

# System requirements

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Before installing Teamwork Cloud, ensure that the system requirements described in this chapter are met.



### Cassandra installation

Teamwork Cloud requires Cassandra installation. To learn more about the hardware requirements for Cassandra, see <https://cassandra.apache.org/doc/latest/cassandra/operating/hardware.html>

## Recommended system requirements

System requirements are dictated by the intended deployment, taking into account the overall load which the environment will experience, including:

- Number of concurrent users
- Level of activity (commits) per day
- Overall number and size of the projects stored in Teamwork Cloud.

The database (Cassandra) can be located on the same server as Teamwork Cloud or on a separate server. Storage requirements apply only to the node where the database is located. Teamwork Cloud hosting nodes can be virtualized without any issues if the host is not oversubscribed on its resources.

### Nodes containing both Teamwork Cloud and Cassandra:

- 96 -128 GB ECC RAM
- >=16 processor threads (such as E5-1660)
- >1TB SSD DAS storage

### Nodes containing only Cassandra:

- 48 - 64 GB ECC RAM
- >=8 processor threads (such as E5-1620)
- >1TB SSD DAS storage

### Nodes containing only Teamwork Cloud:

- 48 - 64 GB ECC RAM
- >=8 processor threads (such as E5-1620)
- >250GB storage



### Multi-Node Clusters

Recommended minimum sizing stated above applies to each node in a multi-node cluster.



### SAN Storage

SAN Storage should not be used for data or commit log volumes on Cassandra nodes. This will result in severe performance degradation. There is no amount of SAN tuning and OS tuning which could mitigate this.

## Minimal hardware requirements

For adequate Teamwork Cloud operation, your hardware should meet the following requirements:

- 8 Processor Cores - i.e. Quad-Core Hyper-threaded CPU (such as Intel E3-1230 or faster).
- 32 GB RAM (Motherboard with an ECC RAM is recommended) and 8 GB RAM dedicated for TeamworkCloud
- At least 3 separate disks, preferably SSD (NVMe), (OS/Application, Data, and Commit logs). Depending on company backup procedures and infrastructure, an additional disk, equal to the data disk size, may be required to store the backup snapshots.

## Software requirements

Teamwork Cloud supports the following operating systems:

- Linux 64-bit RedHat/CentOS 7, RedHat 8.
- Windows 2016 or Windows 2019.



The Linux operating system is highly recommended for Teamwork Cloud deployment. Cassandra 4.0.3 does not have native Windows support. For more information, please visit <https://www.datastax.com/dev/blog/cassandra-and-windows-past-present-and-future>.

For a fully working environment, you will also need the following:

- OpenJDK (Eclipse Temurin™ by ADOPTIUM) 11.0.14
- FlexNet license server
- Cassandra 4.0.3
- A static IP address for each node.
- Open ports 1101, 2181, 2552, 7000, 7001, 7199, 9042, and 9142 between servers in a cluster.
- Open ports 3579, 8111, 8443, and 10002 (default) for clients. The port number 10002 can be changed according to the port assigned to secure connections between the client software and Teamwork Cloud.

The following table lists the ports that Teamwork Cloud services use and their descriptions:

Service	Port	Description
FlexNet server (lmadmin)	1101	FLEXnet server port
	8090	Default vendor daemon port (web browser management port)
	27000-27009	Internal license server manager port
Cassandra	7000	Internode cluster communication port (not used if TLS is enabled)
	7001	Encrypted internode cluster communication port (used if TLS is enabled)
	7199	JMX monitoring port of the Cassandra node
	9042	Native client port used to connect to Cassandra and perform operations (used with 2021x version and later)
	9142	Native client port when SSL encryption is enabled (used when Cassandra is on a separate server or Cassandra is deployed as a multinode cluster)
Teamwork Cloud	2552	Teamwork Cloud default remote server port
	3579	Default Teamwork Cloud port when SSL is not enabled
	8111	Teamwork Cloud REST API port
	10002	Default port when SSL is enabled
Web Application Platform	8443	Web Application Platform port (Teamwork Cloud Admin, Collaborator...)
Zookeeper	2181	Zookeeper internal port

For additional server capacity and performance recommendations, see <https://cassandra.apache.org/doc/latest/cassandra/operating/hardware.html>



#### If deploying on Amazon EC2

When deploying on Amazon EC2, we recommend using the m5-2xlarge, r5-2xlarge, or i3-2xlarge instances. Depending on the workload, you may want to go to the -4xlarge instances, but for most users, the -2xlarge will suffice. The m5 instances meet the minimum system requirements and will be acceptable for small deployments. The r5 instances provide more memory for the same CPU density. The i3 instances should be used when workloads have a higher level of user concurrency due to the significantly improved performance of the ephemeral NVMe storage.