cBRAIN

F2

F2 Hardware Requirements

Version 9

Updated: 09.06.2021

Table of contents

Introduction

This document describes the guidelines of a high performance F2 system.

In large-scale installations, the requirements can diverge due to existing environment/infrastructure.

If the use of F2 diverge from standard use, (many large searches, large number of documents etc.) or there are web services build on top of the F2 installation, the requirements can be higher than the ones specified below.

Talk to cBrain regarding the specific installation and demands to ensure the best possible performance.

PC

Component	Minimum requirements	Normal performance	Comments
CPU	Dual core @ 1,9 GHz	Core-I5 or higher	
Architecture	64 bit	64 bit	
RAM	4 GB (1 GB dedicated to F2)	8 GB (2 GB dedicated to F2)	
Disk	8 GB free space	SSD 20 GB free space	
NIC	100 Mbit/s	1 Gbit/s Wireless 54 Mbit	
Display	1280 x 1024	1920 x 1080 (HD)	On dual chip: set up F2 to run on integrated chip
Other requirements	Performance tests must be made on a new installed PC.	Performance tests must be made on a new installed PC.	For VDI environment we need a physical PC for baseline testing.

Application server

We have an option to scale by adding more application servers. This should only be done when they are overloaded with respect to CPU or I/O. Adding enough memory in the servers will help, especially after version 6.1 where we can run in 64 bit mode.

Component	**0-199 users**	**200-999 users**	**1000-1999 users**	**2000-5999 users**[1]	**Comments**
CPU	Quad core @ 2-3 GHz	Dual Quad core @ 2-3 GHz	Dual Quad core @ 2.5 -3 GHz	Dual Quad core @ 2.5 -3 GHz	
Architecture	64 bit	64 bit	64 bit	64 bit	
RAM	8 GB	16 GB	32 GB	64 GB	
NIC	1 Gbit/s	2X1 Gbit/s	2X1 Gbit/s	1X1 Gbit/s for Net 1X10 Gbit/s for database server	For 200+ users, use one NIC for database connection and one for user communication. F2 should be prioritised on the network.
Disk Operations (Partitioning)	300 GB C: System 80 GB	370 GB (400 IOPS) C: System 120 GB	370 GB (400 IOPS) C: System 120 GB	370 GB (400 IOPS) C: System 120 GB	cSeach is an add-on module, so the disk space is only necessary if cSearch is chosen.

[1] Depending on the usage pattern and infrastructure of the deployment, more than one application server may be required.

Component	0-199 users	200-999 users	1000-1999 users	2000-5999 users[1]	Comments
	D: Application 100 GB E: Logs 20 GB F: cSearch Index 100 GB (Required if cSearch module chosen)	D: Application 100 GB E: Logs 50 GB F: cSearch Index 100 GB (Required if cSearch module chosen)	D: Application 100 GB E: Logs 50 GB F: cSearch Index 100 GB (Required if cSearch module chosen)	D: Application 100 GB E: Logs 50 GB F: cSearch Index 100 GB (Required if cSearch module chosen)	Depending on system use, cSearch may require a dedicated server for systems with 999+ users.
Other requirements	If virtual: Dedicated resources	If virtual: Dedicated resources	If virtual: Dedicated resources	If virtual: Dedicated resources	

Database server

Different parts of the database (data, document content, log, tempDB) should be placed on disks appropriate for the use (i.e. tempDB should be very fast for random access, document content should allow for fast sequential access etc.).

Depending on the hardware setup of the customer, cBrain will give best practice recommendations.

For up to 100 users, the database server can be virtual after a discussion with cBrain.

If you need an archive database or databases from other systems on the same server, it needs to be in a separate instance and have extra RAM.

The specifications are for a dedicated server for F2.

Component	**0-199 users**	**200-999 users**	**1000-1999 users**	**2000-5999 users**	**Comments**
Multiple databases on the same database instance as the F2 production database	No	No	No	No	No other databases (than the customer's F2 Prod. database) should be present on same database instance. Otherwise, the resources are shared, and users can experience degraded performance.
CPU	Dual Quad core processors @ 2.5 GHz	Dual Quad core processors @ 2.5 GHz	Dual Penta core processors @ 3 GHz	32+ core processors @ 3 GHz+	
Architecture	64 bit	64 bit	64 bit	64 bit	
RAM	96 GB (the more the better)	160 GB	280 GB	1 TB	

Component	0-199 users	200-999 users	1000-1999 users	2000-5999 users	Comments
			SQL Server Enterprise Edition is required	SQL Server Enterprise Edition is required	
Disk Storage	Space for current and future files.	Space for current and future files.	Space for current and future files.	Space for current and future files. High performance IO SAN	Large demands for data storage can change the requirements for the server specifications.
NIC	1 Gbit/s	2x1 Gbit/s Use one NIC for application server connection and one for net/user communication.	2x1 Gbit/s Use one NIC for application server connection and one for net/user communication.	2x1Gbit/s 2x10Gbit/s for SAN	
Disk Operations (Partitioning)	680 GB C: System 80 GB D: SQL Bin (SQL installation) must be different from the drive where you have swap file.	680 GB C: System 80 GB D: SQL Bin (SQL installation) must be different from the drive where you have swap file.	1150 GB C: System 120 GB D: SQL Bin (SQL installation) must be different from the drive where you have swap file.	1620 GB C: System 120 GB D: SQL Bin (SQL installation) must be different from the drive where you have swap file.	Sizing of DB server in general, talk to cBrain. 2000+ users need verification by cBrain CTO/operations manager.

Component	0-199 users	200-999 users	1000-1999 users	2000-5999 users	Comments
	Data storage SAN minimum 1000 IOPS E: DB Data 300 GB F: Logs 100 GB "If simple recovery" G: TempDB separate disk system SSD 100 GB tempDB H: Backup 100 GB	Data storage SAN minimum 1000 IOPS E: DB Data 300 GB F: Logs 100 GB "If simple recovery" G: TempDB separate disk system SSD 100 GB tempDB DB on separate disk system (internal via PCI) (minimum 100K IOPS) TempDB in 8 file groups H: Backup is storage use + 100 GB	Data storage SAN minimum 1000 IOPS E: DB Data 300 GB F: Logs 400 GB "If simple recovery" G: TempDB separate disk system SSD 130 GB tempDB DB on separate disk system (internal via PCI) (minimum 100K IOPS) TempDB in 8 file groups H: Backup is storage use + 200 GB	Data storage SAN minimum 2000 IOPS E: DB Data 300 GB F: Logs 800 GB "If simple recovery" G: TempDB 200 GB should be locally connected NVMe based storage. DB on separate disk system (internal via PCI) (minimum 250K IOPS) TempDB in 8 file groups H: Backup is storage use + 200 GB	
SAN connection		Minimum 10 Gbit/s connection to SAN	Minimum 10 Gbit/s connection to SAN	Minimum 10 Gbit/s connection to SAN	

Component	0-199 users	200-999 users	1000-1999 users	2000-5999 users	Comments
Server type/ resources		If virtual: Dedicated resources	If virtual: Dedicated resources	If virtual: Dedicated resources	

Integration server

We have an option to scale by adding more integration-servers. This should only be done when they are overloaded with respect to CPU or I/O. Adding enough memory in the servers will help, especially after version 6.1 where we can run in a 64 bit mode.

Component	0-199 users	200-999 users	1000-1999 users	2000-4999	Comments
CPU	Quad core @ 2-3 GHz	Dual Quad core @ 2-3 GHz	Dual Quad core @ 2.5-3 GHz	Dual Quad core @ 2.5-3 GHz	
Architecture	64 bit	64 bit	64 bit	64 bit	
RAM	16 GB	32 GB	64 GB	128 GB	
NIC	1 Gbit/s	2X1 Gbit/s	2X1 Gbit/s	2X10 Gbit/s	
Disk Operations (Partitioning)	200 GB C: System 80 GB D: Application 100 GB E: Logs 20 GB	240 GB (400 IOPS) C: System 120 GB D: Application 100 GB E: Logs 20 GB	270 GB (400 IOPS) C: System 120 GB D: Application 100 GB E: Logs 50 GB	270 GB (1000 IOPS) C: System 120 GB D: Application 100 GB E: Logs 50 GB	
Other requirements	If virtual: Dedicated resources	If virtual: Dedicated resources	If virtual: Dedicated resources	If virtual: Dedicated resources	

Mobile server

Mobile server requirements can diverge due to different use scenarios i.e. self-service solutions, heavy use for third party integration services, etc.

Component	0-199 users	200-999 users	1000-1999 users	2000-5999 users	Comments
CPU	Quad core @ 2-3 GHz	Quad core @ 2-3 GHz	Quad core @ 2-3 GHz	Quad core @ 2-3 GHz	
Architecture	64 bit	64 bit	64 bit	64 bit	
RAM	8 GB	16 GB	32 GB	64 GB	If the mobile server is used intensively as "REST-hub" for integrations, add 4 GB RAM.
NIC	NIC: 1 Gbit/s	NIC: 1 Gbit/s	NIC: 1 Gbit/s	NIC: 10 Gbit/s	
Disk Operations (Partitioning)	140 GB C: System 80 GB D: Application 40 GB E: Logs 20 GB	210 GB (400 IOPS) C: System 120 GB D: Application 40 GB E: Logs 50 GB	210 GB (400 IOPS) C: System 120 GB D: Application 40 GB E: Logs 50 GB	210 GB (1000 IOPS) C: System 120 GB D: Application 40 GB E: Logs 50 GB	
Other requirements	If virtual: Dedicated resources	If virtual: Dedicated resources	If virtual: Dedicated resources	If virtual: Dedicated resources	