Kofax Insight

Technical Architecture and High Availability Setup

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KOFAX

Table of Contents

Chapter 1

Introduction

This document describes the components and its technical architecture for Kofax Insight 6.2.1.

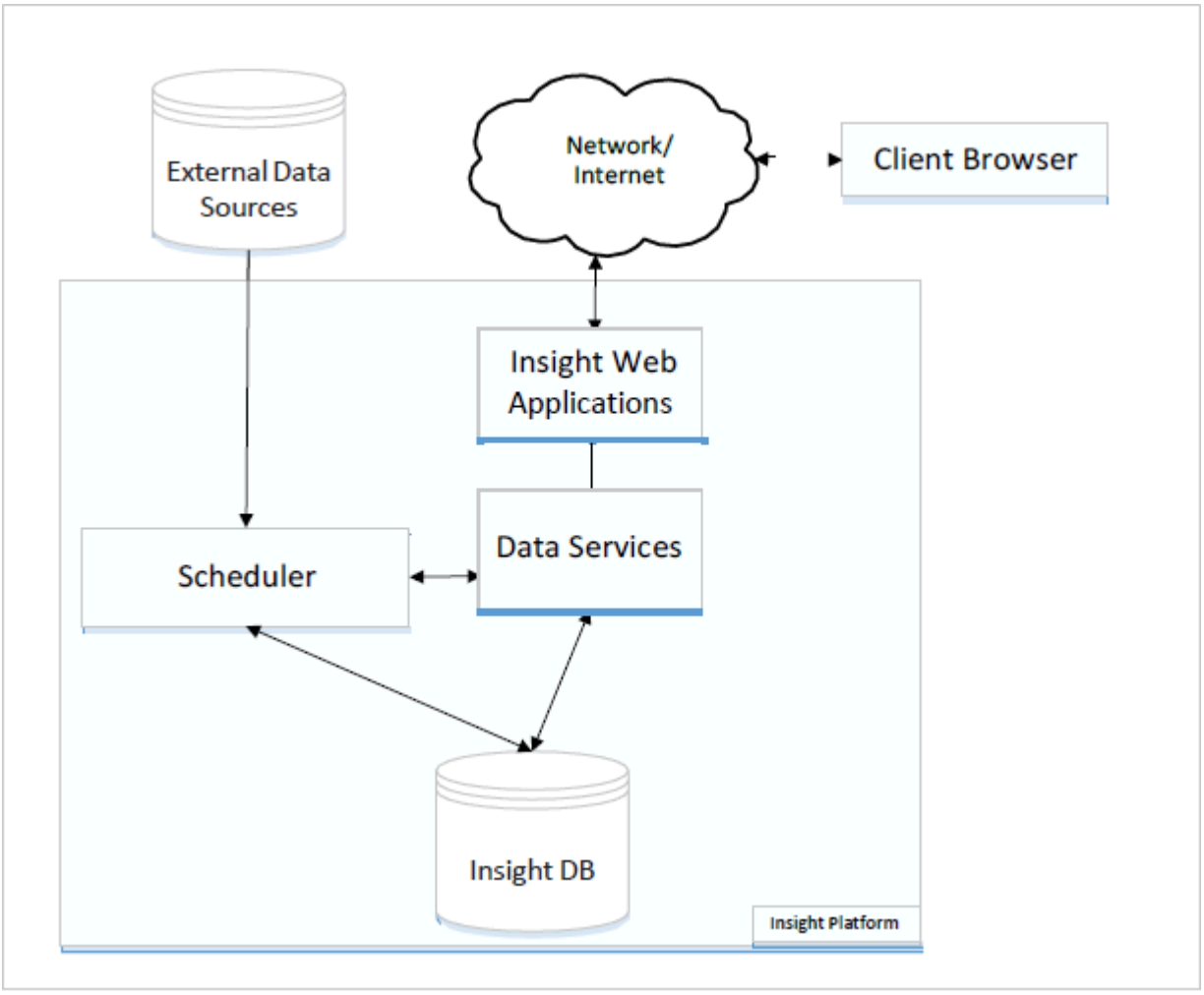
Kofax Insight is a browser-based system that runs on HTML5/JavaScript supported browsers. The server components are built on the Microsoft .NET Framework and run on Windows (64-bit)/IIS servers.

Kofax Insight consists of the following main components:

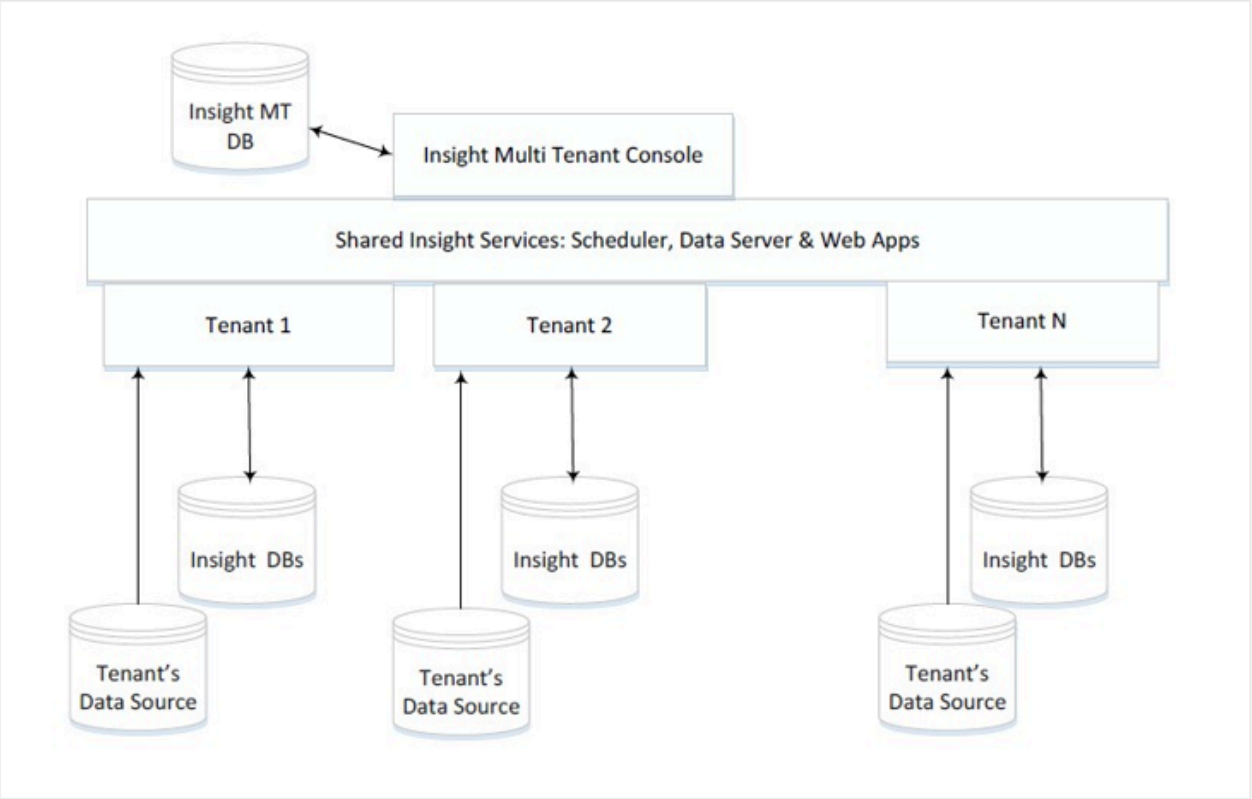
- Insight Web Applications
- Insight Data Services
- Scheduler
- Insight Database

Kofax Insight can be deployed in a single-tenant or multi-tenant mode.

The following diagram displays the architecture of Insight deployed in a single-tenant mode. In this document, "DB" is used to denote "database."



The following diagram shows the architecture of Insight deployed in a multi-tenant mode.



Each tenant can be set up with the Kofax Insight Multi-Tenant Console application. Once a tenant is set up, use the following URL to access the Insight tenant environment:

```
http(s)://<tenant_id>.<host:port>/Insight/[Admin|Studio|View|Themes|
DataLoader]
```

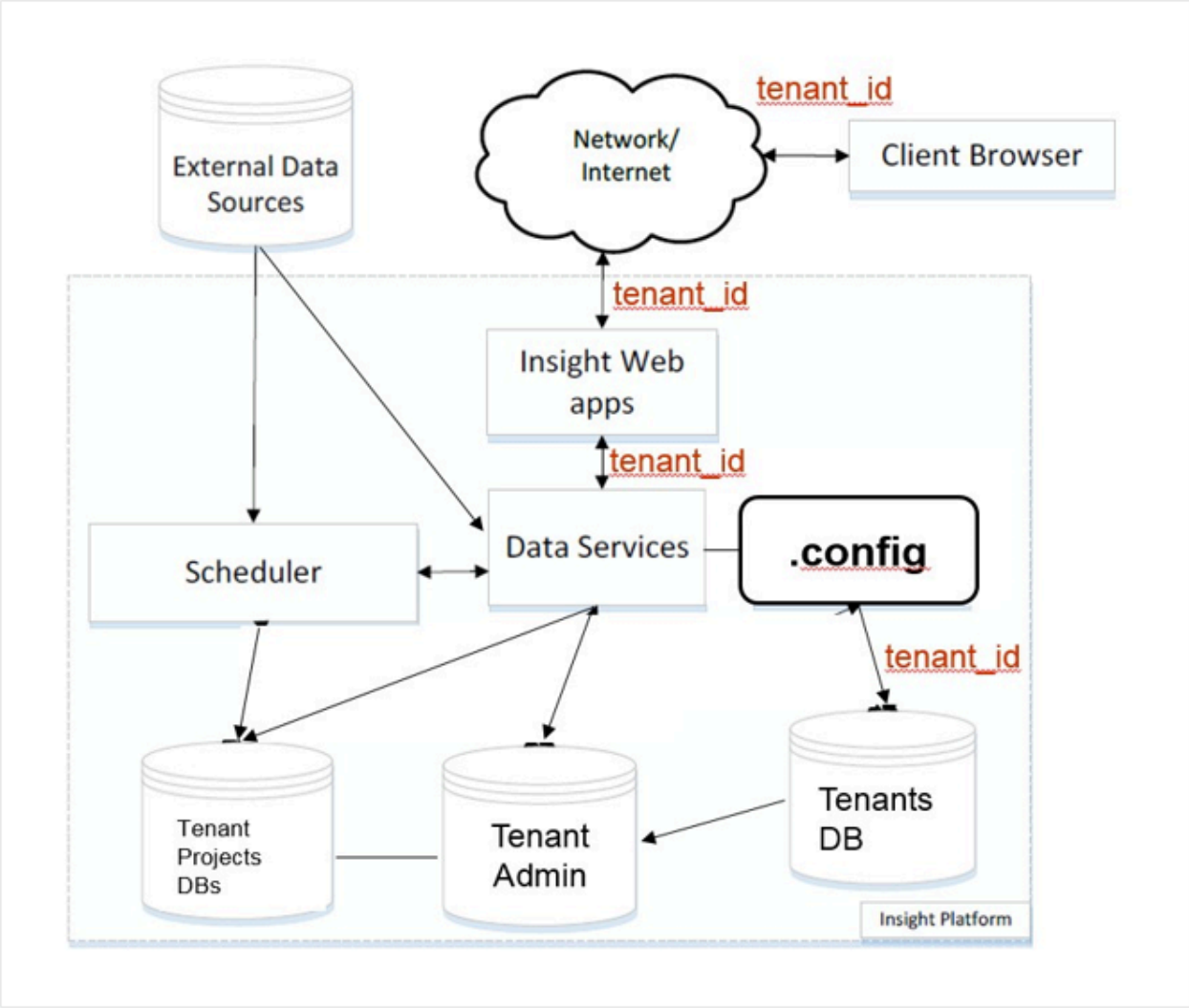
For example, if Insight is set up on a domain named *MyInsight* and a tenant with a tenant ID called *tenant2*, tenant2 can access Insight using the following URL:

```
http://tenant2.MyInsight.com/Admin
```

The Tenant (Customer) admin should have a record in the DNS for the subdomain that points to the same IP as the domain.

When an Insight application gets a request, Insight reads the tenant ID and sends it to the Data Service as an additional parameter.

Insight Data Service reads the tenant ID from parameters and then retrieves the connection string to the Admin DB of the tenant from the Insight MT database. Insight authenticates the user in the same way as in a single-tenant mode.



Insight Web Applications

The Insight Web Applications provide the user interface to the Insight platform. The user interface, which serves as the presentation layer of the Insight system, consists of the following applications that allow a user to configure and manage Insight:

Name	Physical Name	Type	Description/Functions
Admin	Admin	Website	Provides access to Insight License Manager, along with configuration settings related to authentication, users, roles, and access rights. Also used to create and manage Insight projects and to import Analytics solutions.
Data Loader	DataLoad	Website	Logs, manages and schedules data loads from various data sources into Insight Data Mart.
Studio	Studio	Website	Manages Insight project documents such as metrics and records, views (dashboards), data sources, execution plans, file processor, reports, and audit.
View	View	Website	Provides access to the view (dashboard) for the end user.
Themes & Formats	Themes	Website	Manages all themes and formats used in the dashboards and Insight projects.

Insight Data Services

Data Services, the application layer of the Insight system, provides authentication, data management, and Analytics services for Insight. The Data Services connect to the Insight databases and communicate with the Web applications and Scheduler. Data Services components are listed in the table.

Name	Physical Name	Type	Description/Functions
WCFData	WCFDataService	.NET WCF Service	Provides authentication, Insight document management and data analytics services.
Chart Snapshot	ChartSnapshotService	.NET WCF Service	Prints the reports.

Insight Scheduler

The Insight Scheduler is a Windows service that launches a Scheduler-Data Loader EXE that loads the data from external data sources into the Insight Data Mart (Insight project data database).

Name	Physical Name	Type	Description/Functions
Scheduler	InsightSchedulerServiceXYZ	Windows Service	Launches the EXE that loads the data. *The XYZ in the name is the version number: For example, 621 is version 6.2.x*.
Scheduler - Data Loader EXE	Altosoft.Insight.DashboardServer.exe	EXE	Performs the data load operation of a single execution plan.

Ports

For more information about ports, see the *Kofax Insight Installation Guide*.

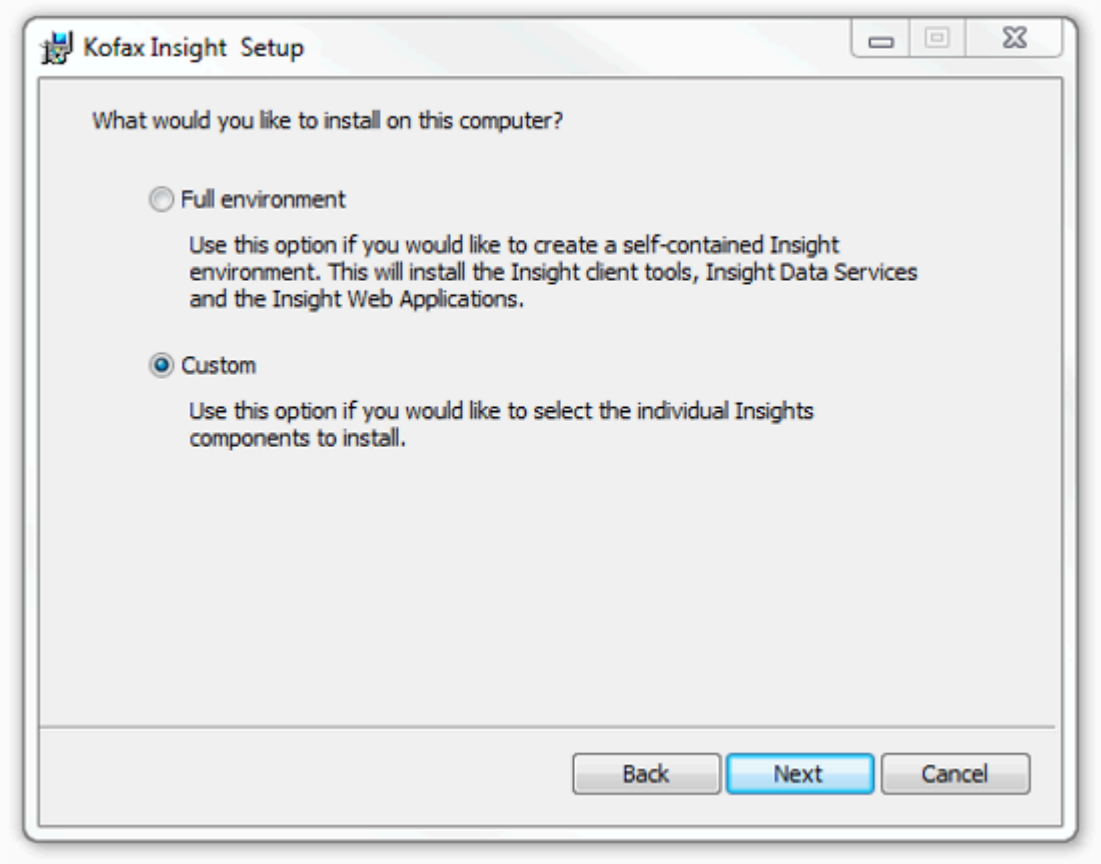
Chapter 2

Insight deployment architecture

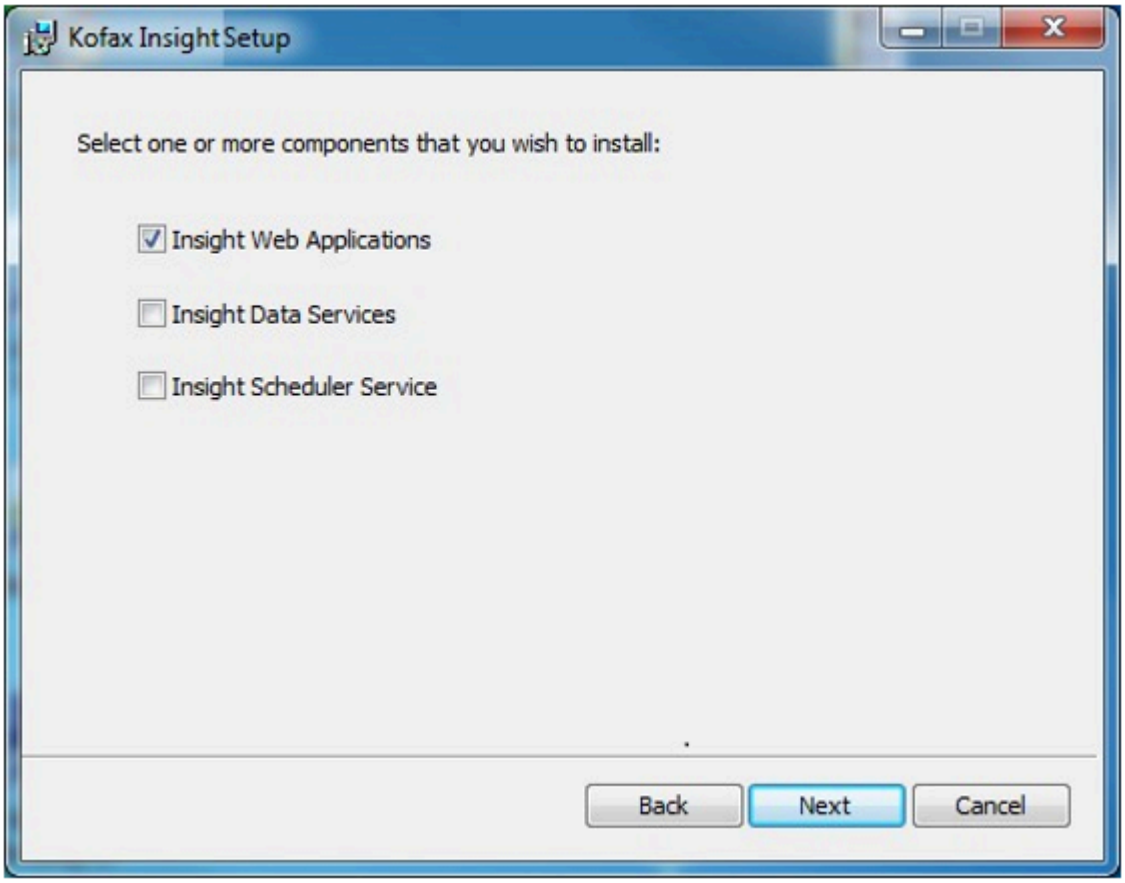
Insight may be deployed in a three-tier, two-tier, and single-tier architecture.

Insight in a secure three-tier architecture

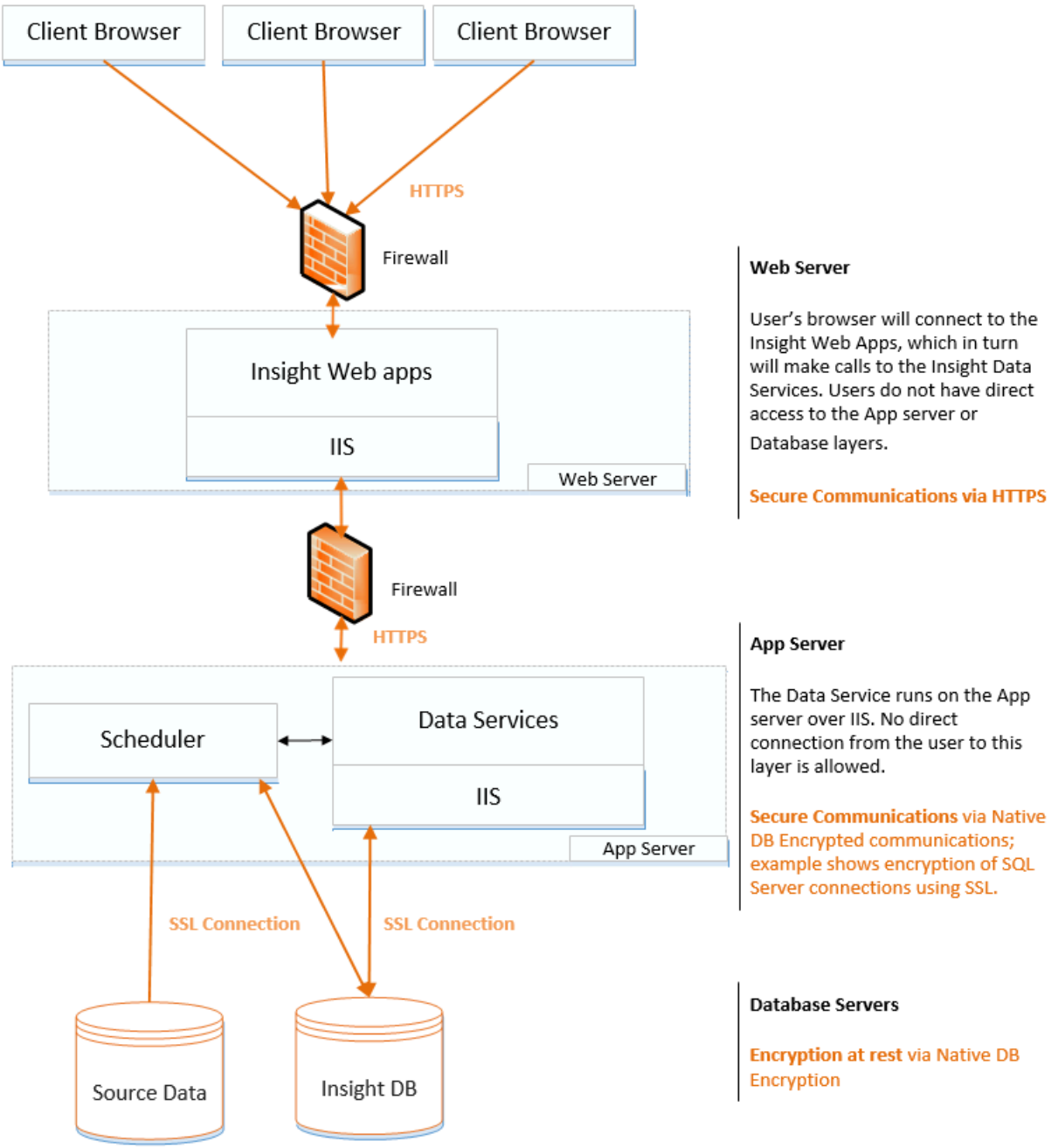
To deploy Insight 5.3.1 or higher in a three-tier architecture requires the Data Services and Scheduler to be installed on an application server running IIS. Insight Web Applications can be installed on a Web Server also running IIS. Use the "Custom" option when installing Insight.



Select the components to install.



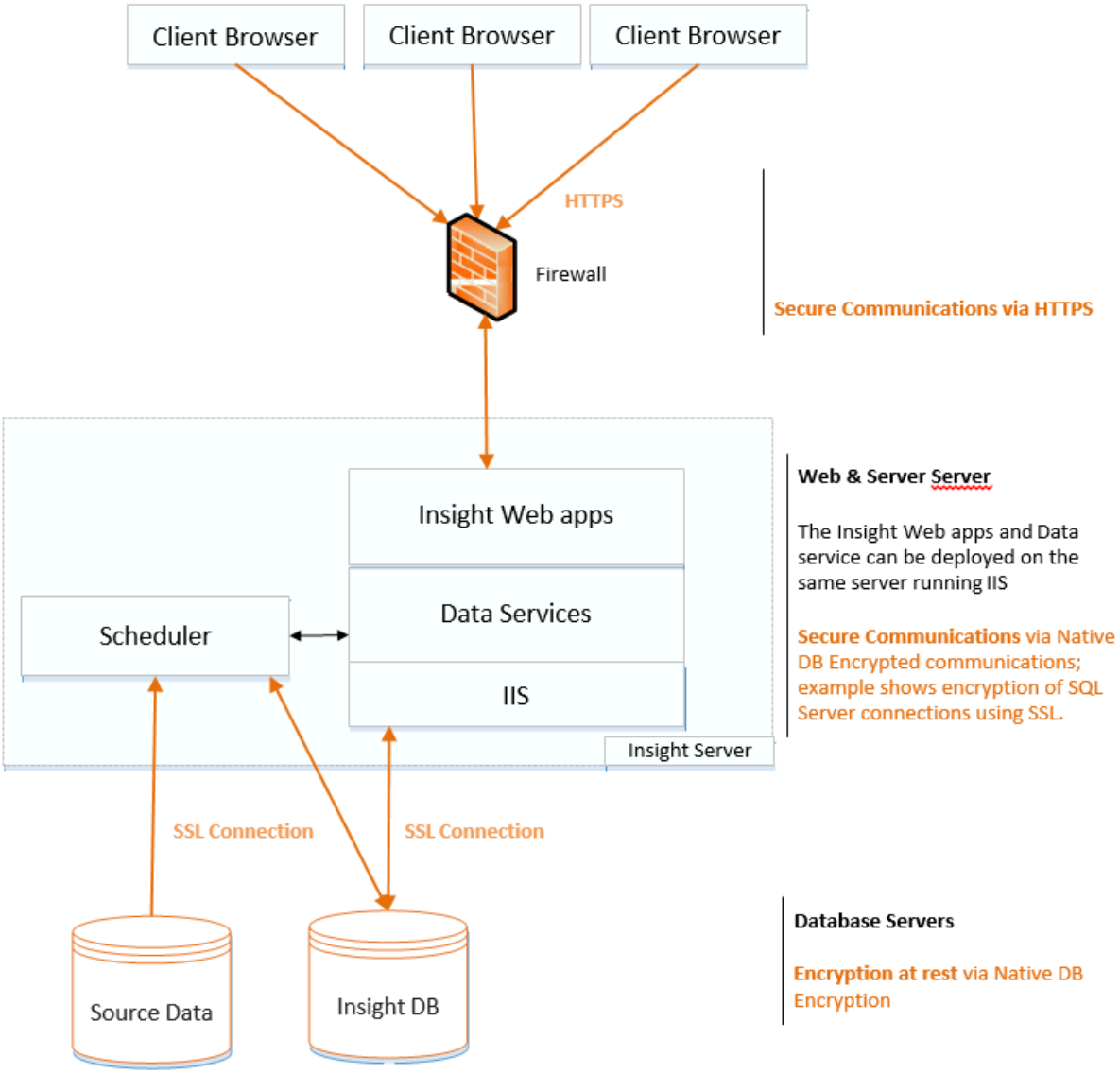
Data Encryption: HTTPS and SSL can be used to encrypt data in transit. Standard DB encryption can be used to encrypt data at rest.



Insight in a two-tier architecture

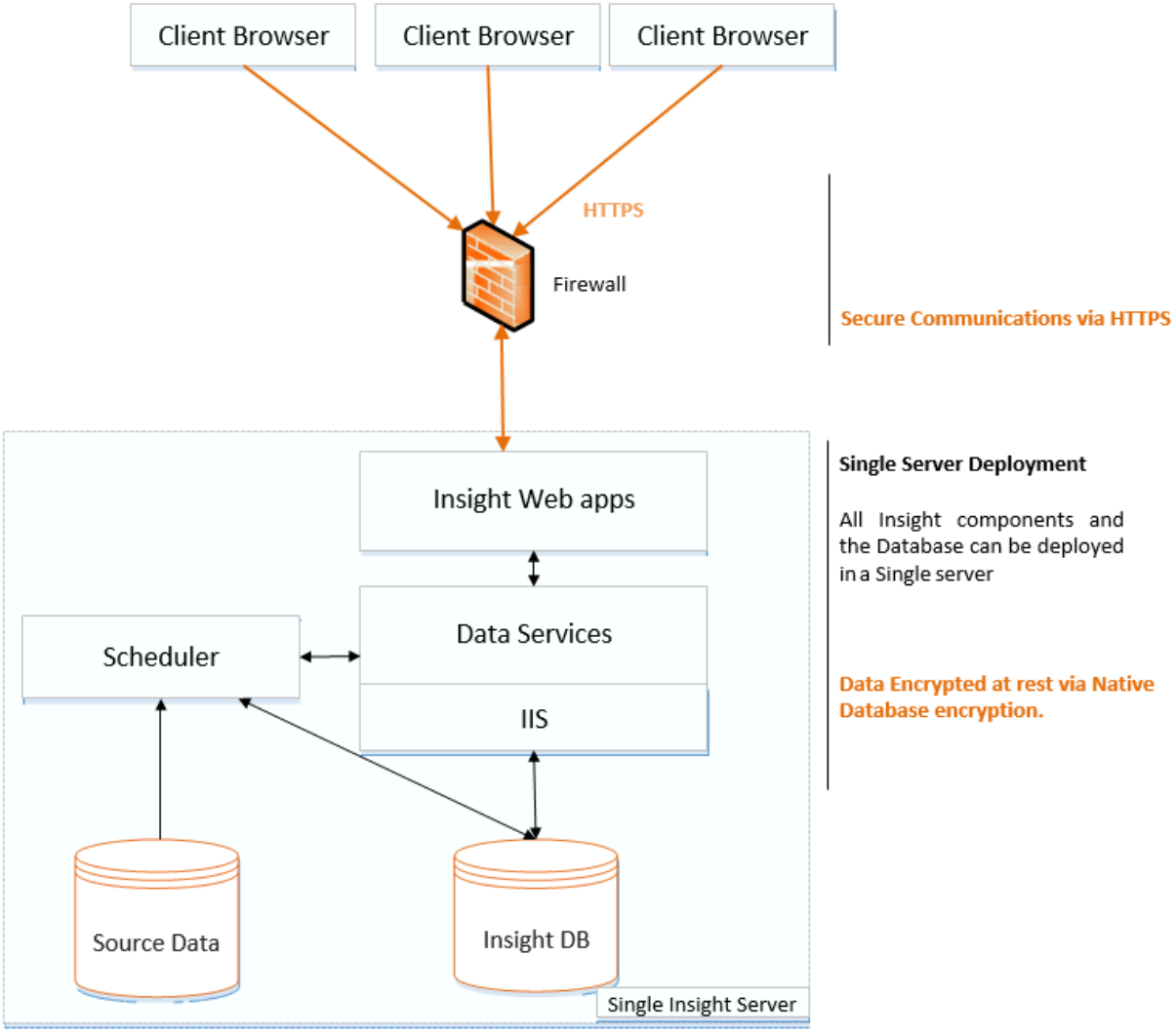
Insight can also be deployed as a two-tier system by installing the Insight Web Applications, Data Services and the Scheduler on the same IIS server as the other Insight Server Web applications. This is the default

installation. In addition, although not recommended for a production environment, the Insight Database can also be installed on the same server.



Insight on a single server

Although it is not recommended for a production environment, Insight can be deployed on a single server environment. This is similar to the two-tier deployment, except that the databases reside on the same server.


Client Browser
Client Browser
Client Browser
HTTPS
Firewall
Secure Communications via HTTPS
Insight Web apps
Data Services
Scheduler
IIS
Source Data
Insight DB
Single Insight Server
Single Server Deployment
All Insight components and the Database can be deployed in a Single server
Data Encrypted at rest via Native Database encryption.

Chapter 3

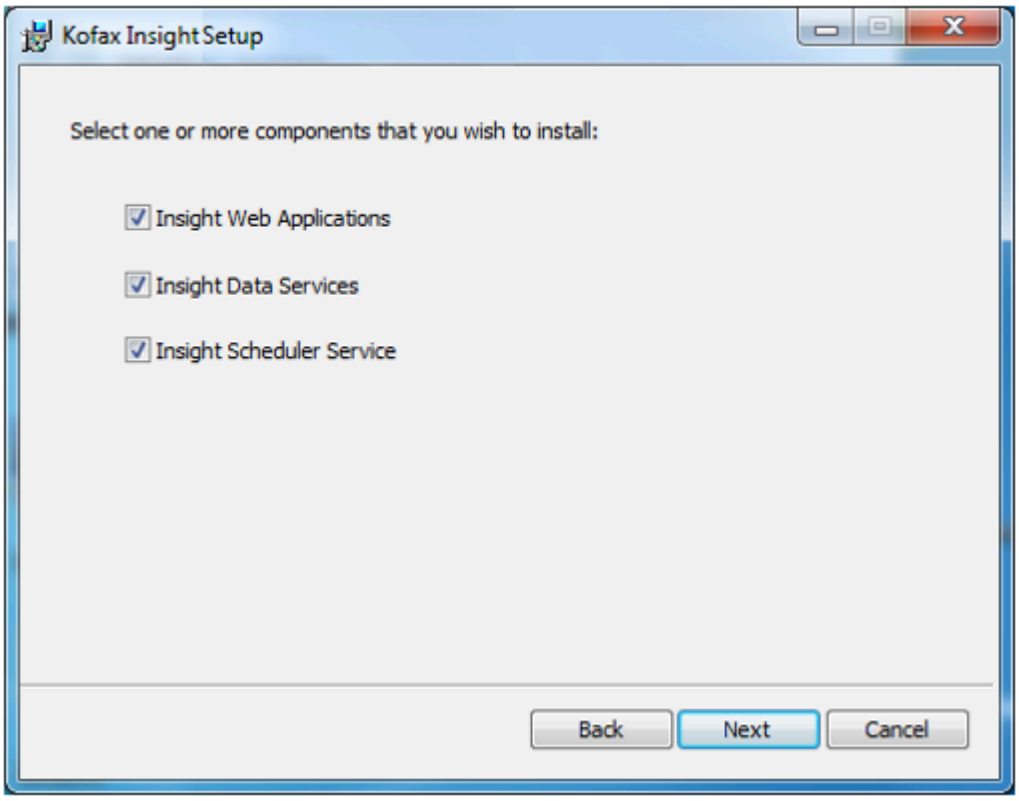
Configure Insight 6 in High Availability

Introduction

Insight 6 dashboards can be configured to be Highly Available by running several Insight environments (web farm) on a load balancer, where each Insight environment consists of Web Applications, Data Services, and a Scheduler.

Setting up the Insight environment

For each server that is part of the web farm, install Insight using the custom installation option. Select to install the Insight Web Applications, Insight Data Services, and the Insight Scheduler Service. Before proceeding, you need to know the entry point server of the load balancer.

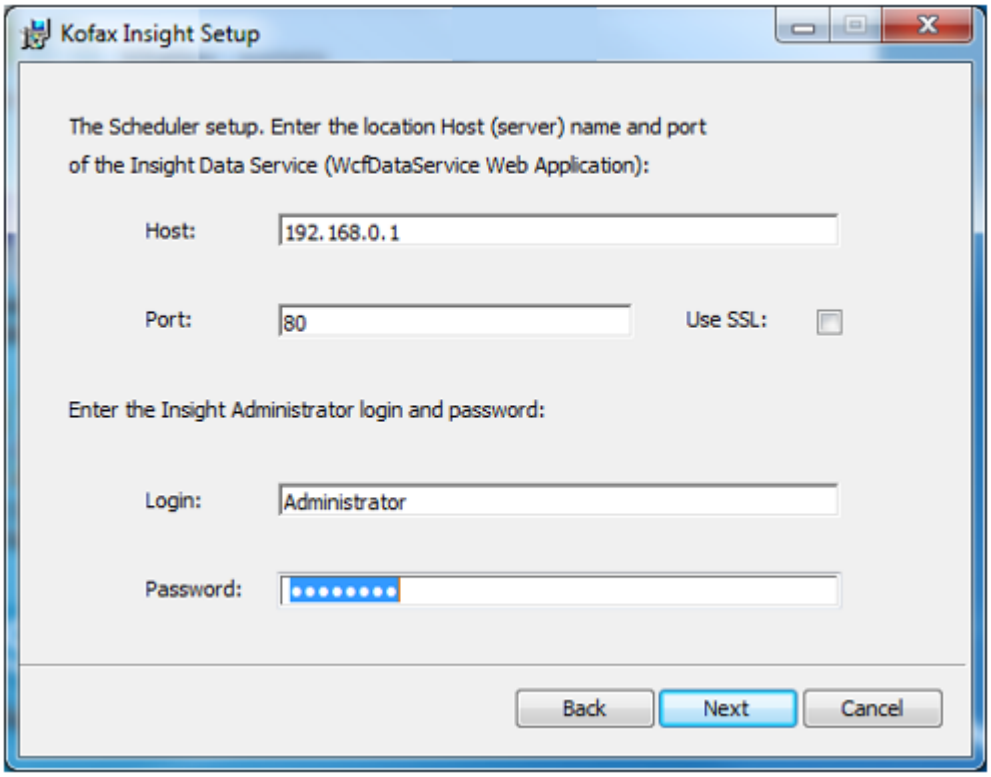


When setting up the Insight root Data folder (see the *Kofax Insight Installation Guide* for details), you must set up the root Data folder to a shared drive. This approach allows all instances of Insight running on the web farm to access the Data folder, which is used for uploading files and projects to Insight.

The Scheduler can be installed on the same servers on the web farm or on separate machines outside of the web farm.

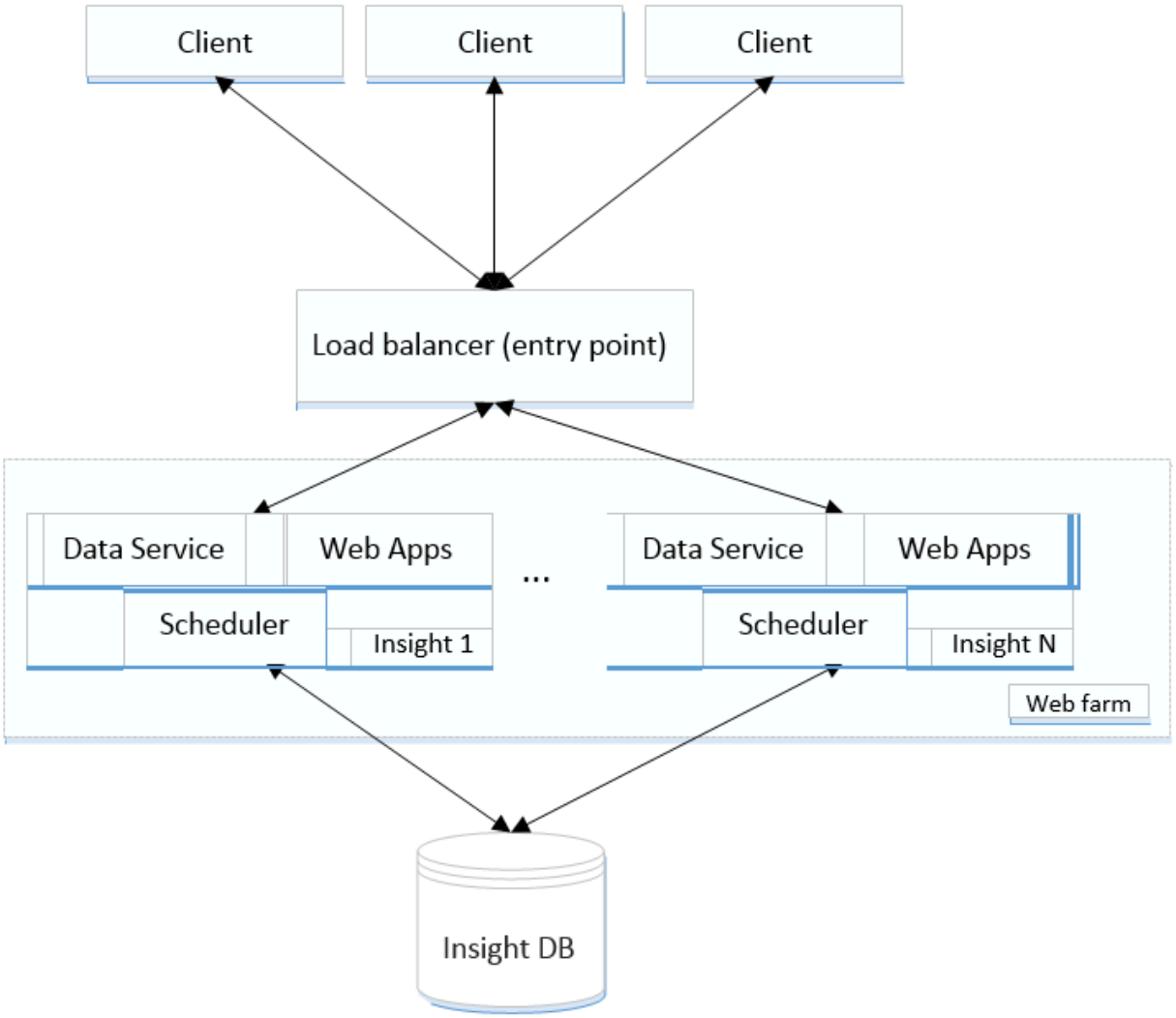
Enter the IP address or host name of the Insight Data Service (WcfDataService Web Application) as the Host for the Scheduler during the Scheduler installation. Provide the following information:

- Host: Enter the Load Balancer host name or IP address.
- Port: Enter the Load Balancer port number, typically 80 (HTTP) or 443 (HTTPS).



In Insight 6.0 and later, all schedulers are active and run in the High Availability mode. One scheduler is assigned as the "Main" scheduler, which executes plans and tasks and also assigns tasks to the other schedulers. Should the Main scheduler fail, another scheduler takes its role and becomes the Main scheduler. If the failed scheduler comes back online, it starts executing tasks that it receives from the Main scheduler.

In the following diagram, the Insight environment consists of the Web Applications, Data Service and the Scheduler, where all Schedulers are set up with the same host - the load balancer entry point.


Client
Client
Client
Load balancer (entry point)
Data Service
Web Apps
Scheduler
Insight 1
...
Data Service
Web Apps
Scheduler
Insight N
Web farm
Insight DB

Chapter 4

Example: Set up Insight in High Availability using IIS

Overview

This section provides instructions on how to configure Insight for High Availability using IIS. The high-level steps include:

1. Identify the load balancer (entry point) server.
2. Set up Insight on a server and configure the scheduler host as the entry point server.

   Note `<add key="Insight.LicenseFolder" value="Path_to_shared_folder"/>`
   `<add key="Insight.LicenseFolder" value="Path_to_shared_folder"/>`

3. Log in to the Admin Console and set Insight in the High Availability mode.
4. Repeat steps 2 and 3 for other Insight servers (for High Availability at least two Insight servers must exist).

Prerequisites

- Servers: You need at least three Windows servers. In this example, one is the load balancer server (entry point), and the other two are the Insight servers in the web farm.
- You must have administrator access to all of the computers (or virtual machines) that run the Windows Server 2012 (or higher) operating system.

Setup steps

This section introduces an example of an entry point configuration. You can follow the recommended steps below or use any load balancer as an entry point at your own responsibility. In the following example procedure, IIS Manager is used to configure load balancing. We recommend that you follow these steps to set up your own entry point. If you use a different load balancer as an entry point, refer to its respective documentation.

Configure the servers

1. Identify the server that will be set up as the entry point load balancing server and the others that will be part of the web farm and contain Insight.
2. Use the Custom option to install Insight Web Applications, Data Service and the Scheduler on one server. Make sure to specify the entry point as the Scheduler host during installation.
3. Log in to the Insight Admin Console. From the navigation panel on the left, select **Options** and then check the **High Availability** option.

   To improve the performance, set the View mode by clicking the Play icon in the Admin Console. In the View mode, no updates can be made to the Admin Console or projects, at that the Viewer application runs as usual. To update the project in the Admin Console or Studio, set Insight to the Edit mode by clicking the Play icon in the Admin Console. When the system is in the Edit mode, the Viewer is available with reduced performance.
4. Repeat the preceding steps for all of the servers.

   Important The servers should use the same set of database drivers and time settings (time zones). Also, all servers running the Scheduler should have their system time synchronized.
5. Restart all schedulers, one at a time.

Configure the entry point (load balancer)

1. In IIS Manager, select **Get New Web Platform Components**.
2. In the browser window, download Microsoft Web Platform Installer Download find Application Request Routing, and then install it.
3. Open IIS Manager: A new menu item "Server Farms" is now present. Right-click this item and select Create Server Farm.
4. Enter the farm name.
5. Enter IP addresses for the computers with Insight on the **Add Server** screen and click **Finish**.
6. Click **Yes** on the next **Rewrite Rules** window.

Settings for your farm

1. Go to **Server Affinity**, select **Client Affinity** and click **Apply**.
2. Go to **Load Balance**, set the applicable load balance algorithm and click **Apply**.