VECTOR

PREEvision

System Requirements

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Contents

1 System requirements

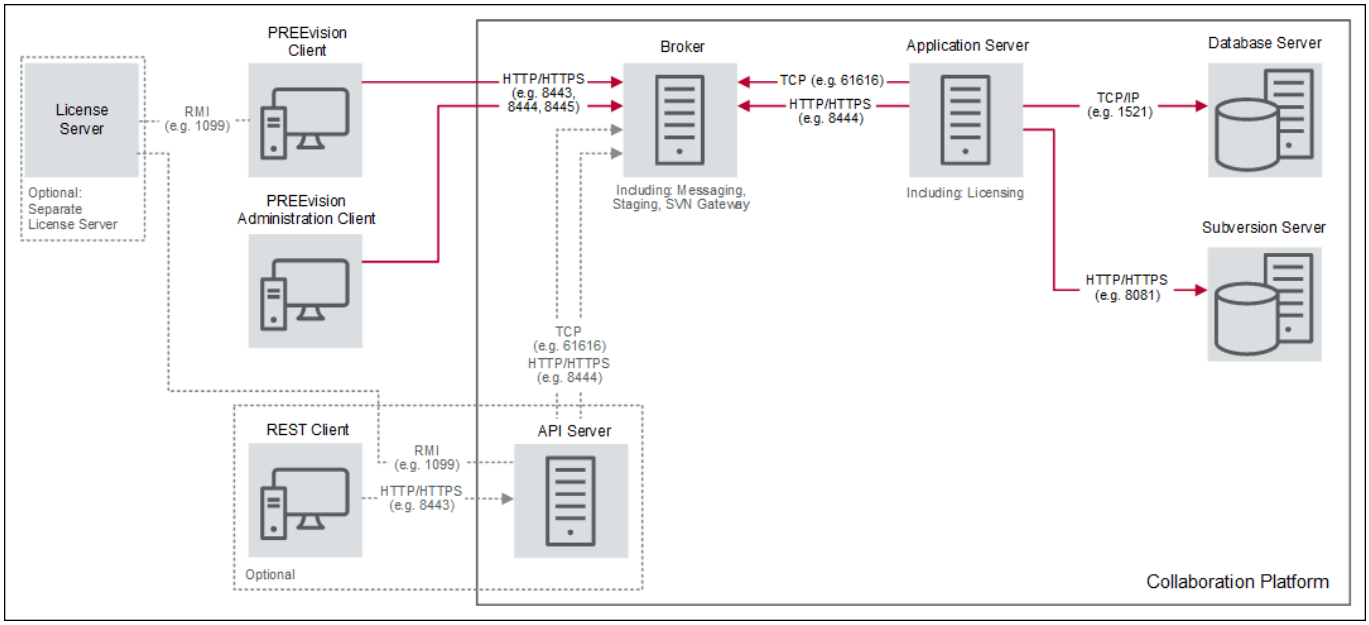
This chapter contains the following information:

Note: This document specifies general hardware and software requirements for PREEvision. For detailed installation and configuration prerequisites, refer to the PREEvision operating manual.

1.1 System architecture

PREEvision Collaboration Platform

Overview of the system architecture of the PREEvision Collaboration Platform:



Note: Two identical environments are required, one environment for productive use and a second environment for testing and migration.
Three identical environments are recommended, one environment for productive use, a second environment for testing and migration and a third environemnt for system development and integration.

License server

For the PREEvision Collaboration Platform, licenses are managed on a license server. Preferably the license server is integrated in the middleware but can also be installed as separate component.

When using a separate license server, RMI is used as protocol for the communication between the clients and the license server.

LDAP

For the authentication via LDAP, accessing the active directory server must be possible.

PREEvision standalone

The PREEvision client can also be used as standalone installation. All data is then stored in local model files.

1.2 Client requirements

Software requirements

Operating system	Windows 10 (64-bit)
Java version	Amazon Corretto 8.242 (provided with client installation)
Components	Microsoft .NET-Framework 4.0.30319 or higher

Minimum hardware requirements

CPU	2 GHz Dual-Core processor
Hard disk	16 GB free space
LAN	100 Mbps
Display	1280x1024 screen resolution 100% font scaling

Recommended hardware requirements

CPU	3,6 GHz Quad-Core processor (64-bit) e.g. Intel Core I7-7700 3,6 GHz
Hard disk	SSD, 20 GB free space
LAN	1 Gbps
Display	1920x1080 screen resolution 100% font scaling

Memory requirements

When working with PREEvision, only the artifacts contained in the active scope are loaded in the client.

The following formula can be used to estimate the required client memory based on the maximum size of the scope.

Note: The formula is only an estimation. Concrete values may differ depending on the use cases and the model structure.

Total RAM of the system in GB

> minus 6 GB for the operating system and PREEvision basic functionality
> = memory for PREEvision in GB

> minus 25% reserved for working memory
> = memory for the PREEvision scope in GB

> divided by 2
> = maximum number of artifacts in million that are loadable in the scope

Example:

Total RAM of the system:	96 GB
Formula:	(Total RAM in GB - 6 GB) * 0.75 / 2
Calculation and result:	(96 GB - 6 GB) * 0.75 / 2 = 33.75 million artifacts

Examples for typical RAM sizes:

RAM	Number of artifacts in active scope
16 GB (minimum)	≤ 4 million
32 GB	≤ 10 million
64 GB	≤ 22 million
96 GB	≤ 34 million
128 GB	≤ 46 million

Note: For detailed information, please contact our support at support@vector.com.

1.3 Administration client requirements

When working with PREEvision, only the artifacts contained in the active scope are loaded in the client. In contrast to that, for some administration use cases the whole model must be loaded in the client.

An administration client system is required, since the hardware requirements are significantly increased for these use cases.

For the administration client, the following software and hardware requirements apply.

Software requirements

Operating system	Windows 10 (64-bit)
Java version	Amazon Corretto 8.242 (provided with client installation)
Components	Microsoft .NET-Framework 4.0.30319 or higher

Hardware requirements

CPU	3,6 GHz Quad-Core processor (64-bit) e.g. Intel Core I7-7700 3,6 GHz
Hard disk	SSD, at least 1 TB
LAN	1 x Gigabit Ethernet port, stable and good connection to source and target application server

Memory requirements

For estimating the required RAM of the administration client, the same formula as for estimating the client memory can be used. In contrast to the client, for the administration client, the maximum number of artifacts applies to the whole model instead of the active scope.

Example:

Number of artifacts in active scope:	5 million
Estimated RAM size of client:	(5 * 2 * 1.25) + 6 GB = 18.5 GB
Number of artifacts in whole model:	30 million
Estimated RAM size of administration client:	(30 * 2 * 1.25) + 6 GB = 81 GB

If the exact target size of the model is unknown, 196 GB RAM are recommended. The required memory size can be tuned from there.

1.4 Broker requirements

Software requirements

Application server	Apache Tomcat 8.5 (recommended version: Apache Tomcat 8.5.57)
Java version	Amazon Corretto 8 (recommended version: Amazon Corretto 8.242)
Operating system	All operating systems supported by the respective application server version (recommended version: Windows Server 2019 Standard)

Minimum hardware requirements

CPU	2,0 GHz Dual-Core processor (64-bit)
RAM	16 GB
Hard disk	128 GB free space
LAN	1 x Gigabit Ethernet port

Recommended hardware requirements

CPU	2,8 GHz Octa-Core processor (64-bit)
RAM	32 GB
Hard disk	SSD, 1 TB free space
LAN	1 x 10 Gigabit Ethernet port

1.5 Application server requirements

Software requirements

Application server	Apache Tomcat 8.5 (recommended version: Apache Tomcat 8.5.57)
Java version	Amazon Corretto 8 (recommended version: Amazon Corretto 8.242)
Operating system	All operating systems supported by the respective application server version (recommended version: Windows Server 2019 Standard)

Minimum hardware requirements

CPU	2 GHz Quad-Core processor (64-bit)
Hard disk	64 GB free space
LAN	1 x Gigabit Ethernet port

Recommended hardware requirements

CPU	at least 2,8 GHz Octa-Core processor (64-bit) e.g. Intel Xeon Gold 6134 (8 cores with 3,2 GHz)
Hard disk	SSD, 128 GB free space
LAN	1 x 10 Gigabit Ethernet port

Memory requirements

The following table can be used to estimate the required memory of the application server based on the maximum size of the model.

Recommended RAM requirements are necessary for:

- server-to-server migration
- large commits
- large number of users >100
- historic model load

Model size	Minimum RAM	Recommended RAM
≤ 1 million artifacts	32 GB	96 GB
≤ 10 million artifacts	64 GB	160 GB
≤ 20 million artifacts	96 GB	256 GB
≤ 30 million artifacts	128 GB	352 GB
≤ 40 million artifacts	160 GB	448 GB
≤ 50 million artifacts	192 GB	512 GB

Virtualization

The PREEvision Collaboration Platform supports virtualization technologies like VMware vSphere Hypervisor (ESXi) or Microsoft Hyper-V.

For resource allocation:

- on ESXi: Use the **Resource Allocation Reservation** feature.
- in Hyper-V: Use the resource allocation parameters (PowerShell commands).

Adjust the following resources to guaranteed recommended hardware requirements:

- CPU resources (static sockets reservation)
- memory allocation (fixed)
- disk resource allocation (stable IOPS)

1.6 API server requirements

Software requirements

Application server	Apache Tomcat 8.5 (recommended version: Apache Tomcat 8.5.57)
Java version	Amazon Corretto 8 (recommended version: Amazon Corretto 8.242)
Operating system	All operating systems supported by the respective application server version (recommended version: Windows Server 2019 Standard)

Minimum hardware requirements

CPU	2 GHz Quad-Core processor (64-bit)
RAM	32 GB
Hard disk	64 GB free space
LAN	1 x Gigabit Ethernet port

Recommended hardware requirements

CPU	at least 2,8 GHz Octa-Core processor (64-bit) e.g. Intel Xeon Gold 6134 (8 cores with 3,2 GHz)
RAM	196 GB
Hard disk	128 GB free space
LAN	1 x Gigabit Ethernet port

Memory requirements

The following table can be used to estimate the required memory of the API server based on the maximum size of the model. The model size refers to the size of the complete model on the application server.

Model size	Recommended RAM
≤ 1 million artifacts	32 GB
≤ 10 million artifacts	64 GB
≤ 20 million artifacts	96 GB
≤ 30 million artifacts	128 GB
≤ 40 million artifacts	160 GB
≤ 50 million artifacts	192 GB

Virtualization

The PREEvision Collaboration Platform supports virtualization technologies like VMware vSphere Hypervisor (ESXi) or Microsoft Hyper-V.

For resource allocation:

> on ESXi: Use the **Resource Allocation Reservation** feature.
> in Hyper-V: Use the resource allocation parameters (PowerShell commands).

Adjust the following resources to guaranteed recommended hardware requirements:

> CPU resources (static sockets reservation)
> memory allocation (fixed)
> disk resource allocation (stable IOPS)

1.7 Database server requirements

Software requirements

Oracle version	> Oracle 12.1.0.2 > Oracle 12.2.0.1 > Oracle 19c (recommended version: Oracle 12.2.0.1 Enterprise Edition with Diagnostic Pack) (minimum version: Oracle 12.1.0.2 Standard Edition 2)
Operating system	All operating systems supported by the respective Oracle version.

Note: The Oracle Enterprise Edition is used for a simpler operating of the database and slightly better performance in some PREEvision use cases.

Note: The specified Oracle versions are only supported as long as supported by Oracle.

Minimum hardware requirements

CPU	2 GHz Dual-Core processor (64-bit)
RAM	16 GB exclusively available for the database
Hard disk	RAID 1 (software or hardware) Available hard disk size: > **Model tablespace**: 20 GB > **Index tablespace**: 30 GB (model tablespace size + 50%) > **Redo logs**: 1,5 GB > **Undo tablespace**: 30 GB > **Temp tablespace**: 1 GB Especially when using hard drives with slow I/O rates, it is recommended to store the model tablespace, index tablespace and the redo logs on separate hard drives.
LAN	1 x Gigabit Ethernet port

Recommended hardware requirements

CPU	3 GHz Quad-Core processor (64-bit) e.g. Intel Xeon Gold 5122 (4 cores with 3,6 GHz)
RAM	64 GB exclusively available for the database
Hard disk	RAID 10, SAS, NCQ (native command queuing), SSD SSD performance (peak): > 10,000 IOPS > 500 MB/s SSD performance (average): > 1,000 IOPS > 75 MB/s

	Available hard disk size: > **Archive log space**: 500 GB > **Model tablespace**: 300 GB > **Index tablespace**: 450 GB (model tablespace size + 50%) > **Redo logs**: 2 x 6 GB on different discs > **Undo tablespace**: 300 GB > **Temp tablespace**: 350 GB Note: The concrete sizes differ depending on the model size and the model structure. For better performance, it is recommended to store the different tablespaces and logs on separate hard drives.
LAN	1 x Gigabit Ethernet port

1.8 Subversion server requirements

Software requirements

Subversion version	> Apache Subversion 1.8 (recommended version: CollabNet Subversion 1.8.14 with Apache Server) > Apache Subversion 1.9 (recommended version: CollabNet Subversion 1.9.5 with Apache Server) > Apache Subversion 1.10 (recommended version: CollabNet Subversion 1.10.3 with Apache Server)
Operating system	All operating systems supported by the respective Subversion version

Minimum hardware requirements

CPU	1,8 GHz Single-Core processor
RAM	4 GB
Hard disk	SATA 7,200 rpm, ~15 GB
LAN	1 x Gigabit Ethernet port

Recommended hardware requirements

CPU	Dual-Core processor (64-bit)
RAM	16 GB
Hard disk	RAID 10, SAS / SSD, ~250 GB
LAN	1 x Gigabit Ethernet port

Restrictions

Note the following restrictions regarding the Subversion server:

> A separate repository must be used for the Subversion server.

> The connection to the repository must be established via the PREEvision SVN gateway.
Do not directly connect to the repository via a Subversion client.

1.9 License server requirements

Software requirements

Operating system	> Windows * (64-bit) For the license server, a Windows service is created and started. > Linux * (64-bit)
Java version	Amazon Corretto 8.242 (provided with the Windows installer of license server version 2.0.8)

Note: * For detailed information about the supported Windows and Linux versions, please contact our support at support@vector.com.

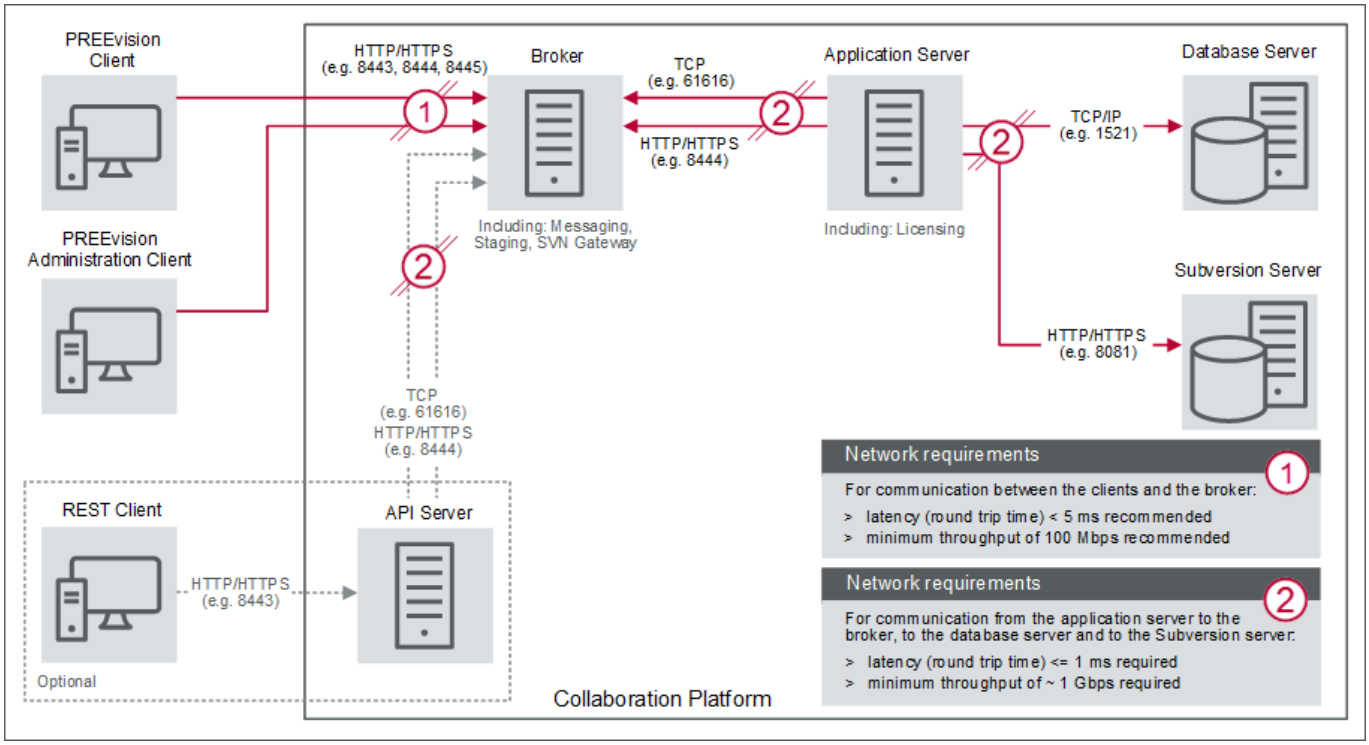
Hardware requirements

CPU	1 GHz
RAM	100 MB
Hard disk	Initial installation size: ca. 100 MB Log file size: maximum 1 GB Stored licenses: < 1 MB
LAN	1 x 100 Megabit Ethernet port

RMI for license server

When using the separate license server, RMI is used as protocol for the communication between the clients and the license server. One standard port for the RMI communication is defined during license server installation, for example 1099. This port is only used for the initial request from the clients to the license server. Afterwards, the server assigns a new dynamic port (from the port range: 1024 to 65535) for the communication to keep the standard port available for other clients.

1.10 Network communication requirements



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