHub** is as a data warehouse to cleanse and store all data from iQSonar. For smaller estates, this server can be the same as the iQSonar Scan Engine. If both the iQSonar and iQDataHub are on the same server, the prerequisites that need to be applied are those associated with the installation of iQDataHub system requirements.

See the following table for these requirements:

<b>Component</b>	<b>Physical Recommended</b>	<b>Physical Minimum</b>	<b>Recommended if using a VM</b>	<b>Minimum if using a VM</b>
<b>CPU Physical</b>	4 x Dual Core 2.6Ghz Xeon	1 x 2.4Ghz Quad core Xeon	8 x 2.6GHz	2 x 2.4Ghz
<b>RAM (available)</b>	8Gb	4Gb	8Gb	4Gb
<b>HDD<sup>II</sup></b>	150mb + data (30Gb)	150MB + data (10Gb)	150MB + data (30Gb)	150MB + data (10Gb)

<sup>II</sup> For large networks (10,000+ nodes), or where there is a requirement to store several or more data sets in iQDataHub, additional hard disk space will be required.

**Note:** Additional documentation on hardware deployment options are located in the **iQSonar Deployment Guide**.



## Prerequisites

### 3.2 Software Requirements

**iQSonar** runs on a windows server using MS SQL Server as its data repository and IIS for its presentation layer.

#### 3.2.1 iQSonar Scan Engine

Requirement	Minimum	Recommended
<b>Common</b>	Windows Server <b>2008</b> <sup>III</sup> <sup>IV</sup>	Windows Server <b>2008 R2</b>
	.NET Framework 3.5	.NET Framework 3.5
	Microsoft SQL Server <b>2008</b> Express Edition with Advanced Services. Apply SP1 w/Cumulative Update 4  <b>Additionally:</b> SQL Server problem can manifest itself with an Out of Memory error. <i>KB982854</i> : Apply SP1 w/Cumulative Update 9 <sup>V</sup>	SQL Server <b>2012</b> Standard 64-bit <sup>VI</sup>
<b>Browser</b>	IE 8	IE 10 or later
<b>Web Server</b>	IIS Server v7.0 with ASP.net	IIS Server v7.0 with ASP.net

<sup>III</sup> Windows Server 2012 is not currently supported

<sup>IV</sup> Set O/S localization to **English\_US**.

<sup>V</sup> <https://support.microsoft.com/en-us/kb/982854>

<sup>VI</sup> The **required** SQL Server Collation setting is **Latin1\_General\_CI\_AS**

## Prerequisites

### 3.2.2 iQDataHub

**iQDataHub** is a set of databases that cleanse and store data from iQSonar. The software requirements for iQDataHub as are follows:

Requirement	Minimum	Recommended
<b>SQL Server</b>	<b>2012</b> Standard Edition	<b>2012</b> Enterprise, Standard, or BI Edition
<b>SQL Server Options</b>	<ul style="list-style-type: none"><li>• SQL Server Data Tools</li><li>• Client Tools Connectivity</li><li>• Integration Services</li><li>• Reporting Services</li><li>• Management Tools</li></ul>	
<b>Windows OS</b>	<b>2008</b> with <b>Service Pack 1</b>	
<b>SSIS Catalog</b>	There must be an <b>existing</b> SSIS catalog. <i>*Go to <a href="#">Microsoft's Developer Network</a> for more information on SSIS catalogs.</i>	
<b>iQSonar DB Login Permissions</b>	The following permissions are required by the identity that perform the iQDataHub installation: processadmin, public, serveradmin, sysadmin	
<b>.NET Framework</b>	4.5	

**Note:** Software must be installed on the same server on which **iQDataHub** is installed because of the following reasons:

1. The iQDataHub **Dynamic Link Libraries (DLLs)** are installed into the [Global Assembly Cache](#) (GAC). The iQDataHub [SQL Server Integration Services](#) (SSIS) packages must be able to access the iQDataHub DLLs which are in the GAC. Therefore, the SSIS packages must be on the same server as the GAC.
2. The **iQDataHub SSIS packages** must be able to access iQDataHub configuration files.
3. Access to the file system location where iQDataHub is required by the user installing iQDataHub and those executing ETL scripts in the installed SSIS packages.

## Prerequisites

### 3.2.3 Common SQL Server Configuration

**iQSonar** and the **iQDataHub** components are installed onto the SQL server instance. The installation of SQL Server database should follow the Microsoft installation instructions supplied by [Microsoft](#).

The following configuration changes are required:

1. **Mixed mode SQL Authentication** must be enabled.
2. The database user account that is used for installing iQSonar should have **sysadmin** (SA) equivalent privileges. The user account must be granted SA roles before installing iQSonar.
3. The database logging should be configured to **simple** by default.
4. It is recommended that the database growth interval be changed from 1MB to 10%. (for **Database** and **Logs** )
5. The **.NET CLR** option in SQL Server must be enabled for the iQSonar scan engine to function correctly:

```
sp_configure @configname=clr_enabled, @configvalue=1
GO
RECONFIGURE
GO
```

**Note:** It is recommended that SQL Server Profiler option is enabled as part of the SQL Server installation; it is a useful troubleshooting tool for both iQSonar scan engine and iQDataHub.

### 3.2.4 iQDataHub Specific SQL Server Configuration

Authentication iQDataHub SSIS packages require the following:

1. The SQL Server instance will need a SQL Server or Windows Integrated Authentication credential that has appropriate server roles for iQDataHub.
2. When configuring the database server for iQDataHub, it is necessary to set the maximum memory parameter on the database server to allow enough spare RAM for SSIS to operate on the same device. This depends on the size of the estate.

### 3.3 Folder Write Permissions on iQSonar Server

The iQSonar user server needs **write access** to the folder in which iQSonar is installed and the folders log files are written. For example:

- **C:\Program Files\iQuate\iQSonar**
- **C:\Documents and Settings\All Users\Application Data\iQuate**

**Note:** iQSonar creates these folders by default during installation. The user installing iQSonar must have appropriate permissions to create and write to such folders.

### 3.4 IIS Configuration on iQSonar Server

**IIS** must be installed and enabled as it is required by the iQSonar Scan Engine. In addition, the following is required:

- Minimum of **.NET 3.5 with SP1 applied**.
- ASP.net must be installed.
- Default website must be present within IIS.

### 4 Estate Access Requirements

The iQSonar Scan Engine is agentless, secure and designed to integrate with your existing tools and processes.

Agentless access to a [target device](#) requires that connections between the scan engine and the remote device must be established over protocols that exist as standard with the device Operating System (OS). Below lists the basic access requirement to complete a scan of estate.

#### 4.1 Protocols

The table below outlines some of the typical protocols that iQSonar may use during a scan and which must be available.

Area	Protocol	Credentials Needed
<b>Common</b>	ICMP (Ping)	n/a
<b>Windows</b>	WMI	Windows Admin
	Remote Registry	Windows Admin
<b>Unix</b>	SSH	Privileged
	Telnet	Privileged
<b>Oracle</b>	TNS	<i>Read access</i> to all system tables, views and dictionaries
<b>MS SQL</b>	TDS	SQL Administrator or full Read privileges

## Prerequisites

### 4.2 Ports

**iQSonar** requires access to a number of ports to carry out discovery and inventory of devices. These ports must be opened by the relevant firewall teams to ensure that the scan engine can gather all required information. If they are not opened, there is a risk that devices will be missed or products not properly scanned. Refer to [Appendix A Default Ports List](#) for a complete list of default ports.

Because iQSonar typically operates behind a firewall, it does not require the modification of firewall rules or firewall exceptions. Multiple iQSonar scan engines are installed and configured to forward discovery and inventory in complex networks where an organization has deployed internal firewalls,

**Note:** You can define alternate ports on the iQSonar Dashboard if necessary. This is covered in more detail in the iQSonar User Guide.

### 4.3 Firewalls

Windows scanning uses [Windows Management Instrumentation](#) (WMI), which automatically selects a random port between **1024** and **65535** for return traffic. Depending on your firewall configuration, additional firewall changes may be required to allow this traffic back to the originator.

**Note:** More details on this can be found from [Microsoft](#).

### 4.4 Operating System Credentials

**iQSonar** utilizes a variety of commands over multiple protocols in order to retrieve as much inventory data as possible from all devices. iQSonar uses different types of network access and credentials depending on the target device hardware and software products.

iQSonar can discover the existence of devices based solely upon IP address; however, in order to perform additional inventory operations on these discovered devices, iQSonar must be configured with credentials that can logon to the target device. These credentials allow iQSonar to scan and retrieve detailed information for applications, devices and operating systems that reside on the network. iQSonar requires the rights and permissions described below to inventory Windows and Unix/Linux devices.

The credentials provided must allow the commands found in [Appendix B Command Access](#) to be executed.

## Prerequisites

### 4.4.1 Windows Credentials

When accessing Windows systems, iQSonar requires **Local Admin** rights on the Windows device being scanned to gather important system information via the Windows Remote Registry and Windows Management Instrumentation (WMI) protocols. Look at the tips below for help with this:

- **Set** the account to be a **non-interactive** login (service-only account).
- **Use** a one-way single trust relationship, so that authentication requests can only be passed from the domain in which the device to be scanned to the domain in which the iQSonar scanning server is located.
- **Give** access to default file shares for WMI credentials. (admin\$, C\$, etc.).

### Process Port Mapping for Windows

This feature is **disabled** by default. To **enable** this feature, you need to add a row named `WMIProcessPortScan` to the `_ServiceConfig` table set to a value of **true**.

**Note:** iQSonar gathers the process information via WMI and port information via a netstat command. This creates a temporary file on the local machine. The user running scan operations must have the appropriate privileges to create this temporary file. For more information, contact iQuate [support](#).

### 4.4.2 Unix Credentials

When accessing UNIX and Linux systems, iQSonar makes use of **Telnet** or **Secure Shell (SSH)**. iQuate recommends the use of SSH to ensure the security of authentication credentials while Telnet uses password information sent-in-the-clear for authentication.

iQSonar requires the ability to execute various **OS** commands, as defined in Appendix B. The method used to grant access to these command should aligned with your standard security processes and procedures. iQuate can provide additional guidance if needed.

Some of the methods that can be used to grant remote access are:

- **Access Control Lists**
- **Aliases**
- **Account Escalation**
- **Proxy or Gateway Server**

The **Unix Shell** created by initiating a remote connection to the UNIX device must:

- **Write** to `/dev/null`.
- **Not run** a restricted shell.
- **Not use** a C shell.
- **Have read access** to the install folder and relevant sub-folders of any software to be scanned.

## Prerequisites

The LANG environment variable setting and other relevant environment variables must be set to an English language value in order for iQSonar scanning to work correctly:

```
LANG=en_US
LC_CTYPE=en_US
LC_NUMERIC="en_US"
LC_TIME="en_US"
LC_COLLATE="en_US"
LC_MONETARY="en_US"
LC_MESSAGES="en_US"
export LANG LC_CTYPE LC_NUMERIC LC_TIME LC_COLLATE
export LC_MONETARY LC_MESSAGES LC_ALL
```

**Note:** For Oracle focused inventory, *read access* to the Oracle installation directories and files is required.



# 5 Application Access Requirements

When performing scans for detailed information, credentials are required to access both the **OS** and **applications** running on a device. Credentials are needed for applications such as Oracle database, SQL Server, and access to Virtual Device Management stations.

## 5.1 Virtualization Server Access

iQSonar needs *Read-Only* access to virtual machines as a virtual machine administrator. Create these credentials on the virtualization console which iQSonar will access.

### 5.1.1 IBM Power Access

To enable scanning of IBM PowerVM™ virtualization environments, iQSonar requires SSH or Telnet access to the Hardware Management Console (HMC) used to connect to the Managed Frames.

In addition, credentials need to be identified that will allow access to the console through which iQSonar will login. This is vConsole for IBM HMCs or vCentre for VMware. iQSonar uses the same Application Program Interface (API) as the web interface.

### 5.1.2 HMC and PowerVM Access

iQSonar has been tested to work against several POWER5 and POWER6 configurations. iQSonar uses the same API as the HMC web interface. Please check that the API is enabled in advance of scanning as it is **disabled** by default in later releases of HMC.

If scanning the IBM HMC, the HMC user must at least be assigned the **hmcviewer** role. Additional permissions may be required in older HMC versions.

**Read-only** access to the following commands is required to generate Oracle reports:

- VIOS (all)
- ioslevel (VIOS server code level)
- lparstat (VIOS servers own LPAR config)
- lsdev (Devices defined to VIOS)
- lstcpip (IP addresses of VIOS servers).

## Prerequisites

### 5.2 Database Access

iQSonar requires the credentials for a user setup as an Oracle database administrator with *Read-Only* access. These credentials need to be created on the device which iQSonar will use to login.

#### 5.2.1 Oracle Access

##### **Oracle Dynamic Link Libraries (DLLs)**

Appropriate Oracle DLLs must be present to support Oracle database scanning. DLL files allow the scan engine to communicate and manage the Oracle database. These are available from [iQuate](#). They must be present in the folder in which the iQSonar DLLs exist.

A full Oracle Database installation **should not** be installed on the same device as iQSonar.

##### **Oracle User**

To gather detailed information required for an audit of Oracle, iQSonar needs to log on to the database and read certain tables. The user account used to access Oracle will require the **Select any dictionary** option.

If **Select any dictionary** does not exist in the version of Oracle to be scanned (e.g. Oracle 8i) then the **Select any table** option should be used in its place.

The example script below will create a user and assign the correct privileges. It is appropriate for **i9 and above**.

```
CREATE USER <USERNAME> identified BY <PASSWORD>;
```

```
GRANT
```

```
CREATE SESSION,
```

```
SELECT ANY DICTIONARY,
```

```
SELECT ANY TABLE TO <USERNAME>;
```

*when DATABASE VAULT is in use:*

```
GRANT PARTICIPANT or OWNER authorization on "Oracle Database Vault Realm"  
For additional information on the process of defining realm authorization, see the relevant  
Oracle Documentation related to REALMS.
```

##### **Background Details**

In order to complete the scan of Oracle databases, iQSonar must examine some tables that are created when Oracle packs are installed. The tables include **CMPSYSCLASSES**, **CMPIINSTALLATION\_v** and multiple tables with the prefix **MGMT\_**.

## Prerequisites

These system tables can be created in any user schema, depending on how they are installed, and the identity of the user that accepted the pack. In order to complete the scan, iQSonar must read the **DBA\_TABLES** dictionary to find all the relevant tables and iQSonar must have *read-only* permission on all user schemas to be sure we can read the contents of the system tables.

**Note:** iQSonar does not query any other tables in the user schema.

### 5.2.2 MS SQL Server Access

To gather detailed information required for an audit of Microsoft SQL Server, iQSonar needs to logon to the database instance being scanned and access certain system objects. The following permissions are required for the user being used for the scan:

#### Master database:

Permission	Description
<b>Public Role</b>	The role which all database users belong.
<b>View Server State</b>	Required to get sessions, license details, and high availability configuration.
<b>View Any Definition</b>	Required to get login and database details.
<b>Select On sys.sysaltfiles</b>	Required to get database details on SQL Server.

#### Creating User and Assigning Privileges

The example scripts below will create a user and assign the correct privileges:

- [SQL Server 2005 and above](#)
- [SQL Server 2000](#)

#### SQL Server 2005 and above

```
CREATE LOGIN [<USERNAME>] WITH PASSWORD='<PASSWORD>',
        DEFAULT_DATABASE=[master],
        DEFAULT_LANGUAGE=[us_english] GO USE master;

CREATE USER [<USERNAME>] FOR LOGIN [<USERNAME>];

GO GRANT VIEW SERVER STATE TO [<USERNAME>];

GRANT VIEW ANY DEFINITION TO [<USERNAME>];

GRANT

SELECT ON sys.sysaltfiles TO [<USERNAME>];

GO
```

## Prerequisites

### **SQL Server 2000**

```
USE [master]

GO EXEC master.dbo.sp_addlogin @loginame = N'<USERNAME>',
@passwd = N'<PASSWORD>',
@defdb = N'master'

GO EXEC dbo.sp_grantdbaccess @loginame = N'<USERNAME>',
@name_in_db = N'<USERNAME>'

GO GRANT

SELECT ON dbo.sysaltfiles TO [<USERNAME>];
```

**Note:** If no SQL Server credentials are supplied, iQSonar is restricted to obtaining information about SQL Server through parsing registry keys.

### **5.2.3 Informix Access**

#### **Runtime Client on iQSonar Server**

In order for iQSonar to scan an Informix database, a special client application must be installed with the scan engine software.

You can download the latest version of **Informix Client SDK Developer Edition** from [IBM](#). The version of Client SDK currently used is 4.10.FC3.

#### **Permissions on Target Device**

To enable Informix scanning, the iQSonar user must have *read* or *execute access* to all system tables and database configuration stored procedures. iQSonar must also be able to run queries.

As Informix does not support internal database users, an appropriate user must exist within the operating system.

You can access the following instructions from [IBM](#).

1. **Create** a user such as `iquate` using the utility `useradd` followed by the group and username in this format:

```
useradd -u n -g users iquate
```

2. **Configure** local `/etc/hosts.equiv` to allow the user to connect from a remote machine without being prompted for a password.

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### 5.2.4 DB2 Access

#### Runtime Client on iQSonar Server

Download and install the **IBM Data Server Runtime Client** from [IBM](#) on all of your iQSonar scan engine systems.

**Note:** You must use the Windows 32-bit client, even on a 64-bit server. An IBM ID is required for this download.

#### Permissions on Target Device

Discovery of DB2 on Windows requires the ability to execute the **db2cmd.exe** appropriately, which in turn requires a credential that is in the *DB2 Administrators* group on the device being scanned.

To enable DB2 scanning, the iQSonar user must have *read* or *execute* access to all system tables and database configuration stored procedures.

To gather detailed information required for a DB2 audit, iQSonar needs to logon to the database and read certain database views. The user account can be any OS user account on the system.

You can create and manage users by going to the following in Windows on a local domain:

**Control Panel > User Accounts > User Accounts > Manage User Accounts**

**Note:** \*nix systems all have different methods for creating users, though the **useradd** command is commonly used.

The DB2 user needs to be a part of a DB2 administrators group. This is achieved on Windows by adding the user to the DB2ADMINS group. The group will be automatically created when DB2 is installed.

On \*nix systems, you do this by adding the user to the db2iadm1 group account. Again, this account will exist on an installed DB2 system – users can be added to the group using the **usermod** command (-g option).

## 6 iQExplore

### 6.1 Overview

**iQExplore** is a user interface that allows you to explore the analyzed data in a user friendly manner. A simple click-through interface is provided that will allow drill-down operation on the scan data.

**Note:** You need to have installed Qlikview to run iQExplore.

### 6.2 QlikView System Requirements

As iQExplore is powered by Qlikview, check out the QlikView website and download the [system requirements](#) document.

### 6.3 Deployment

In the default deployment option for iQSonar, the QlikView desktop client is used to access screens within iQExplore. The desktop QlikView client is freely available to download from [Qlikview](#). This must be **v11.20 SR7 or later** of the QlikView desktop client.

**Note:** Please contact [support@iquate.com](mailto:support@iquate.com) to obtain license keys for the QlikView desktop client.

# 7 Report Manager Prerequisites

## 7.1 Overview

The **Report Manager** is a component of iQDataHub and part of the iQSonar product suite. It is a user interface (UI) tool that allows you to download reports from your data sets within the iQDataHub EDW. The reports are generated from the data sets gathered in iQDataHub. The reports help you better understand your data by viewing them in different time frames, from varying sources, and with different cleansing rules applied to the data

## 7.2 System Requirements

The **Report Manager** requires the following prerequisites for a successful installation:

### ✓ Requirements

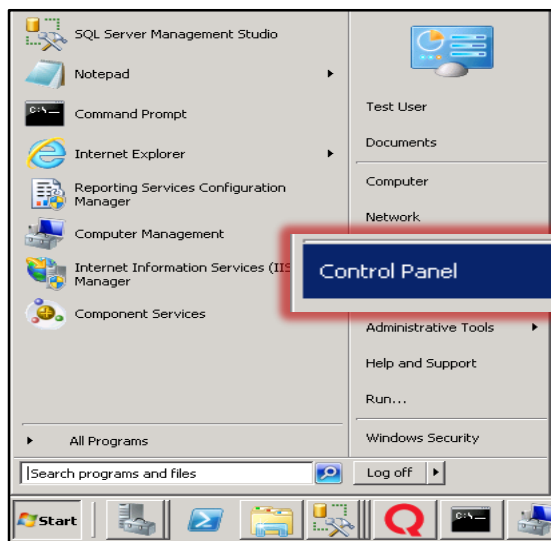
<b>iQDataHub</b> must be installed before installing the Report Manager.
<a href="#">Internet Information Services (IIS) 7.0</a> must be installed.
<b>.NET 4.5</b> must be installed and registered with IIS.
<b>SQL Server Reporting Services (SSRS)</b> must be installed.
<b>Operating System Requirement</b>
<b>Windows Server 2008</b>

**Note:** **Windows Authentication** must be turned on in IIS prior to the Report Manager installation.

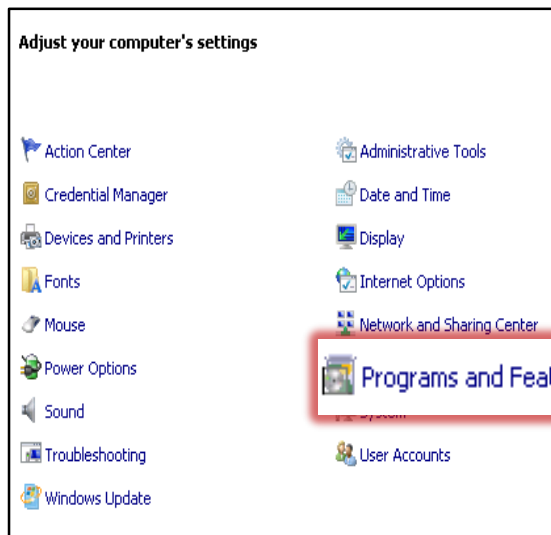
## Prerequisites

### 7.2.1 IIS Requirements

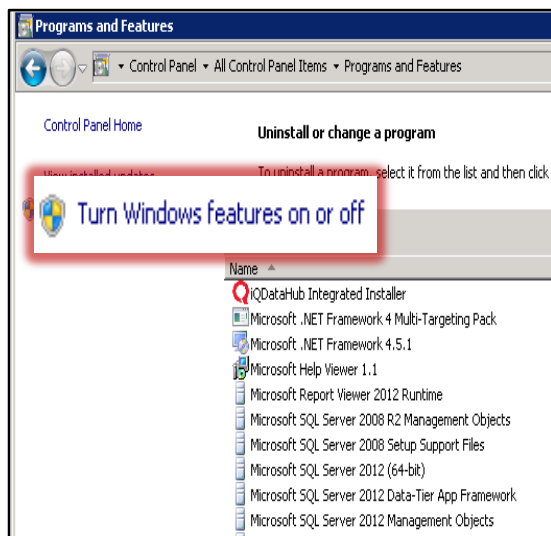
For a successful installation and subsequent running of the Report Manager, you need to be sure that you have the appropriate IIS features selected.



1. **Open** the Control Panel.



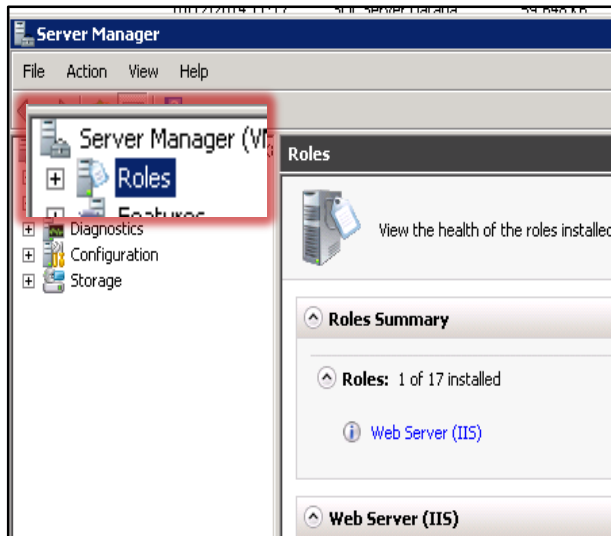
2. **Click** Programs and Features.



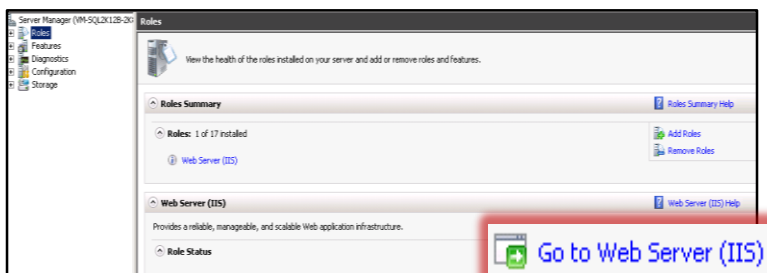
3. **Click** Turn Windows Features On/Off.



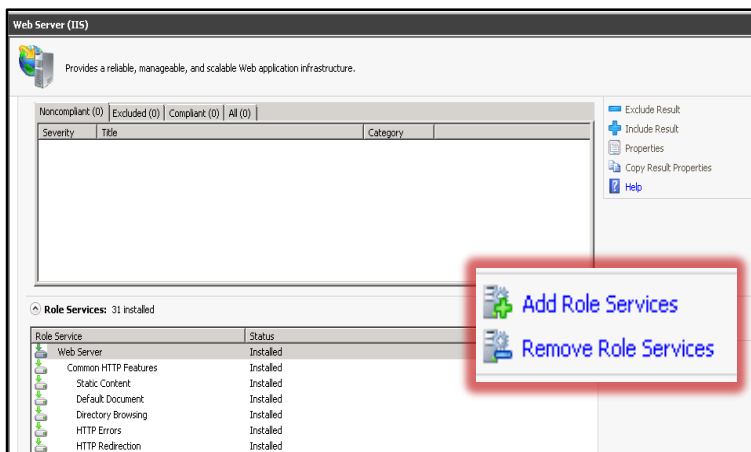
## Prerequisites



### 4. **Select** Roles

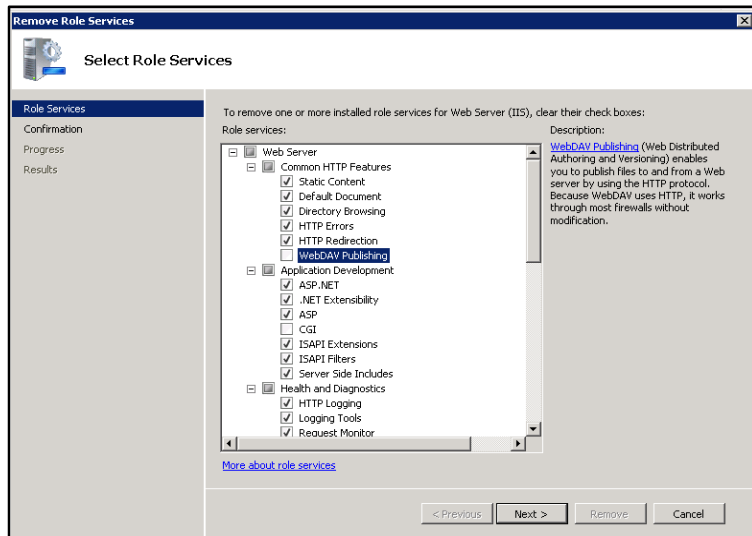


5. **Select** Go to Web Server (IIS).  
*\*This is located to the right of the screen.*



6. **Define** the features below using Add or Remove Role Services.

## Prerequisites



7. **Select** the needed features as shown in [Role Services](#) in this chapter.

## Prerequisites

### 7.2.2 Role Services

Add or Remove Role Services > Role Services >

✓ Web Server >

✓ Select Feature

Application Development Features	
✓	.NET Extensibility
✓	ASP.NET
✓	ISAPI Extensions
✓	ISAPI Filters
✓	Server-Side Includes
Common HTTP Features	
✓	Default Document
✓	Directory Browsing
✓	HTTP Errors
✓	HTTP Redirection
✓	Static Content
Security	
✓	Request Filtering
✓	Windows Authentication

✓ Internet Information Services Hostable Web Core

## 8 Additional Details

### 8.1 Remote Access to iQSonar Server

Remote Access to the iQSonar server(s) is required to ensure both a speedy implementation and to troubleshoot any issues reported during scans.

Either a virtual private network (VPN) or virtual desktop access is the preferred method. When these options are unavailable, screen sharing may be an option using applications like Lync, GoToMeeting or NetMeeting.

### 8.2 Requirement Confirmation

iQate provides a tool to test that the prerequisites have been met. This tool is called the **iQSonar Prerequisites Test Tool** explained in [Chapter 9](#) of this document. . The testing tool verifies that the components needed for the iQSonar scan engine are installed and running correctly in advance of trying to install iQSonar.

The tool provides visual indicators of success as well as generating a text file of results. All checks must run successfully and the text file emailed to [support@iqate.com](mailto:support@iqate.com) before attempting an install of the product.

### 8.3 Virtual Machine Duplicates

When multiple iQSonar scan engine instances are being deployed in an estate on virtual devices, the Windows OS **Product ID** for each VM must be unique.

### 9 Prerequisite Testing Tool

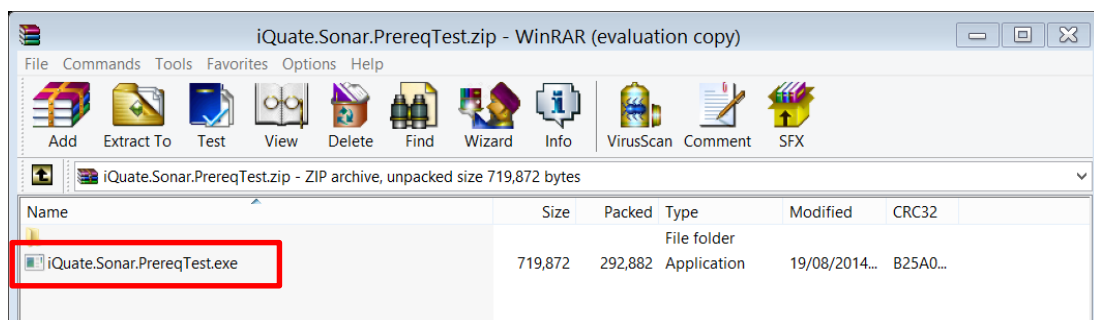
Once you have completed the initial server configuration, we strongly recommend running the prerequisite testing tool to ensure your environment is ready for installation. This tool also allows you to test the connectivity of remote servers within the network in advance of a full scan.

There are two ways to obtain the prerequisite testing tool:

- Our support team can send you the executable zip file (recommended)
- It is also included in the iQSonar installer (iQSonar.msi).

Look at the following instructions to run the testing tool:

1. **Copy** the iQuate.Sonar.PrereqTest.zip file to the server and **unzip** the file to your desired folder like C:\Program Files\iQuate\iQSonar for example.  
*If prompted for a password while attempting to open the .ZIP file, enter **iquate**.*
2. **Open** the iQuate.Sonar.PrereqTest.exe file.



3. **Select** system requirements test.

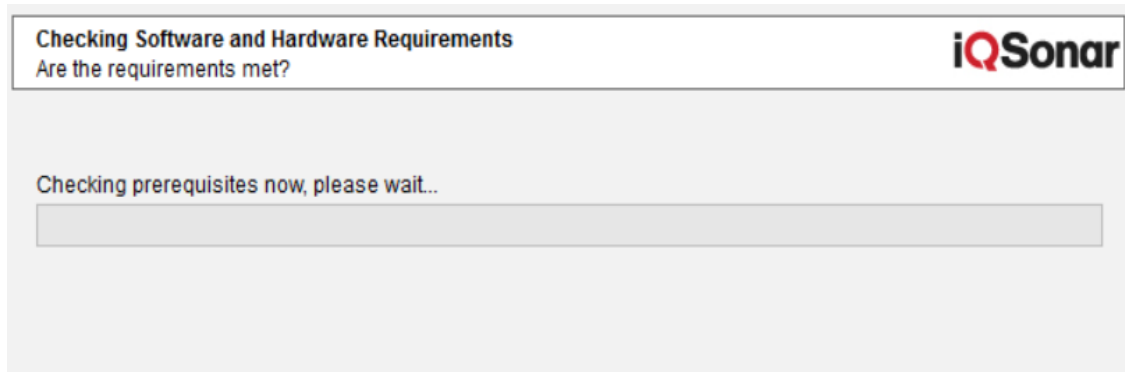


To continue, click 'Next'

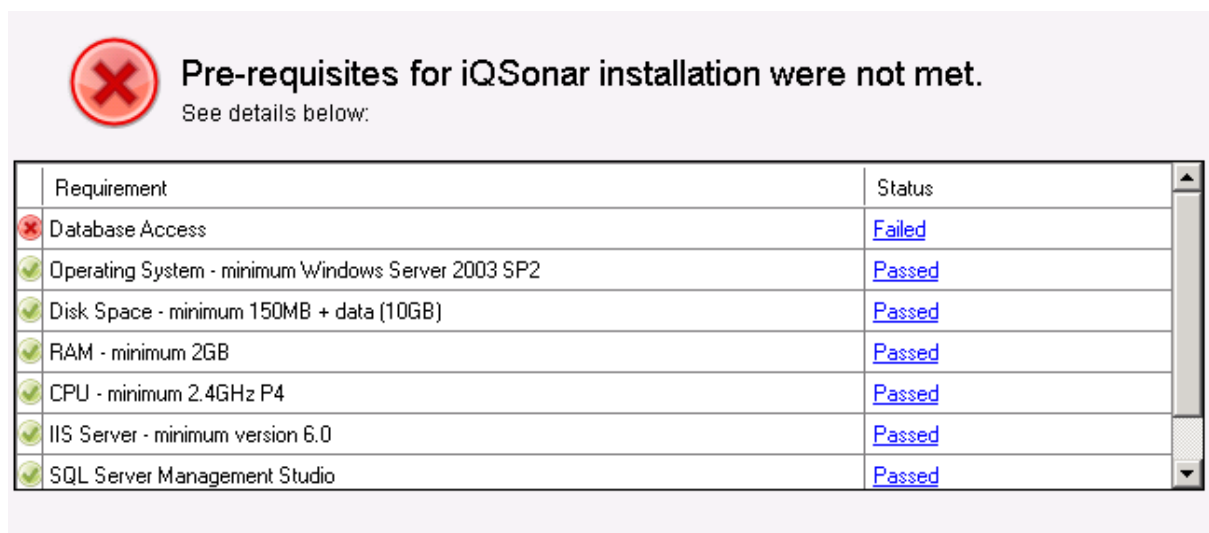
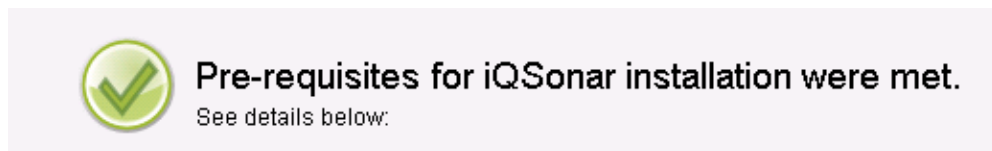
- System requirements tests  
 Connectivity tests

## Prerequisites

4. **Wait** for the testing tool to run. This may take a few minutes.



5. One of the [following windows](#) will appear.



If the prerequisites were not met, go through the checklist found In [Appendix E Prerequisites Checklist](#) in this document for further information. [iQuate support](#) are always happy to help, but try out the checklist and testing tool first to see if that solves the problem.

## Prerequisites

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### 9.1 Report Summary

A text file is generated in the folder you created for the testing tool. If you have any problems with installation, you can send these files to the [iQuate support team](#) to help troubleshoot any issues that may arise.

# Appendix A. Default Ports List

### *Ports required for Discovery*

This list of default ports can be changed to add ports or remove ports from the **discovery** phase with port scanning.

<b>Port</b>	<b>Description</b>
<b>21</b>	FTP control (command)
<b>22</b>	Secure Shell (SSH)used for secure logins file transfers (scp sftp) and port forwarding
<b>23</b>	Telnet protocol unencrypted text communications
<b>25</b>	Simple Mail Transfer Protocol (SMTP)used for e-mail routing between mail servers
<b>80</b>	Hypertext Transfer Protocol (HTTP)
<b>110</b>	Post Office Protocol 3 (POP3)
<b>135</b>	DCE endpoint resolution
<b>139</b>	NetBIOS NetBIOS Session Service
<b>143</b>	Internet Message Access Protocol (IMAP)used for retrieving organizing and synchronizing e-mail messages
<b>443</b>	Hypertext Transfer Protocol over TLS/SSL (HTTPS)
<b>445</b>	Microsoft-DS SMB file sharing
<b>1520</b>	Oracle database common alternative for listener
<b>1521</b>	Oracle database default listener
<b>1522</b>	Oracle database common alternative for listener
<b>1529</b>	
<b>3389</b>	Microsoft Terminal Server (RDP) officially registered as Windows Based Terminal (WBT)
<b>7001</b>	Default for BEA WebLogic Servers HTTP server though often changed during installation



## Prerequisites

### Ports required for Inventory

These ports are all required to be opened to facilitate **inventory** of the devices and enterprise applications. Custom ports configured by DBA may also need to be included.

Port	Protocol	Service	Device or Application
<b>22</b>	TCP	SSH	UNIX/Linux devices HMC
<b>23</b>	TCP	Telnet	UNIX/Linux devices
<b>80</b>	TCP	HTTP	VMWare vCentre ESX Host scanning
<b>443</b>	TCP	HTTPS	VMWare vCentre ESX Host scanning
<b>135</b>	TCP	RPC	Windows devices
<b>139</b>	TCP	NETBIOS Session	Windows devices
<b>445</b>	TCP	SMB	Windows devices
<b>137</b>	UDP	NETBIOS Datagram	Windows devices
<b>138</b>	UDP	NETBIOS Datagram	Windows devices
<b>139</b>	UDP	NETBIOS Session	Windows devices
<b>49152 to 65535</b>	TCP	WMI dynamic ports	Windows Vista/Server 2008 or higher(1)
<b>1025 to 5000</b>	TCP	WMI dynamic ports	Windows XP/Server 2003 or lower(1)
<b>1433</b>	TCP	SQL Server	Microsoft SQL Server scanning May also need custom ports opened
<b>1521</b>	TCP	Oracle Database	Oracle RDBMS scanning, default listener
<b>1526</b>	TCP	Informix	Informix scanning, default port
<b>2025 4100 5000</b>	SSH, WMI	Sybase	Sybase scanning
<b>50000</b>	TCP	DB2	IBM DB2 default This overlaps with the WMI ports

## Appendix B. Command Access

The following commands, namespaces, or registry hives are used by iQSonar, and a user must be provided access to these commands in order to successfully retrieve inventory data.

Platform	Commands				
<b>*nix</b>	ALL	awk (nawk on Solaris)	grep	tail	
		cat	head	tr	
		cd	ls	uname	
		cut	pwd	uniq	
		date	sed	wc	
		echo	sort	which	
	egrep	find			
	Veritas Clustering	haclus	hastatus	hasys	
	Oracle DB	lsnrctl			
	Oracle HA	cemutlo	ocrdump	Srvctl	
		crsctl			
	IBM DB2	db2	db2ls	db2set	
	Informix	oninit	onstat		
<b>AIX</b>	ALL	df	lscfg	oslevel	
		domainname	lslpp	ps	
		ifconfig	lslv	uptime	
		lsattr	lsmcode		
		lsconf	netstat		
		HMC	lshmc	lshmcusr	lspartition
			lshmcfs	lshwres	lssyscfg
		VIO/LPAR	ioslevel	lsdev	lstcpip
			lparstat		
<b>HPUX</b>	ALL	adb	ioscan	print_manifest	
		bc	lanscan	ps	
		cstm	machinfo	selclass	
		df	model	setboot	
		domainname	netstat	swlist	
		getconf	nwmgr	uptime	
		ifconfig	pdcinfo	lsdf	

## Prerequisites

		pwdx		
<b>Linux</b>	<b>ALL</b>	blkid	dpkg-query (Debian distro)	ps
		df	free	rpm (Redhat distro)
		dmidecode	ifconfig	uptime
		dnsdomainname	lshal	
	<b>HMC</b>	lshmc		
<b>Solaris</b>	<b>ALL</b>	arp	ifconfig	ps
		df	pkginfo	uptime
		domainname	prodreg	zoneadm
		hostid	prtconf	zonecfg
		hostname	prtdiag	
		kstat	pooladm	
<b>Windows (WMI)</b>	root\default root\cimv2\Win32_Bios root\cimv2\Win32_ComputerSystem root\cimv2\Win32_ComputerSystemProduct root\cimv2\Win32_Directory root\cimv2\Win32_DisplayConfiguration root\cimv2\Win32_LogicalDisk root\cimv2\Win32_OperatingSystem root\cimv2\Win32_Process root\cimv2\Win32_Processor root\cimv2\Win32_PhysicalMemory root\cimv2\Win32_Service root\cimv2\Win32_SoundDevice root\cimv2\Win32_SystemEnclosure root\cimv2\Win32_TimeZone root\cimv2\Win32_UserAccount  root\MicrosoftExchangeV2  root\virtualization\Msvm_BiosElement root\virtualization\Msvm_ComputerSystem root\virtualization\Msvm_MemorySettingData			

## Prerequisites

	<code>root\vm\virtualserver\VirtualMachine</code> <code>root\vm\virtualserver\VirtualServerProvider</code>  <code>root\mscluster\MSCluster_Cluster</code> <code>root\mscluster\MSCluster_ClusterSharedVolume</code> <code>root\mscluster\MSCluster_Disk</code> <code>root\mscluster\MSCluster_DiskToDiskPartition</code> <code>root\mscluster\MSCluster_NetworkInterface</code> <code>root\mscluster\MSCluster_NetworkToNetworkInterface</code> <code>root\mscluster\MSCluster_Node</code> <code>root\mscluster\MSCluster_Resource</code> <code>root\mscluster\MSCluster_ResourceGroup</code> <code>root\mscluster\MSCluster_ResourceGroupToResource</code> <code>root\mscluster\MSCluster_ResourceType</code> <code>root\mscluster\MSCluster_ResourceTypeToResource</code> <code>root\mscluster\MSCluster_Service</code>
<b>Windows (Registry)</b>	<code>HKEY_LOCAL_MACHINE</code> <code>HKEY_USERS</code>

## Appendix C. MS SQL Server Systems Object

When scanning Microsoft SQL Server, a variety of system objects need to be accessed and read to gather the required information. The system object accesses are listed in the table below:

<b>System Object</b>	<b>Platform</b>
<b>[master]..[syslogins]</b>	MSSQL 2000 or higher
<b>[master]..[sysprocesses]</b>	MSSQL 2000 or higher
<b>[master]..[sysdatabases]</b>	MSSQL 2000
<b>[master]..[sysaltfiles]</b>	MSSQL 2000
<b>sys.sql_logins</b>	SQL Azure
<b>sys.dm_os_sys_info</b>	MSSQL 2005 or higher
<b>sys.dm_os_cluster_nodes</b>	MSSQL 2005 or higher
<b>sys.database_mirroring</b>	MSSQL 2005 or higher
<b>sys.databases</b>	MSSQL 2005
<b>SERVERPROPERTY("")</b>	MSSQL 2000 or higher
<b>::fn_virtualservernodes()</b>	MSSQL 2000
<b>DB_NAME()</b>	MSSQL 2000 or higher
<b>sys.master_files</b>	MSSQL 2000 or higher
<b>suser_sname()</b>	MSSQL 2000
<b>@@Servername</b>	MSSQL 2000 or higher
<b>@@Version</b>	MSSQL 2000 or higher

## Appendix D. Key Terms

<b>Term</b>	<b>Definition</b>
<b>Advanced Encryption Standard</b>	Advanced Encryption Standard (AES) is a specification for the encryption of electronic data established by the U.S. National Institute of Standards and Technology (NIST) in 2001.
<b>dedicated server</b>	a server specifically for the use of the iQSonar scan engine
<b>DLL</b>	dynamic link libraries
<b>estate access</b>	access to all devices within a network
<b>GAC</b>	global assembly cache
<b>iQDataHub</b>	a data warehouse where data is cleansed and enriched
<b>iQExplore</b>	a graphical interface tool to
<b>iQSonar scan engine</b>	an agentless scanning tool used for discovery and inventory
<b>network inventory tool</b>	a tool used to gather data on a network
<b>Report Manager</b>	The web interface where you can customize reports to better understand the data sets products in iQDataHub.
<b>SSIS</b>	SQL Server Integration Services
<b>target device</b>	a device which iQSonar is attempting to discover; defined by the user
<b>WMI</b>	Windows Management Instrumentation

### Appendix E. Prerequisites Checklist

Run through this checklist to ensure you have performed all prerequisite checks.

Did I...?

✓ **Prerequisite Action**

	1. <b>receive</b> licensing key details
	2. <b>confirm</b> internet connectivity
	3. <b>turn off</b> internet explorer <b>enhanced security</b> during installation
	4. <b>confirm</b> hardware and validate SQL Server installation
	5. <b>confirm</b> SQL Server is using <b>mixed mode authentication</b>
	6. <b>set</b> collation settings to <b>Latin1_General_CI_AS</b>
	7. <b>ensure common language runtime (CLR)</b> integration is enabled
	8. <b>record</b> SQL database details and credentials
	9. <b>confirm</b> that <b>IIS</b> and <b>ASP.NET</b> are installed
	10. <b>confirm</b> that <b>.NET 3.5</b> is installed
	11. <b>install</b> and <b>run</b> the <b>prerequisites testing tool</b>
	12. <b>define</b> the <b>web interface (CMS)</b> database
	13. <b>define</b> the <b>data storage</b> database
	14. <b>ensure</b> database auto-growth is enabled and set to <b>10%</b>
	15. <b>set</b> database recovery model to <b>simple</b>
	16. <b>download</b> application clients
	17. <b>activate</b> licenses (device and application)
	18. <b>log on</b> to <b>iQSonar</b> to confirm successful installation

## Appendix F. Links

Component	Full URL or email
<b>IBM Data Server Runtime Client download (DB2)</b>	<a href="http://www-01.ibm.com/support/docview.wss?uid=swg21385217">http://www-01.ibm.com/support/docview.wss?uid=swg21385217</a>
<b>Informix Client SDK Developer Edition download</b>	<a href="http://www14.software.ibm.com/webapp/download/search.jsp?q=&amp;pf=&amp;S_TACT=&amp;S_CMP=&amp;status=Active&amp;sr=1&amp;cat=&amp;q0=&amp;k=ALL&amp;b=&amp;pn=&amp;pid=&amp;rs=ifxdl&amp;fpf=Windows+%2832bit%29&amp;fdt=&amp;f lang=&amp;sb=rd&amp;ibm-go.x=20&amp;ibm-go.y=10">http://www14.software.ibm.com/webapp/download/search.jsp?q=&amp;pf=&amp;S_TACT=&amp;S_CMP=&amp;status=Active&amp;sr=1&amp;cat=&amp;q0=&amp;k=ALL&amp;b=&amp;pn=&amp;pid=&amp;rs=ifxdl&amp;fpf=Windows+%2832bit%29&amp;fdt=&amp;f lang=&amp;sb=rd&amp;ibm-go.x=20&amp;ibm-go.y=10</a>
<b>iQuate Support</b>	<a href="mailto:support@iquate.com">support@iquate.com</a>
<b>IBM Installing, Migrating, and Configuring Servers</b>	<a href="http://publib.boulder.ibm.com/infocenter/idshelp/v10/index.jsp?topic=/com.ibm.igul.doc/igulmst30.htm">http://publib.boulder.ibm.com/infocenter/idshelp/v10/index.jsp?topic=/com.ibm.igul.doc/igulmst30.htm</a>
<b>Microsoft dynamic port allocation (firewalls)</b>	<a href="http://support.microsoft.com/kb/154596">http://support.microsoft.com/kb/154596</a>
<b>Oracle DLLs from iQuate</b>	<a href="http://www.iquate.com/downloads/iQSonar/oic.zip">http://www.iquate.com/downloads/iQSonar/oic.zip</a>
<b>Qlikview: system requirements document</b>	<a href="http://www.qlik.com/us/~/_media/Files/resource-library/global-us/direct/datasheets/qlikview11/DS-QlikView-11-System-Requirements-EN.ashx">http://www.qlik.com/us/~/_media/Files/resource-library/global-us/direct/datasheets/qlikview11/DS-QlikView-11-System-Requirements-EN.ashx</a>
<b>Microsoft Developer Network: SSIS Catalog link</b>	<a href="http://msdn.microsoft.com/en-us/library/hh479588.aspx">http://msdn.microsoft.com/en-us/library/hh479588.aspx</a>
<b>Qlikview website</b>	<a href="http://www.qlik.com">www.qlik.com</a>



### Appendix G. Informix Access

If you have a problem installing the 32-bit version on your 64-bit machine, follow the instructions below:

1. **Unzip** the contents of your download from IBM.
2. **Create** a file called **install.bat** consisting of the content below.
3. **Right click** **install.bat** and choose **Run as Administrator**.

```
@echo off
set PATH =%WINDIR%\SysWOW64;%PATH
installclientsdk.exe
```

#### **Otherwise:**

1. **Run** installer:
  1. 64-bit OS: Right click on install.bat and choose Run as Administrator.
  2. 32-bit OS: Run installclientsdk.exe as Administrator.
2. **Install** only default options.
3. After installation **add** INFORMIXDIR environment variable pointing to main SDK folder.  
e.g. C:\Program Files (x86)\IBM\Informix\Client-SDK-x32 or  
C:\Program Files\IBM Informix Client SDK
4. **Add** %INFORMIXDIR%\bin to the PATH environment variable. Restart the iQSonar Service after doing so.
5. **Add** appropriate Informix credentials in iQSonar UI.