

Installation requirements



Installation manual for system providers and tenants

8/11/2022

Product line Neo, version 7.x

The described functions can be used with the following ASC products:

EVOIP^{neo}

EVOLUTION^{neo} / XXL / eco

INSPIRATION^{neo}

Please note that you can always find the most up-to-date technical documentation and product updates in the partner area on our website at <https://www.asctechnologies.com>.

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2 Introduction

2 Introduction

This document describes the hardware and software requirements for the servers and clients used for the Neo recording solutions.



This document is valid exclusively for the product line Neo, version 7.0 in the currently valid revision.



ASC cannot guarantee the smooth operation if the minimum requirements for the systems have not been fulfilled.

3.1

Supported browsers

For the web applications, the following browsers are supported:

- Firefox version 85.x or higher
- Microsoft Edge
- Google Chrome version 73 or higher

3.2

Supported cloud platforms

The following cloud platforms are supported:

- Amazon Web Services (AWS)
- Google Cloud Platform (GCP)
- Microsoft Azure

3.3

Virus protection

The installation of an antivirus software on a Neo recording system lies within the responsibility of the customer.

The installation of an antivirus software does affect neither warranty nor maintenance contracts; however ASC does not assume any liability for consequential damages that may occur due to the use of the antivirus software.

Running an antivirus software may slow down the execution of the Neo software during periods of high system utilization. Running an antivirus software has an impact on the execution of functions, too, which involve increased data exchange at the I/O interfaces (e. g. creating diagnostic data, statistics or updating configuration data) and may thus cause functional impairment.

For this reason, ASC recommends defining time intervals for scanning the entire system for viruses when system utilization and data transfer rates are low.

Antivirus programs tested by ASC and supported:

- Windows Defender (virus protection integrated into Windows operating systems)

Required settings of an antivirus software:

- On-access scanning must have been activated.
- The following directories are mandatory to be excluded from the virus scan:
 - All directories on the database partition (ASCDB, replication, ...)
 - Directory *ASC DATA*
 - Directory *ASC Product Suite*
- The following file is mandatory to be excluded from the virus scan:
 - File *C:\Program Files\PostgreSQL\9.5\bin\postgres.exe* or *C:\Program Files\PostgreSQL\12\bin\postgres.exe* (the path depends on the deployed PostgreSQL version.)



When installing and/or updating the Neo software, on-access scanning must have been disabled.

Troubleshooting

If the antivirus software should cause errors in the Neo software, proceed as follows:

1. Uninstall or deactivate the antivirus software to restore the flawless operation of the Neo software.
2. Contact your local ASC support or the ASC support by calling +49 700 27278776 to coordinate the further course of action.

3.4 Servers

3.4.1 Sizing guide

This chapter serves as a guideline to correctly size hardware servers and virtual machines for Neo solutions. Information is available on how to size single-server solutions as well as all standard server types which are used in distributed Neo solutions.

The following figure shows the classification of the different server types.

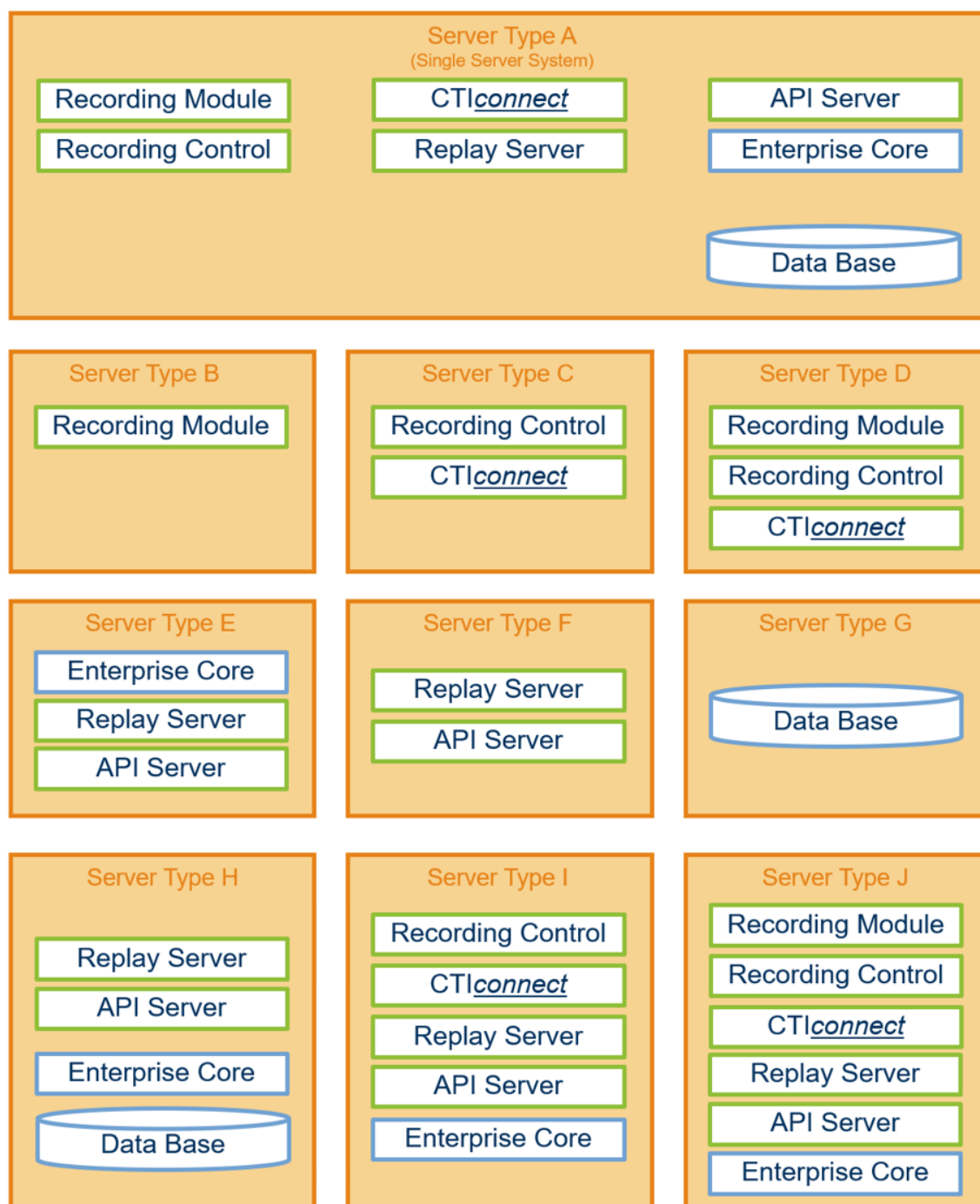


Fig. 1: Server types

Calculating the requirements of the server

To offer a method to properly calculate the server requirements for different media, the following chapters use the unit Recording Equivalent (RE) which is defined as follows:

- Concurrent audio recording stereo unencrypted = 1 RE
- Concurrent audio recording stereo unencrypted with post-compression = 1.2 RE
- Concurrent audio recording stereo encrypted = 1.5 RE
- Concurrent audio recording stereo encrypted with post-compression = 1.6 RE
- Passive audio recording = 1.6 RE
- Concurrent screen recording = 10 RE
- Concurrent video recording = 10 RE
- Concurrent chat, SMS or SDS recording = 0.5 RE
- 200 RE per 6000 call imports per hour (Neo to Neo transfer or V10 to Neo transfer or [WAVE](#) import)

This allows calculating the requirements of any combination of recordings for a single server.

Examples:

- On a single server, 100 concurrent audio recordings unencrypted together with 40 concurrent video recordings and 10 concurrent chat recordings are supposed to be created.

Calculating the RE value:

$$100 \text{ RE (audio } 100 * 1 \text{ RE)} + 400 \text{ RE (video } 40 * 10 \text{ RE)} + 5 \text{ RE (chat } 10 * 0.5 \text{ RE)} \\ = 505 \text{ RE.}$$

This implies that a server of a medium performance class is required (s. table below).

- On a single server, 100 passive audio recordings unencrypted together with 40 concurrent video recordings and 10 concurrent chat recordings are supposed to be created.

Calculating the RE value:

$$160 \text{ RE (audio } 100 * 1.6 \text{ RE)} + 400 \text{ RE (video } 40 * 10 \text{ RE)} + 5 \text{ RE (chat } 10 * 0.5 \text{ RE)} \\ = 565 \text{ RE.}$$

This implies that a server of a medium performance class is required (s. table below).

For cloud platforms, ASC recommends the following server types:

Cloud platform	Server type
Amazon EC2	M5 series
GCP (Google Cloud Platform)	N1 series
Microsoft Azure	Standard_Dx_v3

General information



For the redundant array of independent hard disks in physical servers, either [RAID 1](#) or [RAID 10](#) must be used.

3.4.1.1 Server type A – Single-server system

Server

Minimum performance class	Medium performance class	High performance class
≤ 300 RE ≤ 10 concurrent re-plays	≤ 600 RE ≤ 20 concurrent re-plays	≤ 1000 RE ≤ 40 concurrent re-plays

	Minimum performance class	Medium performance class	High performance class
	≤ 1 million conversations saved in the database	≤ 5 million conversations saved in the database	> 5 million conversations saved in the database
CPU cores	4	6	12
CPU speed	2.5 GHz	2.5 GHz	2.5 GHz
RAM	≥ 16 GB	≥ 16 GB	≥ 32 GB
Hard disk net capacity	Depends on storage demands for conversations	Depends on storage demands for conversations	SSD for database partition mandatory Depends on storage demands for conversations

Tab. 1: Server

Virtual machine

ATTENTION!

Neo is a near real-time application which cannot work with resource sharing. Therefore, all VMware resources must be assigned exclusively to the virtual Neo machines and drives must be configured as *Thick*. If this precondition is not fulfilled, loss of recordings is imminent!

	Minimum performance class	Medium performance class	High performance class
	≤ 300 RE ≤ 10 concurrent replays ≤ 1 million conversations saved in the database	≤ 600 RE ≤ 20 concurrent replays ≤ 5 million conversations saved in the database	≤ 1000 RE ≤ 40 concurrent replays > 5 million conversations saved in the database
vCPU cores	4	6	12
vCPU speed	2.5 GHz	2.5 GHz	2.5 GHz
vRAM	≥ 16 GB	≥ 16 GB	≥ 32 GB
vDisk	Depends on storage demands for conversations	Depends on storage demands for conversations	SSD for database partition mandatory Depends on storage demands for conversations
IOPS [min] [max] [typical]	[100] [200] [150]	[150] [500] [180]	[1000] [8000] [5000]

Tab. 2: Virtual machine



In case, only a lower than the required **vCPU** speed can be provided, this could be compensated by increasing the **vCPU** cores.

ASC hardware

	EVOLUTION _{neo} eco	EVOLUTION _{neo}	EVOLUTION _{neo} XXL
	≤ 150 RE	≤ 600 RE	≤ 800 RE
	≤ 60 concurrent audio recordings no screen or video recordings ≤ 10 concurrent re-plays ≤ 1 million conversations saved in the database	≤ 360 TDM or ≤ 200 VoIP concurrent audio recordings ≤ 10 screen or video recordings ≤ 10 concurrent re-plays ≤ 5 million conversations saved in the database	≤ 480 TDM or ≤ 300 VoIP concurrent audio recordings ≤ 10 screen or video recordings ≤ 40 concurrent re-plays ≤ 5 million conversations saved in the database
Option:		> 5 million conversations saved in the database	> 5 million conversations saved in the database
Hard disk		SSD	SSD

Tab. 3: ASC hardware

The following restrictions apply when using an ASC hardware system:

- No emotion detection possible
- No free-text search (Solr) possible.
- The applications INSPIRATION_{neo} and REPORT_{neo} can only be used with an external database.
- No Recording Content Validation with silence passages possible.

3.4.1.2 Server type B – Recording server / Recording module

Server

	Minimum performance class	Medium performance class	High performance class
	≤ 300 RE	≤ 600 RE	≤ 1000 RE
CPU cores	4	6	8
CPU speed	2.5 GHz	2.5 GHz	2.5 GHz
RAM	4 GB	6 GB	8 GB
Hard disk net capacity	Depends on storage demands for conversations	Depends on storage demands for conversations	Depends on storage demands for conversations

Tab. 4: Server

Virtual machine

ATTENTION!

Neo is a near real-time application which cannot work with resource sharing. Therefore, all VMware resources must be assigned exclusively to the virtual Neo machines and drives must be configured as *Thick*. If this precondition is not fulfilled, loss of recordings is imminent!

	Minimum performance class	Medium performance class	High performance class
	≤ 300 RE	≤ 600 RE	≤ 1000 RE
vCPU cores	4	6	8
vCPU speed	2.5 GHz	2.5 GHz	2.5 GHz
vRAM	4 GB	6 GB	8 GB
vDisk	Depends on storage demands for conversations	Depends on storage demands for conversations	Depends on storage demands for conversations
IOPS [min] [max] [typical]	[100] [200] [150]	[150] [500] [180]	[150] [800] [200]

Tab. 5: Virtual machine



In case, only a lower than the required **vCPU** speed can be provided, this could be compensated by increasing the **vCPU** cores.

ASC hardware

	EVOLUTION _{neo} eco	EVOLUTION _{neo}	EVOLUTION _{neo} XXL
	≤ 150 RE	≤ 600 RE	≤ 800 RE
	≤ 60 concurrent audio recordings	≤ 360 concurrent audio recordings	≤ 480 concurrent audio recordings
	no screen or video recordings	≤ 10 screen or video recordings	≤ 10 screen or video recordings

Tab. 6: ASC hardware

3.4.1.3 Server type C – Recording Control / CTI Connect

Server

	Minimum performance class	Medium performance class	High performance class
	≤ 2000 RE	≤ 4000 RE	≥ 4000 RE
CPU cores	4	6	8
CPU speed	2.5 GHz	2.5 GHz	2.5 GHz
RAM	4 GB	6 GB	8 GB
Hard disk net capacity	100 GB	100 GB	100 GB

Tab. 7: Server

Virtual machine

ATTENTION!

Neo is a near real-time application which cannot work with resource sharing. Therefore, all VMware resources must be assigned exclusively to the virtual Neo machines and drives must be configured as *Thick*. If this precondition is not fulfilled, loss of recordings is imminent!

	Minimum performance class	Medium performance class	High performance class
	≤ 2000 RE	≤ 4000 RE	≥ 4000 RE
vCPU cores	4	6	8
vCPU speed	2.5 GHz	2.5 GHz	2.5 GHz
vRAM	4 GB	6 GB	8 GB
vDisk	100 GB	100 GB	100 GB
IOPS [min] [max] [typical]	[100] [100] [100]	[100] [100] [100]	[100] [100] [100]

Tab. 8: Virtual machine



In case, only a lower than the required **vCPU** speed can be provided, this could be compensated by increasing the **vCPU** cores.

3.4.1.4 Server type D – Recording Control/CTI Connect/Recording module

Server

	Minimum performance class	Medium performance class	High performance class
	≤ 300 RE	≤ 600 RE	≤ 1000 RE
CPU cores	4	6	8
CPU speed	2.5 GHz	2.5 GHz	2.5 GHz
RAM	4 GB	6 GB	8 GB
Hard disk net capacity	Depends on storage demands for conversations	Depends on storage demands for conversations	Depends on storage demands for conversations

Tab. 9: Server

Virtual machine

ATTENTION!

Neo is a near real-time application which cannot work with resource sharing. Therefore, all VMware resources must be assigned exclusively to the virtual Neo machines and drives must be configured as *Thick*. If this precondition is not fulfilled, loss of recordings is imminent!

	Minimum performance class	Medium performance class	High performance class
	≤ 300 RE	≤ 600 RE	≤ 1000 RE
vCPU cores	4	6	8
vCPU speed	2.5 GHz	2.5 GHz	2.5 GHz
vRAM	4 GB	6 GB	8 GB
vDisk	Depends on storage demands for conversations	Depends on storage demands for conversations	Depends on storage demands for conversations

	Minimum performance class	Medium performance class	High performance class
IOPS [min] [max] [typical]	[100] [200] [150]	[150] [500] [180]	[150] [800] [200]

Tab. 10: Virtual machine



In case, only a lower than the required **vCPU** speed can be provided, this could be compensated by increasing the **vCPU** cores.

ASC hardware

	EVOLUTION _{neo} eco	EVOLUTION _{neo}	EVOLUTION _{neo} XXL
	≤ 150 RE	≤ 600 RE	≤ 800 RE
	≤ 60 concurrent audio recordings	≤ 360 concurrent audio recordings	≤ 480 concurrent audio recordings
	no screen or video recordings	≤ 10 screen or video recordings	≤ 10 screen or video recordings

Tab. 11: ASC hardware

3.4.1.5 Server type E – Enterprise Core Server / Replay Server / API Server

Server

	Minimum performance class	Medium performance class	High performance class
	≤ 2000 RE	≤ 4000 RE	≥ 4000 RE
	≤ 10 concurrent re-plays	≤ 20 concurrent re-plays	≤ 40 concurrent re-plays
CPU cores	4	6	8
CPU speed	2.5 GHz	2.5 GHz	2.5 GHz
RAM	4 GB	6 GB	8 GB
Hard disk net capacity	Depends on storage demands for conversations	Depends on storage demands for conversations	Depends on storage demands for conversations
Option:	≤ 50 concurrent re-plays	≤ 100 concurrent re-plays	≤ 200 concurrent re-plays
RAM	additional 4 GB	additional 6 GB	additional 8 GB

Tab. 12: Server

Virtual machine

ATTENTION!

Neo is a near real-time application which cannot work with resource sharing. Therefore, all VMware resources must be assigned exclusively to the virtual Neo machines and drives must be configured as *Thick*. If this precondition is not fulfilled, loss of recordings is imminent!

	Minimum performance class	Medium performance class	High performance class
	≤ 2000 RE ≤ 10 concurrent re-plays	≤ 4000 RE ≤ 20 concurrent re-plays	≥ 4000 RE ≤ 40 concurrent re-plays
vCPU cores	4	6	8
vCPU speed	2.5 GHz	2.5 GHz	2.5 GHz
vRAM	4 GB	6 GB	8 GB
vDisk	Depends on storage demands for conversations	Depends on storage demands for conversations	Depends on storage demands for conversations
IOPS [min] [max] [typical]	[100] [200] [150]	[150] [500] [180]	[150] [800] [200]
Option:	≤ 50 concurrent re-plays	≤ 100 concurrent re-plays	≤ 200 concurrent re-plays
vRAM	additional 4 GB	additional 6 GB	additional 8 GB

Tab. 13: Virtual machine



In case, only a lower than the required **vCPU** speed can be provided, this could be compensated by increasing the **vCPU** cores.

3.4.1.6 Server type F – Replay server/API server

Server

	Minimum performance class	Medium performance class	High performance class
	≤ 50 concurrent re-plays	≤ 100 concurrent re-plays	≤ 200 concurrent re-plays
CPU cores	4	6	8
CPU speed	2.5 GHz	2.5 GHz	2.5 GHz
RAM	4 GB	6 GB	8 GB
Hard disk net capacity	100 GB	100 GB	100 GB

Tab. 14: Server

Virtual machine

ATTENTION!

Neo is a near real-time application which cannot work with resource sharing. Therefore, all VMware resources must be assigned exclusively to the virtual Neo machines and drives must be configured as *Thick*. If this precondition is not fulfilled, loss of recordings is imminent!

	Minimum performance class	Medium performance class	High performance class
	≤ 50 concurrent re-plays	≤ 100 concurrent re-plays	≤ 200 concurrent re-plays

	Minimum performance class	Medium performance class	High performance class
vCPU cores	4	6	8
vCPU speed	2.5 GHz	2.5 GHz	2.5 GHz
vRAM	4 GB	6 GB	8 GB
vDisk	100 GB	100 GB	100 GB
IOPS [min] [max] [typical]	[100] [200] [150]	[150] [500] [180]	[150] [800] [200]

Tab. 15: Virtual machine



In case, only a lower than the required **vCPU** speed can be provided, this could be compensated by increasing the **vCPU** cores.

3.4.1.7

Server type G – Database



These requirements apply for external MS SQL databases, too.

Server

	Minimum performance class	Medium performance class	High performance class
	≤ 1 million conversations saved in the database	≤ 5 million conversations saved in the database	> 5 million conversations saved in the database
CPU cores	4	8	16
CPU speed	2.5 GHz	2.5 GHz	2.5 GHz
RAM	≥ 8 GB	≥ 16 GB	≥ 32 GB
Hard disk net capacity	Depends on storage demands for conversations	Depends on storage demands for conversations	SSD for database partition mandatory Depends on storage demands for conversations

Tab. 16: Server

Virtual machine

ATTENTION!

Neo is a near real-time application which cannot work with resource sharing. Therefore, all VMware resources must be assigned exclusively to the virtual Neo machines and drives must be configured as *Thick*. If this precondition is not fulfilled, loss of recordings is imminent!

	Minimum performance class	Medium performance class	High performance class
	≤ 1 million conversations saved in the database	≤ 5 million conversations saved in the database	> 5 million conversations saved in the database
vCPU cores	4	8	16

	Minimum performance class	Medium performance class	High performance class
vCPU speed	2.5 GHz	2.5 GHz	2.5 GHz
vRAM	≥ 8 GB	≥ 16 GB	≥ 32 GB
vDisk	Depends on storage demands for conversations	Depends on storage demands for conversations	SSD for database partition mandatory Depends on storage demands for conversations
IOPS [min] [max] [typical]	[100] [200] [150]	[150] [500] [180]	[1000] [8000] [5000]

Tab. 17: Virtual machine



In case, only a lower than the required **vCPU** speed can be provided, this could be compensated by increasing the **vCPU** cores.

3.4.1.8

Server type H – Enterprise Core / Replay Server / API Server / database - POWERplay Station**Server**

	Minimum performance class	Medium performance class	High performance class
	≤ 10 concurrent replays ≤ 1 million conversations saved in the database	≤ 20 concurrent replays ≤ 5 million conversations saved in the database	≤ 40 concurrent replays > 5 million conversations saved in the database
CPU cores	4	8	16
CPU speed	2.5 GHz	2.5 GHz	2.5 GHz
RAM	≥ 8 GB	≥ 16 GB	≥ 32 GB
Hard disk net capacity	Depends on storage demands for conversations	Depends on storage demands for conversations	SSD for database partition mandatory Depends on storage demands for conversations
Option:	≤ 50 concurrent replays	≤ 100 concurrent replays	≤ 200 concurrent replays
RAM	additional 4 GB	additional 6 GB	additional 8 GB

Tab. 18: Server

Virtual machine**ATTENTION!**

Neo is a near real-time application which cannot work with resource sharing. Therefore, all VMware resources must be assigned exclusively to the virtual Neo machines and drives must be configured as *Thick*. If this precondition is not fulfilled, loss of recordings is imminent!

	Minimum performance class	Medium performance class	High performance class
	≤ 10 concurrent re-plays ≤ 1 million conversations saved in the database	≤ 20 concurrent re-plays ≤ 5 million conversations saved in the database	≤ 40 concurrent re-plays > 5 million conversations saved in the database
vCPU cores	4	8	16
vCPU speed	2.5 GHz	2.5 GHz	2.5 GHz
vRAM	≥ 8 GB	≥ 16 GB	≥ 32 GB
vDisk	Depends on storage demands for conversations	Depends on storage demands for conversations	SSD for database partition mandatory Depends on storage demands for conversations
IOPS [min] [max] [typical]	[100] [200] [150]	[150] [500] [180]	[1000] [8000] [5000]
Option:	≤ 50 concurrent re-plays	≤ 100 concurrent re-plays	≤ 200 concurrent re-plays
vRAM	additional 4 GB	additional 6 GB	additional 8 GB

Tab. 19: Virtual machine



In case, only a lower than the required **vCPU** speed can be provided, this could be compensated by increasing the **vCPU** cores.

3.4.1.9

Server type I – Enterprise Core / RC / CTI Connect / Replay Server / API Server

Server

	Minimum performance class	Medium performance class	High performance class
	≤ 2000 RE ≤ 10 concurrent re-plays	≤ 4000 RE ≤ 20 concurrent re-plays	≥ 4000 RE ≤ 40 concurrent re-plays
CPU cores	4	6	8
CPU speed	2.5 GHz	2.5 GHz	2.5 GHz
RAM	≥ 8 GB	≥ 12 GB	≥ 16 GB
Hard disk net capacity	Depends on storage demands for conversations	Depends on storage demands for conversations	Depends on storage demands for conversations

Tab. 20: Server

Virtual machine

ATTENTION!

Neo is a near real-time application which cannot work with resource sharing. Therefore, all VMware resources must be assigned exclusively to the virtual Neo machines and drives must be configured as *Thick*. If this precondition is not fulfilled, loss of recordings is imminent!

	Minimum performance class	Medium performance class	High performance class
	≤ 2000 RE ≤ 10 concurrent re-plays	≤ 4000 RE ≤ 20 concurrent re-plays	≥ 4000 RE ≤ 40 concurrent re-plays
vCPU cores	4	6	8
vCPU speed	2.5 GHz	2.5 GHz	2.5 GHz
vRAM	≥ 8 GB	≥ 12 GB	≥ 16 GB
vDisk	Depends on storage demands for conversations	Depends on storage demands for conversations	Depends on storage demands for conversations
IOPS [min] [max] [typical]	[100] [200] [150]	[150] [500] [180]	[150] [800] [200]

Tab. 21: Virtual machine



In case, only a lower than the required **vCPU** speed can be provided, this could be compensated by increasing the **vCPU** cores.

3.4.1.10 Server type J – Enterprise Core / RC / CTI Connect / RM / Replay Server / API Server

Server

	Minimum performance class	Medium performance class	High performance class
	≤ 300 RE ≤ 10 concurrent re-plays	≤ 600 RE ≤ 20 concurrent re-plays	≤ 1000 RE ≤ 40 concurrent re-plays
CPU cores	4	6	8
CPU speed	2.5 GHz	2.5 GHz	2.5 GHz
RAM	≥ 8 GB	≥ 12 GB	≥ 16 GB
Hard disk net capacity	Depends on storage demands for conversations	Depends on storage demands for conversations	Depends on storage demands for conversations

Tab. 22: Server

Virtual machine

ATTENTION!

Neo is a near real-time application which cannot work with resource sharing. Therefore, all VMware resources must be assigned exclusively to the virtual Neo machines and drives must be configured as *Thick*. If this precondition is not fulfilled, loss of recordings is imminent!

	Minimum performance class	Medium performance class	High performance class
	≤ 300 RE ≤ 10 concurrent re-plays	≤ 600 RE ≤ 20 concurrent re-plays	≤ 1000 RE ≤ 40 concurrent re-plays
vCPU cores	4	6	8
vCPU speed	2.5 GHz	2.5 GHz	2.5 GHz
vRAM	≥ 8 GB	≥ 12 GB	≥ 16 GB
vDisk	Depends on storage demands for conversations	Depends on storage demands for conversations	Depends on storage demands for conversations
IOPS [min] [max] [typical]	[100] [200] [150]	[150] [500] [180]	[150] [800] [200]

Tab. 23: Virtual machine



In case, only a lower than the required **vCPU** speed can be provided, this could be compensated by increasing the **vCPU** cores.

3.4.1.11 Speech analysis

Architecture description

Additional servers are required for speech analysis. The EML Transcription Server enables transcription or keyword analysis. Audio analysis jobs are configured and administrated in INSPIRATION_{neo}. The basic architecture consists of the EML Transcription Server, one or several decoders and the Neo system.

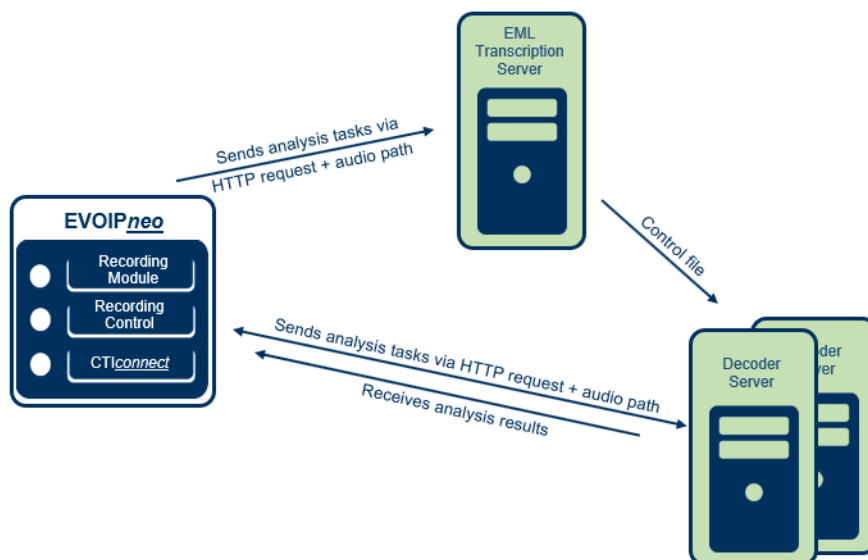


Fig. 2: Architecture of speech analysis

The Neo system sends an analysis job to the EML Transcription Server. The job goes into a queue from where it is picked up by the decoder. The decoder analyzes the audio data and sends the result back to the Neo system. The results are available in INSPIRATION_{neo}.

Each channel corresponds to one decoder and each decoder requires a CPU core. Due to the increased performance requirements, the EML Transcription Server and the decoder server should be set up separately.

Hardware requirements for EML Transcription Server

Please keep the additional capacities for the operating system in mind.

	Keyword spotting	Transcription	KWS & Transcription	Real-time Analytics
CPU cores	2	2	2	1 per 6 channels
CPU speed	2.0 GHz	2.0 GHz	2.0 GHz	2.0 GHz
RAM	16 GB	16 GB	16 GB	16 GB
HDD	20 GB	20 GB	30 GB	20 GB
For each additional language pack	+10 GB	+10 GB	+10 GB	+10 GB

Tab. 24: Hardware requirements speech analysis

Hardware requirements for Decoder Server

Please keep the additional capacities for the operating system in mind.

	Keyword spotting	Transcription
CPU cores per channel	1	1
CPU speed	2.0 GHz	2.0 GHz
RAM per channel	512 MB	4-8 GB * ²
HDD	5 GB	30 GB
For each additional language pack	+ 5 GB	+ 10 GB
Maximum processing per decoder	40 h call volume in 24 h	24 h call volume in 24 h

Tab. 25: Hardware requirements for a Decoder Server

*² 4-8 GB per channel, depending on the complexity of the language

Channel in this case means analysis channel One channel equals one decoder

NOTICE! Depending on the number of channels, more than one Decoder Server may be required.

Virtual machine

ATTENTION!

Neo is a near real-time application which cannot work with resource sharing. Therefore, all VMware resources must be assigned exclusively to the virtual Neo machines and drives must be configured as *Thick*. If this precondition is not fulfilled, loss of recordings is imminent!

3.4.1.11.1 Operating systems for speech analysis



The indicated values do not take the operating system into account. Make sure to add the respective requirements on top.

Preconditions for Windows operating systems

Connectivity	XML over HTTPS interface
Operating System	Windows Server 2016

Windows Server 2019

Tab. 26: Preconditions for Windows operating systems

Preconditions for Linux operating systems

Connectivity	XML over HTTPS interface
Operating System	Ubuntu LTS Server 14.04 (64 bit)
	Software Dependencies: Oracle Java 8
	Further Linux variants may be tested upon request.

Tab. 27: Preconditions for Linux operating systems

3.4.1.12 EVOflex

Server

The following server types are supported for EVOflex:

- Server type A - Single-server system
- Server type B - Recorder / Recording Module
- Server type D – Recording Control / CTI Connect / Recording Module

	Minimum performance class	Medium performance class	High performance class
	≤ 300 RE ≤ 10 concurrent re-plays ≤ 1 million conversations saved in the database	≤ 600 RE ≤ 20 concurrent re-plays ≤ 5 million conversations saved in the database	≤ 1000 RE ≤ 40 concurrent re-plays > 5 million conversations saved in the database
CPU cores	4	6	12
CPU speed	2.5 GHz	2.5 GHz	2.5 GHz
RAM	≥ 16 GB	≥ 16 GB	≥ 32 GB
Hard disk net capacity	Depends on storage demands for conversations	Depends on storage demands for conversations	SSD for database partition mandatory Depends on storage demands for conversations

Tab. 28: Server

3.4.2 Partitions of the hard disks

If you use all functions of the Neo software on one server, 3 partitions are required.

If you work with distributed systems or an external database, 2 partitions are sufficient.

Create the following partitions during the installation:



For the partitions, the following variants are supported:

- 1 hard disk with 3 partitions
- 3 hard disks with 1 partition each

1. System partition

The system partition should have a minimum of 60 GB.

- 40 GB operating system
- 20 GB Neo software

2. Database partition

NOTICE! The database partition is required if you install the PostgreSQL database on this server.

- The size of the database depends on the number of recordings and on the retention period of recordings.



Information about how to calculate the size of the database partition can be found on the Manual Package in the file *Postgres_Callpool_Sizing* in folder *1_Sizing calculator*.

3. Data partition

NOTICE! The data partition is required if you save the callpool on this server.

- The size of the data partition depends on the recording requirements.
- A minimum of 150 GB is mandatory.



Information about how to calculate the size of the callpool can be found on the Manual Package in the file *Postgres_Callpool_Sizing* in folder *1_Sizing calculator*.

3.4.3

Particular individual components

The Neo recording software may be installed on a customary Windows server. Make sure to observe the requirements for the following individual components, though.

CPU

- Intel processor

Supported drives



For the drives mentioned below, all external models are supported, too.

- **USB devices**
 - [USB](#) hard disks
 - [USB](#) flash disks

Network storage drives

- **NAS**

This drive can be used as data drive or as storage expansion.

Supported protocol [SMB/CIFS](#)

The user supposed to connect to the network drive is required full access to the network drive. It includes rights to read, write, delete, and change files and folders within the share.

For [NAS](#) as storage expansion, WORM mode is supported.

- **Cloud Storage Amazon S3 Storage**

This drive can be used as data drive or as storage expansion.

- **Cloud storage Microsoft Azure Blob Storage**

This drive can be used as data drive or as storage expansion or for the transfer from and to Recording Insights.

- **Cloud Storage Google Cloud Storage**

This drive can be used as data drive or as storage expansion.

- **EMC Centera Server** (only for updates and migrations from V10)

This drive can be used as storage expansion only.

Supported versions: CentraStar 3, CentraStar 4

Deployed interface: Centera SDK 3.2.661

NOTICE! The user supposed to connect to the Centera server is required the rights to read (r), write (w), and delete (d) as well as to check whether files exist (e) on the Centera server.

NOTICE! All data written on the Centera server obtains a *retention period* of 0. Therefore, no *minimum retention* must have been selected on the Centera server.

- **iCAS Storage**

This drive can be used as storage expansion only.

NOTICE! iCAS Storage may only be configured as Windows share.

3.4.4 Supported database engines

The Neo software supports the following database engines:

- PostgreSQL 12.5 (included in the installation package for new installations)
- MS SQL Server 2016 Standard Edition English
- MS SQL Server 2017 Standard Edition English
- MS SQL Server 2019 Standard Edition English



For Microsoft SQL databases, we support connections to cluster instances (always-on) which can be reached by means of an IP address. Primary and failover database nodes with different IP addresses in high-availability configurations are not supported.



Only external Microsoft SQL databases are supported.



PostgreSQL 12.5 will not be supported until Neo version 6.6! If you update to PostgreSQL 12.5, you must also update Neo to version ≥ 6.6 .

3.4.5 Supported operating systems

For the recording servers, only the versions for the following operating system are supported:

- Microsoft Windows 10 Pro English - 64 Bit (only EVOflex)
- Microsoft Windows 11 Pro English - 64 Bit (only EVOflex)
- Microsoft Windows Server 2016 English - 64 Bit
- Microsoft Windows Server 2016 German - 64 Bit
- Microsoft Windows Server 2019 English - 64 Bit
- Microsoft Windows Server 2019 German - 64 Bit
- Microsoft Windows Server 2022 English - 64 Bit



On all Neo servers, Microsoft's .Net framework 3.5 is required.



Language packs (LIP) for operating systems of Microsoft Windows are not supported.



For information about the installation and configuration of Microsoft Windows refer to the respective installation manual for system providers *Configuration Microsoft Windows Server 2016*, *Configuration Microsoft Windows Server 2019* or *Configuration Microsoft Windows Server 2022*.



Neo Suite Is a so-called near-real-time application which requires a high degree of available system resources for proper operation. Therefore, it is recommended to refrain from installing additional software packages on Neo servers. An exception are virus scanners if configured according to ASC's specifications.

If the use of additional software packages is deemed required for operational reasons, it is mandatory to inform ASC about this before their installation. ASC explicitly reserves the right to object to the installation of additional software packages if adverse impact on the Neo Suite is to be expected or cannot be reasonably excluded.

If additional software packages are installed without prior consultation and confirmation of ASC, any guarantees or commitments of ASC regarding system behavior and support of the Neo Suite become void including, but not limited to, stability, response behavior, and other operational parameters.

Required third-party software

For all operating systems Eclipse Termurin OpenJDK Java, version $\geq 11.0.13$ is required. Optionally, Oracle Java SE, version $\geq 11.0.13$ can be used.

3.4.6 Supported protocols

The following protocols are supported:

- SNMPv2
- SNMPv3
- [LDAP](#)
- LDAPv3
- [TLS](#) 1.2
- [TLS](#) 1.3

3.4.7 Multi-core architectures

To operate a multi-core architecture, a Layer 4 Load Balancer is required. The load balancer has to be provided by the system provider.

3.4.8 Supported codecs

The following codecs have been tested by ASC and are supported by the recording server:

Codec	Technology
G.711 a-law (PCMA)	TDM , VoIP
G.711 μ-law (PCMU)	TDM , VoIP
G.729 (without Annex)	TDM , VoIP
G.729 Annex A	TDM , VoIP
G.722 64 kbit/s	TDM , VoIP
G.726 16 kbit/s	TDM
G.726 24 kbit/s	TDM
G.726 32 kbit/s	TDM
G.726 40 kbit/s	TDM

Codec	Technology
SILK	For Skype for Business
OPUS	VoIP

Tab. 29: Supported codecs

3.5 Client

3.5.1 Supported operating systems

Supported operating systems

For clients, the following operating systems are supported:

- Microsoft Windows 10 Pro English - 64 Bit with OpenGL version > 2.1
- Microsoft Windows 10 Pro German - 64 Bit with OpenGL version > 2.1
- Microsoft Windows 11 Pro English - 64 Bit
- Microsoft Windows 11 Pro German - 64 Bit

Required third-party software

- Eclipse Termurin OpenJDK Java, version $\geq 11.0.13$
- Optional: Oracle Java SE, version $\geq 11.0.13$

Java is required for the following applications only:

- SCREENrec
- SCREENrec Audio
- SCREENrec scan Editor

For the following applications, Oracle Java SE for Business Runtime Environment, version $\geq 8u202$, 64 Bit is required:

- POWERplay Pro
- POWERplay Station

3.5.2 Reference hardware systems

Reference system without SCREENrec

	Minimum requirements
CPU	Dual Core ≥ 2.0 GHz
RAM	≥ 4 GB
Hard disk	≥ 500 MB free disk space
Screen resolution	1280*1024 or 1680*1050

Tab. 30: Reference system without SCREENrec

Reference system with SCREENrec

	Minimum requirements
CPU	Quad Core ≥ 2.0 GHz
RAM	≥ 4 GB
Hard disk	≥ 500 MB free disk space

Minimum requirements	
Screen resolution	1280*1024 or 1680*1050

Tab. 31: Reference system with SCREENrec

3.6 Virtualization



VMware Tools must be installed.

3.6.1 Support of virtual environments

When using active and passive VoIP recording, the EVOIP_{neo} software can be deployed in the following virtual environments:

- VMware ESX/ESXi Server 6.5
- VMware ESX/ESXi Server 6.7
- VMware ESX/ESXi Server 7.0
- Microsoft Hyper-V Server 2016
- Microsoft Hyper-V Server 2019
- Microsoft Hyper-V Server 2022

If you install more than one EVOIP_{neo} recording system in a VMware environment on a single hardware system, the total number of channels of all EVOIP_{neo} recording systems together must not exceed the maximum number of allowed channels. CPU and RAM must be configured as “exclusive” and cannot be shared with other virtual machines.



For information about the preconditions in virtual environments refer to the [chapter "Sizing guide", p. 8](#).



Be aware that [USB](#) archiving drives are not supported in virtual environments.

3.6.2 Citrix XenDesktop/XenApp

Supported software:

- Citrix XenApp 7.11 (upon request)
- Citrix XenDesktop 7.11 (upon request)

The minimum requirements for the client system equal the requirements of the above-mentioned reference systems, see [chapter "Reference hardware systems", p. 26](#).

XenApp does not support the applications SCREEN_{rec}, SCREEN_{rec} scan Editor, or SCREEN_{miner}.

3.7 Optional components

Sound card and speakers can be used optionally.

4 Communication matrix

4 Communication matrix



Information about the ports used by the Neo Suite can be found on the Manual Package in the file *Communication matrix* in folder *5_Communication matrix*.

Checklists for problems in Neo projects which can be ascribed to insufficient/unreliable performance of the Windows server

1. Have the servers/VMs been dimensioned according to the specifications in chapter *Sizing guide* in the installation manual *Installation requirements*?
2. Has the Microsoft Windows operating system been configured according to the specifications in the installation manual *Configuration Microsoft Windows Server 2016*, *Configuration Microsoft Windows Server 2019* or *Configuration Microsoft Windows Server 2022*? Especially according to chapter *Configure energy scheme* and *Deactivate file indexing*? Under no circumstances must file access auditing for call data, database, and Neo log file directories have been activated in Microsoft Windows. See also <https://docs.microsoft.com/de-de/windows-server/identity/solution-guides/scenario--file-access-auditing>.
3. If a virus scanner is used: Has the virus scanner been configured according to the specifications in chapter *Virus protection* in the installation manual *Installation requirements*?

The customer confirms that the framework conditions mentioned above are observed. Should ASC note during troubleshooting that these framework conditions have not been observed, we reserve the right to charge the resulting expenses for troubleshooting.

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Glossary

CIFS

Common Internet File System stands for network share. The term was introduced by Microsoft in 1996 and describes an advanced version of SMB (Server Message Block). CIFS builds on NetBIOS over TCP/IP and SMB and, in addition to file and printer sharing, offers additional services such as Windows's RPC and NT domain service. Name resolution continues to be carried out via NBT broadcast message or in general via the NBT Name Service or via DNS if NBT is not available. (Source: Wikipedia 4th May 2017)

CPU

Central Processing Unit

G.711

Standardized method of the ITU (International Telecommunication Union) to digitize analog audio signals via pulse code modulation (PCM). G.711 defines 2 different algorithms μ -law and A-law.

G.722

The directive G.722 7 kHz audio coding within 64 kbit/s of the ITU-T describes the codec from audio signals via a digital transmission with 64 kbit/s, for example the B-channel of ISDN. Currently especially G.722 is used for VoIP telephony.

G.726

The method is based on adaptive differential pulse code modulation (ADPCM). The codec supports bit rates of 16, 24, 32, and 40 kbit/s. G.726 reaches a mean opinion score (MOS) of about 4.2 for the 40 kbit/s version and about 3.85 for the 32 kbit/s version.

G.729

Codec for the compressing of language into digital signals with low complexity, fixed point arithmetic and a data rate of 8 kbit/s.

G.729A

G.729 Annex A is a codec for the compressing of audio into digital signals with low complexity, fixed point arithmetic and a data rate of 8 kbit/s.

LDAP

Lightweight Directory Access Protocol

LIP

Language Interface Pack

NAS

Network Attached Storage is a file-level computer data storage server connected to a computer network providing data access to other devices on the network. NAS is usually used to provide independent storage capacity in a computer network without major effort. (Source: Wikipedia 4th May 2017)

RAID

Redundant Array of Independent Disks

RAM

Random Access Memory

SMB

Server Message Block is a network communication protocol for providing shared access to files, printers, and serial ports between nodes on a network. It also provides an authenticated inter-process communication mechanism. (Source: Wikipedia 24th October 2019)

TDM

Time Division Multiplexing is an umbrella term for time-slot-oriented interfaces, ITU G.703 defined. The term is used ASC-wide representative for conventional telephony.

TLS

Transport Layer Security, former name Secure Socket Layer (SSL), is a hybrid encryption protocol for secure data transmission on the Internet.

USB

Universal Serial Bus

vCPU

Virtuelle Central Processing Unit

VoIP

Voice over IP

WAVE

WAVE file format is a container format to digitally save audio data and is based on the Resource Interchange File Format (RIFF) defined by Microsoft for Windows. (Source: Wikipedia 23rd February 2021)
