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1. Introduction

This document describes the information needed to facilitate the installation of an Automation Engine. It also answers typical IT related questions.

General system requirements for the involved computers can be found on http://www.esko.com/en/SystemRequirements/Automation%20Engine/

Note: This document mentions components and features that are (commercially) optional.

Note: CP is used as abbreviation for ‘Commercial Print’.

There are two sections in this document:

2. Guidelines and good practices in setting up an Automation Engine Environment.
2. Technical Details

2.1 Automation Engine in its environment

2.1.1 Overview

<table>
<thead>
<tr>
<th>Component</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Automation Engine Master server</td>
<td>Main server where all clients are connecting to. This server manages the Jobs and tasks database. This server also executes the actual server tasks.</td>
</tr>
<tr>
<td>Automation Engine Assistant server</td>
<td>Assistant server that can execute tasks to take away load from the master server.</td>
</tr>
<tr>
<td>Application server</td>
<td>Component serving the Automation Engine Viewer and CP (page) workflow tools. Typically this component is found on the Automation Engine Master server.</td>
</tr>
<tr>
<td>Database server</td>
<td>Server where the databases are located. Typically this component is found on the Automation Engine Master server.</td>
</tr>
<tr>
<td>Client</td>
<td>A client workstation is connecting to the Automation Engine Master server via Pilot or Shuttle. Editors can also connect to the server (ArtPro, PackEdge, Adobe Illustrator).</td>
</tr>
<tr>
<td>FlexRip</td>
<td>Esko RIP that generates digital files for proofs and/or plates. The Automation Engine Master typically connects to one or more RIP devices.</td>
</tr>
<tr>
<td>WebCenter</td>
<td>Esko’s online collaboration tool.</td>
</tr>
<tr>
<td>File server</td>
<td>Where the actual data is. Files are stored in 'Containers'.</td>
</tr>
<tr>
<td>Mail server</td>
<td>A mail server can be used by Automation Engine to send out e-mails.</td>
</tr>
</tbody>
</table>
2.2 Automation Engine installation

2.2.1 Automation Engine System User

Automation Engine needs a system user to run its service and connect to other network components. The Automation Engine System User account must meet following requirements on the Automation Engine server:

- should be a member of the Administrators group
- should have the Logon as Batch right
- should have the Logon as Service right

An installation of Automation Engine creates a local user BGSYSTEM on the Automation Engine Master according to these requirements. This user then serves as the Automation Engine System User.

2.2.2 Services

An installation of Automation Engine will install these services:

<table>
<thead>
<tr>
<th>Service name</th>
<th>Service running under</th>
<th>Purpose</th>
</tr>
</thead>
<tbody>
<tr>
<td>BGMD</td>
<td>Automation Engine System User</td>
<td>Automation Engine’s main service</td>
</tr>
<tr>
<td>EG APPLICATION SERVER (&quot;*)</td>
<td>Automation Engine System User</td>
<td>Application server service for Viewer and CP Layout tools</td>
</tr>
<tr>
<td>EG STATION INFORMATION SERVICE</td>
<td>Local System User</td>
<td>System info collection service</td>
</tr>
<tr>
<td>EGWEBSRV</td>
<td>Automation Engine System User</td>
<td>Webserver for server admin and client updates</td>
</tr>
<tr>
<td>FLEXlm License Manager</td>
<td>Local System User</td>
<td>License manager</td>
</tr>
<tr>
<td>FLEXnet licensing service</td>
<td>Local System User</td>
<td>License manager</td>
</tr>
</tbody>
</table>
### Automation Engine

<table>
<thead>
<tr>
<th>MSSQLSERVER</th>
<th>Network Service</th>
<th>Default database server</th>
</tr>
</thead>
<tbody>
<tr>
<td>MSSQL$EG_APPSrv_JBOSS (*)</td>
<td>Network Service</td>
<td>Default database server for the application server</td>
</tr>
<tr>
<td>MSSQLServerADHelper</td>
<td>Network Service</td>
<td>SQL Server Active Directory Helper</td>
</tr>
<tr>
<td>SQLWriter</td>
<td>Network Service</td>
<td>SQL Server VSS Writer</td>
</tr>
<tr>
<td>SQLBrowser</td>
<td>Network Service</td>
<td>SQL Server Browser</td>
</tr>
</tbody>
</table>

(*) Installed optionally on systems having Viewer and/or CP Layout Tools.

⚠️ **Attention:** All the services and processes of Automation Engine run as 32 bit.

### 2.2.3 Shares

These shares are created during the installation of Automation Engine:

<table>
<thead>
<tr>
<th>Sharename</th>
<th>Purpose</th>
<th>Access</th>
</tr>
</thead>
<tbody>
<tr>
<td>AutomationEngineImgFolder</td>
<td>Temporary folder for image data</td>
<td>server only</td>
</tr>
<tr>
<td>AutomationEngineLogging</td>
<td>Automation Engine log files</td>
<td>server only</td>
</tr>
<tr>
<td>AutomationEngineTmpFolder</td>
<td>Temporary folder for Automation server only</td>
<td>server only</td>
</tr>
<tr>
<td>bg_data_cms_v010</td>
<td>Central resources - Color management data</td>
<td>server and clients</td>
</tr>
<tr>
<td>bg_data_custom_v010</td>
<td>Central resources - Automation Engine presets</td>
<td>server and clients</td>
</tr>
<tr>
<td>bg_data_dgc_v010</td>
<td>Central resources - Dot gain curves</td>
<td>server and clients</td>
</tr>
<tr>
<td>bg_data_fonts_v040</td>
<td>Central resources - Fonts data</td>
<td>server and clients</td>
</tr>
<tr>
<td>bg_data_ipldata_v010</td>
<td>Central resources - CIP3/Inkplanner presets</td>
<td>server and clients</td>
</tr>
<tr>
<td>bg_data_marks_v010</td>
<td>Central resources - SmartMarks sets</td>
<td>server and clients</td>
</tr>
<tr>
<td>bg_data_system_v010</td>
<td>Central resources - License configuration</td>
<td>server and clients</td>
</tr>
<tr>
<td>DeskPackContainer</td>
<td>Container for temporary DeskPack files</td>
<td>server and clients</td>
</tr>
<tr>
<td>EG_APPSrv_BinDeploy</td>
<td>Application server configuration folder</td>
<td>server only</td>
</tr>
<tr>
<td>EG_APPSrv_CONFIGURATION</td>
<td>Application server configuration folder</td>
<td>server only</td>
</tr>
<tr>
<td>EG_APPSrv_Deploy</td>
<td>Application server configuration folder</td>
<td>server only</td>
</tr>
<tr>
<td>ExampleJobContainer</td>
<td>Default data container created at first install</td>
<td>server and clients</td>
</tr>
<tr>
<td>FastRipTask</td>
<td>FlexRip temporary folder</td>
<td>server and clients</td>
</tr>
<tr>
<td>Module</td>
<td>Description</td>
<td>Server and Clients</td>
</tr>
<tr>
<td>--------------</td>
<td>--------------------------------------------------</td>
<td>--------------------</td>
</tr>
<tr>
<td>Impose</td>
<td>FastImpose templates, marks and defaults</td>
<td></td>
</tr>
<tr>
<td>PitStop</td>
<td>Enfocus PitStop templates and configuration data</td>
<td></td>
</tr>
</tbody>
</table>

**Note:** Access right is set to: Read/Write for 'Everyone'

### 2.2.4 Installation Folder

Automation Engine is by default installed in a folder **Esko** on the root drive. Automation Engine cannot be installed in the **Program Files** or **Program Files (x86)** folder.

Every Automation Engine installation will create and use a temporary folder in the Esko folder (BG_TMP).

**Tip:** It is good practice to defer that folder to a drive other than the system drive. How to do that is described in the **Installation Guide**.

### 2.3 Network Details

#### 2.3.1 Network Configuration

Automation Engine requires TCP and IPv4 to work.

**Note:** IPv6 is unsupported.

You need to configure DNS correctly. Links to other network should be configured using host names, not IP addresses.

If a DNS and/or proxy server is used, make sure all components in the equation (Automation Engine Server, Automation Engine Client, Proxy Server) are able to do an `nslookup` on hostname of all other components.

**Danger:** After installation of the Automation Engine software, the host name of that server cannot be changed.

#### 2.3.2 Ports

These are the ports used by Automation Engine and the client software:

**TCP:**
- 8000-9000 for BGMD and the Automation Engine servers
- 5182 for ShuttleServer, unless configured otherwise
• 4401 for the Automation Engine JDF Server (service port)
• 1433 for the SQL server (default installation)
• 27100 and a dynamic port for Station Information Service
• 1098 RMI port for the EG Application server
• 1099 JNDI Naming Service for the EG Application server
• 4444 RMI Object for the EG Application server
• 4445 Transaction Manager for the EG Application server
• 27000 for the License Manager service

HTTP:
• 80 + 9999 for Tomcat/ServerAdmin (egwebsrv.exe)
• 8080 for EG Application Server
• 4411 for the Automation Engine JDFServer (JMF)
• 4412 for the Automation Engine Frip2JDF Server : process incoming feedback (JMF) from DFS
• 4415 for the Automation Engine ElemServer (experimental)

Connection with clients:
• The server sometimes relies on ephemeral ports, for example for uploading files in Pilot. These ports are picked randomly between 49152 and 65535.

2.3.3 LAN/WAN Network Performance


Latency simulations in a lab environment show that:

• With delays below 20ms client (Automation Engine Pilot) performance is optimal
• With delays till 50ms client performance is relatively acceptable
• With delays around 100ms (and higher) client performance is poor to unacceptable

Therefore Automation Engine is not suited to run in a WAN environment.

Attention: Using tools such as remote desktop services is in violation with the EULA (End User License Agreement).

2.4 Database server

By default, Automation Engine is installed with an SQL Express database engine. However, for scaling and performance reasons, one can choose to use a Full SQL server. Read more about this in Using a Full SQL Server on page 15.

2.4.1 Installation Details

Mandatory components:
• SQL Server Database Engine
• Replication and Fulltext components

Mandatory installation parameters:
• Collation settings: SQL_Latin1_General_CP1_C1_AS
• Security Mode: SQL
• TCP protocol for the SQL Server service: enabled

<table>
<thead>
<tr>
<th>Note:</th>
<th>These are the installation parameters used to install the default MSSQL Express server:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>/ACTION=INSTALL</td>
</tr>
<tr>
<td></td>
<td>/FEATURES=SQL</td>
</tr>
<tr>
<td></td>
<td>/BROWSERSVCSTARTUPTYPE=Automatic</td>
</tr>
<tr>
<td></td>
<td>/SQLSVCSTARTUPTYPE=Automatic</td>
</tr>
<tr>
<td></td>
<td>/SQLSVCACCOUNT=&quot;NT AUTHORITY\SYSTEM&quot;</td>
</tr>
<tr>
<td></td>
<td>/SQLSYSADMINACCOUNTS=&quot;BUILTIN\ADMINISTRATORS&quot;</td>
</tr>
<tr>
<td></td>
<td>/SQLCOLLATION=SQL_Latin1_General_CP1_C1_AS</td>
</tr>
<tr>
<td></td>
<td>/IACCEPTSQLSERVERLICENSETERMS=1</td>
</tr>
<tr>
<td></td>
<td>/INSTANCENAME=&lt;instancename&gt; of MSSQLSERVER for unnamed instance</td>
</tr>
<tr>
<td></td>
<td>/SECURITYMODE=SQL</td>
</tr>
<tr>
<td></td>
<td>/SAPWD=&lt;default password&gt;</td>
</tr>
<tr>
<td></td>
<td>/TCPENABLED=1</td>
</tr>
</tbody>
</table>

2.4.2 Configuration details

Automation Engine requires 4 databases to run:
• BSJobs
• FastLane_TM
• FastLane
• EG_Appserver_JBOSS

| Note: | The terms BS and FastLane refer to names of product that Automation Engine’s architecture originates from. |

To access and modify these databases, Automation Engine needs a user who can:
• Login to the Database server:
• Database roles:
  • db_owner: Members have full access.
  • db_accessadmin: Members can manage Windows groups and SQL Server logins.
  • db_datareader: Members can read all data.
  • db_datawriter: Members can add, delete, or modify data in the tables.
  • db_ddladmin: Members can run dynamic-link library (DLL) statements.
  • db_securityadmin: Members can modify role membership and manage permissions.
  • db_backupoperator: Members can back up the database.

2.4.3 Oracle as Database Server for the Application Server component

An Oracle database server can be used to run the EG_Appserver_JBOSS database of the Application Server component.
This will increase performance of the Pilot modes Pages, Proofs and Plates module. This so means that the use of Oracle is only relevant in a production workflow for books and magazines. It has no effect on the performance of the Viewer (which also uses the application server component).

Following database server versions are supported:

- Oracle 10g Standard Edition, Enterprise Edition
- Oracle 11g Standard Edition, Enterprise Edition

**Important:** using Oracle as a database server for BSJobs, FastLane_TM and FastLane is not supported.

### 2.5 File Server

#### 2.5.1 Server Types

Automation Engine can use data that is available on network shares. These shares need to be on Windows or Unix/Linux (using SMB) file servers.

> We recommend to use Windows Server 2003 or Windows Server 2008 as file server.

**Restriction:** Due to increasing connectivity issues between Mac OS and Windows Server, Mac OS X (version 10.5.x, 10.6.x, 10.7.x, 10.8.x, 10.9.x) data servers are no longer supported.

#### 2.5.2 Supported Access Protocols

Esko does not support fileserver access over protocols other than SMB/SMB2.

#### 2.5.3 File server access

The Automation Engine system user must have read and write access on the shares. read more on this in Automation Engine System User on page 6.

### 2.6 Mail Server

Automation Engine can send e-mail to communication with your colleagues or customers, but also with Esko Customer Service, to report problems.

Supported protocols are:

- smtp
- smtps (secure)
You can set up the Corporate Mail server or the Google servers to be used by the Automation Engine to send e-mails. For setting up a Google Server, you need a Google mail account. You can configure Automation Engine to use a secure connection to smtp.gmail.com on port 465 using that account.

### 2.7 Users and Groups

#### 2.7.1 Automation Engine Users

Users in Automation Engine map directly to Windows users. The Windows users are organized in two local Windows groups on the Automation Engine master. Regular users are in the **BGUSERS** group, administrators are in the **BGADMIN** group.

These Windows users can be local users on the Automation Engine master server or Windows domain users. If you create a new user via the Automation Engine Pilot, a local Windows user is created for you.

If you want to use domain users, then assign these domain users to either the BGUSERS or the BGADMIN local Windows group.

#### 2.7.2 Automation Engine Groups

User groups in Automation Engine have no correlation with Windows groups.

#### 2.7.3 Domain Users

Domain users can be used in Automation Engine. This requires that the Automation Engine system user can retrieve user info from the Active Directory. Read more in *Automation Engine System User* on page 6

**Restriction:** Automation Engine does not offer support for Domain Groups.

#### 2.7.4 Single Sign-On

The Automation Engine client software does not offer any implementation for "single sign-on".
2.8 The Automation Engine Pilot

2.8.1 Java

On Windows, a Java Runtime Environment (JRE version 1.7) is distributed with the Pilot. The user does not need to install Java on the client machine.

On MAC, a Java Runtime Environment 1.6 is required. However, Apple does not allow Esko to distribute this version, so the installation of Java has to happen separately from the Automation Engine client. The installation of Java should start automatically when the Java Runtime Environment is needed by the Automation Engine client installer. This automatic installation is currently provided by Apple and could change in the future.
3. General Guidelines

3.1 Scalability and Performance

3.1.1 Adding an Automation Engine Assistant

Adding an Assistant to Increase Throughput

Automation Engine comes with a built-in limit on the amount of concurrent tasks (tasks that are processed simultaneously). The number of concurrent tasks that can be processed depends on the licenses purchased. Evaluating and defining the amount of concurrent tasks needed should take into account the number of files processed and the number of task run on these files over a certain period.

The amount of concurrent tasks needs to be in line with the capacity (RAM/CPU) of the Automation Engine server. More concurrent tasks will increase the load on the system. If the capacity of the Automation Engine server has reached its limits, it can be increased by adding one or more Assistant servers. One Automation Engine server will take the role of Master, the other(s) will take the role of Assistant. The Master will monitor its own load and the load of the assistants to decide on which server a task should be executed.

Adding an Assistant for Redundancy

An Automation Engine Assistant is not an out of the box fail safe solution. However, it could be used in a fail safe scenario. In case the Master breaks down, an Automation Engine server in an Assistant role, can be promoted to a Master server. A full backup package of the Master (Configuration, Resources, Databases) can then be restored on the Assistant to rebuild the initial configuration. Note: the backup package of the Master generated by the scheduled backup procedure of Automation Engine can be automatically copied to the Assistant.

Fail safe solutions based on proper backup tools or on snapshots of virtual images are a valid alternative, and might be seen as a more effective solution.

Adding an Assistant versus Adding an extra Master

When throughput needs to be increased, adding an assistant is not necessarily the best option. If the production/organization can be split into logical components, then it could make sense to add an extra master.
One master-assistant(s) combination has one main processing queue.

### 3.1.2 Redirecting Central Resources

Following shares are considered as central resources:

- bg_data_cms_v010
- bg_data_custom_v010
- bg_data_dgc_v010
- bg_data_fonts_v040
- bg_data_ipldata_v010
- bg_data_marks_v010

It is allowed to redirect these resources to a central file server. Valid reasons for doing this are:

- **Access:** these shares need to accessed from other applications/servers than Automation Engine (PackEdge, ArtPro, FlexRip, ...)
- **Backup strategy:** these shares contain critical files such as color profiles, marks, curves,...
  
  Remember that these shares are also included in Automation Engine’s scheduled backup.

**Note:** Esko recommends keeping the resources on the Automation Engine server to avoid extra network traffic.

### 3.1.3 Using a Full SQLServer

**Express edition versus Full SQLServer**

Automation Engine requires a working DBMS (Database Management System) for its proper operation and persistent storage.

Microsoft’s SQL Server Express Edition is delivered and installed together with Automation Engine. Automation Engine is configured to work with this SQL Server as default DBMS in this out-of-the-box setup. New and empty databases and users are created during installation.

The SQL Server Express Edition software has the following limitations:

- **Database sizes are limited to 10 GB (as of Express Edition 2008 R2).**
- **The SQLServer service will only use 1 CPU and will restrict its memory usage to 1 GB.**

In many cases, the SQL Server Express Edition will be sufficient. However, from a certain load or performance expectation onwards, it is highly recommended to upgrade your Express edition to a full SQL Server. This section gives recommendations as to when the DBMS for an Automation Engine installation should be upgraded from an Express Edition to a full SQL server.

**Database Size Limitations**

SQL Server Express Edition 2008 R2, delivered along with Automation Engine (since 12.1.1 onwards), has a size limitation of 10 GB per database. However, you can scale up to a full version of SQL Server to increase the size limit to the disk size. Given that Automation Engine has three main databases, consider the following points:
Jobs database: Automation Engine does not function as an archiving system. To keep the Jobs database size under the limits, we recommend:

- keeping a Job online only for its lifetime. The concept of a Job is temporary by nature: Jobs, after a while, are done. If you have many re-prints of products, then consider using the Products tool (Database) as well.
- archiving unused Jobs and Products.

Note: Theoretical limits regarding the number of Jobs and Products exceed the practical Express Edition server demands (<50,000 jobs / <250,000 products) considerably.

Task Monitor database: To keep the size of the Task Monitor database under limits, we recommend:

- setting up adequate Task Clean Up rules.

Note: The theoretical limit on the number of tasks in the Task Monitor in terms of size (>100,000 tasks) is overruled by what the Express Edition server can handle in terms of performance (<100,000 tasks).

Task History database: We recommend archiving the tasks in the Task History database regularly to keep the database size under limits.

Note: For the 2005 and 2008 Express Edition databases, you can estimate the limits by reducing the limits by a factor 2.5.

Read more in:
- Performance Considerations on page 16
- Recommendations on page 17

Performance Considerations

The Automation Engine server performance depends on the performance of the used DBMS. This may be noticeable when searching a Job in the Pilot (for example while filtering), when monitoring tasks (while filtering or scrolling), when executing tasks (while persisting their state, progress, ticket, ...), and so on.

The number of tasks ran per day and the average number of connected operators (using a Pilot or Shuttle) determines the load put on the Automation Engine server and its DBMS. In addition, the setup of the DBMS and the environment in which it is running will also have an important effect on performance:

- The SQL Server software can be installed on the same computer as the Automation Engine software or on another computer.
- If the SQL Server is installed on another computer, then the network is involved. Under-performing network components may seriously influence DBMS performance. Other software running on that computer may influence performance as well.
- If the SQL Server is installed on the same computer as the Automation Engine (master or assistant), that may have an impact on the amount of memory and CPU resources available to the Automation Engine.
• An SQL Server can be set up to run 1 instance (unnamed or the default), or even multiple (named) instances. In case of an Express Edition, each instance then has its own limitations (as described above), independent of the others.
• Each Automation Engine database may be configured independently of the others (to potentially point to different SQL Server instances on potentially different computers).

Issues with database performance can be noticed in the following situations (but are not limited to):
• a decline in average response time as experienced by operators of the Pilot.
• a decline in average time between the moment of submitting a task and the moment the submitted task starts processing.

Recommendations

We recommend upgrading the SQL Server Express Edition to a full SQL Server if one or more of the following conditions apply when:
• more than 30,000 tasks are processed per day- this typically corresponds to 1,000 Jobs or files per day.
• more than 100,000 processed tasks are constantly present in the Task Monitor (assuming that cleanup rules are set up adequately).
• more than 20 active Pilots are connected simultaneously.
• Automation Engine is licensed and configured to run more then 7 concurrent tasks.
• the database size limitation risks to be exceeded.
• you use the functionality of the Pages, Proofs and Plates views (in commercial print imposition workflows).
• there is a continuous load on the Automation Engine server (when production runs 24 hours per day).

When upgrading to a full SQL Server, special attention must go to provide sufficiently powerful hardware. When the SQL Server is installed on a dedicated computer, we recommend:
• SQL Server 2012 Standard Edition
• a powerful machine (4-8 CPU)
• 64-bit OS (Windows 2008 R2 / Windows 2012)
• with at least 16 GB RAM (preferably 32 GB)
• with a high performance network card

Note: While SQL Server Express Edition is expected to be adequate, problems due to database hick ups can happen (for example when peak load happens frequently, which might cause some of the numbers mentioned above to be surpassed temporarily, but not on average). In such cases, we recommend consulting Esko Customer Support and switching to a full SQL server.

Local versus Remote SQL Server

Esko recommends having the database server(s) locally on the Automation Engine Master (to avoid extra network traffic). However, when a full SQL Server is required, the licensing model of SQLServer needs to be taken into account:
• Per CPU: high cost if high number of CPU
• Per Client: high cost if high number of end users (end users = amount of users connecting via Pilot, Shuttle, Access Points, so not just the BGMD service)
A full SQL server is needed in cases where both CPU usage and number of Automation Engine users will be high. In such cases, a dedicated server with 2 CPU’s can be a cost efficient alternative.

### 3.1.4 Example Configurations

An Automation Engine setup is scalable and modular. How to set up depends on the load that your server needs to carry and on the fail safe requirements.

#### Small Size Configuration

This includes:

- One Master Server: setup as Automation Engine Master. The role of this server is managing Jobs and tasks as well as processing tasks.
- One File Server: storing the data processed by the Automation Engine.

**Note:** Esko recommends to have a dedicated file server in every case, even for small size configurations.

#### Medium Size Configuration

This includes:

- One Master Server: setup as Automation Engine Master. The role of this server is managing Jobs and tasks as well as processing tasks.
- One Assistant Server: configured as an Automation Engine Assistant. This server will only process tasks.
- One File Server: this stores the data processed by the Automation Engine.

#### Large Configuration

This includes:

- One Master Server: setup as Automation Engine Master. The role of this server is managing Jobs and tasks as well as processing tasks.
- One Assistant Server: configured as an Automation Engine Assistant. This server will only process tasks.
- One File Server: stores the data processed by the Automation Engine.
- One Viewing Assistant: configured to handle the Viewing sessions of all the clients.
- One Database Server: The Master server connects to a dedicated database server.

#### Very Large configuration

This includes two separate server groups consisting of one Master server and two Assistant servers. Both server groups are completely independent units.

- Two Master Servers: setup as Automation Engine Master. The role of this server is managing Jobs and tasks as well as processing tasks.
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• Four Assistant Servers: configured as an Automation Engine Assistant. These servers will only process tasks.
• One File Server: stores the data processed by the Automation Engine

One server per group is setup as Automation Engine Master. The role of this server is reduced to only managing Jobs and tasks. The server has a relatively low amount of CPU and RAM. This server runs a full SQLServer database engine.

Two servers are configured as Assistant. Their role is to process tasks. These servers have a high amount of CPU and RAM.

The data processed by both server groups is stored on the file server.

3.2 Snapshots/Cloning

Taking a snapshot or cloning for fail safe purposes can be done under the condition that no licenses are activated on the server itself. When failing to do so, after restoring a snapshot of a virtual server or restoring a backup clone, the licenses will be broken.

This can be overcome by:
• Temporarily deactivating the licenses before creating a snapshot or a clone.
• Installing the licenses on a computer other than the Automation Engine server

3.3 Remote Desktop Services

Attention: Running the Automation Engine client software via Remote Desktop Services is in violation with the EULA (End User License Agreement).

3.4 Sharing the Automation Engine server with Other Applications

Automation Engine requires a dedicated server to run on. Installing other software might influence the functioning of Automation Engine and therefore is strongly discouraged.

3.4.1 Sharing the Automation Engine Server with other Esko Applications

1. WebCenter: Automation Engine and WebCenter can not be installed on the same server. Both applications will malfunction if installed on the same server.
2. FlexRip: FlexRip can be installed on the same server as Automation Engine. However, Esko advises to have these components on different servers.
3. PackEdge / Plato / i-cut Layout: Editors such as PackEdge / Plato / i-cut Layout are typically installed on a client station but can be installed on the same server as Automation Engine (for
example to build templates). However, Esko does not recommend to use the server as a client workstation.

4. **Nexus**: Automation Engine and Nexus cannot be installed on the same server. Both applications will malfunction if installed on the same server.

### 3.4.2 Virus Scanners and Firewalls

Make sure that virus scanners and firewalls (including OS firewalls) do not interfere with the Automation Engine software (blocking temp files, processes).