



EngageOne Server

Hardware and Software Requirements

Version 4.4 Service Pack 11 R2



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1 - Introduction

This document provides Software and Hardware requirements for the EngageOne Communication Suite 4.4 platform. It provides details to help guide system and solution architects to design and size the physical architectures of suite implementations.

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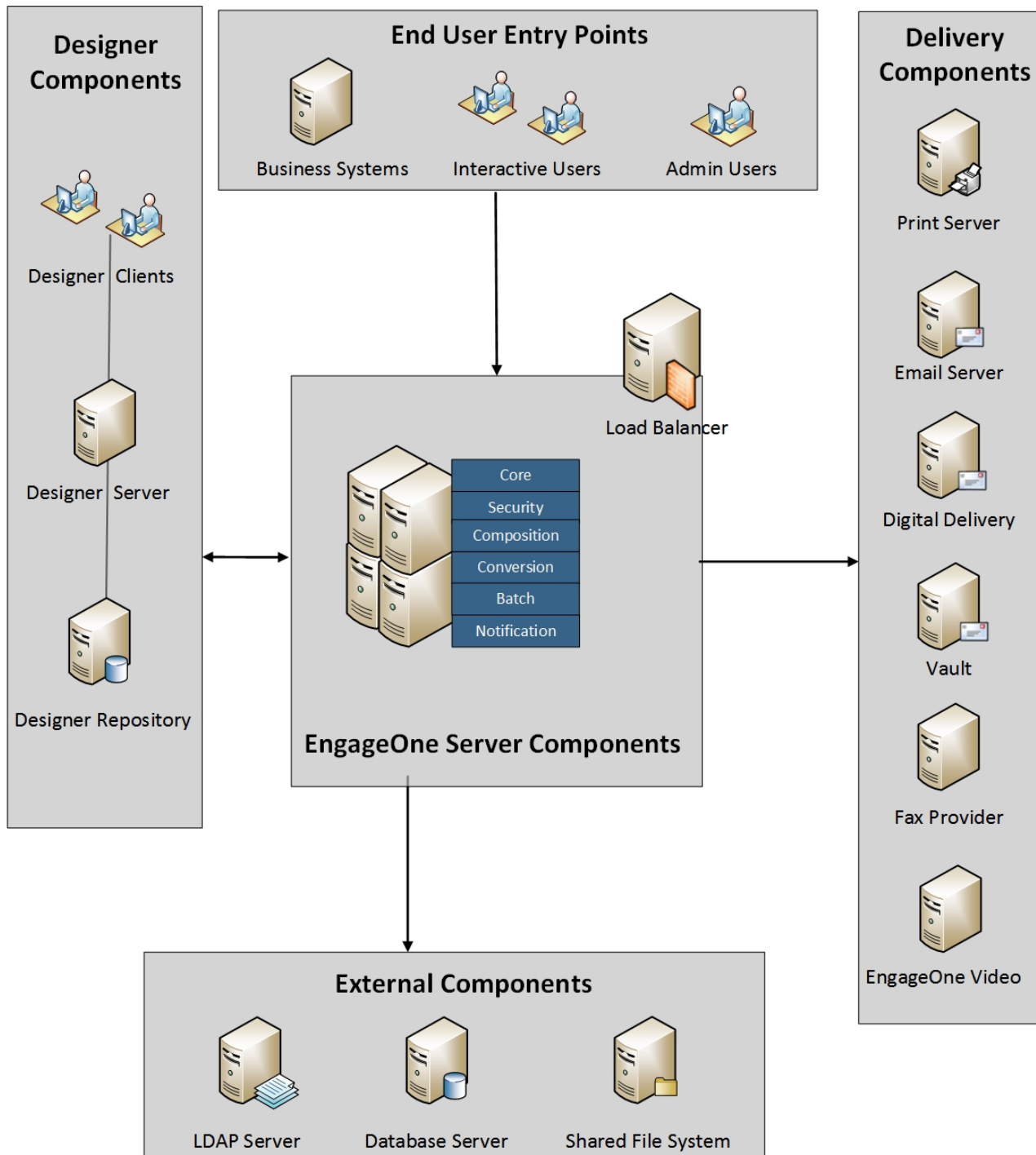
2 - High Level Architecture

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Architecture



Designer components

Designer Client

The Designer Client is a Windows thick client application to author and publish document templates. Export your templates from Designer and import them using the EngageOne Admin application.

Designer Server

The Designer Server is a small set of web services used by the Designer Client to create, update and delete publication assets in the Designer Repository. The Designer Server is used by EngageOne Server to retrieve those same assets in the Design Review and Approval feature.

Designer Repository

The following external components are not included within the EngageOne Server release distribution and must be installed and available before beginning the installation process.

External components

The following external components are not included within the EngageOne Server release distribution and must be installed and available before beginning the installation process.

Load Balancer

A load balancer is a simple web server or web appliance that serves as the front-end to the EngageOne application server cluster. This can be supplied by the application server vendor, or a third-party supplier.

LDAP Server

EngageOne requires an LDAP v3 directory server to connect to for authentication. Active Directory is primarily supported, though support extends to LDAP v3 directory servers in general.

Database Server

The Relational Database Management System or simply 'Database Server', backs the EngageOne Server content repository and transactional data for creating and delivering documents through either EngageOne Interactive or EngageOne Server SOAP. EngageOne Server supports Microsoft SQL Server and Oracle (see below for version details). The database infrastructure should be supported with the database vendor's disaster recovery and high availability recommendations to meet your specific needs. This may include RAID, hot backups, mirrored systems, etc.

Shared File System

SAN or other shared file storage is required to hold the portion of the data referenced in the content repository. This storage may be accessible with read/write/execute privileges from the application server and the destination of the EngageOne Server Active Drive.

Internal components

EngageOne Server is broken into a series of "bundles". These are groupings of application services and programs which can be scaled and clustered independently. All bundles are required for a full working system, but are installed separately.

Core Bundle

The Core Bundle component provides the primary interfaces to the EngageOne Server features. They include:

- EngageOne Interactive - The EngageOne Interactive application allows front-office users to create customized documents. For example, a CSR in a call center chooses a template for the document they wish to produce and then fills in the required information to produce a document while on the telephone to the customer. See the EngageOne Interactive user guide for details.
- EngageOne Server Admin - The EngageOne Admin application allows back-office/IT users to configure and manage the system. Administrators can setup permissions, import templates, configure delivery options, etc. See the EngageOne Administration user guide for details.
- EngageOne Server SOAP Services - The EngageOne SOAP Services allow IT services to integrate directly with EngageOne Server. The API supports functionalities to develop alternative Interactive solutions or integrate with other third party systems in an OnDemand mode. See the EngageOne Programmers user guide for details.
- Design Review and Approval – The project management and review component of the Design Review and Approval feature is available alongside the EngageOne Interactive user interface. See the Designer user guide for details.

In addition to these user facing components several other supporting services are deployed in the EngageOne Core nodes.

Security Bundle

The Security Bundle is a simple wrapper of the OpenAM access management and identity federation platform. OpenAM is responsible for authenticating users in the underlying LDAP server and providing Kerberos single-sign-on support. It is referenced by all other bundles to ensure security of the EngageOne Server web service interfaces. A custom build of OpenAM is included in the Security Bundle - no separate download is required.

Conversion Bundle

The Conversion Bundle supports the attachments feature in the out-of-the-box Interactive application. During document creation users may optionally attach Microsoft Word (.doc, .docx) or PDF files as attachments to the communication. These files are routed through the decoupled Conversion Services and adapted to a common format consumable by the EngageOne Server Core's composition engine (Generate). The conversion process is a heavy weight operation requiring significant system resources. To ensure a stable and scalable infrastructure these services are deployed to a separate server or infrastructure.

Composition Bundle

The Composition Bundle is the primary rendering and delivery engine for EngageOne Interactive and EngageOne Server SOAP. Once the user has completed his/her communication the Composition Bundle is responsible for composing the chosen template to the specified device (PDF, AFP, etc.) and delivering to the selected destination (Print, Email, EngageOne Deliver, etc.)

Batch Bundle

The Batch Bundle includes the EngageOne Server Batch and Purge programs. You can run a batch job to process accumulated requests from EngageOne Interactive, or process your own multiple files, or individual files in a scheduled or ad hoc manner (non-accumulated). Running EngageOne Server Purge is an important maintenance activity to prevent gradual performance degradation due to the build-up of data in the database tables. Make sure you implement a purge routine as part of your EngageOne Server maintenance plan. Both batch and purge are simple command line utilities to be scheduled by your preferred scheduling mechanism (e.g. Linux crontab or Windows Scheduler).

Notification bundle

EngageOne Notifications enables external systems to be notified of certain events that happen within the EngageOne server.

Examples of events include Communications being created, being sent for review and being completed.

The Notification bundle wraps an instance of ActiveMQ, a JMS-compliant message queue, which enables notification messages produced in EngageOne to be consumed by external applications.

Notifications is an optional feature of the system and it can be disabled if required. The Notification bundle only needs to be installed if notifications are enabled and if the internal ActiveMQ broker is required. There are options for configuring an external message broker, and if that approach is taken the Notification bundle is not required.

Delivery components

EngageOne Server supports multiple delivery mechanisms. Depending on your business needs one or more of the following applications may be installed. For additional install and system requirements information please refer to the associated application's documentation.

EngageOne Vault or Generic Archive

EngageOne Vault is an archiving solution which can store out going communications from EngageOne Server for later search and retrieval. In addition, any other industry standard archive solution may be integrated with EngageOne Server.

EngageOne Deliver Server

EngageOne Deliver is an enterprise solution for managing inbound and outbound email and SMS customer communications. EngageOne Server supports both email and SMS communication delivery channels.

Generic Email Delivery (SMTP Server)

In addition to EngageOne Deliver support, EngageOne Server supports simple Email delivery via an SMTP server which is configured in EngageOne Server at installation time.

Generic Fax Delivery

EngageOne Server provides a Java interface to integrate with third party Fax providers. See the EngageOne Server Administration user guide to implement and configure your own custom integration.

3 - Hardware Requirements

EngageOne Communication Suite is a highly scalable enterprise application with a flexible topology. Below are requirements, general guidelines and considerations for use when planning your topology. For more detailed considerations Precisely recommends consulting with our customer support teams to refine your hardware acquisitions based on your specific business needs.

Below are the hardware requirements per component in order to run efficiently. These values will support 250 concurrent users on the Interactive application. However due to differences in templates, business use cases and usage patterns we recommend evaluating the system as it exceeds 150 to 200 users per node to determine adequate user experience and response times based on your scenario. While the components of the system operate as an integrated suite, the hardware profile includes isolating several components in order to maximize performance and resource utilization.

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Designer components

Below are the hardware requirements for Designer. The Designer Server and Repository specifications will support 0-50 Designer and Reviewer Users concurrently. The Designer Server is a single node installation.

Component	CPU Cores	CPU Speed	RAM	Hard Disk Space
Designer Client	1	2.4 GHz	1GB	4GB
Designer Server	4	2.4GHz	4GB	50GB
Designer Repo.(SQL Server)	4	2.4GHz	8GB	50GB

External components

Below are the hardware requirements for the External Components of EngageOne Server.

Component	CPU Cores	CPU Speed	RAM	Hard Disk Space
Database Server	8	2.6-3.3 GHz	16GB	100GB – see below
LDAP Server	8	2.4 GHz	16GB	N/A
Shared File System	N/A	N/A	N/A	150GB – see below

Disk Space Considerations

The amount of disk space on your shared file systems and database server varies greatly depending on usage. In addition to the minimum hard disk space requirements above use the following algorithms to determine additional needs based on your usage predictions.

Database Server

At a minimum allocate 100GB for the Database Server. To determine additional disk space needs use the following calculation (in KB): $((X + R) \times 5KB) + (T \times R)$

Where:

- X = Number of template versions
- R= Number of requests per day
- T= Average template size unzipped (in KB)

Shared File System

At a minimum allocate 150GB for the Shared File System. Additional disk space usage is determined by:

- Number and average size of template versions
- Number of delivery channels multiplied by the product of the total documents generated daily and the average size of template versions
- Number of delivery channels multiplied by the product of the total attachments generated daily and the average size of converted attachments
- Amount of logging retained in KB

For the core shared file system, the disk space (in KB) calculation is: $(X \times T) + ((Y \times T) \times (1 + C)) + L + ((N \times A) \times C)$

Where:

- X = Number of template versions
- Y= Number of documents generated per day
- T= Average template size unzipped (in KB)
- C= Number of delivery channels
- L= How much logging retained, assuming daily purge run rate (KB)
- N = Number of attachment files expected per day
- A = Average converted attachment size unzipped (in KB)

EngageOne Server Components

Below are the hardware requirements for a single node of each bundle. All bundles may be installed on a single server or installed separately. The Batch bundle is a set of command line utilities. All other bundles are web applications running on separate network ports.

Component	CPU Cores	CPU Speed	RAM	Hard Disk Space
Core Bundle	2	2.6 GHz	6GB	30GB
Security Bundle	2	2.6 GHz	4GB	30GB
Composition Bundle	4	2.6 GHz	4GB	30GB
Conversion Bundle	4	2.6 GHz	4GB	30GB
Batch Bundle	4	2.6 GHz	8GB	30GB
Notification Bundle	2	2.6 GHz	2GB	100GB

When installing multiple bundles on the same server the requirements should be summed to account for the additional functional load (e.g. 4 Cores and 10GB of RAM when install Core and Security together).

Topology Considerations

The following provides guidelines and considerations for topology planning.

Core and Security

The Core and Security bundles are the primary entry points of the Interactive, Admin and SOAP users serving HTTP requests. As with most web applications, they are generally memory bound and are ideal candidates to be installed together.

Composition

The Composition bundle is a service wrapper of the Generate composition engine (doc1gen). The composition engine is disk I/O and CPU bound. In a high volume Interactive or OnDemand environment the Composition bundle is an ideal candidate to be deployed separate from the other bundles.

Conversion

Like Composition, the Conversion bundle is I/O and CPU bound. It is a light wrapper of .docx/pdf rasterizing engine. The Conversion bundle is only used when Interactive users attach documents to Tasks on the Edit Communication screen. In scenarios where this feature is used heavily this should be deployed separate from the other bundles.

Batch

The Batch bundle is a set of command line tools and its usage is driven by your scheduling needs. The A-Batch and NA-Batch programs are wrappers of doc1gen – I/O and CPU bound. The Purge application performs system cleanup of the external Database and Shared File System (active-drive). Often, Batch and Purge may be run during off hours (at night). To maximize your computer resources Batch may be installed alongside other bundles (e.g. composition) and run during periods of end-user inactivity. If no such periods exist, consider dedicated resources for the Batch bundle.

Notification

The Notification bundle is optional and only required if the EngageOne Notification feature is enabled and if the default message broker is used. The Notification bundle wraps an instance of the Apache ActiveMQ message broker, including its message persistence mechanism (KahaDB). The large disk space requirement for this bundle is mainly due to the persistence mechanism. The Notification bundle is primarily I/O bound and is a good candidate for deploying on its own or with the core bundle. Note that only a single instance of this bundle should be installed in the system - see notes on clustering in the *Installation guide*.

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Designer components

Designer Client and Server

The Designer Client and Server support the following 32 bit and 64 bit platforms:

- Microsoft Windows Server 2019 Standard (64 Bit)
- Microsoft Windows Server 2016 Standard (64 Bit)
- Microsoft Windows Server 2012 R2 Update (KB2919355) (64 Bit)
- Microsoft Windows 10 supported versions (64 Bit)
- Microsoft Windows 8.1 Update (KB2919355) (64 Bit)

Designer Repository

The Designer Repository support the following 64 bit versions of Microsoft SQL Server:

- Microsoft SQL Server 2019 - latest supported version.
- Microsoft SQL Server 2017
- Microsoft SQL Server 2016 SP2
- Microsoft SQL Server 2014 SP3

EngageOne Interactive Editor - Desktop Application and ActiveX

Supported operating systems

EngageOne Interactive Editor is supported on the following 64 Bit Operating Systems only:

- Windows 8.1 - With current Windows updates
- Windows 10 - With current Windows update

Note - Interactive Editor Desktop App will not install on the out of support Windows 7 Operating System.

External components

Load Balancer

To take advantage of clustering you must install and configure your own hardware or software load balancer. The following configurations are required:

- Request Routing – The load balancer must be configured to route incoming requests to the EngageOne Server components.
- Sticky Sessions - Cookie type sticky sessions must be enabled. Sticky sessions are required for improved performance and to ensure a consistent user experience.
- Idle Connection Timeout - If your load balancer supports an idle connection timeout, ensure that the timeout value is large enough to support lengthy EngageOne operations. For example, export of large set of delivery options from EngageOne Administration. An idle connection timeout of 300 seconds is recommended.

LDAP Server

EngageOne requires an LDAP v3 directory server to connect to for authentication. Active Directory is primarily supported, though support extends to LDAP v3 directory servers in general.

Database Server

EngageOne supports both Microsoft SQL Server and Oracle relational database management systems:

- Microsoft SQL Server 2019
- Microsoft SQL Server 2017 CU21
- Microsoft SQL Server 2016 SP2
- Microsoft SQL Server 2014 SP3
- Oracle 12C and Oracle 19C

EngageOne Server components

Operating System

EngageOne Server requires the application servers and database servers are deployed on one of the following operating systems:

- Microsoft Windows Server 2019 Standard (64-bit)
- Microsoft Windows Server 2016 (64-bit)
- Microsoft Windows Server 2012 R2 (64-bit)
- Linux Kernel 3.10.0 with glibc (C runtime library) 2.17
 - Red Hat Linux Enterprise 7.9+ (64bit)
 - SUSE Linux Enterprise Server 12+ (64-bit)
 - Oracle Linux 7.6+ (64-bit)
 - Amazon Linux 2

Server Performance on Windows Servers 2019/2016

Important note: By default, Windows Defender and its Advanced Threat Protection module scans each file copy/execution in the directories listed below. As a result, performance degradation can be experienced compared to older Windows Server versions.

To optimize performance on Windows operating systems, consider adding the following list of directories to the Windows Defender/current anti-virus program's exclusion list for your EngageOne Server environments. The default EngageOne Server installation directories, including working directories are:

- The EngageOne Server Active drive
- EngageOne Interactive Editor (Active X and Editor App) default "Program Files (x86)" installation directory
- Interactive Editor App working directory- %temp%\IEA Cache
- Interactive Editor (ActiveX) working directory- %temp%\Low\IPE Cache

Java Runtime

EngageOne Server is a Java application built using a Java 11 compiler with the Java 8 compliant bytecode option enabled; it can run on Java 8 or Java 11 environments. The minimum runtime versions are listed below:

Java 8

- AdoptOpenJDK jdk8u.232 (64-bit)
- Amazon Corretto JDK-1.8.0.232 (64-bit)
- Oracle JRE 1.8.231 (64-bit)
- OpenJDK 8u242-b08 (64-bit)

Or Java 11

- AdoptOpenJDK jdk-11.0.5 (64-bit)
- Amazon Corretto JDK-11.0.5 (64-bit)
- Oracle JDK 11.0.5 (64-bit)
- Open JDK 11.0.6+10 (64-bit)

It is recommended to download the latest Java 8 or 11 version from your chosen vendor's website.

Other Linux Prerequisites

If you are installing in a Linux environment, the following readily available libraries are required:

- libpng – the most recent version is required to convert Interactive Attachments to a common format for the document composition process.
- libssl3 (SUSE only) – required by the document composition engine.

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