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Genesys Skills Management System Overview and Operations

Genesys Skills Management 9.0

1/17/2022

Table of Contents

Genesys Skills Management System Overview and Operations Guide	3
Logical Overview	4
GSM Architecture	5
Protocols and Ports	7
Installed Applications and Databases	9
General Operations	12
Monitoring Applications and Services	13
Problem Handling	15
Shutdown	16
Product Version Dependencies	17
Firewall Requirements	33

Genesys Skills Management System Overview and Operations Guide

Welcome to the Genesys Skills Management (GSM) System Overview and Operations Guide. This guide provides an overview of GSM architecture, included applications, services and daily operations.

The information covered in this guide allows an administrator to understand and perform the daily operations in the GSM software.

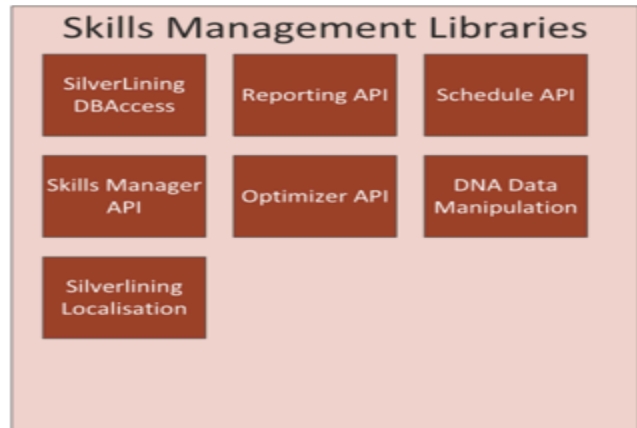
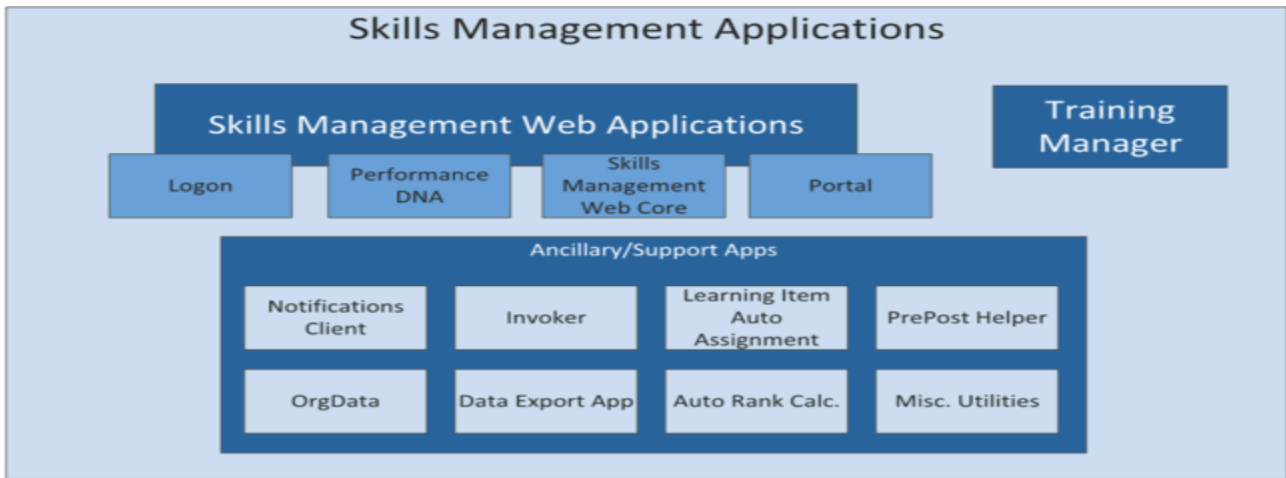
Logical Overview

This topic covers the following information in Genesys Skills Management (GSM).

- [GSM architecture diagram](#)
- [Ports and Protocols](#)
- [Installed Applications and Databases](#)

GSM Architecture

The Genesys Skills Management system consists of a number of websites and web services, several scheduled tasks and automated processes and a client Windows application as shown in the architecture diagram below. The data stored are - imported KPI data, assessment data, scheduling information imported from WFM and data stored about the users.



Protocols and Ports

The table below shows the protocols and ports used for interaction between the different servers in Genesys Skills Management deployment.

Port/Port Range	From	To	Purpose	Notes
80 or 443	End user's machines	Skills Management Web Server	Allow HTTP traffic from user's browsers to the server	Port 443 if HTTPS is being used, Port 80 otherwise. If HTTPS is used a valid certificate will be required on the server.
1433	Web Server	Skills Management Database Server	Allow SQL traffic between Web and Database Servers	If SQL server is running on a different port, please adjust accordingly.
2383 or 2382	Web Server	Database Server	Allow SSAS traffic between Web and Database servers	Needs 2383 open (if default instance) or 2382 (if named instance).
135, 5000-5020	Web Server	Skills Management Database Server	Allow RPC Traffic between Web and Database Servers so that Microsoft Distributed Transaction Co-ordinator (MSDTC) can run	RPC range can be configured more tightly if required - (see: https://support.microsoft.com/en-gb/kb/250367)
80	Web Server	WFM Server (IEX)	Allow Skills Management to access the NICE TV4 web services	This is the default port for the TV4/ Smart Sync services. It may be configured differently in your environment.
80	Training Manager End user's machines	WFM Server (IEX)	Allow Training Manager to access the NICE TV4 Web services	This is the default port for the TV4/ Smart Sync services. It may be configured differently in your environment.
80	Web Server	WFM Server (Teleopti)	Allow Skills Management to access the Teleopti web services	This is the default for the Teleopti SDK. It may be configured differently in your

Port/Port Range	From	To	Purpose	Notes
				environment.
80	Training Manager End user's machines	WFM Server (Teleopti)	Allow Skills Management to access the Teleopti web services	This is the default for the Teleopti SDK. It may be configured differently in your environment.
7610	Web Server	Genesys Server hosting the EWM Capture Point	Allow Skills Management to access the EWM Web Service Capture Point	This is the default Capture Point port. Your capture point may be configured differently.
5007	Training Manager End user's machines	WFM Server (Genesys)	Allow Skills Management to access the Genesys WFM services	This is the default port. It may be configured differently in your environment.
5007	Web Server	WFM Server (Genesys)	Allow Skills Management to access the Genesys WFM services	This is the default port. It may be configured differently in your environment.

Installed Applications and Databases

Genesys Skills Management (GSM) is built using Microsoft technologies based on the .Net framework. Applications are written using C#, ASP .Net and JavaScript. Data is stored in SQL Server databases, and accessed using Entity Framework, ADO .Net and stored procedures. All communication uses standard protocols.

Client Windows Application

GSM includes a client application built in .Net that is installed via an Executable package. This tool is primarily used by Training Managers, Planners or Schedulers.

Scheduled Tasks and Windows Services

GSM includes a number of scheduled tasks which run regularly for a variety of background processing tasks. In a load balanced environment, they are typically configured to run on only one application server, or on a dedicated background processing server.

Name	Type	Location	Purpose	Notes
Skills Management WFM Hierarchy Refresh	Scheduled Task	Application server or dedicated background processing server	Connects to the work force management system to download WFM hierarchy data, for use in Portal. Typically runs nightly but may run more frequently if the WFM data is changing rapidly.	In multi-server installations, the task should only run on 1 server.
QMedia Sync Service	Scheduled Task	Application server or dedicated background processing server	Ensures that media files which were uploaded to one application server are synchronised to others in the load balance group. Typically configured to run every 2 or 3 minutes.	Only needed in multi-server installations where suitable shared file storage is not available. Runs on one of the servers and syncs to the others.
Skills Management	Windows Service	Application server	Runs regular	In multi-server

Invoker Service		or dedicated background processing server	background tasks	installations, the task should one run on 1 server.
DNA Import Service	Windows Service	Application server or dedicated background processing server	Responsible for automated import of KPI and DNA data.	Typically imports new data nightly, but this depends on the frequency of availability of new data.

Web Applications

GSM includes two main web applications and they are Performance DNA and Training Manager Portal. They run on IIS and are written in .NET There are also a number of micro services which are used to support the functionality of the web and windows applications. (see [GSM Architecture diagram](#) for more information)

Application/Web Server Security

A windows account is needed when GSM is installed. This should be a dedicated service account, with password set to never expire. The privileges required for this account are documented in [Prerequisites](#) topic in Genesys Skills Management Automated Install and Upgrade Guide.

Database Security Objects

GSM uses two accounts - one during the installation/upgrade process and one during day to day running. This allows the account used for day-to-day running to run with a lower level of privileges, while still allowing the installer to create and modify the database schemas as necessary.

Databases

The automated installer creates and updates all databases. If the databases already exist, the installer will try to upgrade them to the most recent version. By default, the databases that are created with the following names:

- Performance DNA
- Training Manager
- Orgdata
- GSM Reports
- SKM Sessions

Unless point in time restore is specifically a requirement it is recommended that the databases are configured to use simple recovery model.

General Operations

Unless the system is being deployed as part of a managed hosting solution, day-to-day maintenance of the servers and database is the responsibility of the customer. It is recommended that the servers are managed in line with your standard server management processes.

Server Access

To allow Genesys to properly support the solution, customers must provide Genesys with remote access to all servers which have part of the Genesys Skills Management (GSM) solution installed. This should be via Terminal services connections or similar.

Installation

See the [Genesys Skills Management Automated Install and Upgrade Guide](#) for details on installation and prerequisites.

Managing IIS

Application Pools

By default, each web application and service will run in its own application pool. These pools should be largely self-managing, and require no direct intervention. However, if the account or password for the account which the application is installed changes, it will be necessary to update the application pools with the correct credentials so that the application continues to function as expected.

Log Files

IIS Log files will be generated by the application. These can be managed using your standard policies for log retention and cleaning.

Ports Required for Operation

See [Firewall Requirements](#) topic for information about the communication required between the different servers.

Monitoring Applications and Services

This section describes the basic monitoring of Genesys Skills Management applications and services.

Monitoring

The following scheduled tasks need to be running on 1(one) server, if the following features of the product are being used:

Scheduled Task	Required for Performance DNA	Required for Training Manager/Portal	Notes
Skills Management PDR Email Review Window Check	YES	NO	Required for correct operation of PDR functionality within Performance DNA
Skills Management ProcessQueues	YES	YES	All of Skills Management
Skills Management WFM Hierarchy Refresh	NO	YES	Required for correct operation of Portal.
QMedia Sync Service	YES*	YES*	*Always needs to be running in multi-application server environments, where there is no shared storage between the servers.

The Windows services below should also be monitored:

Windows Service	Required for Performance DNA	Required for Training Manager/Portal	Notes
Skills Management Invoker	YES	YES	Used throughout Skills Management
DNA Import Service	YES**	NO	**Used if automated DNA imports are being used to automatically import KPI data into Performance DNA

Log Files

The applications and services will log problems and errors to text based log files. The location for

these files can be specified at installation time. The level of logging can be configured for each individual application and service using their individual configuration files.

Problem Handling

You can contact Genesys support for any clarifications that you might have. Genesys Professional Services team provides all the necessary support details and setup high-availability and disaster recovery mechanisms based on your business requirements and standards.

Support arrangements

Support arrangements will be explained by the professional services team as part of the discovery, installation and go live process. You will be given access to our help desk and provided with all necessary contact information.

Failover and Disaster Recovery

Skills Management can be configured for High availability and Disaster recovery. You must follow existing business practices for your organization and Genesys Professional Services will provide necessary recommendations during the initial Discovery process.

Shutdown

Shutdown is not typically necessary during day-to-day running of the Genesys Skills Management system (GSM), but if you do need to do so, follow the recommended shut down procedure described below.

If shutting down GSM, first make sure all windows clients are disconnected. Then stop the scheduled jobs, then the web sites and web services, then the scheduled jobs and finally the databases.

The suggested shut down order is:

1. Inform users not to use the system.
2. Stop the scheduled jobs.
3. Stop the Web sites and web services (using IIS).
4. Stop the databases.

Reverse this process to restart the system.

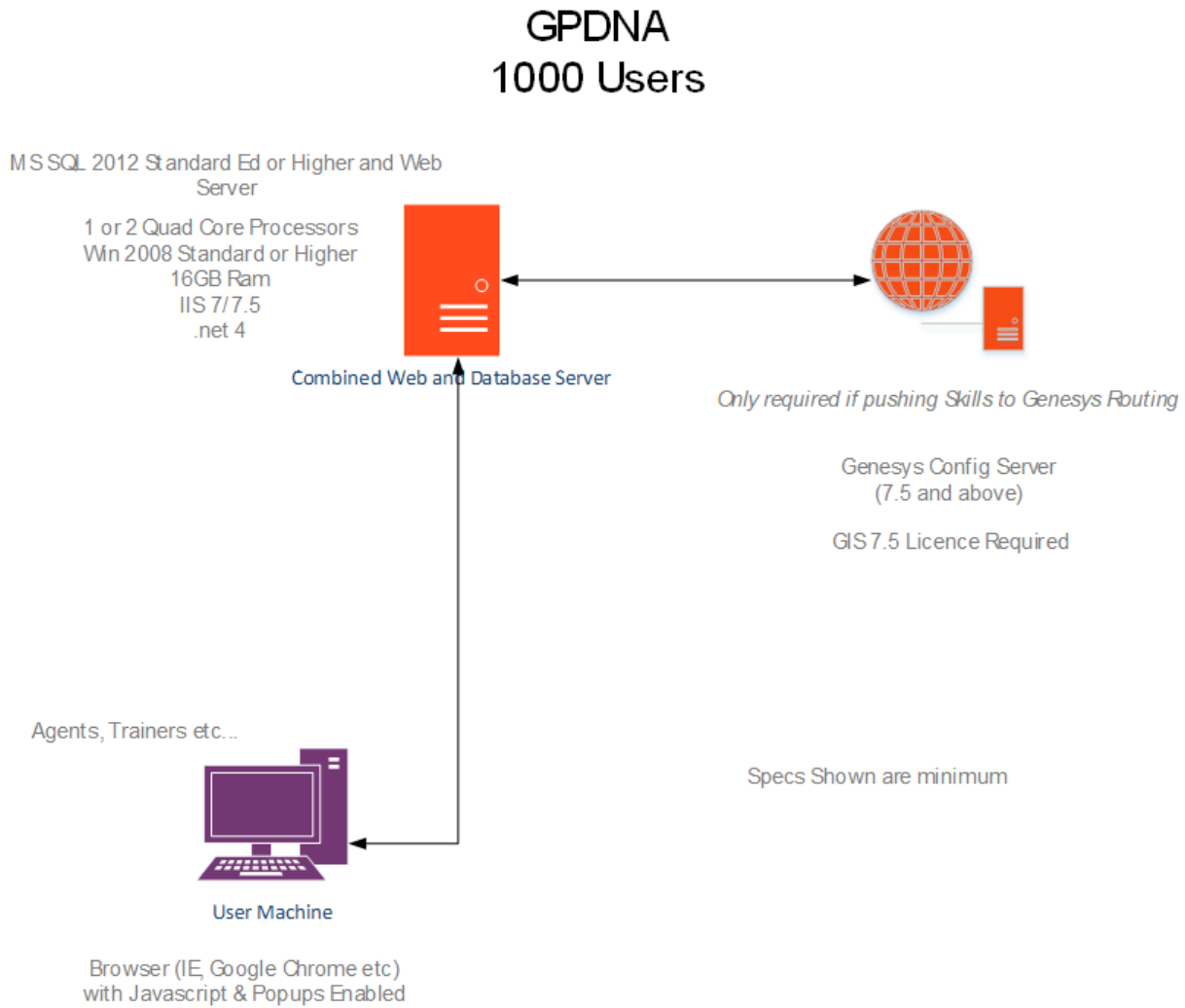
Warning

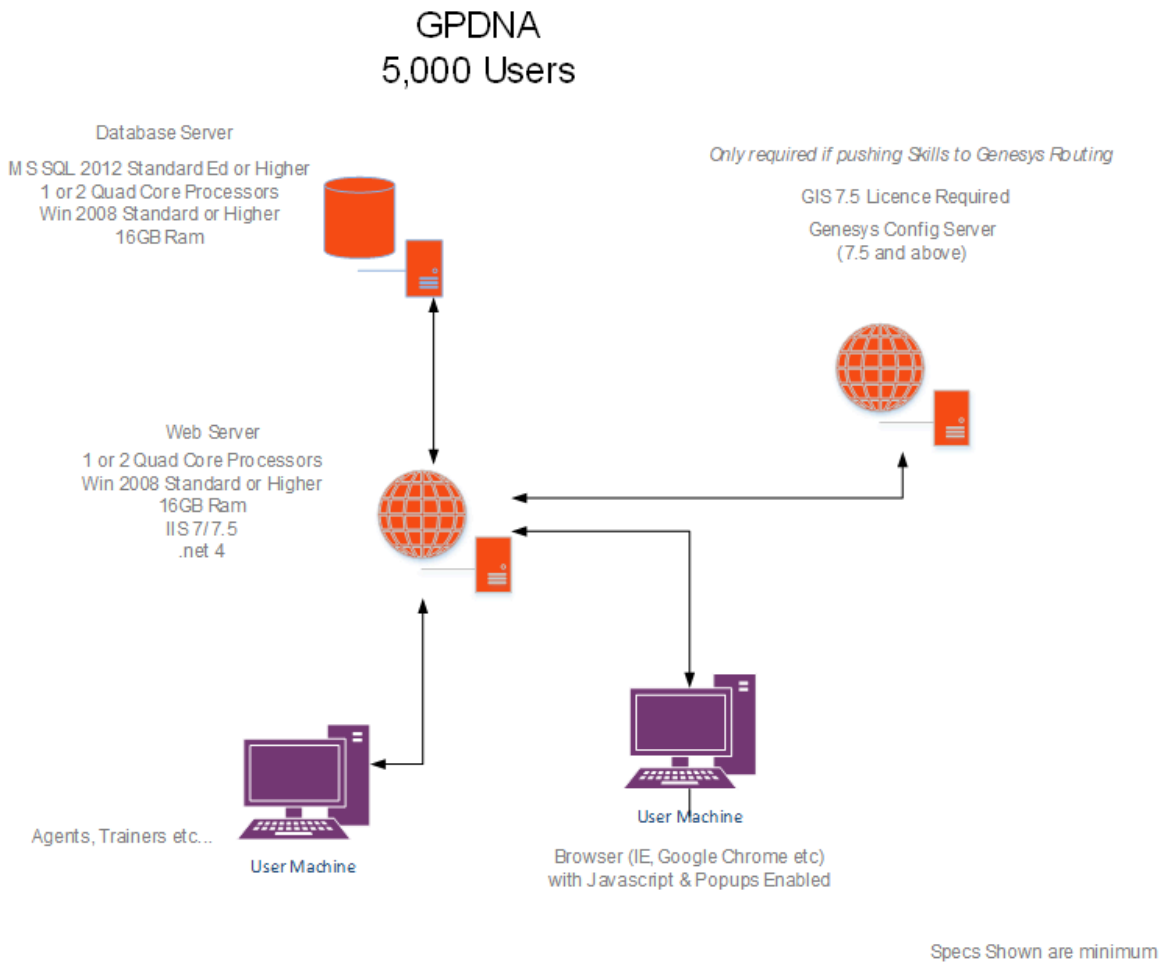
If the system is carrying out scheduling, or users are completing assessments at the time of a shutdown, there is the potential for data loss.

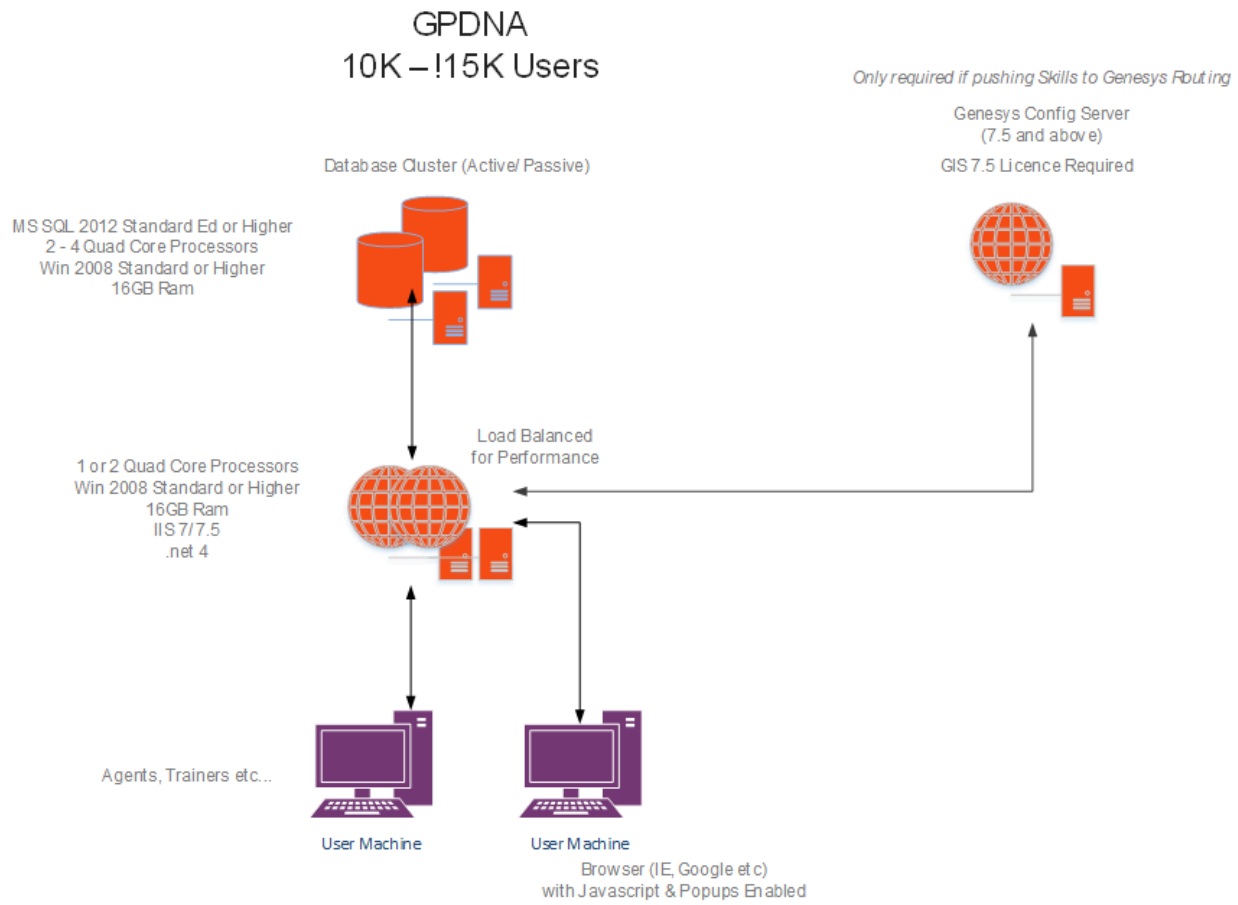
Product Version Dependencies

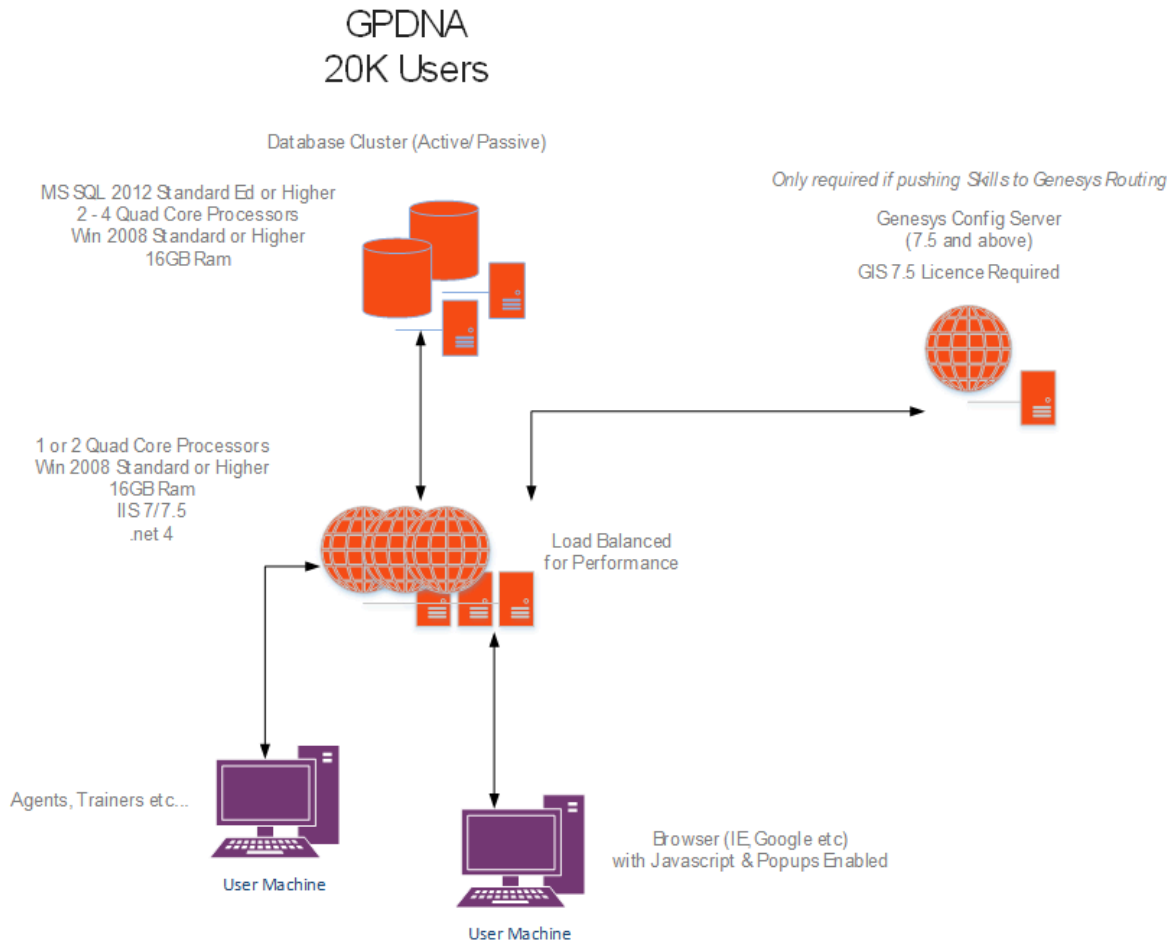
Suggested Server Architecture

These architecture requirements are based on typical usage and may differ if above average usage is expected.









Performance DNA

Supported OS and Clients

Current Release

- Required = r
- Compatible = ✓
- Incompatible = ×

Software Item	Performance DNA 8.5.546	Performance DNA 8.5.684	Performance DNA 9.0.0	Performance DNA Next Release (indication)
Server				
SQL Server 2005 Standard or above	×	×	×	×
SQL Server 2008 Standard or above	✓	✓	×	×
SQL Server 2012 Standard or above	✓	✓	✓	✓
SQL Server 2016 Standard or above	×	×	✓	✓
Windows Server 2003	×	×	×	×
Windows Server 2008	✓	✓	×	×
Windows Server 2008 R2	✓	✓	×	×
Windows Server 2012 R2	✓	✓	✓	✓
Windows Server 2016	×	×	✓	✓
IIS6	×	×	×	×
IIS7	✓	✓	✓	✓
IIS7.5	✓	✓	✓	✓
IIS8.5	✓	✓	✓	✓
.net 4	r	r	r	r
Client Browser				
Internet Explorer 6, 7	×	×	×	×
Internet Explorer 8	✓	×	×	×
Internet Explorer 9	✓	×	×	×
Internet Explorer 11	✓	✓	✓	✓
Firefox Latest Version at time of release	✓	×	×	×
Chrome Latest Version at time of release	✓	✓	✓	✓
Minimum Resolution	1280x1024	1280x1024	1280x1024	1280x1024
Recommended Resolution	1280x1024	1280x1024	1920x1080	1920x1080

Software Item	Performance DNA 8.5.546	Performance DNA 8.5.684	Performance DNA 9.0.0	Performance DNA Next Release (indication)
Processor	Dual Core Minimum	Dual Core Minimum	Dual Core Minimum	Dual Core Minimum
RAM	2GB Minimum	2GB Minimum	2GB Minimum	2GB Minimum
Required Hard Disk Space	Minimal Above Browser	Minimal Above Browser	Minimal Above Browser	Minimal Above Browser
Notifications Client				
Windows XP SP2	x	x	x	x
Windows Vista	x	x	x	x
Windows 7	✓	✓	✓	✓
Windows 10	x	✓	✓	✓
.net 4	r	r	r	r
Processor	Dual Core Minimum	Dual Core Minimum	Dual Core Minimum	Dual Core Minimum
RAM	2GB Minimum	2GB Minimum	2GB Minimum	2GB Minimum
Required Hard Disk Space	20 MB	20 MB	20 MB	20 MB

Important

64-bit versions of the server OS are supported; however, the web application will run in 32-bit mode.

Storage Sizing Guide

Web Application Install Size: 200 MB. Note the sufficient space should be given for media uploaded to be used in the application, that is, video, audio, or images.

Database Initial Size: 100 MB

The data footprint of the system is dependent on the number of training courses, assessments, their content, and the number of KPIs included in Analysis. However, a typical annual increase in footprint is 2GB per annum for 10K users.

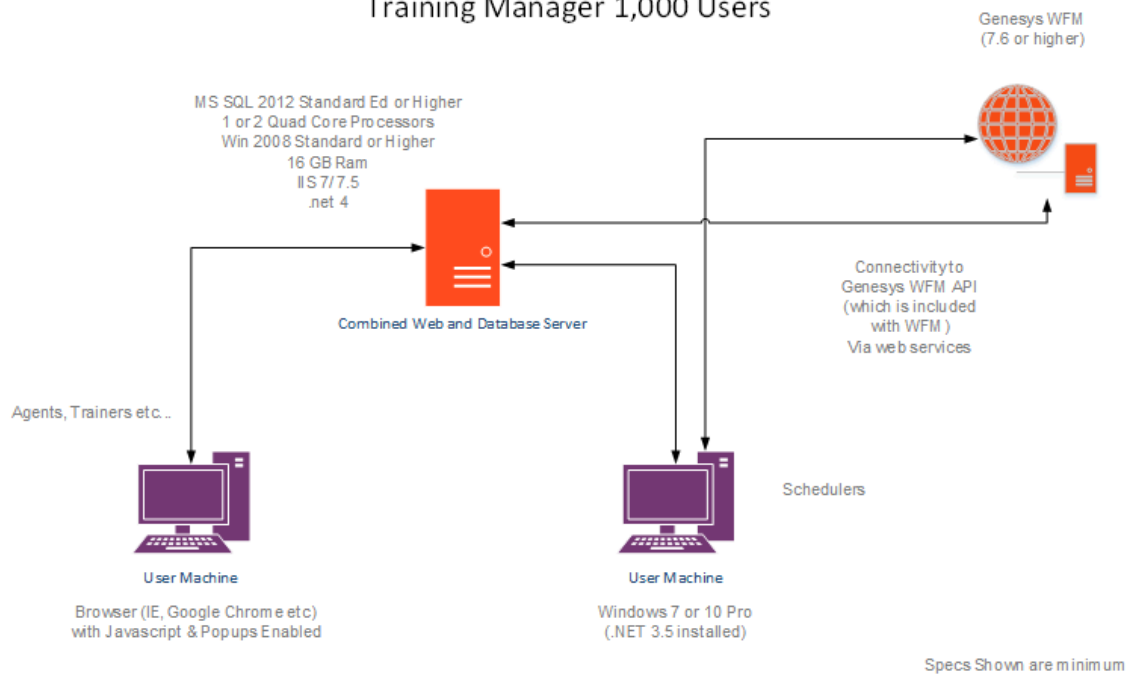
Training Manager

Suggested Server Architecture

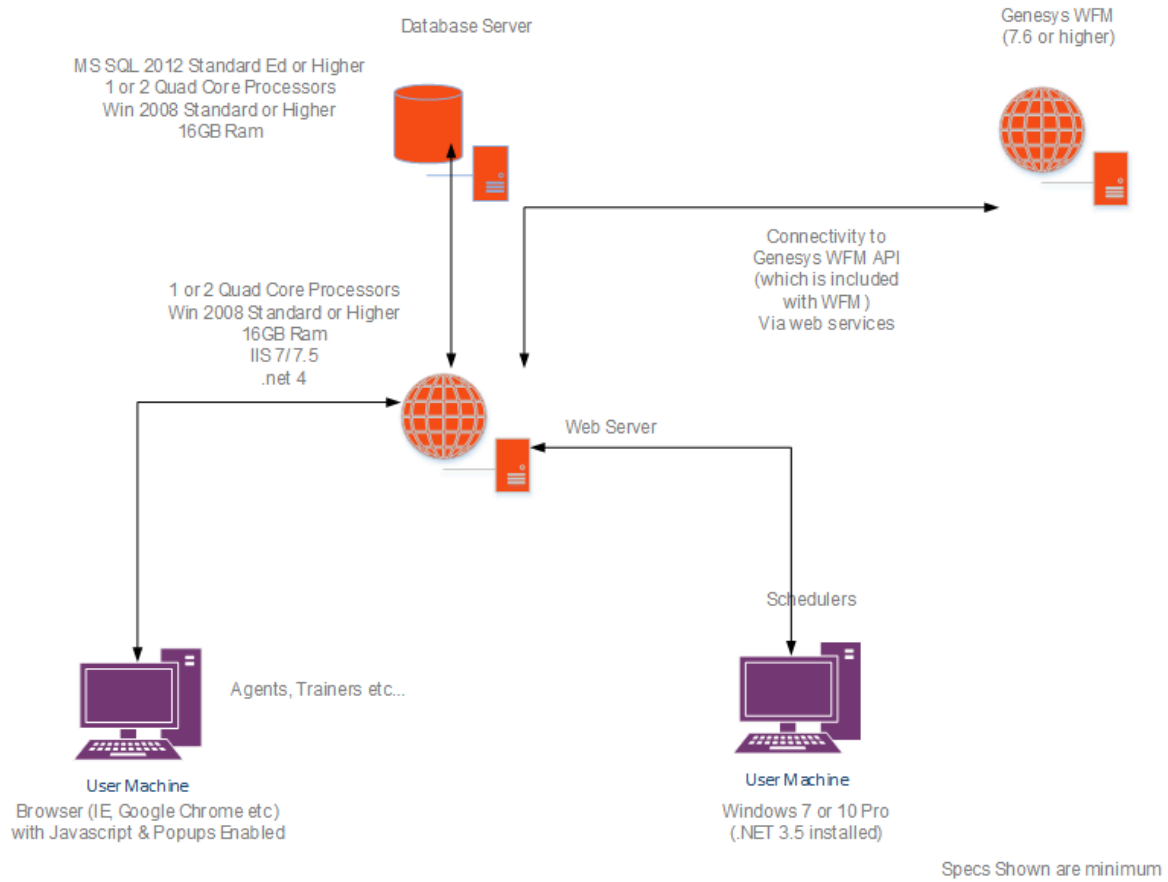
These architecture requirements are based on typical usage and may differ if above average usage is

expected.

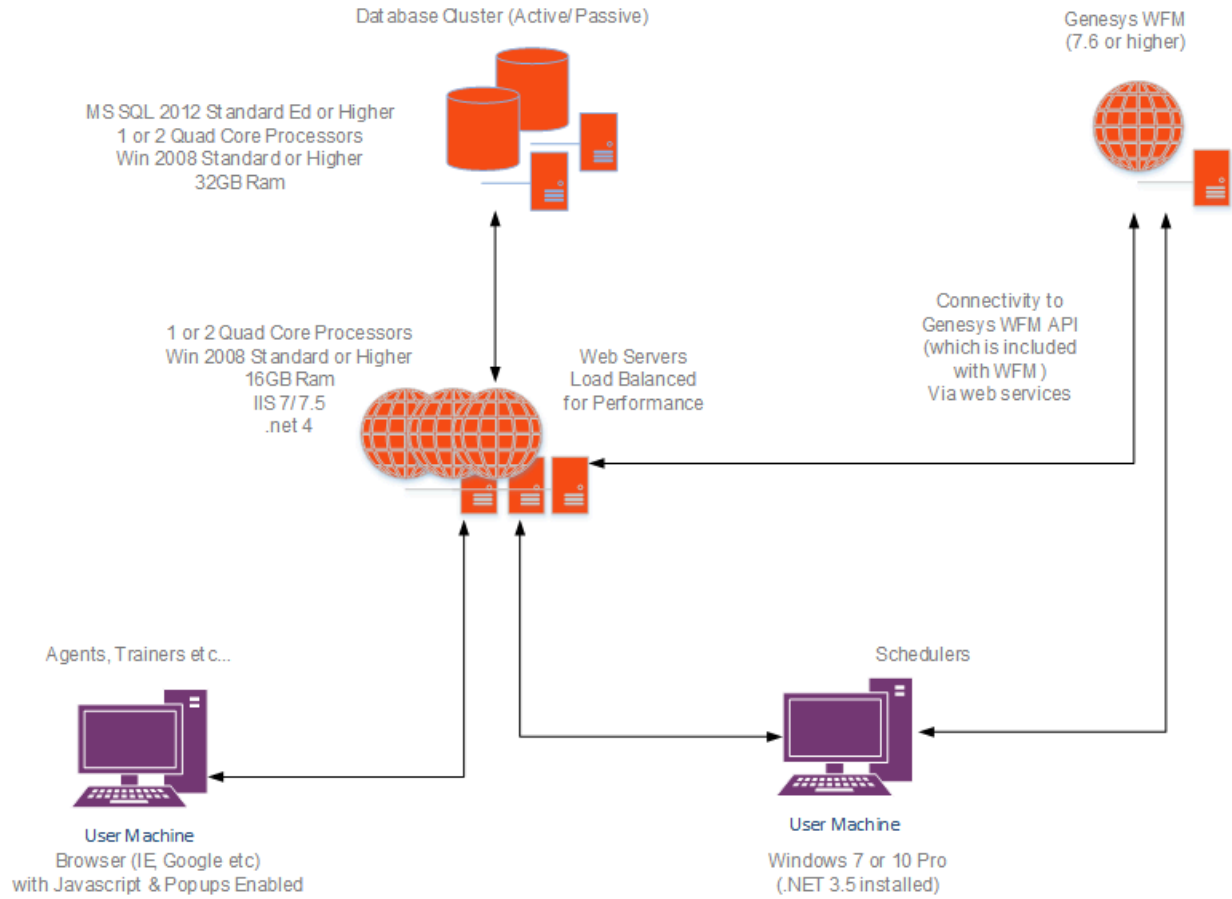
Training Manager 1,000 Users



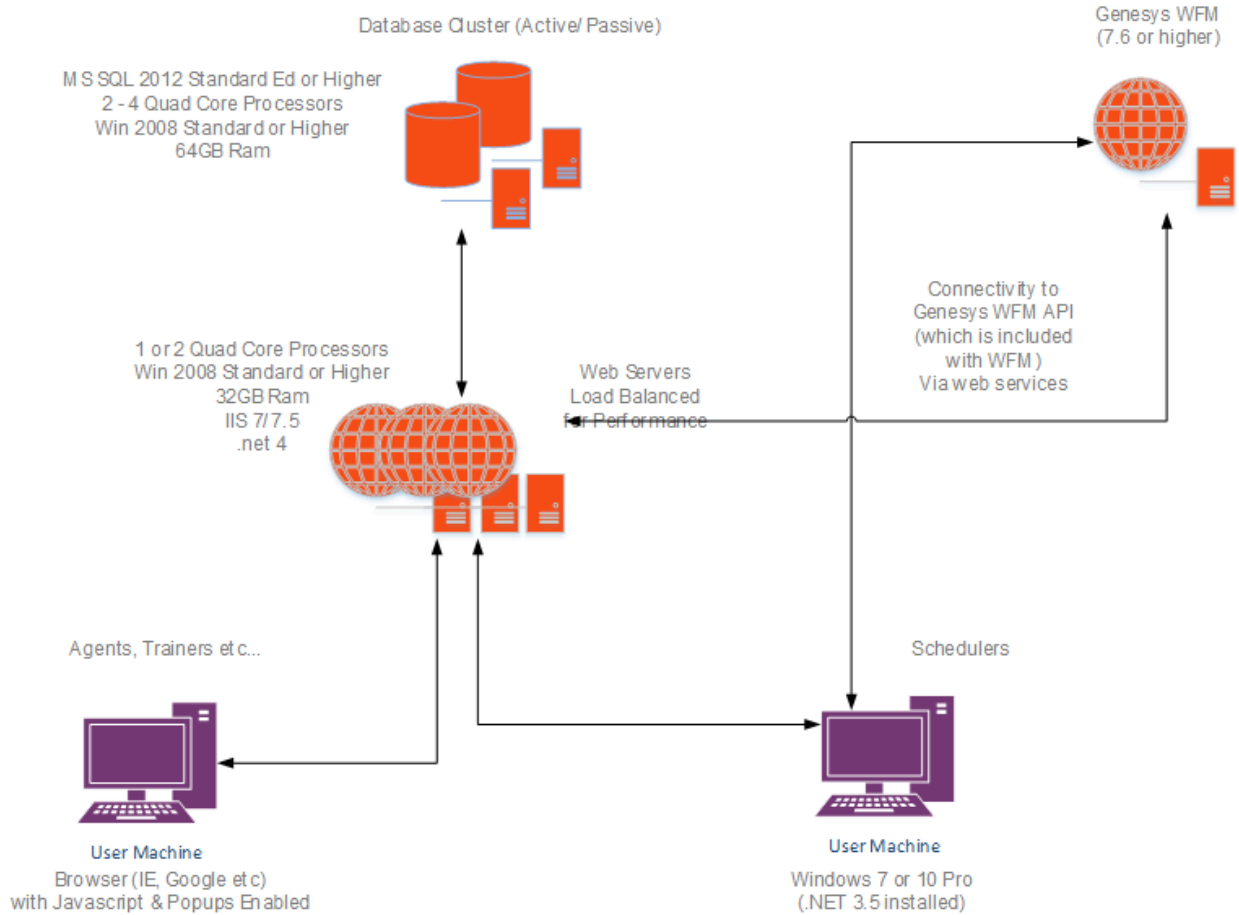
Training Manager 5,000 Users



Training Manager 10K – 15K + Users



Training Manager 20K + Users



Supported OS and Clients

Current Release

- Required = r
- Compatible = ✓
- Incompatible = ✗

Software Item	Training Manager 8.5.546	Training Manager 8.5.648	Training Manager 9.0.0	Training Manager Next Release
Server				

Software Item	Training Manager 8.5.546	Training Manager 8.5.648	Training Manager 9.0.0	Training Manager Next Release
SQL Server 2008	✓	✓	×	×
SQL Server 2012	✓	✓	✓	✓
SQL Server 2014	✓	✓	✓	✓
SQL Server 2016	×	×	✓	✓
Windows Server 2008 R2	✓	✓	×	×
Windows Server 2012 R2	✓	✓	✓	✓
Windows Server 2016	×	×	✓	✓
IIS7	×	×	×	×
IIS7.5	✓	✓	✓	✓
IIS8.5	✓	✓	✓	✓
.net 4	r	r	r	r
Training Manager Client				
Windows 7 32 Bit	✓	✓	✓	✓
Windows 8 64 Bit	✓	✓	✓	✓
Windows 10 64 Bit	✓	✓	✓	✓
Client .net 2 32 Bit				
Client .net 3.5 32 Bit	r	r	r	r
Client .net 4.5 32 Bit	r	r	r	r
Minimum Resolution	1280x1024	1280x1024	1280x1024	1280x1024
Recommended Resolution	1280x1024	1280x1024	1280x1024	1280x1024
Processor	Quad Core Minimum	Quad Core Minimum	Quad Core Minimum	Quad Core Minimum
RAM	4GB Minimum	4GB Minimum	4GB Minimum	4GB Minimum
Required Hard Disk Space	50 MB	50 MB	50 MB	50 MB
Portal Browser				
Internet Explorer 8	✓	×	×	×
Internet Explorer 9	✓	×	×	×
Internet Explorer 11	✓	✓	✓	✓
Firefox Latest Version at time of release	×	×	×	×

Software Item	Training Manager 8.5.546	Training Manager 8.5.648	Training Manager 9.0.0	Training Manager Next Release
Chrome Latest Version at time of release	✓	✓	✓	✓
Minimum Resolution	1280x1024	1280x1024	1280x1024	1280x1024
Recommended Resolution	1280x1024	1280x1024	1920x1080	1920x1080
Processor	Dual Core Minimum	Dual Core Minimum	Dual Core Minimum	Dual Core Minimum
RAM	2GB Minimum	2GB Minimum	2GB Minimum	2GB Minimum
Required Hard Disk Space	Minimal Above Browser	Minimal Above Browser	Minimal Above Browser	Minimal Above Browser
Notifications Client				
Windows XP SP2	×	×	×	×
Windows Vista	×	×	×	×
Windows 7	✓	✓	✓	✓
Client .net 4	r	r	r	r
Client .net 4.5	r	r	r	r
Processor	Dual Core Minimum	Dual Core Minimum	Dual Core Minimum	Dual Core Minimum
RAM	2GB Minimum	2GB Minimum	2GB Minimum	2GB Minimum
Required Hard Disk Space	20 MB	20 MB	20 MB	20 MB

Important

64-bit versions of the server OS are supported; however, the web application will run in 32-bit mode.

Storage Sizing Guide

Application Install Size: 50 MB

Web Application Install Size: 100 MB

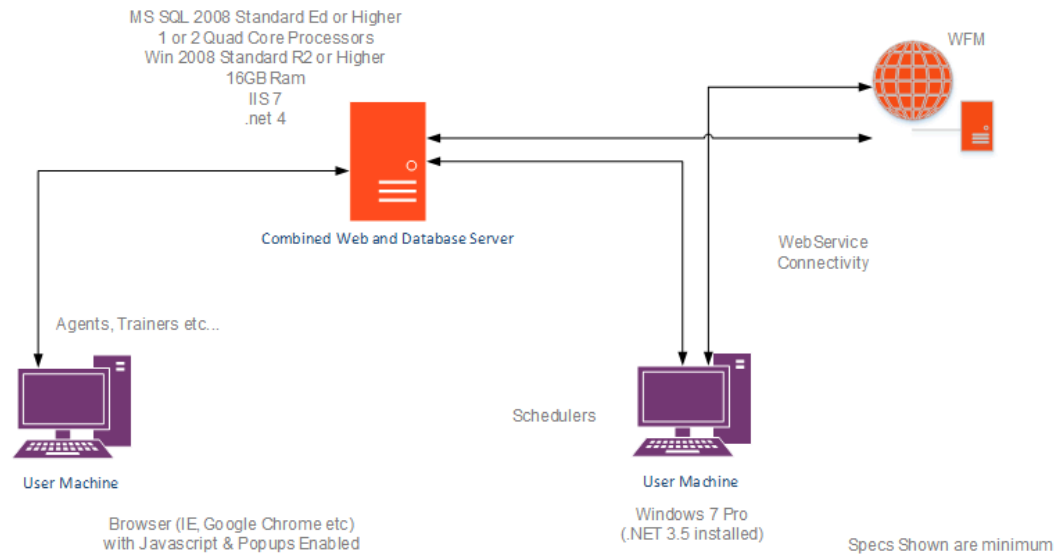
Database Initial Size: 20 MB

The data footprint of the system is dependent on the number of training course, and so on, that are configured in the system. However, a typical annual increase in footprint is 2GB per annum for 10K users.

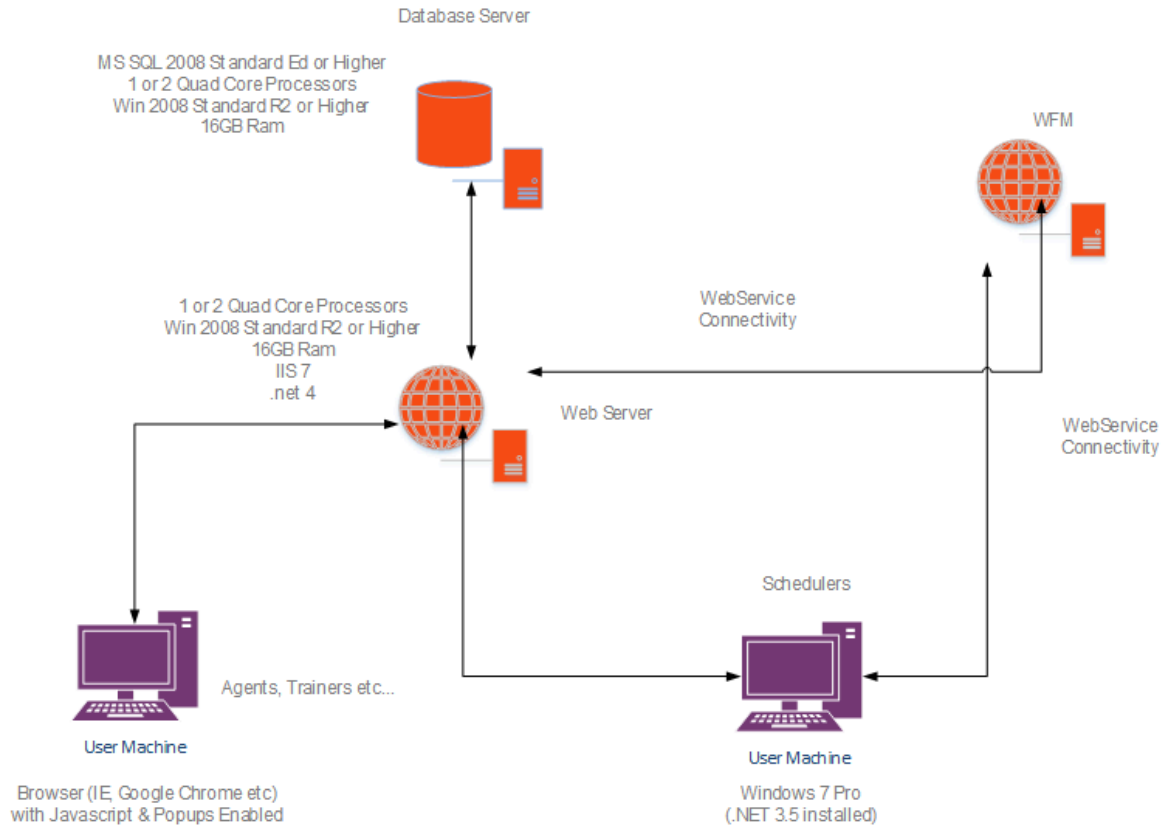
Co hosting

If you have purchased both application installations of the applications can be co-hosted, below are some sample layouts for this.

Skills Management < 1K Users

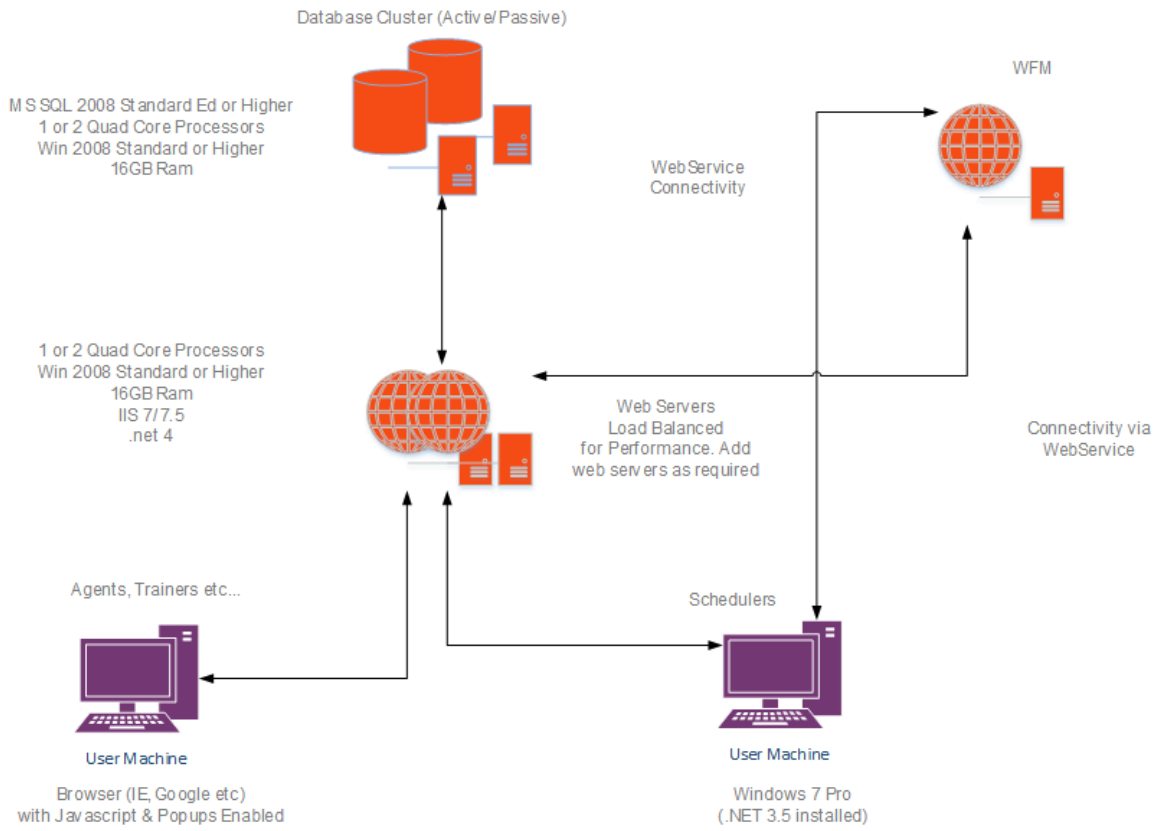


Skills Management 1K-2K Users

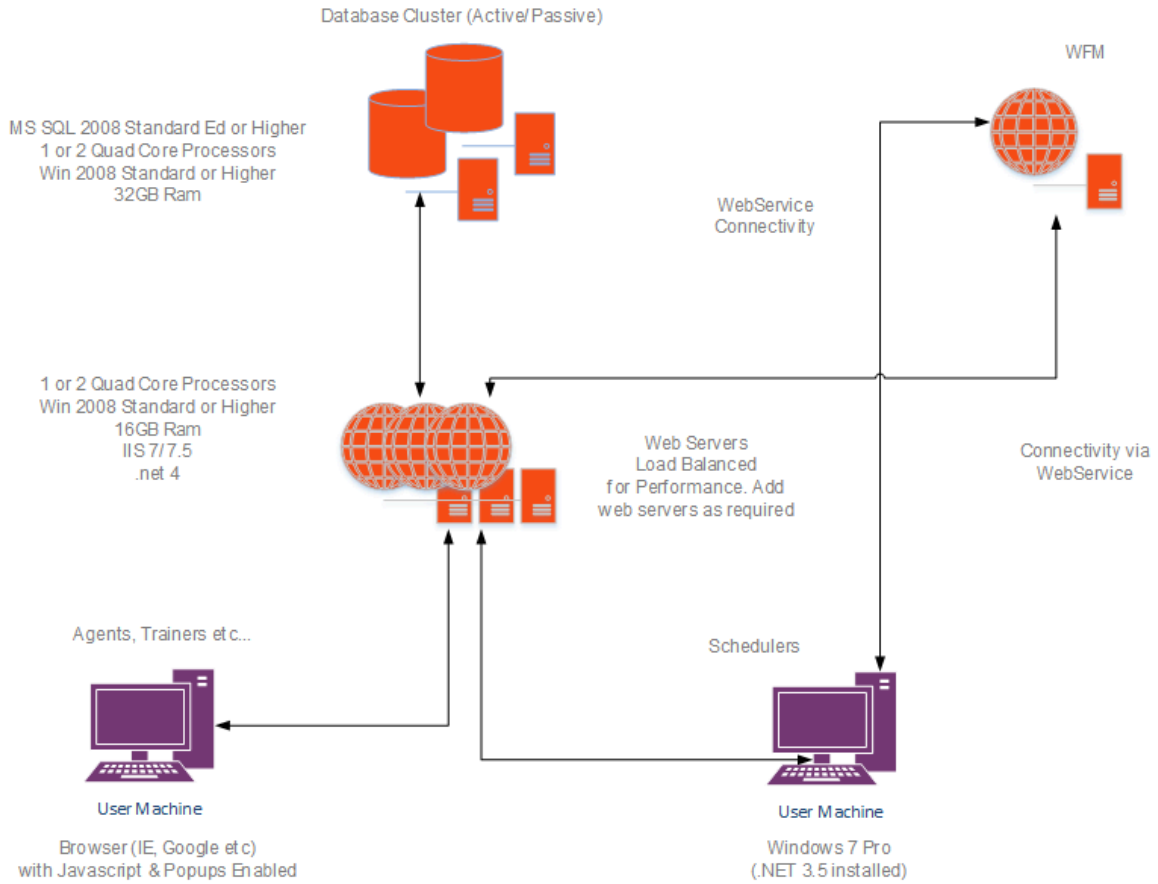


Specs Shown are minimum

Skills Management 5K+ Users Database/WebServer split Architecture



Skills Management 10K+ Users



Firewall Requirements

The table below shows the ports that are needed to be open for Skills Management to be installed and operate correctly. This assumes that all prerequisite and integrated software is installed on its standard ports. It includes details for all supported WFMs - you should choose your appropriate WFM from the list and ensure the correct ports are open to that.

Port/Port Range	From	To	Purpose	Notes
80 or 443	End user's machines	Skills Management Web Server	Allow HTTP traffic from user's browsers to the server	Port 443 if HTTPS is being used, Port 80 otherwise. If HTTPS is used a valid certificate will be required on the server.
1433	Web Server	Skills Management Database Server	Allow SQL traffic between Web and Database Servers	If SQL server is running on a different port, please adjust accordingly.
2383 or 2382	Web Server	Database Server	Allow SSAS traffic between Web and Database servers	Needs 2383 open (if default instance) or 2382 (if named instance). SSAS is not required from version 9.0.000.00.
135, 5000-5020	Web Server	Skills Management Database Server	Allow RPC Traffic between Web and Database Servers so that Microsoft Distributed Transaction Co-ordinator (MSDTC) can run	RPC range can be configured more tightly if required (see: Configuring Microsoft Distributed Transaction Coordinator (DTC) to work through a firewall). MSDTC is not required from version 8.5.648.
80	Web Server	WFM Server (IEX)	Allow Skills Management to access the NICE TV4 web services	This is the default port for the TV4/ Smart Sync services. It may be configured differently in your environment.
80	Training Manager	WFM Server (IEX)	Allow Training	This is the default

Port/Port Range	From	To	Purpose	Notes
	End user's machines		Manager to access the NICE TV4 Web services	port for the TV4/ Smart Sync services. It may be configured differently in your environment.
80	Web Server	WFM Server (Teleopti)	Allow Skills Management to access the Teleopti web services	This is the default for the Teleopti SDK. It may be configured differently in your environment
80	Training Manager End user's machines	WFM Server (Teleopti)	Allow Skills Management to access the Teleopti web services	This is the default for the Teleopti SDK. It may be configured differently in your environment
7610	Web Server	Genesys Server hosting the EWM Capture Point	Allow Skills Management to access the EWM Web Service Capture Point	This is the default Capture Point port. Your capture point may be configured differently.
5007	Training Manager End user's machines	WFM Server (Genesys)	Allow Skills Management to access the Genesys WFM services	This is the default port. It may be configured differently in your environment.
5007	Web Server	WFM Server (Genesys)	Allow Skills Management to access the Genesys WFM services	This is the default port. It may be configured differently in your environment.