

Kofax MarkView

Planning Guide for Oracle E-Business Suite

Version: 10.2.0

Date: 2020-08-28

The KOFAX logo is displayed in a bold, blue, sans-serif font. The letters are thick and closely spaced, with a modern, clean design.

© 2011–2020 Kofax. All rights reserved.

Kofax is a trademark of Kofax, Inc., registered in the U.S. and/or other countries. All other trademarks are the property of their respective owners. No part of this publication may be reproduced, stored, or transmitted in any form without the prior written permission of Kofax.

Table of Contents

Preface.....	5
Who should read this guide.....	5
Related documentation.....	5
Getting help with Kofax products.....	6
Chapter 1: Required servers.....	8
Software Requirements.....	10
Oracle Financials database.....	10
Estimating your Oracle RDBMS block size.....	10
Capture and Output servers.....	11
Technical overview.....	11
Co-locating.....	11
Other design requirements.....	11
MarkView application servers.....	12
Technical overview.....	12
Clustering.....	13
Other design requirements.....	13
Oracle EBS Forms server.....	13
Technical overview.....	14
Co-locating.....	14
Work stations.....	14
MarkView Viewer.....	14
Terminal Server environments.....	14
Scan stations.....	15
MarkView Self-Service Invoice system requirements for email submission.....	15
Chapter 2: Designing the system.....	16
Communications protocols for connecting servers.....	16
Secure topology.....	16
Firewalls.....	17
Kofax Capture port requirements.....	17
Hosted environments.....	18
Production and non-production environments.....	18
Chapter 3: Hardware requirements.....	20
Application server requirements.....	20
MarkView Document Server requirements.....	20

Capture and Output requirements.....20

 Kofax Import Connector (KIC) requirements.....21

End-user systems.....21

 Monitor recommendations..... 21

Appendix A: Third-party license agreement..... 22

Preface

This guide includes system information, such as the protocols required for communication between servers, hardware and software prerequisites, and minimum RAM requirements.

Use this guide in conjunction with the *Kofax MarkView Technical Specifications* document on the [Kofax MarkView Product Documentation site](#) to learn about the prerequisites for implementing Kofax MarkView products and prepare a site for product installation.

Other recommended products to review:

- Kofax Capture
- Kofax Import Connector
- Kofax Transformation Modules

Who should read this guide

The audience for this document includes:

- Oracle Database Administrators who are experienced with Oracle RDBMS, can edit and run PL/SQL scripts, and are familiar with their ERP system.
- Application Server Administrators who have J2EE technology knowledge.
- Windows Server Administrators who have Microsoft Windows experience and who can install and configure Windows applications and hardware.
- Customers who are planning a new installation or a migration from a previous release of any MarkView product.

Related documentation

The documentation set for Kofax MarkView is available online:¹

<https://docshield.kofax.com/Portal/Products/MarkView/10.2.0-mpa97rhev/MarkView.htm>

In addition to this guide, the documentation set includes the following items:

Kofax MarkView Features Guide

Use this guide to learn about the features included and options available with MarkView; to become familiar with MarkView products; and to decide which are important to the business challenges you face and best suit your site. This guide includes information about how features impact the workflow, the

¹ You must be connected to the Internet to access the full documentation set online. If the security policy for your organization requires offline access (without an Internet connection), see the Installation Guide.

interaction between features, the touch points with the ERP system, and how features address business problems.

Kofax MarkView Installation Worksheet

Use this worksheet to collect and record the information you need to install or upgrade MarkView products.

Kofax MarkView Installation Guide

Use this guide in conjunction with the *Kofax MarkView Installation Worksheet* to install and configure MarkView products and to configure third-party products that integrate with MarkView.

Kofax MarkView Upgrade Guide

Use this guide in conjunction with the *Kofax MarkView Installation Worksheet* to upgrade and configure MarkView products.

Kofax MarkView Integration Guide

Use this guide in conjunction with the *Kofax MarkView Technical Specifications* document on the [Kofax MarkView Product Documentation site](#) to learn about the prerequisites for implementing Kofax products and preparing a site for product installation.

Kofax MarkView Reintegration Guide for Upgrades to Oracle E-Business Suite R12 or 12.2

Use this guide to reintegrate MarkView after an upgrade to Oracle E-Business Suite R12 or 12.2.

Kofax MarkView Administrator's Guide, Volume 1

Use this guide to administer the MarkView system. This guide describes how to configure and maintain the applications, solutions, and users that make up the MarkView Suite. The guide also describes how MarkView influences the administration of other servers and software that interface with MarkView applications.

The MarkView Administrator should be well-versed in database administration, application server setup, tuning and maintenance, or should know where to get such information. The administrator's guide does not replicate this information, but conveys MarkView product-specific information.

Kofax MarkView Administrator's Guide, Volume 2

Use this guide to maintain MarkView components that are administered outside of the MarkView interface. This guide includes advanced administrative tasks and describes MarkView custom packages and join points.

Kofax MarkView Release Notes

Use this document to learn what is new with the latest MarkView release, identify outstanding defects and workaround solutions where applicable, and learn which defects the release fixes.

Kofax MarkView Technical Specifications

Use this document to learn about supported operating systems and other system requirements.

Getting help with Kofax products

The [Kofax Knowledge Base](#) repository contains articles that are updated on a regular basis to keep you informed about Kofax products. We encourage you to use the Knowledge Base to obtain answers to your product questions.

To access the Kofax Knowledge Base, go to the Kofax [website](#) and select **Support** on the home page.

Note The Kofax Knowledge Base is optimized for use with Google Chrome, Mozilla Firefox or Microsoft Edge.

The Kofax Knowledge Base provides:

- Powerful search capabilities to help you quickly locate the information you need.
Type your search terms or phrase into the **Search** box, and then click the search icon.
- Product information, configuration details and documentation, including release news.
Scroll through the Kofax Knowledge Base home page to locate a product family. Then click a product family name to view a list of related articles. Please note that some product families require a valid Kofax Portal login to view related articles.
- Access to the Kofax Customer Portal (for eligible customers).
Click the **Customer Support** link at the top of the page, and then click **Log in to the Customer Portal**.
- Access to the Kofax Partner Portal (for eligible partners).
Click the **Partner Support** link at the top of the page, and then click **Log in to the Partner Portal**.
- Access to Kofax support commitments, lifecycle policies, electronic fulfillment details, and self-service tools.
Scroll to the **General Support** section, click **Support Details**, and then select the appropriate tab.

Chapter 1

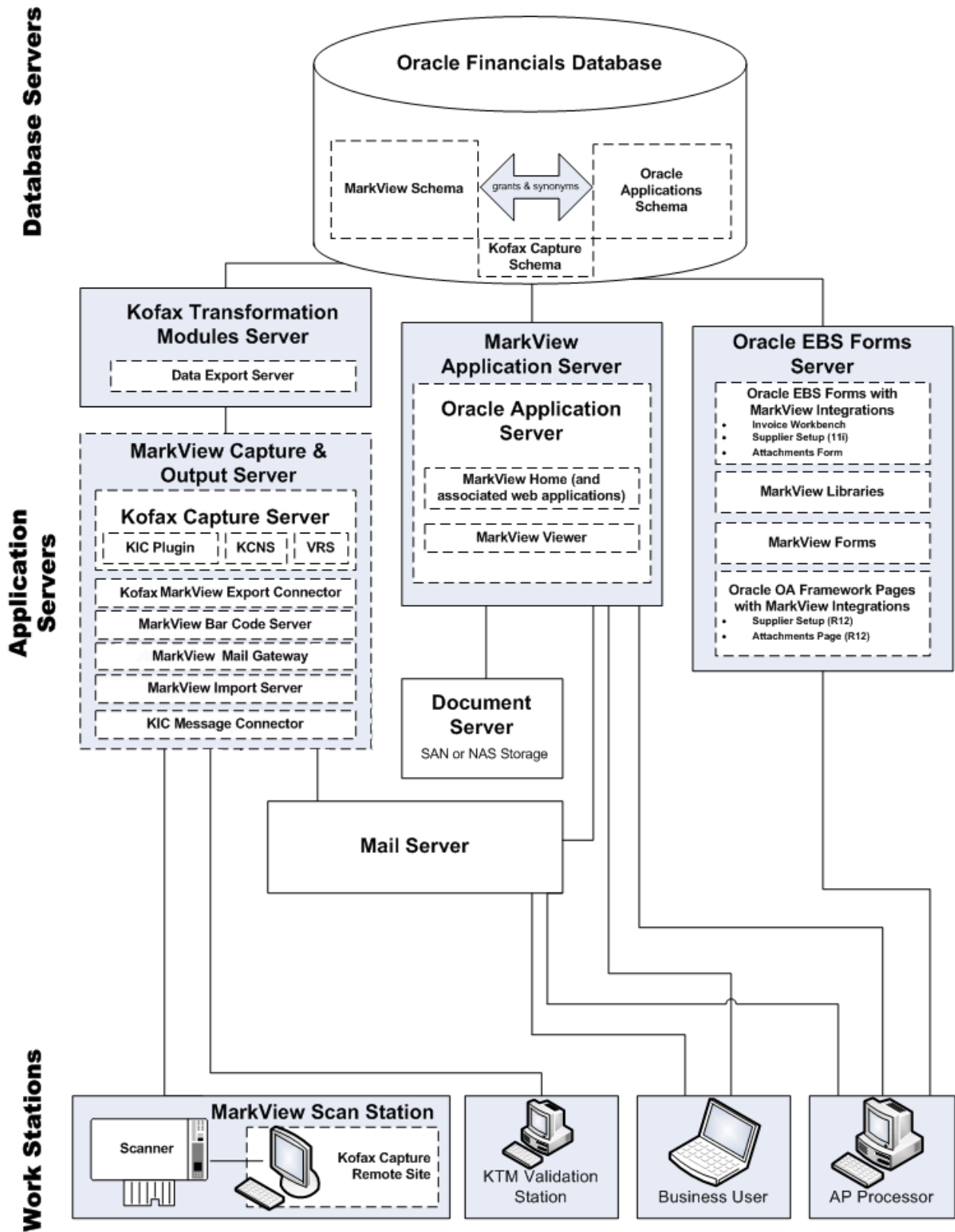
Required servers

The Kofax MarkView system includes:

- Database Servers: The The Oracle Financials database must include the MarkView schema. Kofax Capture Server leverages a database that is located either:
 - as an additional schema within the Oracle Financials database.
 - a database schema on any supported database server.
 - as a stand-alone SQL Server Express database.
- Application Servers
 - MarkView application servers: Provide MarkView functionality. These are standalone or domain servers running the MarkView application server software as a J2EE application.
 - MarkView capture and output servers: Facilitate the capture of images and metadata content into MarkView. Kofax Capture and Kofax Import Connector can use this server as a common point of image capture.
 - Oracle EBS Forms server: Includes MarkView custom libraries and forms.
 - Document server: The file storage system where MarkView stores image files.
- Work Stations with end-user systems:
 - Kofax Capture Scan Stations: Scanners compatible with Kofax Capture and the attached computers.
 - Kofax Transformation Modules validation stations: Stations in which users validate captured invoice data prior to the data import to Oracle Financials.

MarkView with transformation requires Kofax Transformation Modules and Kofax Capture. See Kofax Capture and Kofax Transformation Modules documentation for more information.

This diagram shows a very simple MarkView implementation. Because of CPU and RAM requirements, co-locating the Kofax Transformation Modules server with other MarkView capture and output server components may have a negative impact on system performance in more complex implementations.



Software Requirements

The primary source of information about supported operating systems and other MarkView requirements is the *Kofax MarkView Technical Specifications* document which is available on the [Kofax MarkView Product Documentation site](#).

Oracle Financials database

All systems require a database server, which consists of:

- A version of the Oracle RDBMS listed in the *Kofax MarkView Technical Specifications* document on the [Kofax MarkView Product Documentation site](#). The RDBMS must include XML DB and must be running the Java option (JServer).
- The MarkView database components, which consist of the MarkView schema and the logic to store and retrieve data. The Kofax Capture schema can also reside on the database server.
- Oracle Text, if your system includes MarkView Document Library and the full-text search option is configured.

Estimating your Oracle RDBMS block size

This section describes sizing estimates for storing document metadata in the database. Document images are not stored in the database. The installation procedure will prompt you to enter the size of your database.

Database block size

If you have not yet installed the Oracle RDBMS, make sure it has a block size of at least 8k. The Oracle installation default setting is 8k. If you make the block size smaller, you may experience performance problems.

Disk space

The amount of disk space required is based on the number of document pages that must be stored annually. This table provides estimates of the database server disk space used annually by MarkView. These estimates include the base MarkView software plus MarkView for Accounts Payable.

Size	Invoices Per Year	Disk Space Consumed Per Year
Large	> 1,000,000	35 GB
Medium	~ 500,000	17 GB
Small	~ 100,000	4 GB

The ratio of table data to index data is from approximately 55 to 45 percent. For example, in a database consuming 10 GB of disk per year, approximately 5.5 GB is table data and 4.5 GB is index data.

Capture and Output servers

The capture and output applications bring information into and out of the MarkView system.

MarkView capture and output servers include:

- Kofax Capture
 - KIC Message Connector (Optional)
 - Kofax Capture Network Server (KCNS) (Optional)
 - Kofax Capture Server
 - Kofax Import Connector (KIC) plugin (Optional)
 - Kofax Transformation Modules (Optional)
 - Kofax VirtualReScan (VRS)
- MarkView
 - MarkView Bar Code Server
 - MarkView Data Export Servers that provide data from Oracle to Kofax Transformation Modules for validation.
 - Kofax MarkView Export Connector that enables you to export documents from Kofax Capture to MarkView.
 - MarkView Import Server
 - MarkView Mail Gateway

Technical overview

The host machine must meet the requirements described in [Hardware requirements](#) on page 20. The capture and output components are Windows services.

Depending on your configuration, certain third-party software, such as Oracle Data Provider for .NET, may also be required. For details, see the *Kofax MarkView Technical Specifications* document on the [Kofax MarkView Product Documentation site](#).

Co-locating

You may co-locate all these items on the same MarkView capture and output server with the following exception.

Because of CPU and RAM requirements, Kofax recommends against co-locating the Kofax Transformation Modules server except for very simple configurations.

Other design requirements

This section lists general rules for locating capture and output components in your network.

Ensure access to database and document servers

Capture and output applications must transfer data to and from the database server and the document server.

The MarkView application server, the MarkView capture and output server, the MarkView document server, and the Oracle Financials Database should all be on the same network.

Ensure Mail Gateway access to SMTP server

The MarkView Mail Gateway requires a SMTP connection to your mail server. This component sends outbound email notifications and reminders to the user base.

MarkView application servers

Use the guidelines in this section to determine how many servers you need.

Each application server consists of:

- Host machines that meet the hardware requirements described in [Hardware requirements](#) on page 20.
- An operating system. For more information, see the *Kofax MarkView Technical Specifications* document on the [Kofax MarkView Product Documentation site](#).
- MarkView application server components.
 - A JRE for the installer to run.
 - A JDK – See the *Technical Specifications* document for the recommended JDK for your operating system.

For the 64-bit WebLogic client, you need a separate JDK. See www.oracle.com for the correct 64-bit distribution of WebLogic and 64-bit JDKs.

- A configured instance for each of the following: WebLogic Admin Server, Node Manager and a MarkView dedicated Managed Server.

Technical overview

The MarkView application server components are J2EE applications. J2EE institutes a standard framework of coding and execution common to all MarkView J2EE applications.

This table lists the MarkView application server components, some of which are optional and sold separately.

J2EE Application	Purpose
MarkView Bar Code Generator	Generates bar codes.
MarkView Document Export	Converts MarkView images to PDF or TIFF and then emails the resulting image. It also provides print server functionality.

J2EE Application	Purpose
MarkView Document Transport Module (DTM)	Provides the logic for the document server. It stores and provides access to all the documents that have been scanned, emailed, or otherwise loaded into the MarkView system. The DTM authenticates all parties sending requests to the document server. The machine that hosts this DTM process is sometimes called the document server, even though the MarkView image files may be stored on another server that the DTM accesses or a storage area network. MarkView leverages the CCITT Group IV TIFF image format for standard image storage. MarkView can still store "Non-MarkView" document type files in the document server in their native format.
MarkView Graphics Server	Serves image files for icons in the MarkView GUI.
MarkView Self-Service Invoice (SSI)	Enables creation and submission of invoices to Oracle Payables.
MarkView Process Monitor	Lets administrators monitor the progress of MarkView work items through a workflow.
MarkView Target Registry Service	Stores information such as module versions in the MarkView database.
MarkView PL/SQL Servlet	Serves web pages from stored procedures.

Clustering

See your application server documentation for specific instructions.

Other design requirements

Review these considerations before you design your system:

- If your system will be configured to send outbound email messages using MarkView Document Export, the application server that hosts MarkView Document Export must connect to the SMTP Server.
- If you are localizing MarkView, the appropriate language must be installed in your ERP. For example, if you have users who will interact with MarkView in French, install French in your Oracle instance.
- To use MarkView Document Export batch printing capabilities, ensure that the printers involved are defined locally on the application server where MarkView Document Export is installed. Also ensure that Java can see these printers.

Oracle EBS Forms server

MarkView includes components that are installed into the Oracle EBS Forms server.

Technical overview

The Oracle EBS Forms server generates many of the forms and applets that provide the GUI for Oracle E-Business Suite. Client programs download these forms and applets. Therefore, the parts of the MarkView system that interact with the Oracle EBS GUI rely on the Oracle Forms system.

Co-locating

To co-locate MarkView application server components and the Oracle EBS Forms server:

- The server must be configured to handle the load of all MarkView application server and Oracle EBS Forms processes. Co-locating MarkView application server components and the Oracle EBS Forms server on an undersized server will result in performance issues for all processes running on that server.
- MarkView must run in its own instance of the application server and cannot share it with any other application running on the server.
- The MarkView application server must meet the requirements in the *Kofax MarkView Technical Specifications* document on the [Kofax MarkView Product Documentation site](#).

Work stations

End users interact with MarkView documents through MarkView Viewer.

MarkView Viewer

MarkView Viewer is browser-based. The viewer requires a browser and JavaScript enabled. For a list of supported browsers, see the *Kofax MarkView Technical Specifications* document on the [Kofax MarkView Product Documentation site](#).

Terminal Server environments

The MarkView suite supports Terminal Server environments, such as Citrix XenApp Server. Pre-install the software on the Terminal Server host and configure the environment in advance of end users running viewer sessions. For more detailed prerequisites, see the *Kofax MarkView Technical Specifications* document on the [Kofax MarkView Product Documentation site](#). For instructions on setting up the environment, see MarkView System Administration on the [Kofax MarkView support page](#). For information about using Terminal Services or Virtual User Sessions solutions, see Support Statement on Virtual Computing & Cloud Support on the [Kofax MarkView support page](#).

The Terminal Server host must meet the minimum hardware requirements set by the underlying application, such as Citrix. Then, add an additional 256 MB of RAM for each concurrent viewer session. Beyond this, there is no simple formula for scaling to the number of anticipated users. Consult the terminal server capacity planning documentation for guidelines.

Scan stations

A MarkView scan station consists of a scanner and a Kofax Capture installation.

Through Kofax Capture, you can use a wide range of desktop and production-level scanners to enter documents into the MarkView system. These include:

- Low-end Group 1, 2, and 3 SCSI models using ISIS drivers
- VirtualReScan (VRS) ready scanners. (VRS is installed automatically when you install Kofax Capture.)

Kofax recommends that your scanner:

- Includes a USB port
- Can scan duplex
- Has a page feed mechanism that supports your business methods

See the Kofax Scan Configurator website for information about supported scanners:

<http://scadmin.kofax.com>

MarkView Self-Service Invoice system requirements for email submission

If you plan to enable MarkView Self-Service Invoice (SSI) users to submit follow-up documents in email messages, Kofax Import Connector (KIC) must be installed with the MarkView system and the SSI user's client machine must have an email client installed.

Chapter 2

Designing the system

This chapter describes the following:

- Communications protocols
- Security and firewalls
- Port requirements for Kofax Capture
- Hosted environments
- Production and non-production environments

Communications protocols for connecting servers

Each machine in a MarkView system needs to transmit requests and data to at least one other machine. The following communication protocols employed:

- SQL*Net transmits information between the Oracle Financials Database and the following MarkView components:
 - MarkView application servers
 - MarkView capture and output servers
 - MarkView scan stations
- HTTP(S) transmits data between the MarkView application server and the following components:
 - MarkView J2EE applications
 - MarkView capture and output servers
 - End user machines
- HTTP(S) transmits data between Kofax Capture Server and Kofax Capture Remote Sites
- HTTP(S) transmits data between the MarkView capture and output servers and the MarkView DTM. To secure transmissions between a capture and output server and the document server, we recommend HTTPS.
- SMTP transmits outbound email requests. The requests are sent from both the MarkView application server (Export Server) and the MarkView capture and output server (Mail Gateway).
- POP3 or IMAP transmit inbound mail through MarkView Mail Gateway.
- POP3/IMAP/EWS transmit inbound mail through Kofax Import Connector.

Secure topology

If your site plans to use SSL to implement secure communication between servers, obtain certificates signed by a certain certifying authority.

To ensure the integrity and security of your data, we recommend that you enable SSL.

Firewalls

The following table provides information about MarkView servers that are commonly protected by a firewall. Server connections must be bi-directional.

Server	Default Ports	Protocol
MarkView Application Server	WebLogic: <ul style="list-style-type: none"> • HTTP port: typically 8001 but can also be 26000 due to port conflicts with other products. • Admin Console port: typically 7001 WildFly or JBoss EAP: <ul style="list-style-type: none"> • HTTP port: typically 26000. • Admin Console port: typically 9090 	HTTP(S)
Oracle RDBMS Server	DB listener port (typically 1521)	TCP (access via SQL*Net or JDBC)
SMTP Mail Server	SMTP port (typically 25)	

The following table provides information about example firewall rules.

Source	Destination	Example Port	Protocol
MarkView User accessing MarkView Home	MarkView Application Server	8001	HTTP
MarkView Bar Code Server	MarkView Application Server	8001	HTTP
	MarkView Database	1521	TCP (SQL*Net)
MarkView Process Mail Gateway	MarkView Application Server	8001	HTTP
	MarkView Database	1521	TCP (SQL*Net)
	MarkView Database Mail Server	25	TCP (SMTP)
MarkView Application Server	MarkView Database	1521	TCP (JDBC-Thin)
	Mail Server	25	TCP (SMTP)
	MarkView Document Server (if not co-located)	8001	HTTP
MarkView Database (using Export Server)	MarkView Application Server (Export Server)	8001	HTTP

Kofax Capture port requirements

These requirements may affect your firewall or other security settings.

Client/Server configuration

- Kofax Capture uses port 2424 for managing licenses and volume usage.
- Port 2424 must be open between the client and server.

The Kofax Capture server uses TCP ports for communication between clients and the server. The standard database configuration (SQL Server 2005 Express Edition) also requires a specific UDP port for name resolution of Named Instances. These ports are:

- UDP port 1434
- TCP ports 1433, 1434, and a dynamically assigned port. Locate the dynamically assigned port in the System Registry:
HKEY_LOCAL_MACHINE\SOFTWARE\Microsoft\Microsoft SQLServer\AscentCapture\MSSQLServer\SuperSocketNetLib\Tcp\TcpPort
- Port 1521 for the Oracle database (TCP port used for the MarkView schema).

KCNS remote site configuration

In addition to the Client/Server configuration port requirements, port 2424 must also be open between the KCN Services and the KCN Web Server.

Hosted environments

The MarkView schema and MarkView application server components can reside on a hosted environment. As with any multi-tiered environment, configure your firewall to permit secure traffic between the hosted environment and your site. Review the proposed configuration with your Kofax Practice Manager to ensure that your setup complies with the MarkView suite requirements, including:

- Separate Local Area Networks (LANs) for the data center and users
- Open and documented communication pathways
- Installing MarkView in a hosted environment may require increased coordination.
- Some MarkView system components may reside outside the hosted environment. For example, MarkView may perform SMTP/POP/IMAP communication with a Mail Server located in the client network, rather than the hosted network.

Production and non-production environments

Kofax strongly recommends that you maintain a non-production environment that is a reasonable replication of your production environment. Migrating your production database to a non-production environment gives you an environment for testing new functionality, training new users, or reproducing issues which may be encountered in a production environment. Some customers also host multiple non-production environments (for example, "Development," "Test," "QA") on the same hardware.

Do not co-locate a non-production environment on the production hardware. You must have separate hardware for non-production environments. This is an industry standard practice for enterprise software and ensures minimum production downtime.

See the *Kofax MarkView Installation Guide* for information about using the Migration Utility to migrate your production database to a non-production environment.

Chapter 3

Hardware requirements

Application server requirements

Non-production servers must have a minimum of 4GB of RAM to start the application server with the MarkView applications deployed.

Memory and CPU requirements increase in proportion to the number of concurrent MarkView sessions to be supported. Use the application server native support for multiple server instances as well as clustering to implement scaling with maximum efficiency.

For systems with 25,000 or fewer invoices per month, Kofax recommends 8CPU Cores and 16GB RAM.

MarkView Document Server requirements

MarkView leverages the CCITT Group IV TIFF format at a resolution of 300dpi to store images. The average image size for 8.5 x 11" pages is 50 kilobytes.

Calculate your average volume of invoices and the average number of pages per invoice. Then, multiply the total number of pages by 50 kilobytes to make a rough estimate of the overall storage requirements.

Capture and Output requirements

This section describes requirements for the MarkView capture and output components with a separate dedicated Kofax Transformation Modules server and these servers co-located:

- MarkView Bar Code Server
- MarkView Import Server
- MarkView Import API
- MarkView Mail Gateway
- Kofax Capture
- Kofax Capture Network Server
- Kofax Import Connector (KIC)

For more information on co-locating these components, see [Co-locating](#).

For the MarkView capture and output components minimum requirements, see the *Kofax MarkView Technical Specifications* document on the [Kofax MarkView Product Documentation site](#).

The minimum values for all other capture and output components at your site will fall into the ranges in this table.

Kofax Import Connector (KIC) requirements

Allocate 4 GB of RAM for KIC production systems.

For additional information such as the requirements for Microsoft Office and a Service Account for email processing, and the infrastructure needed to enable image capture with Fax-Over-IP, see the KIC documentation and the *Kofax MarkView Technical Specifications* document on the [Kofax MarkView Product Documentation site](#).

End-user systems

This table describes system requirements for end users.

Parameter	Requirement
CPU	multi-core CPU
RAM	2 MB minimum, 4 GB recommended
Hard Disk	100 MB disk space

Monitor recommendations

To maximize the size of the image area in the viewer, deploy dual monitors for MarkView users in Accounts Payable and Purchasing departments. The users can then use one monitor to display the Oracle EBS in landscape mode and one to display MarkView in portrait mode. This setup increases workspace and effectiveness by reducing the distractions associated with repeatedly opening and resizing application windows for MarkView and the ERP. Dual-monitor requirements sometimes include a second video card and drivers that enable users to pivot one monitor to display portrait mode and the other to display in landscape mode.

An alternative to two monitors is a single, high-resolution monitor that is large enough to display the ERP and MarkView interfaces side by side.

Third-party license agreement

BEA Public License Version 2.1

TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

1. Definitions.

- "License" shall mean the terms and conditions of this agreement.
- "Licensor" shall mean BEA Systems, Inc.
- "Legal Entity" shall mean the union of the acting entity and all other entities that control, are controlled by, or are under common control with that entity. For the purposes of this definition, "control" means
 - (i) the power, direct or indirect, to cause the direction or management of such entity, whether by contract or otherwise, or
 - (ii) ownership of fifty percent (50%) or more of the outstanding shares, or
 - (iii) beneficial ownership of such entity.
- "You" (or "Your") shall mean an individual or Legal Entity exercising permissions granted by this License, including but not limited to each Contributor other than Licensor in such Contributor's role as a licensee for the Software.
- "Source Format" shall mean the preferred form for making modifications, including but not limited to software source code, documentation source, and configuration files.
- "Object Format" shall mean any form resulting from mechanical transformation or translation of a Source Format, including but not limited to compiled object code, generated documentation, and conversions to other media types.
- "Software" shall mean the original version of the software accompanying this agreement as released by BEA, including in Source or Object Format, and also any documentation provided therewith.
- "Derivative Works" shall mean any work, whether in Source or Object Format, that is based on (or derived from) the Software and for which the editorial revisions, annotations, elaborations, or other modifications represent, as a whole, an original work of authorship. For the purposes of this License, Derivative Works shall not include works that remain separable from, or merely link (or bind by name) to the interfaces of, the Software and derivative works thereof.
- "Contribution" shall mean any work of authorship, including the original version of the Software and any modifications or additions to that Software or Derivative Works thereof, that is intentionally submitted to Licensor for inclusion in the Software by the copyright owner or by an individual or Legal Entity authorized to submit on behalf of the copyright owner. For the purposes of this definition, "submitted" means any form of electronic, verbal, or written communication sent to the Licensor or its representatives, including but not limited to communication on electronic mailing lists, source code control systems, and issue tracking systems that are managed by, or on behalf of, the Licensor for the purpose of discussing and improving the Software, but excluding

communication that is conspicuously marked or otherwise designated in writing by the copyright owner as "Not a Contribution."

- "Contributor" shall mean Licensor and any individual or Legal Entity on behalf of whom a Contribution has been received by Licensor and subsequently incorporated within the Software.
2. **Grant of Copyright License.** Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable copyright license to reproduce, prepare Derivative Works of, publicly display, publicly perform, sublicense, and distribute the Software and such Derivative Works in Source or Object Format. Each Contributor represents that to its knowledge it has sufficient copyright rights in its Contribution, if any, to grant the foregoing copyright license.
 3. **Grant of Patent License.** Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable (except as stated in this section) patent license to make, have made, use, offer to sell, sell, import, and otherwise transfer the Software, where such license applies only to those patent claims licensable by such Contributor that are necessarily infringed by their Contribution(s) alone or by combination of their Contribution(s) with the Software to which such Contribution(s) was submitted. If You institute patent litigation against any entity (including a cross-claim or counterclaim in a lawsuit) alleging that the Software or a Contribution incorporated within the Software constitutes direct or contributory patent infringement, then any patent licenses granted to You under this License for that Software shall terminate as of the date such litigation is filed.
 4. **Redistribution.** You may reproduce and distribute copies of the Software or Derivative Works thereof in any medium, with or without modifications, and in Source or Object Format, provided that You meet the following conditions:
 - You must give any other recipients of the Software or Derivative Works a copy of this License; and
 - You must cause any modified files to carry prominent notices stating that You changed the files; and
 - You must retain, in the Source Format of any Derivative Works that You distribute, BEA's copyright notice, "© [Date] BEA Systems, Inc. All rights Reserved.", and all other copyright, patent, trademark, and attribution notices from the Source Format of the Software, excluding those notices that do not pertain to any part of the Derivative Works; and
 - You must affix to the Software or any Derivative Works in a prominent manner BEA's copyright notice, "© [Date] BEA Systems, Inc. All rights Reserved." whenever You distribute the Software or such Derivative Works in Object Format.

You may add Your own copyright statement to Your modifications and may provide additional or different license terms and conditions for use, reproduction, or distribution of Your modifications, or for any such Derivative Works as a whole, provided Your use, reproduction, and distribution of the Software otherwise complies with the conditions stated in this License.

5. **Submission of Contributions.** Unless You explicitly state otherwise, any Contribution intentionally submitted for inclusion in the Software by You to the Licensor shall be under the terms and conditions of this License, without any additional terms or conditions. Notwithstanding the above, nothing herein shall supersede or modify the terms of any separate license agreement you may have executed with Licensor regarding such Contributions.
6. **Trademarks.** This License does not grant permission to use the trade names, trademarks, service marks, or product names of the Licensor, except as required for reasonable and customary use in describing the origin of the Software and reproducing the content of the NOTICE file.

7. **Disclaimer of Warranty.** EXCEPT AS EXPRESSLY SET FORTH IN THIS AGREEMENT, THE SOFTWARE IS PROVIDED ON AN "AS IS" BASIS, WITHOUT WARRANTIES OR REPRESENTATIONS OF ANY KIND, EITHER EXPRESS OR IMPLIED INCLUDING, WITHOUT LIMITATION, ANY WARRANTIES OF TITLE, NON-INFRINGEMENT, MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. You are solely responsible for determining the appropriateness of using and distributing the Software and assume all risks associated with Your exercise of rights under this Agreement, including but not limited to the risks and costs of program errors, compliance with applicable laws, damage to or loss of data, programs or equipment, and unavailability or interruption of operations. Further, You understand that although each Contributor grants the licenses to its Contributions set forth herein, no assurances are provided by any Contributor that its Contribution does not infringe the patent or other intellectual property rights of any other entity. Each Contributor disclaims any liability to You for claims brought by any other entity based on infringement of intellectual property rights or otherwise. As a condition to exercising the rights and licenses granted hereunder, You hereby assume sole responsibility to secure any other intellectual property rights needed, if any.
8. **Limitation of Liability.** EXCEPT AS EXPRESSLY SET FORTH IN THIS AGREEMENT, NO CONTRIBUTOR SHALL HAVE ANY LIABILITY TO YOU FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING WITHOUT LIMITATION LOST PROFITS), HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OR DISTRIBUTION OF THE SOFTWARE OR THE EXERCISE OF ANY RIGHTS GRANTED HEREUNDER, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.
9. **Accepting Warranty or Additional Liability.** Commercial distributors of software may accept certain responsibilities with respect to end users, business partners and the like. While this license is intended to facilitate the commercial use of the Software, if You include the Software in a commercial product offering, You may do so only in a manner which does not create potential liability for any Contributor. Therefore, if You include the Software in a commercial product offering, You shall and hereby do agree to defend and indemnify each and every Contributor against any losses, damages and costs (collectively "Losses") arising from claims, lawsuits and other legal actions brought by a third party against such Contributor(s) to the extent caused by Your acts or omissions in connection with Your distribution of the Software in a commercial product offering. The obligations in this section do not apply to any claims or Losses relating to any actual or alleged intellectual property infringement. In order to qualify to receive indemnification from You, a Contributor must:
 - a. promptly notify You in writing of such claim, and
 - b. allow the You to control, and cooperate with the You in, the defense and any related settlement negotiations.

The Contributor indemnified by You may participate in any such claim at its own expense.