System requirements

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Before installing Teamwork Cloud, make sure 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

> ℹ️ **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 on Cassandra nodes for data or commitlog volumes. This will result in severe performance degradation. There is absolutely no amount of SAN tuning and OS tuning which will mitigate this.

Minimal hardware 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 always preferred on any critical database server) and 8 GB RAM for TWCloud Admin.
- 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 in size, may be required for storing the backup snapshots.

Software requirements

Teamwork Cloud supports the following operating systems:

- Linux (RedHat/CentOS 7), 64 bit
- Windows 2012 R2, Windows 2016.

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For a full working environment, you will also need:

- Oracle Java/OpenJDK 1.8.0_202 or later (for Cassandra 3.11-x). Java 1.8 updated later than 251 cannot be used with Cassandra on the Windows platform).
- OpenJDK 11.0.12 (for TeamworkCloud).
- A FlexNet License Server.
- Cassandra 3.11-x.
- Static IP address for each node.
- Open ports 1101, 2552, 7000, 7001, 7199, 9042, 9160, 9142 and 27000-27009 between servers in a cluster, and open ports 3579, 8111, 8443, 8555 and 10002 (default) to clients. 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	License server manager port
Cassandra	7199	Cassandra JMX port
	9042	CQL native transport port (used with 2021x version and later)
	9160	Thrift client API port (used until 2021x version, still required for migrations from 19.0 version)
	9142	DSE client port when SSL is enabled
Teamwork Cloud	2552	Teamwork Cloud default remote server port
	3579	Default Teamwork Cloud port when SSL is not enabled
	7000	Internode communication port (not used if TLS is enabled)
	7001	TLS Internode communication port (used if TLS is enabled)
	8111	Teamwork Cloud REST API port
	10002	Default port when SSL is enabled
Web Application Platform	8443	Web Application Platform port (TWCloud Admin, Collaborator…)
Authserver	8555	Authentication server port

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

Related pages

- Installation on Windows
- Installation on Linux using scripts