

Classification: Published

1. Technical server requirements

1.1. Database-server

1.1.1. Goals

The main server will serve as host for the database and all files necessary for the proper functioning of the rich client of Adfinity

It is desirable that the main server is only and solely used for Adfinity.

If you do not have a server that can serve to host Adfinity, EASI can make you an offer.

1.1.2. Hardware requirements in a physical environment

Processor

EASI recommends to use a minimum 1 processor having a clock speed of 2.5 GHz (quad-core or more).

Memory

EASI recommends to provide a minimum of 12 GB of RAM.

Ideally, this RAM is to represent 60% of the sum of the size of the active databases, to which 4 GB is added for the operating system.

Storage

Minimum configuration

A physical separation of the discs is necessary for the performance of the main server of Adfinity. The use of logical disks is not enough.

The minimum distribution is the following - 15,000 RPM:

- 2 disks in RAID 1 for the system part
- Minimum 3 disks in RAID 5 for the database and the Microsoft SQL Server journaling

So in total 5 disks.

Recommended configuration

A physical separation of the discs is necessary for the performance of the main server of Adfinity. The use of logical disks is not enough.

The minimum distribution is the following – SSD or Flash:

- 2 disks in RAID 1 for the system part
- 2 disks in RAID 1 for journaling on the Microsoft SQL Server
- 2 disks in RAID 1 for the data or 4 disks in RAID 10 (or RAID 1 + 0) for the data
- 2 disks in RAID 1 for the temporary databases

So in total 8 or 10 disks.

1.1.3. Hardware requirements in a virtualized environment

Adfinity can be installed on a virtualized environment. In that case, the following requirements apply:

Processor

EASI recommends to use a minimum of 4 VCPU having a clock speed of 2.5 GHz.

Memory

EASI recommends a minimum of 12 GB of RAM. This capacity must also be reserved.

Ideally, this RAM is to represent 60% of the sum of the size of the active databases, to which 4 GB is added for the operating system.

Storage

Minimum-configuration

If it is impossible to assign physical disks, you must provide the following as a minimum:

- 500 IOPS per lot of 20 users of Adfinity (rich client)
- 100 IOPS per lot of 20 users of Adfinity Web Access (web client)

Recommended configuration

Ideally, physical disk drives need to be mapped to the virtual server to support the workload.

Recommended configuration of the virtual disks:

- 1 virtual disk for the system part
- 1 virtual disk for the journaling of Microsoft SQL Server
- 1 virtual disk for the data
- 1 virtual disk for the temporary databases
- 1 virtual disk for the backups
- 1 virtual disk for the pagination-file

So in total 6 disks.

1.1.4. Backup-procedure and maintenance of the database

Microsoft SQL Server has a tool for backup and maintenance of the database. These jobs can be scheduled and run during the night for example.

EASI is not responsible for the proper functioning nor the maintenance of these procedures.

We can provide a budget if you want us to help you to establish these procedures.

1.1.5. Software requirements

Microsoft Windows Server

A version of Windows Server must be installed. (Minimum Standard 2016 Standard).

The SBS version may not be used

It is also strongly recommended not to install SQL Server on the same machine that also runs the Active Directory.

Microsoft SQL Server



Although Adfinity is compatible with SQL Server 2012, EASI recommends that you install the Standard version SQL Server 2016. We recommend that you only install the Adfinity database on this server.

EASI has an agreement with Microsoft on SQL Server licenses. So you can enjoy special conditions when you purchase the SQL licenses, to the extent that they are used only for Adfinity.

Microsoft proposes two licensing formulas: per CAL or per CORE.

Please contact us for your best offer.

Specifications in a virtualized environment

VMWare

Adfinity support can only be guaranteed on VMware ESX (from version 6.0).

Versions Player, Workstation, Server or GSX are not supported.

Hyper-V

Adfinity is only supported on Hyper-V from version 2012R2.

1.2. 'Shared offices' – server

1.2.1. Objectives

Adfinity is compatible with the 'shared offices' solutions **Citrix** and Microsoft **Remote Desktop Services** (formerly Microsoft Terminal Server). *RemoteApp* is not supported.

We recommend this solution if you frequently need remote connections.

If you choose this option, at least one additional server is needed to host the RDS or Citrix layer. If you wish, EASI may provide you with all the necessary licenses in order to comply to these operational setup needs.

We have experience with Citrix configurations. We can advise you in choosing the location of the Citrix server and parameterization.

1.2.2. Hardware requirements in a physical environment

The sizing of the server is based on the number of people who will have to connect to this server.

Processors

Up to 35 users of the rich client of Adfinity system, the minimum configuration is 1 CPU of 2.5 Ghz (octo-core).

From 36 to 70 users of the rich client, one has to provide 2 CPUs of 2.5GHz (octo core) or 2 servers.

Per 35 additional users, apply the requirements as shown above.

Memory

Up to 35 users of the rich client of Adfinity system, the minimum configuration is 32 GB RAM.

From 36 to 70 users 64 GB is necessary.

Per 35 additional users, apply the requirements as shown above.

Storage

Minimum-configuration

We recommend to install a minimum of 2 disks in RAID 1, 15,000 RPM. (minimum 150 Gb disk space divided over 2 RAID disks)

Recommended configuration

We recommend to install at least three disks in RAID 5 (SSD or Flash).

1.2.3. Hardware requirements in a virtualized environment

You could set up your virtual office servers in a virtualized environment.

The sizing of the server is done according to the number of people who will need to connect to this server.

Processors

Up to 35 users of the rich client of Adfinity system, the minimum configuration is 8 VCPU of 2,5 Ghz.

From 36 to 70 users of the rich client, 2 servers of 8 VCPU of 2,5 Ghz.

Per 35 additional users, apply the requirements as shown above.

Memory

Up to 35 users of the rich client of Adfinity system, the minimum configuration is 32 GB RAM reserved.

From 36 to 70 users, 64 GB is necessary.

Per 35 additional users, apply the requirements as shown above.

Storage

Minimum configuration

If it is not possible to assign physical disks, you must provide a minimum of 200 IOPS per lot of 35 users of the rich client and minimum 150 Gb of disk space.

Recommended configuration

We recommend to install at least an SSD of Flash based storage system with a minimum of 150 Gb of space.

1.2.4. Software requirements

Microsoft Windows Server

A version of the Windows server installation is mandatory. (Minimum Standard 2012R2).

Citrix

XenApp 7.15 is the minimum version required to use Adfinity via Citrix.

Specific requirements in a virtualized environment

Adfinity is supported starting from VMware ESX version 6.0. Versions Player, Workstation, Server or GSX are not supported.

Adfinity is only supported on Hyper-V from version 2012R2.

1.3. Webserver

1.3.1. Objectives

This server hosts the platform where invoices can be approved, purchase requests can be managed, accounts can be consulted ... via Web or Mobile.

These tools require an access to a Web service. This will be installed on the Web server.

For security reasons, the Web service can never be installed on the SQL server or on a Web server that is already used by another application.

This server will host the website and the engine of the Web services. To attain this, the Adfinity Webserver engine will be installed and configured on the web server. This will make it possible to launch sessions used for the consultation of these web services.

Generally speaking:

- The CPU will make sure the speed of execution of the web service is guaranteed
- The RAM manages the simultaneous active users

1.3.2. Hardware requirements in a physical environment

The sizing of the server is based on the number of users that will have to connect to it.

Processors

- Up to 80 users, the minimum configuration is 1 CPU 2Ghz (quad core).
- With more than 80 users and based on the number of simultaneous users, a preliminary analysis is recommended.

Memory

- Up to 40 users, the minimum configuration is 8 GB of RAM.
- From 40 to 80 users, the minimum configuration is 16 GB of RAM.
- With more than 80 users, a preliminary analysis is recommended.

Storage

We recommend a minimum installation of two 150 GB disks in RAID 1, 10,000 RPM. Ideally, two 150 GB drives are installed in RAID 5, 10,000 RPM.

1.3.3. Hardware requirements in a virtualized environment

You can set up your Web Access servers in a virtualized environment

The sizing of the server is based on the number of users that will have to connect to it.

Processors

- Until 80 users, the minimum configuration is 4VCPU of 2 Ghz (quad core)
- With more than 80 users, a preliminary analysis is needed.

Memory

- Up to 40 users, the minimum configuration is 8 GB of RAM.

- From 40 to 80 users, the minimum configuration is 16 GB of RAM.
- With more than 80 users, a preliminary analysis is needed.

Storage

Minimum configuration

At least 200 IOPS per lot of 100 users.

Recommended configuration

We recommend to install a disk of 10.000 RPM.

1.3.4. Software requirements

1.3.4.1. Operating system

Microsoft Windows Server (in case of a dedicated server)

Required is that a Windows Server is installed (minimum 2012R2).

A 64bit server is recommended.

Linux OS is not supported.

1.3.4.2. HTTP Server

It is recommended to host the website via an IIS server, minimum version 7.5.

Although not recommended, we support Apache version 2.4.x (if already installed). Apache has to be installed as (local) administrator for the service to run correctly.

The use of other HTTP web services is not excluded. EASI has no experience with other HTTP Web servers than those mentioned earlier and does not guarantee the compatibility nor assistance of the client at configuring the server.

If a server needs to be used that is not an IIS server, a detailed analysis will have to take place.

1.3.4.3. Ports

If the Webserver has to be accessible from everywhere, in example to be able to use the mobile application, there should be a dedicated port that is authorised by the firewall to be accessed.

1.3.4.4. Framework .Net

Adfinity Webserver requires the framework .Net 4.6.2. The installation package MS Visual C++ 2010 redistributable is also required.

1.3.4.5. Specifics in virtualized environments

Adfinity is only supported from version 6.0 VMware ESX. Versions Player, Workstation, Server or GSX are not supported.

Adfinity is only supported on Hyper-V from version 2012R2

1.3.5. Windows permissions & dedicated account

It's required to dedicate a Windows account to the Web Service.

All requests sent to the web service will be processed with the login-information linked to the Web Service account. The Windows account will be used to access shared folders on the network (i.e. for retrieving PDF files). The account must be a login of the domain. By default, the configured web service account is a local account that has no access to the network. It is important to change the web service account during installation.

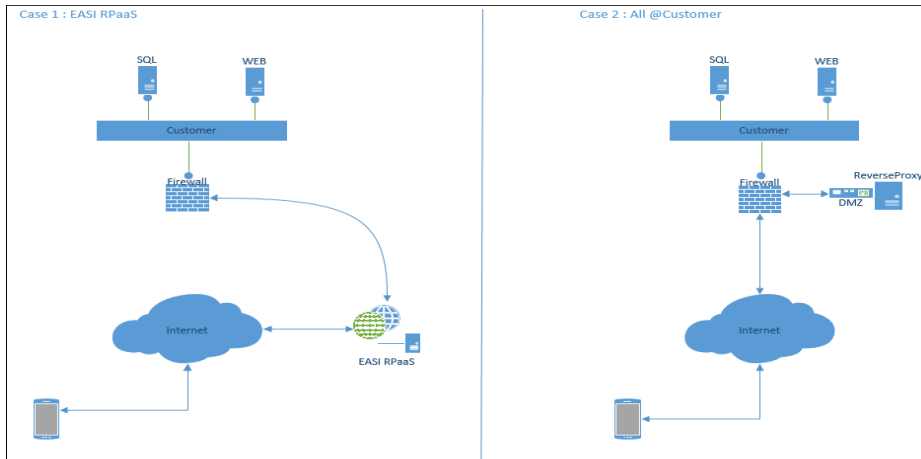
The next points are mandatory for the dedicated account:

- The password remains valid and does not expire
- The shared folder with the Adfinity data (bv. "EASIBS_DATA") is configured so that the dedicated windows account has the right to read and write.

1.3.6. Security management and remote access

If the application must be accessible from outside the company network (*), it's recommended to use a reverse proxy and put it in DMZ. This grants secured remote access to the different servers of the company.

Depending on the different specifications, there are 2 solutions to setup the reverse proxy.



(*) For a mobile application, remote access to the company network is required

1.3.6.1. Solution 1 – The reverse proxy is managed by EASI

EASI recommends the use of a reverse proxy which is directly accessible in the own infrastructure (EASI Reverse Proxy as a Service). It functions as an intermediary gateway between the outside world (internet) and the firewall of the company (and its Web and SQL servers).

There is a cost per user / month, and a budget for the RPaaS activation and firewall configuration. EASI will estimate the time needed for this implementation.

This solution has the advantage that it isn't needed to invest a reverse proxy, or invest in and maintaining an electronic certificate (TLS- or SSL-certificate) for the use of the HTTPS protocol. The solution recommended by EASI contains them already.

This solution is offered as a service. Please contact us for your pricing.

1.3.6.2. Solution 2 – Security managed by the client

If your infrastructure already contains a reverse proxy in the DMZ or if you want to buy your own reverse proxy, EASI recommends that you manage the security of the Mobile approvals autonomously.

An electronic certificate is needed for the setup of the https protocol for the intended domain (to secure the access to the web server). The certificate is limited in time and must be annually renewed.

The estimated rates for implementing this solution are:

Cost of the licences / material

- Buying a reverse proxy server: +/- 3.000 EUR
- Prefix certificate for a specific domain: +/- 80 EUR / year (the price can vary if bought for a longer period)
- Prefix certificate for free domain (wildcard): +/- 200 EUR / year
 - The wildcard allows the use of a free domain, for example *.<domain>.net

These costs are increased by the configuration of the reverse proxy server and the firewall.

1.4. Task Management

1.4.1. Hardware requirements

Task Management is installed on the main server of the database.

1.4.2. Software requirements

Microsoft Outlook

The integration of e-mails works with Microsoft Outlook.

The minimum version of Outlook is Outlook 2010.

Microsoft Exchange Server

The presence of an Exchange server is needed for synchronization with your Outlook calendar.

The minimum version of Exchange, Exchange 2010.

IIS-server

The calendar synchronization also requires the presence of an IIS server on the server who also hosts Exchange Server.

This is normally installed by default with the Exchange Server.

The minimum version is 7.5.

Visual Studio 2010 Tools

The installation of the plugin Task Management for Outlook requires Visual Studio Tools 2010 or later on the workstation of the user whose plugin must be installed.

2. Requirements for the end-user stations

2.1. User stations of Adfinity users (rich client)

Minimum requirements for the end-user stations:

- CPU Core i5 minimum
- 4 GB RAM minimum, 8 GB recommended (as explained below)
- Operating System 64 bit Pro: Windows 7 or later
- Hard disks 7200 rpm minimum, SSD recommended
- Framework .NET 4.6.2.

The application has no specific requirements regarding the size of the hard drive. The screen resolution should be at least **1024 by 768**. Adfinity also works in 'two-screen' mode. For the user it is even recommended to use a resolution of at least 1600 by 900 with a large screen (> = 21 inches) and to use two screens.

The resolution of these screens increased in the course of time. Laptop screens with high resolution full HD type, form occasional visual problems because the letters can become very small.

Microsoft Windows includes the ability to use a "magnifying glass" effect on the screens and fonts. This function is not compatible with Adfinity.

Please note that the standard reporting module of Adfinity requires much RAM memory from the end user station

The .Net Framework (version 4) must be installed on each end user station.

2.2. User stations used for scanning invoices

The scanning of invoices requires the installation of the following components:

- Scanning Software
- Dymo

For the scanning, a physical workstation (PC) is required.

Minimum requirements for this workstation:

- CPU Core i5 minimum, i7 recommended (scanning is an operation that requires a lot of computing power)
- 8 GB RAM at least
- Operating System 64 bit, Windows 7 or later

2.3. User stations used for webversion

Internet browsers

Recommended: Google Chrome & Microsoft Edge

Compatible: Mozilla Firefox

Not recommended: Internet Explorer

Prohibited:

- IE (versions <= 8)
- Mozilla Firefox (versions <=46)



If a recommended browser is used, it is not required to install a PDF plugin.

When IE is used, it is required to install a PDF plugin (i.e. Adobe Reader).

2.4. Devices for mobile application

The mobile application is available for iOS (≥ 8.1) & Android (≥ 5.0) devices.

3. Network requirements

3.1. Local Mode (my PC is in the office, where the main server is located)

A connectivity of 1 GB/s is recommended (in terms of network cards but also for other infrastructure such as switches ...)

3.2. Mode “Shared offices”

EASI recommends ensuring 200 Kb of bandwidth per concurrent user download.

EASI recommends ensuring 50 Kb of bandwidth per concurrent user upload.

3.3. VPN-mode with the rich client on the workstation

We do not recommend this way of working. However, if it is necessary in your case to work this way, EASI recommends 2MB of guaranteed bandwidth per concurrent user, both in download and upload. The response of the line has a significant impact on the reactivity of Adfinity.

3.4. Back-up via Smartdrive

EASI proposes to store your data in our cloud by using SmartDrive.

It is a product similar to Dropbox or Google Drive, except that you keep control over where your data is stored.

Indeed, EASI has a Tier 3 data centre at Proximus

By data, we mean the database backup and all files in the "technical" Adfinity directory.

It is necessary to provide at least 2 MB of upload for the data transfer.

This upload speed makes it possible to upload 1GB in 66 minutes. We must therefore determine the ideal bandwidth, depending on what you want to store on our servers.

3.5. Useful links

There are several tools on the internet that allow to test your bandwidth capacity. However, bear in mind that you should seek the result for the whole of your organization.

The following tool is best known for measuring: www.speedtest.net

4. Requirements for Cloud2be for Adfinity

Adfinity also works in cloud SaaS mode. (Software-as-a-Service).

4.1. Bandwidth per user

EASI recommends ensuring 200 Kb of bandwidth per concurrent user download.

EASI recommends ensuring 50 Kb of bandwidth per concurrent user upload.

The network latency cannot be higher than 20 ms.

With the exception of the network bandwidth between your site and our servers, all of the necessary resources in this case is estimated by our vendor, depending on your needs as foreseen on our servers.

Know that it is possible to reserve a part of your bandwidth exclusively to Adfinity via your firewall.

4.2. Operating system

Windows 10 – 1703 (Build 10.0.15063)

Windows 8.1 (Build 6.3.9600)

Windows 7 SP1 (Build 6.1.7601)

MAC OS X 10.11 and newer

4.3. Browser

Chrome 60

Firefox 55 and newer

Internet Explorer 11

Safari for MAC V.11.0.3

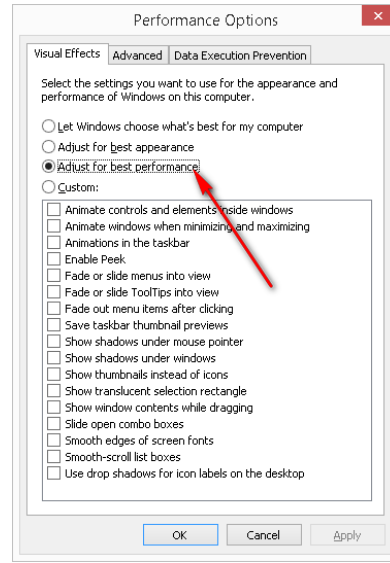
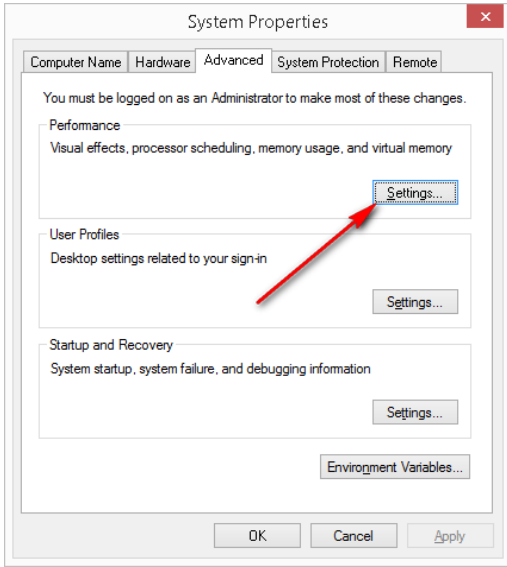
4.4. Citrix Receiver

Version 4.12 and newer (Windows)

Version 11.8 (MAC)

4.5. Windows setup

In the system properties of the user's computer, it's recommended to configure the performance options in this way :



5. Prereqs for the Excel Add-in

The Excel add-in is compatible with Excel 2013 and 2016 (x64 or x32)

The .NET Framework version 4.5.2. has to be available on the end user workstation.