Installation and Deployment Guide for HEAT Service Management

*** DRAFT ***

About this Guide

The *HEAT Service Management Installation and Deployment Guide* is intended for HEAT Service Management administrators who are going to install the HEAT Service Management system. It lists several deployment options, describes different installation scenarios, and explains how to perform initial configuration tasks using the System Configuration Wizard.

This document contains the following sections:

- Supported Deployment ConfigurationsLists the different deployment options supported, including the following:
  - Installing all HEAT Service Management components on one host
  - Installing the HEAT Web Server on a different host
  - Installing the HEAT Web Server and back-end components on different hosts
  - Installing the HEAT Service Management system in a load-balanced environment
  - Installing the HEAT Reporting feature
  - Installing the HEAT Inventory Management (also known as HEAT Discovery)
  - Integrating with IP Communications Management
- HEAT Service Management Installation Prerequisites. Lists the installation preprequisites.
- Installing the HEAT Service Management System. Describes the basic installation procedure for a system with all HEAT Service Management components on one host.
- Upgrading the HEAT Service Management System from an Earlier Release. Contains information and instructions for upgrading your system from Release 2013.x to 2014.1.
- Initial System Configuration. Describes how to use the System Configuration Wizard to perform the initial configuration of your system.
- Multi-Server Host Environments. Contains information about how to install and configure your system for different deployment options.
- Troubleshooting. Contains solutions to common problems.

About the Different Installation Programs

This guide covers instructions for running the three installation programs that are included in this release.

- **HEATServiceManagement.exe**: This installation program walks you through the various steps needed to deploy some or all components of the HEAT Service Management system. This is the base installation process for deploying and configuring the HEAT Service Management system. Examples of some of the components that can be installed include the HEAT Application Server, the HEAT Licenses Server, the HEAT Database Server, and many more.

- **HEATReportingService.exe**: This installation program installs the HEAT Reporting feature onto your system. The HEAT Service Management system uses Microsoft SQL Server Reporting Services (SSRS) as its reporting engine.

> The HEAT Reporting feature requires that you first install Microsoft SQL Server Reporting Services (SSRS), which is not included with the HEAT Service Management system or HEAT Reporting feature.

- **HEATInventoryManagement.exe**: This installation program installs the HEAT Discovery feature, also known as HEAT Inventory Management, into your HEAT Service Management system. The HEAT Inventory Management feature is an additional module for the HEAT Service Management system. You must purchase this module before you can install, configure, and use it.

After you have installed and initially configured your HEAT Service Management system, refer to the *HEAT Service Management Application Setup Guide* for information about additional configuration processes.

Contact Information

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Conventions

This guide uses the following conventions:

Convention	Definition and usage
Bold	Text that displays in a GUI element (such as a menu item, button, or element of a dialog box) and command names are shown in bold. For example: Click **Edit** from the toolbar.
Italic	Variables appear in italics. Important information may be italicized for emphasis.
`Monospace`	Commands, command-line output, and file names are in monospace type. For example: Execute `setup.exe` to install the product.
`[]`	Square brackets surrounding a command-line argument mean that the argument is optional.
`|`	Vertical bars separating command-line arguments mean that only one of the arguments can be used.
	**Note**. Describes related, parenthetical information, such as an explanation, tip, comment, or other useful, but not imperative information.
	**Caution**. Describes mandatory information, but is not data-critical.
	**Warning**. Describes mandatory information about an action that could cause a loss of data.

Supported Deployment Configurations

The section briefly describes the deployment configurations that are supported by the HEAT Service Management system.

About Installing All HEAT Service Management Components on One Host

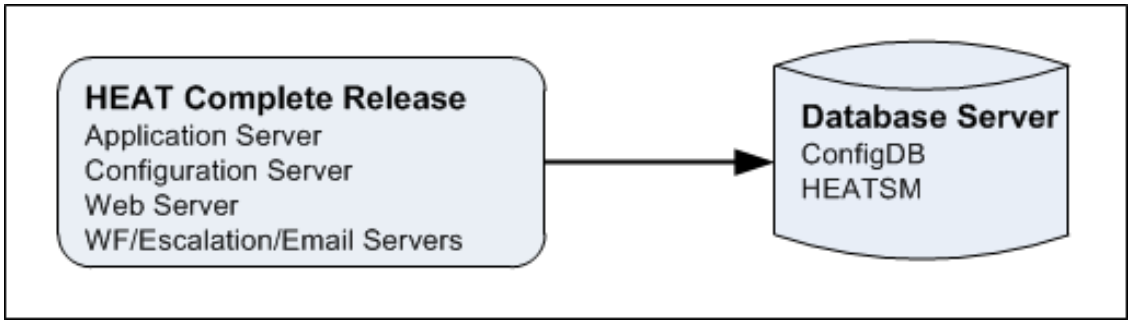


Figure 1 *-- HEAT Service Management System Files on One Host and HEAT Database Server on a Different Host*

In this configuration, all HEAT Service Management components are installed on the same host. The HEAT Database servers used by the HEAT Service Management system(named ConfigDB and HEATSM, by default) reside together on a separate host. See Figure 1.

See Installing the HEAT Service Management System on One Host for details about installing this configuration.

About Installing the HEAT Web Server on a Separate Host

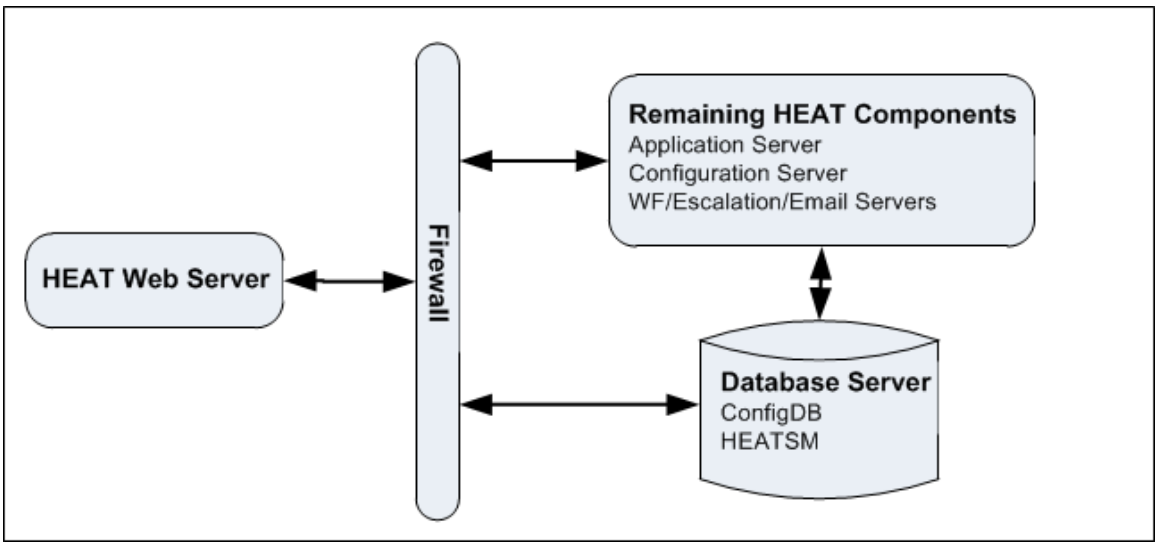


Figure 2 *-- HEAT Web Server on One Host, Remaining HEAT Components on One Host, and HEAT Database Server on One Host*

In this configuration, shown in Figure 2, the HEAT Web Server resides on its own host. The HEAT Web Server host usually is located outside of the firewall, and is the system that hosts user-facing HEAT Service Management application components such as Self Service, Service Catalog, and the Service Desk view. This is the system that users can log into for access to the HEAT Service Management system.

All other HEAT Service Management components (that is, those that are not user-facing) are installed on one host located inside the firewall. The databases used by the HEAT Service Management system reside on a separate host that is located inside the firewall.

See Installing the HEAT Web Server on a Separate Host for details about installing this configuration.

About Installing the HEAT Web Server and Back-End Components on Separate Hosts

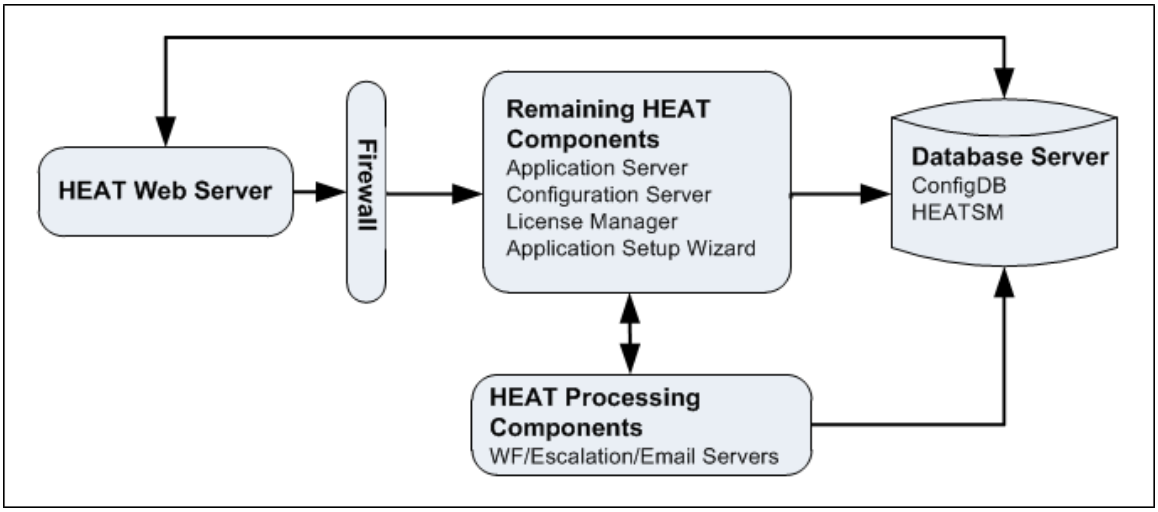


Figure 3 *-- HEAT Web Server on One Host, Remaining HEAT Components on Two Hosts, and HEAT Database Server on One Host*

In this configuration, shown in Figure 3, the HEAT Web Server resides on its own host outside of the firewall and hosts the user-facing HEAT Service Management components such as Self Service, Service Catalog, and the Service Desk view. This is the system that users can log into for access to the HEAT Service Management system.

Inside the firewall, the HEAT Service Management system files are installed on two hosts containing the HEAT Service Management components that are not user-facing. The typical contents of each host are as follows:

- One host usually contains the HEAT Application Server (for the HEAT Service Management components that are not located outside of the firewall) and the HEAT Configuration Server.
- The other host usually contains the HEAT Service Management back-end components such as the workflow engine, escalation engine, and email server.
- The HEAT Database Server and the databases used by the HEAT Service Management system reside on a separate host that is located inside the firewall.

See Installing the HEAT Web Server and HEAT Processing Components on Separate Hosts for details about installing this configuration.

About Installing the HEAT Service Management System in a Load-Balanced Environment

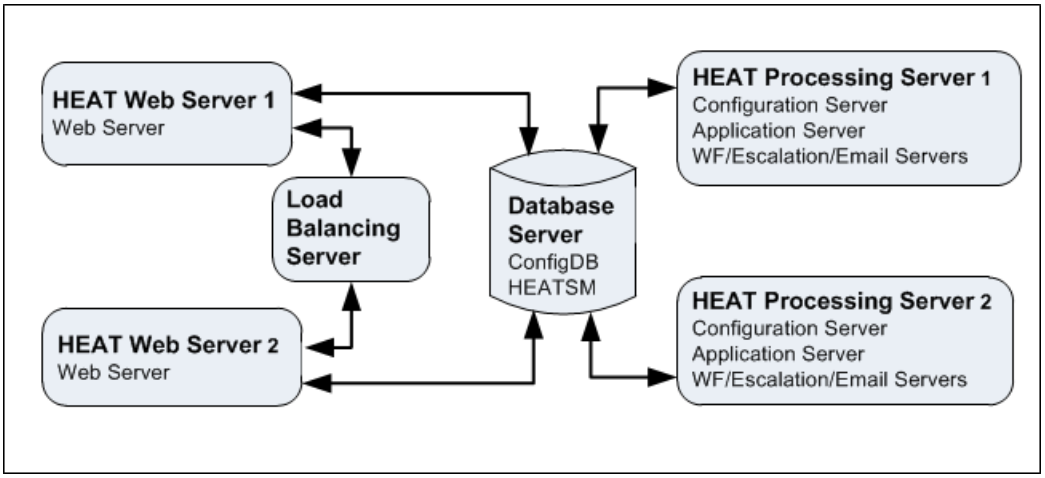


Figure 4 *-- High Availability (Load-Balanced) Configuration*

Load balancing is handled within the HEAT Service Management system. In the configuration shown in Figure 4, the HEAT Service Management components are connected to one or more load-balancing servers. In this example:

- The HEAT Web Servers, which contain HEAT Service Management components that are user-facing, all connect to the load-balancing server.
- The HEAT Processing Servers, which contain HEAT Service Management components that are not user-facing, do not connect to the load-balancing server.
- The HEAT Web Servers and Processing Servers all connect to the same HEAT Application and HEAT Configuration Databases.

See Installing the HEAT System in a Load-Balanced Environment for details about installing this configuration.

About Installing the HEAT Reporting Feature

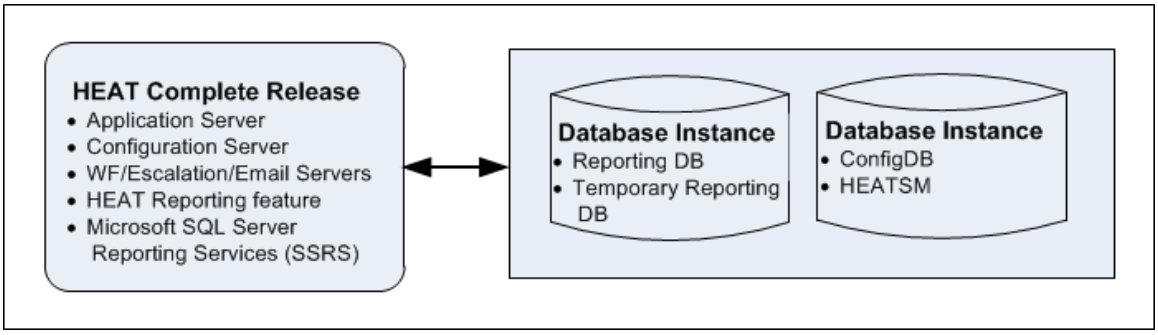


Figure 5 *-- HEAT Service Management and HEAT Reporting Feature Installed on One Host*

In the deployment shown in Figure 5, the HEAT Service Management components reside on a host that also contains the HEAT Reporting feature and Microsoft SQL Server Reporting Services (SSRS). The HEAT Reporting Database and the HEAT Service Management Databases (called ConfigDB and HEATSM by default) reside on a separate host.

The HEAT Reporting feature can be deployed in other configurations. For example, you can install the HEAT Reporting feature on the same machine where you installed the HEAT Service Management Databases.

Depending on where you install the HEAT Reporting feature, your system may require additional Microsoft SQL licenses. Ensure that you install the correct licenses for your individual deployment.

See Working with the HEAT Reporting Feature for details about installing this deployment.

About Installing the HEAT Discovery Feature (Inventory Management)

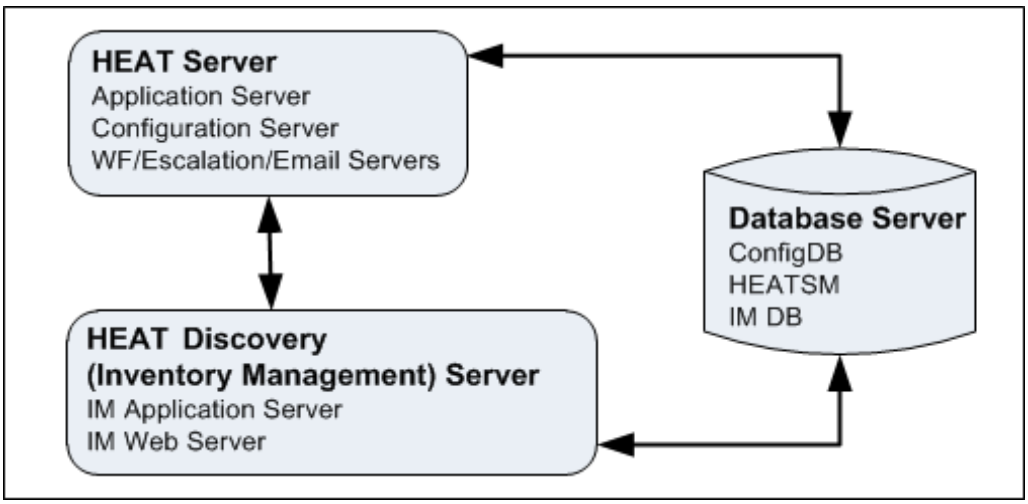


Figure 6 *-- HEAT Discovery (Inventory Management) Deployment*

In this configuration, the HEAT Discovery feature (also known as the Inventory Management feature) is installed on a separate host. This configuration can be combined with other deployment configurations; one such example is shown in Figure 6.

All HEAT Service Management components, such as the HEAT Application Server and HEAT Configuration Server (except for the HEAT Inventory Management feature files) reside on one host. The HEAT Inventory Management feature components, such as the HEAT IM Application Server and the HEAT IM Web Server, reside on a separate host. The HEAT Application Database and HEAT Configuration Database reside on a separate host, which also includes the HEAT IM Database.

See Working with the HEAT Discovery Feature (Inventory Management) for details about installing this deployment.

About Integrating with IP Communications Management

FrontRange Voice is the telephony application that integrates automated call routing and management, and CTI to FrontRange applications such as the HEAT Service Management system. The server components of FrontRange Voice are referred to as IP Communications Management (IPCM). IPCM uses the next-generation, standards-based IP communication transport, called Session Initiation Protocol (SIP). HEAT Service Management and IPCM are typically installed and maintained on separate servers.

See Integrating with IP Communications Management for details about integrating the IPCM with HEAT Service Management.

HEAT Service Management Installation Prerequisites

Before you install the HEAT Service Management system, ensure that you have completed the following:

- Confirm your role. See About Roles.
- Confirm that the system, hardware, and software prerequisites described in System Requirements and Hardware and Software Requirements are met.
- Install the prerequisite third-party software. See Third-Party Software Components.
- If you are going to deploy the HEAT Service Management system as a virtual image, review the requirements at Using a Virtual Machine.
- Ensure that full-text search is enabled for Microsoft SQL Server. See Enabling Full-Text Search.
- Verify the server roles and features described in Verifying Server Roles and Features (Optional).
- Configure the ports needed for your deployment. See Configuring the Port Requirements.
- Determine the type of installation you want to perform:
    - **Complete:** All HEAT Service Management components are installed on the host that you are logged into. This is the type of installation described in Installing the HEAT Service Management System.
    - **Custom:** You can choose the individual HEAT Service Management components to install on each host that you are logged into. Various custom installation scenarios are described in Multi-Server Host Environments.
- Determine the directories in which to install the HEAT Service Management components on the host that you are logged into.
- Determine the following information about the HEAT Database Server where the HEAT Application and HEAT Configuration Databases will reside. During the post-installation setup described in Initial System Configuration, you will be prompted for this information.
    - The name or IP address of the server that will host the HEAT Database Server.
    - Whether you will use Windows Integrated Security or SQL Authentication for connections to the HEAT Database Server.
        - If you use Windows Integrated Security, we recommend that you create and use a dedicated account just for the HEAT Service Management system.
        - If you use SQL Authentication, determine the user name and password that are used whenever other HEAT Service Managementcomponents access the HEAT Database Server.

- Determine whether you want to create an initial HEAT Application Database that is empty or is populated with demo content. During the post-installation setup described in Initial System Configuration the system prompts you for this information.

About Roles

- Administrator Account Permissions
- Database Access Rights Needed for HEAT Service Management
- Database Access Rights Needed for HEAT Service Management when Using the HEAT Reporting Feature

Administrator Account Permissions

Use your local Administrator account to install the HEAT Service Management system, including all optional components. This Administrator account must have permission to create and modify folders, files, and registry keys.

Database Access Rights Needed for HEAT Service Management

The following are the minimum access rights for HEAT Service Management:

- Server role:
  - public
  - dbcreator
  - processadmin
- Database role:
  - db_owner of ConfigDB
  - db_owner of HEATSM

Database Access Rights Needed for HEAT Service Management when Using the HEAT Reporting Feature

The following are the minimum access rights used in Microsoft SQL Server Management Studio for HEAT Service Management when also using the HEAT Reporting feature:

- Report user server role:
  - public

  - dbcreator
  - securityadmin
- Report user database role:
  - db_owner of ReportServerDB
  - db_accessadmin
  - db_owner of master and msdb

System Requirements

Requirements vary by implementation. Problems can occur if you do not follow the recommended system requirements exactly. For the latest requirements, see http://go.frontrange.com/rs/frontrange/images/HEAT-ITSM-System-Requirements.pdf

Hardware and Software Requirements

- System Requirements
- HEAT Web Server Requirements
- HEAT Database Server Requirements
- HEAT Reporting Feature Requirements
- HEAT Discovery (Inventory Management) Requirements
- Client Computer Requirements

HEAT Application Server Requirements

Hardware

Component	Recommended
CPU	▪ 2 core minimum ▪ 4 core recommended for heavy transaction rates and workflow/escalation usage
RAM	▪ 4 GB minimum ▪ 8-12 GB recommended depending on transaction rates and workflow/escalation complexity
Hard Disk	▪ 10 GB minimum free space (approximately 1.1 GB for HEAT Service Management files and the remaining space for log files).

Software

Item	Supported version
Operating System	▪ Recommended: Microsoft Windows Server 2008 R2 ▪ Microsoft Windows Server 2012
.NET Framework	▪ .NET 4.5
Web Server	▪ Recommended: IIS 7.5 ▪ IIS 8.0

HEAT Web Server Requirements

In multi-server environments, each HEAT Web Server must meet these requirements.

Hardware

Component	Recommended
CPU	▪ 2 core minimum ▪ 4 core recommended for heavy transaction rates and workflow/escalation complexity
RAM	▪ 4 GB minimum ▪ 8-12 GB recommended depending on transaction rates and workflow/escalation complexity
Hard Disk	▪ 10 GB minimum free space (approximately 1.1 GB for HEAT Service Management files and the remaining space for log files).

Software

Item	Supported version
Operating System	▪ Recommended: Microsoft Windows Server 2008 R2 ▪ Microsoft Windows Server 2012
.NET Framework	▪ .NET 4.5
Web Server	▪ Recommended: IIS 7.5 ▪ IIS 8.0

HEAT Database Server Requirements

Hardware

Component	Recommended
CPU	▪ 2 core minimum ▪ 4 core recommended for heavy transaction rate and workflow/escalation usage
RAM	▪ 8 GB minimum ▪ 12-16 GB recommended depending on transaction rates and workflow/escalation complexity

Hard Disk	▪ 10 GB minimum free space. This is the minimum. For proper disk space sizing, use these guidelines:
	  ▪ HEAT Application demo database: 500 MB
	  ▪ Average disk space requirement per record (incident, problem, change, configuration): ~200 KB
	  ▪ Average disk space requirement per record (CI): ~500 KB

Software

Item	Supported version
Operating System	▪ Recommended: Microsoft Windows Server 2008 Server R2 ▪ Microsoft Windows Server 2012
Database Management Software	▪ Microsoft SQL Server 2008 R2 SP2 including Management Studio and full-text index ▪ Microsoft SQL Server 2012 including Management Studio and full-text index

Item	Supported version
Other Software	• iFilters (required for full-text indexing) An IFilter is a plugin that allows the Microsoft SQL Server to index various file formats so they become searchable. Download the iFilter for the document type: ▪ Office 2007: http://www.microsoft.com/en-us/download/details.aspx?id=20109 ▪ Office 2010: http://www.microsoft.com/en-us/download/details.aspx?id=17062 ▪ Adobe PDF: http://www.adobe.com/support/downloads/thankyou.jsp?ftpID=4025&fileID=3941

Microsoft SQL Server must have full-text search enabled. If it does not, the HEAT Service Management demo database will not load properly. See Enabling Full-Text Search.

HEAT Reporting Feature Requirements

Hardware

Component	Recommended
CPU	▪ 2 core minimum ▪ 4 core recommended for heavy transaction rates and workflow/escalation complexity
RAM	▪ 4 GB minimum ▪ 8-12 GB recommended depending on transaction rates and workflow/escalation complexity
Hard Disk	▪ 10 GB minimum free space (approximately 1.1 GB for HEAT Service Management files and the remaining space for log files).

Software

Item	Supported version
Operating System	▪ Recommended: Microsoft Windows Server 2008 R2 ▪ Microsoft Windows Server 2012

Item	Supported version
.NET Framework	▪ .NET 4.5
Database Management Software	▪ Microsoft SQL Server 2008 R2 SP2 including Management Studio and full-text index (compatible with Microsoft SSRS 2008 but not compatible with Microsoft SSRS 2012) ▪ Microsoft SQL Server 2012 including Management Studio and full-text index (compatible with Microsoft SSRS 2012 and Microsoft SSRS 2008)
Web Server	▪ Recommended: IIS 7.5 ▪ IIS 8.0
Other Software	▪ Microsoft SQL Server Reporting Services (SSRS)

HEAT Discovery (Inventory Management) Requirements

Hardware

Component	Recommended
CPU	▪ 2 core minimum ▪ 4 core recommended for a large number of devices
RAM	▪ 4 GB minimum ▪ 8-12 GB recommended for a large number of devices
Hard Disk	▪ 10 GB minimum free space (approximately 1.1 GB for HEAT Service Management files and the remaining space for log files)

Software

Item	Supported version
Operating System	▪ Microsoft Windows Server 2008 R2
.NET Framework	▪ .NET 4.5

Client Computer Requirements

Hardware

Component	Recommended
CPU	▪ Single core
RAM	▪ 4 GB

Mobile

HEAT Service Management is also compatible with mobile devices and many mobile operating systems, including Android, iOS, and Windows. We highly recommend having a minimum of 1024x768 resolution, which makes tablets a better choice for use as a mobile browser than mobile phones.

Software

All browsers must support Adobe Flash, which is required to use dashboard charting, pivoting, copy and paste control, and Service Catalog attachment control.

Browser	Supported version
Chrome	HEAT Service Management only supports the latest production version (not including beta versions). Download and install the ClickOnce extension at https://chrome.google.com/webstore/detail/eeifaoomkminpbeebjdmdojbhmagnncl# to ensure that the HEAT Reporting feature works correctly.

Browser	Supported version
Firefox	HEAT Service Management supports the following combinations: ▪ Firefox 3.0 on MAC OS 10.5 ▪ Firefox 3.5 on MAC OS ▪ Firefox 3.5 on Windows or later ▪ Firefox 3.6 on Windows ▪ Firefox 11 on Windows Download and install the .NET framework assistant extension from https://addons.mozilla.org/en-US/firefox/addon/9449 to ensure that the HEAT Reporting feature works correctly.
Internet Explorer	HEAT Service Management supports version 8.0 and later. Apply all Microsoft hotfixes. Ensure that HEAT Service Management runs properly by doing the following: ▪ Go to the**Tools > Internet Options > Security > Custom level** page. ▪ Set the following options to **enable**: ▪ **Run ActiveX controls and plug-ins** ▪ **File download** ▪ **Scripting > Active scripting** Ensure that Microsoft SSRS can open by saving the website as a trusted site. Do the following: ▪ Go to the**Tools > Internet Options > Security** page. ▪ Highlight **Trusted sites** and click **Sites**. ▪ Click **Add**.
Safari	HEAT Service Management only supports the latest production version. Safari is not supported on iOS.

Bandwidth and Latency

For optimal application performance, we recommend a latency of 110 ms or below with a minimum of 1.5 MBits/sec in bandwidth between the HEAT Application Server and the remote location client machines.

Operating System

If you use any integrated components (such as FrontRange Voice), you must use the Microsoft Windows operating system.

Third-Party Software Components

The HEAT Service Management installation package provides the following required third-party software components:

- Microsoft .NET Framework version 3.5 and 4.5
- Microsoft SQL Server 2012 Management Object (SMO) (redistributable)
- Microsoft Access Database Engine 2007 and 2010 (redistributable)
- Windows Server Roles and Features

If the installer does not detect these components on the host system, they are installed automatically.

If you create your own installation packages for remote deployment, include the software components that are listed in the system requirements that follow.

Using a Virtual Machine

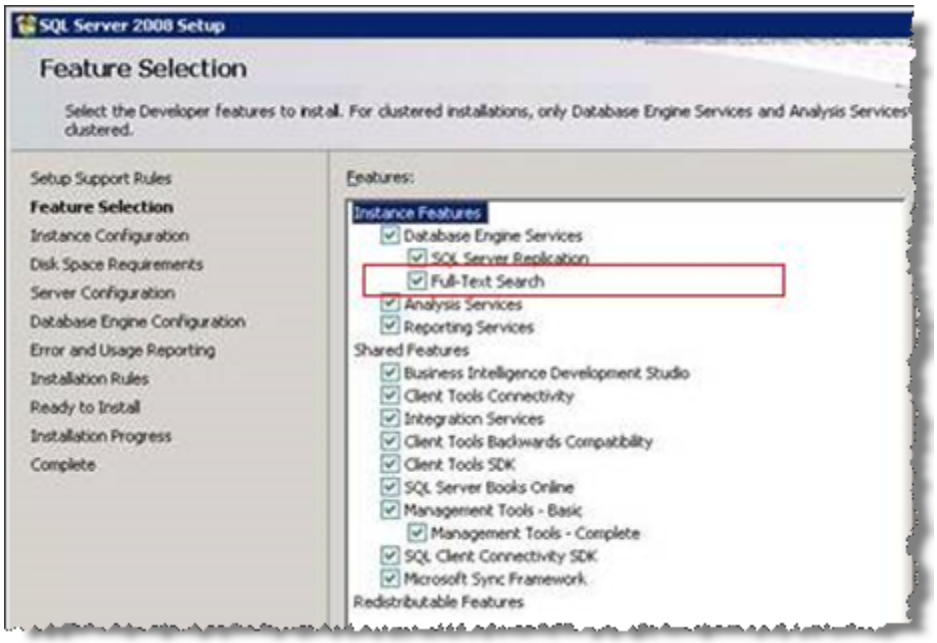
You can also deploy the HEAT Service Management system as a virtual image. If you use a virtual machine, note the following:

- When you copy the virtual image into a new machine, update the MAC address through the HEAT Service Management License Server.
- Preserve the unique identifier.

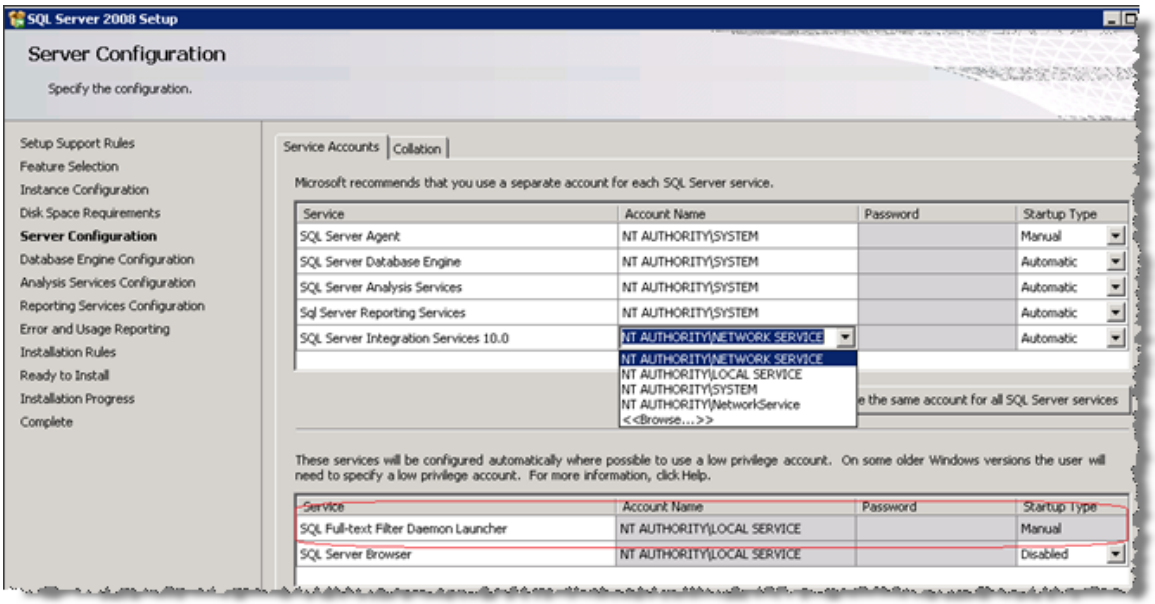
Enabling Full-Text Search

The full-text search feature of SQL Server 2008 is an optional component of the database engine. The full-text search feature is not enabled by default. This section describes how to enable and configure the full-text search feature of SQL Server 2008.

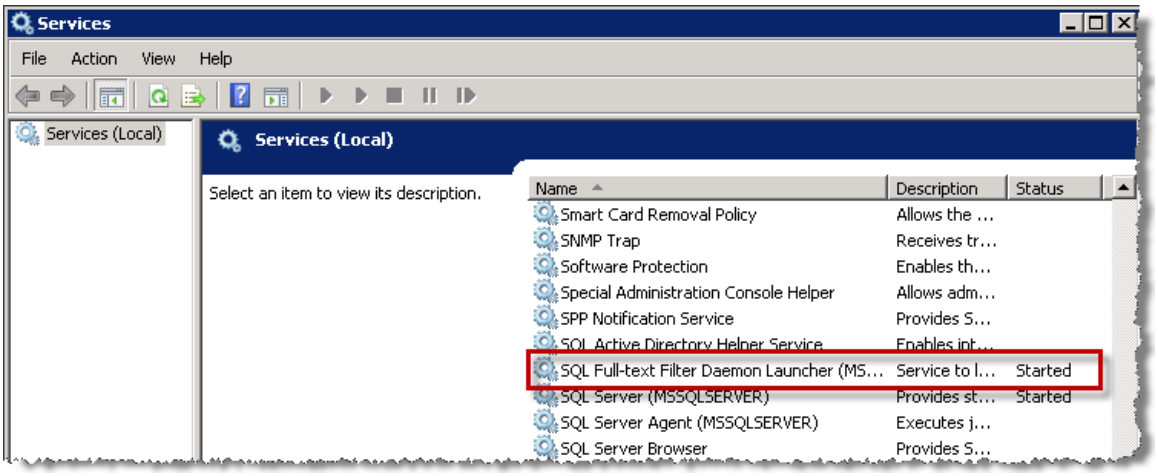
1. During Microsoft SQL Server 2008 installation, in the Feature Selection page of the SQL Server 2008 Setup wizard, ensure that **Full-Text Search** is selected:



2 In the Server Configuration page of the SQL Server 2008 Setup wizard, ensure that the SQL Full-text Filter Daemon Launcher is configured with the local service account:



3 In the Services panel for the system, ensure that the **SQL Full-text Filter Daemon Launcher** is running:



4 By default, the HEAT Application Database is configured to index these incident fields:

- Owner
- ProfileFullName
- Resolution
- Subject
- Symptom

Verify that full-text search is configured in SQL Server Management Studio in these ways:

a. In the Database Properties dialog box, open the **Files** page. By default, the Use full-text indexing box is checked. If it is not, verify that the full-text search services are running as described in step 3 above.

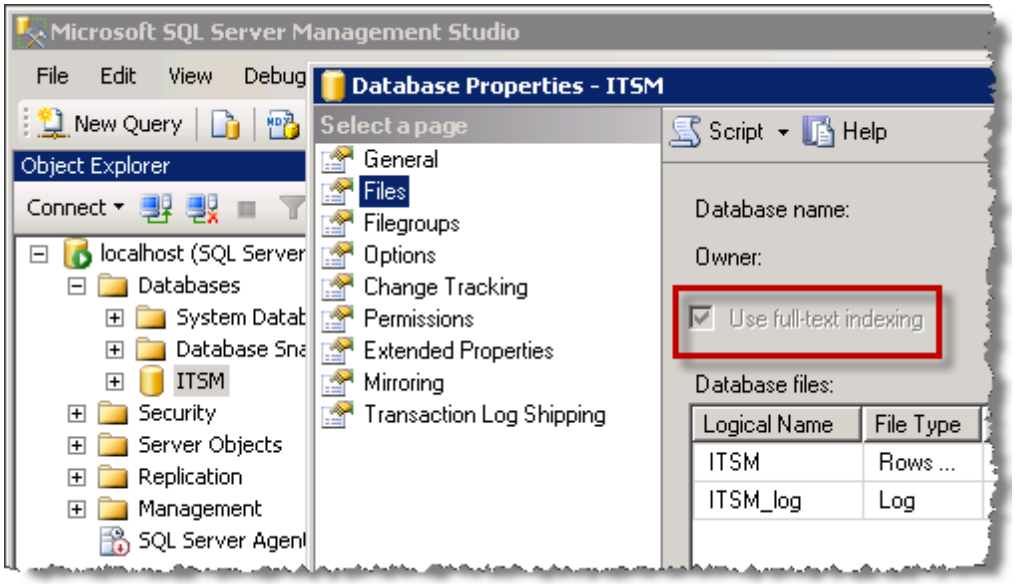


Figure 7 *-- Full-Text Indexing Verified in Database Properties*

b. Run this script to search for “Outlook” in the incident table. The search returns the number of records that contain “Outlook.”

```
exec sp_executesql N'SELECT COUNT(Incident.RecId) FROM
Incident INNER JOIN CONTAINSTABLE(Incident, *,@P1) as
ServiceReq_FTS_1 on (Incident.RecId = ServiceReq_FTS_1.
[key])',N'@P1 varchar(35)',@P1='(formsof(inflectional,
"Outlook"))'
```

If the query returns zero, verify that at least one record contains “Outlook” and rebuild the full-text catalog.

Verifying Server Roles and Features (Optional)

You can optionally verify which server roles and features are installed by the HEAT Service Management installer.

- If you install the HEAT Service Management system on Windows Server 2008 R2, verify the IIS 7.5 configuration. See Verifying Windows Server 2008 R2 Roles and Features.
- If you install the HEAT Service Management system on Windows Server 2012, verify the IIS 8.0 configuration. See Verifying Windows Server 2012 Roles and Features.

Verifying Windows Server 2008 R2 Roles and Features

1. Open Windows Server Manager.
2. In the navigation pane, expand **Roles > Web Server (IIS).**
3. Scroll to the **Role Services** area in the main display.
4. Verify that these role services are installed:
   - Web Server
   - Common HTTP Features
     - Static Content
     - Default Document
     - Directory Browsing
     - HTTP Errors

- Application Development
    - ASP.NET
    - .NET Extensibility
    - ISAPI Extensions
    - ISAPI Filters
- Health and Diagnostics
    - HTTP Logging
- Security
    - Request Filtering
- Performance
    - Static Content Compression
    - Dynamic Content Compression
- Management Tools
- IIS Management Console

5 In the **Features** page verify that these items are selected for **.NET Framework Features**:

- ASP.NET 4.5
- WCF Services
- HTTPActivation
- Web Server (IIS)
- Web Server
- Windows Process Activation Service
- Process Model
- Configuration APIs

Verifying Windows Server 2012 Roles and Features

1 Open Windows Server Manager on Windows 2012 and verify that these role services are installed:

- Web Server
- Common HTTP Features
    - Static Content
    - Default Document
    - Directory Browsing

    - HTTP Errors
- Application Development
    - ASP.NET
    - .NET Extensibility
    - ISAPI Extensions
    - ISAPI Filters
- Health and Diagnostics
    - HTTP Logging
- Security
    - Request Filtering
- Performance
    - Static Content Compression
    - Dynamic Content Compression
- Management Tools
- IIS Management Console

2 In the **Features** page verify that these items are selected for **.NET Framework 4.5 Features**:

- ASP.NET 4.5
- WCF Services
- HTTPActivation
- Web Server (IIS)
- Web Server
- Windows Process Activation Service
- Process Model
- Configuration APIs

Configuring the Port Requirements

Ensure that ports are configured correctly so that all HEAT Service Management components open correctly.

- For Deployments With All HEAT Components Installed on One Host
- For Deployments with the HEAT Web Server Installed on a Different Host
- For Deployments that Include the HEAT Discovery Feature (Inventory Management)