

d.velop

d.3 installation: Administrator

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1. d.3 installation

1.1. Introduction

1.1.1. About d.3

The document management system **d.3** stores document properties and documents. The document properties allow to find the documents in **d.3**.

While the documents are stored in a directory tree, a database management system (DBMS) is required to manage the document properties.

The file server handles the document files and provides them for the user as a result of a **d.3** query. Such a file server must work with an operating system whose drives can be accessed by **Microsoft Windows**

The applications **d.3**, **d.3 gateway**, **d.3 process manager** and **d.ecs storage manager** run on an application server.

Instead of operating three separate servers for the management of the database, the storage of the document files and the d.3 application, this can also be done on one single server. In the course of this document, the respective differences in the setup will be explained in detail.

1.1.2. Prerequisites

This manual explains the installation and basic configuration of the document management and workflow system **d.3** with **Oracle** and **Microsoft SQL**.

You should have profound knowledge of the respective operating systems as well as of database-management systems and of the **d.3** environment for the installation and configuration!

Warning

Please note the current release notes for **d.3** before you begin with the installation. Support can only be provided for environments meeting the requirements published in the release notes!

1.1.3. About this documentation

This documentation explains to administrators how to install the d.velop documents basic components.

Moreover, you get information on the following issues:

- How do I create and configure an additional repository?
- What do I have to consider when using it for the first time after installation?
- What do I need to consider when installing updates?
- What do I have to consider later system operation?
- What practical recommendations does the d.velop Professional Service provide?
- Which ports do d.3ecm products use?

The information in this documentation is not up to date as this documentation is a legacy publication.

Find a new version of the most important features and information in our d.velop service portal, e.g. here: <https://portal.d-velop.de/documentation/installupdatemanuald3/latest/de>

1.2. Licensing

Each **d.velop** product requires an individual license key. A licence file is required containing the license keys for all **d.velop** products purchased by you to make the **d.3** system operable.

The license file is located on the provided storage medium (e.g. USB stick). The license-file has the file name `liccheck.lic`. If the license file is not part of your delivery, you can order it in writing from the support (support@d-velop.de) stating your order number.

Having installed the **d.velop** products , perform the following step:

- After the installation of the d.velop products copy the license file named `liccheck.lic` into the installation directory of the d.ecs license server.

If there is no license file located in the system path of a machine, then you are prompted to specify the location and the name of the license file with the application start.

You can find additional information on the licensing in the manual for **d.ecs license server**.

Warning

To operate **d.3** from version 7.0.1 and higher, it is imperative that the **d.ecs license server** is installed and activated. Please refer to the documentation. Without the **d.ecs license server**, **d.3** does not work!

Note

It is sufficient if the license file exists in the directory of the d.ecs license server. The alias `d-velop-license` pointing to the productive d.ecs license server must be accessible from the client computers.

If this alias is not accessible or cannot be configured, a `liccheck.ini` must be distributed instead of the `liccheck.lic` which then points to the license server to be used.

Meanwhile this applies to almost all d.velop products (d.ecs rendition service, d.cold, d.link for MS Exchange etc.). One exception is d.3 web which still requires a local `lic-check.lic`.

The only exception for which the local client computers still has to store a `lic-check.lic` can be computers with old DXPs still applying their own license check. However, these are not standard d.3 systems.

Warning

If you are updating from a **d.3** system older than version 6.3.1 , please keep in mind that you might have to order a new **d.3 gateway** key for **d.3 gateway** from the d.velop support (support@d-velop.de).

If the `d3server.prg` directory is installed individually on a machine without access to a `liccheck.dll`, execute the following step:

- Copy the `liccheck.dll` and the `liccheck.lic` into the directory `d3server.prg`.

Otherwise, the processes will not start and an appropriate message is written to the **d.3 logview**).

The file `liccheck.dll` is copied into the sub-directory `License` by the setup.

1.3. Database server

1.3.1. System requirements

Please refer to the central [system requirements for d.velop products \(on-premises\)](#). You can find deviating or more extensive system requirements in the documentation.

Note

If in doubt, please contact our support. Our team will be pleased to provide you with information about the system environments currently supported as d.3ecm database servers.

The minimum requirements for the database server depend on the system environment used and the user-specific data load. Please note the recommended system requirements of the DBMS and operating system vendors.

Security

To minimize the risk of losing data, we recommend using SCSI-RAID systems. The best possible solution is the usage of RAID Level 5. Furthermore, you should ensure a regular database backup. Further information on the backup of databases can be found in the respective DBMS manual.

Note

Please note the chapter [d.3ecm system operation](#).

Partition sizes

The partitions or directories for the storage of the d.3ecm database should provide enough space for approx. three years to come.

Depending on the DBMS, the system overhead (e.g. archival logging) might need additional disc space to be considered as well. Please consult the documentation of your DBMS for further information on the extent of the system overhead be expected.

Rule of thumb for the required hard disc capacity

The required disc space for the d.3ecm database depends on the number of documents to be stored, the number of indexes used, and the average amount of keywords per document.

As a rule of thumb, it can be said that a database would occupy approximately 4 – 6 GByte of disc space for the storage of 1 million documents without keyword extraction and an average number of attributes. The following sizes apply in this calculation:

- Document properties 6 KB
- Accounting documents 70 KB
- Technical documents 250 KB

The ratio of index data to the actual data is about 2:3, i.e. 40% to 60%.

Note

When using NTFS, never use more than 90% of the overall capacity of a logical drive at any time, as even a short-term fall below the minimum reserve can lead to significant fragmentation!

64-Bit systems

Warning

d.3ecm is a 32-bit application! If you are using a 64-bit server-system, then you can also use a 64-bit database on the server. In that case, however, you have to install the 32-bit version of the database client including the 32-bit ODBC driver.

To install the 32-bit ODBC driver, follow the information from the following chapter:

[Registering the d.3 ODBC data source](#)

1.3.2. d.3ecm naming conventions

d.3 server ID	You must assign a unique server short name to every d.3 repository. The short name must consists of one or two letters, umlauts are not allowed (A, B,..., Z, AA, AB,..., ZZ).
d.3 repository name	The repository name is compiled from the character string d3 and your selected d.3 server short name (D3A, d3B,..., d3Z). The productive system should be named d3P, the test system d3T.
d.3 document directory	We recommend to name the d.3 document directory just like the d.3 repository, but use the file name extension dok (d3A . dok, d3B . dok, ..., d3ZZ . dok).

Note

The consistency of the naming fosters the clarity and ensures the compliance with the examples in this manual.

1.3.3. UTF-8 (Unicode)

The d.3 server processes support the Unicode mode where all string-data is processed **UTF-8** encoded.

For a new installation of a database since d.3 version 7, the character set **UTF-8** is preset in the scripts / templates provided by the d.velop AG. Accordingly, the Microsoft SQL Server database-tables are immediately created with the datatype unicode.

In case of a d.3ecm database created before d.3 version 7, then the Unicode support is disabled by default. In order to enable the Unicode support in old d.3ecm databases as well, various adjustments and migration steps are required.

You can find additional information on this in the update manual.

1.3.4. Installation of the database system

Note

This manual will not try to replace the respective manuals by the DBMS vendor. Please install and configure the system according to the information in the provided manuals.

Microsoft SQL

d.3ecm can be operated with different versions of the Microsoft SQL Server. The supported versions are listed in the current release notes for your d.3ecm version.

Note

The Express Edition of Microsoft SQL Server is not supported!

- If possible, use the standard installation when installing the Microsoft SQL Server.

Warning

User-defined setup configurations can lead to inability to run the d.3ecm server processes.

- The authentication method for the Microsoft SQL Server must be configured as SQL Server and Microsoft Windows.

A default instance of the Microsoft SQL Server is named MSSQLSERVER. You can optionally specify a different instance name during the installation of Microsoft SQL Server 2008 R2 / 2012.

For Microsoft SQL Server 2008 R2 / 2012 follow the steps below:

- Open the tab **Named instance**.
- Enter the new **Instance name**.

After successful installation, you can [create a repository](#).

Preparing the database**Warning**

The following steps are general settings of the SQL Server and do not only affect the d.3 installation.

Creating an administrative user for d.3

Before you create a d.3ecm database under Microsoft SQL Server, create a new system administrator for the Microsoft SQL Server.

This system administrator must have the rights `dbcreator` and `securityadmin`. These privileges can be withdrawn again, after the DB-tables and the d.3ecm-system-users have been created by the [d.3 server-Interface](#) (d3odbc32 . exe).

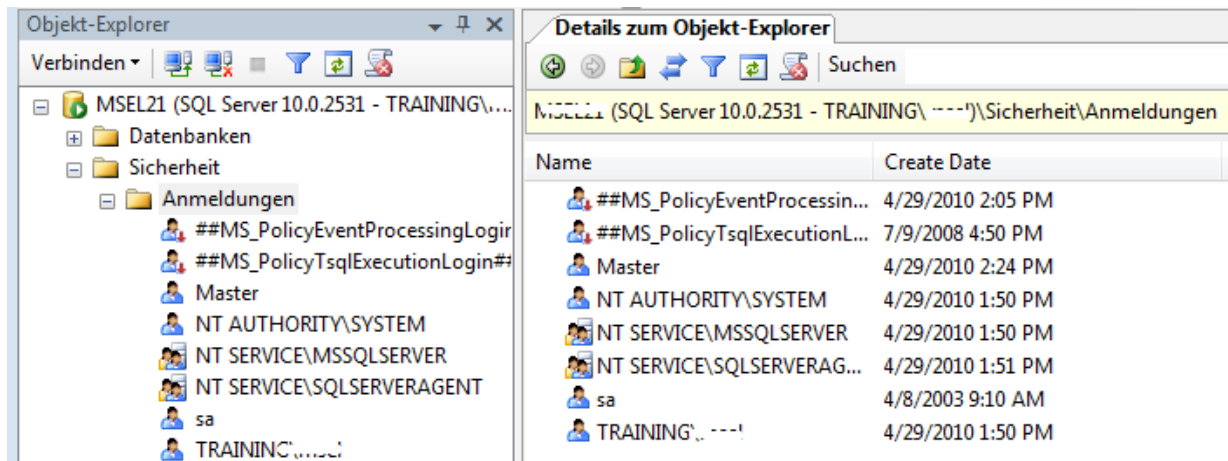
Note

This user is used at various points in the d.3ecm configuration. Among other things, you need it if you log in for the first time and create the d.3 tables and when creating the database [with the assistant](#) or [via script](#). After creating the archive, the name should be in the [configuration file d3addon.ini](#) be deposited.

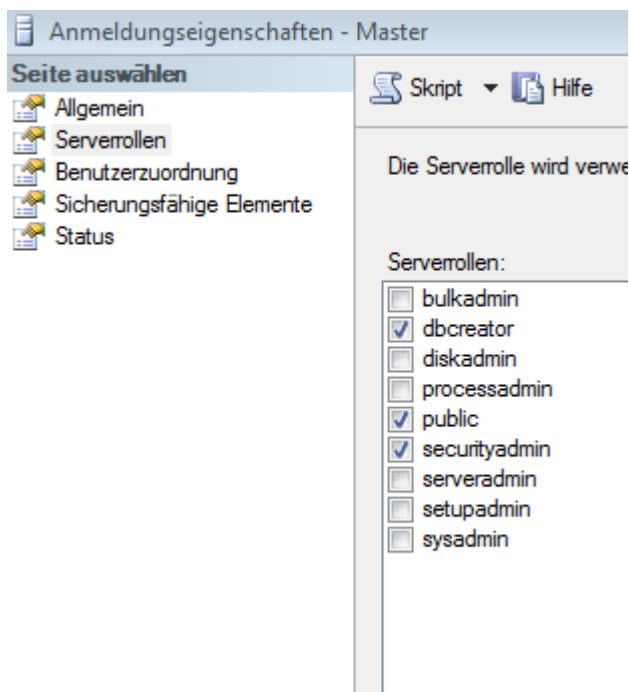
- Define a password for the new user.

Note

An empty password is a high security risk! The following characters may not be used in the password: `$[]{} , ; ? * ! @ \` and space. Note that you have to change the name and the password of the system administrator in the script, as well.



- Open the **Properties** of the user and change to **Server roles**.
- At least assign the roles **dbcreator** and **securityadmin**.

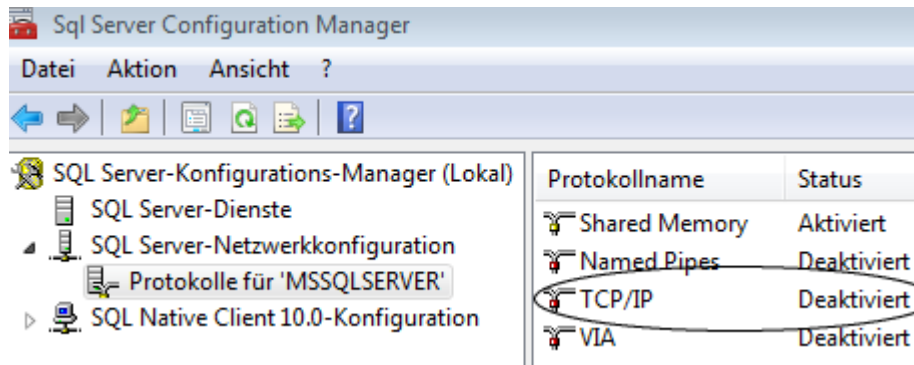


Enable TCP/IP

Microsoft SQL Server 2008 R2 disables TCP/IP for security reasons during the installation.

If you want to establish a connection to a remote machine,

- enable the TCP/IP protocol.



Password-policy

For Microsoft SQL from server 2008 R2 the password policy of the operating system applies.

Previously, d.3ecm created the database users **d3_server**, **d3_async** and **hostimp** with a proprietary password, which did not always comply with the password-policies of the operating system.

With the current d.3ecm server version, you can now store your own passwords for these users while creating the archive. The users are then created with these passwords.

Warning

The users are created only once per database. This means, if you have already created a Microsoft SQL database for d.3ecm on the database server, the users are not created again. The passwords of the d.3ecm database users must therefore be identical for all archives running on one **Microsoft SQL** database server.

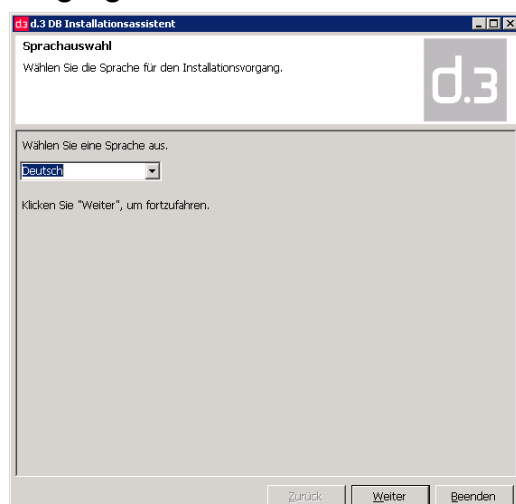
Creating an empty database using the DB-installation wizard MSSQL

As an alternative to creating a database under Microsoft SQL Server [with the scripts](#), you can also use the d.3ecm DB installation wizard.

- Start the wizard either within the Archive configuration or open it via `... \d3\d3server.prg\DB\MSSQL\DBCcreation Wizard.exe`.

Language selection

Language selection



- Select the desired language for the d.3 DB installation wizard.

This applies for all further forms:

- Click on **Next** to go to the next step.
- Click on **Previous**, to return to the previous step.
- Click on **Cancel** to close the wizard.

MSSQL Connection data

SQL-Server	Name / location of the Microsoft SQL Server
User name	System administrator of the Microsoft SQL Server.
Password	Password of the system administrator
Database	The name of the database should be equivalent to the d.3 repository name.
Database timeout	Time in seconds until which a connection to the database must have been established before an error message is displayed.
Connection timeout	Time in seconds after which an error message is displayed in case of connection issues.

Note

Click **Next** and test the database connection. If the connection settings are invalid, a respective error message is displayed and the settings can be corrected.

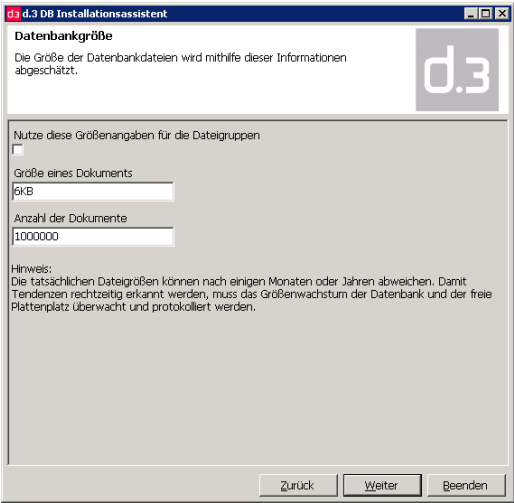
Driver selection (ODBC data source definition)

In the **Driver selection** dialog of the d.3 DS installation wizard, you define the ODBC driver for your SQL database.

Option/Setting	Description
Create ODBC-connection on this machine	If you enable this option, then an ODBC-connection to the new database is created automatically.
Driver selection	Select the SQL driver, e.g. ODBC Driver for SQL Server, if you are using SQL Server 2008 R2 as SQL application.

Database size

Database size



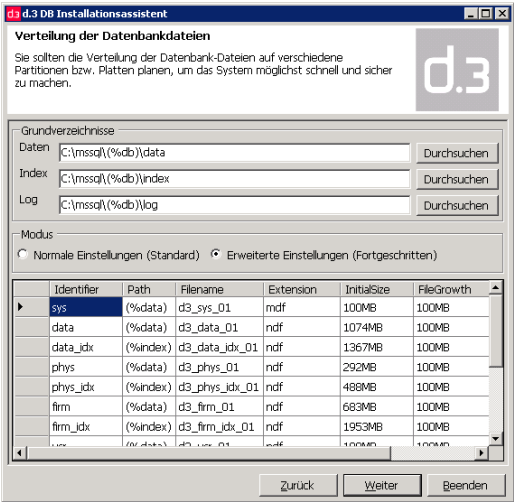
Use this size definition for the file groups	On activation the specified values are used.
Size of a document	Standard size: 6 KB for a document
Number of documents	Number of documents to be managed with the d.3ecm repository.
	Standard size: 1000000

Note

The actual file sizes may vary after some months or years. In order to identify trends in time, the file growth of the database and the free disk space must be monitored and logged.

Distribution of the database files

Distribution of the database files



Note

You should plan the distribution of the database-files to different partitions or disks to make the system performant and stable. Please also consider the notes [on the partition sizes](#).

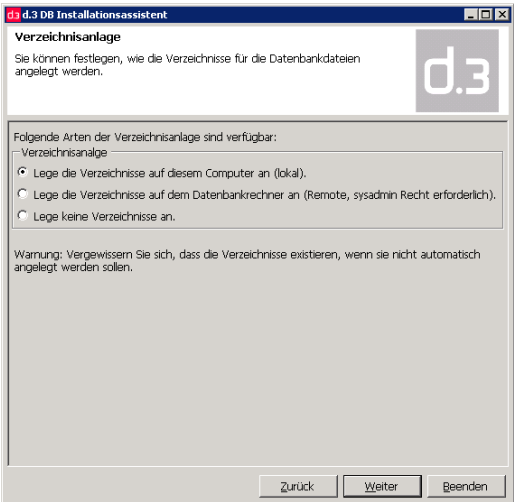
Root directories , default:C:\mssql\ (Name of the database)	
Note Do not specify UNC paths here.	
Data	Directory for the data database-files
Index	Directory for the Index database-files
Log	Directory for the Log database-file
Mode	
Standard settings (default)	The following parameters can be defined: • ID • Path • Initial size
Extended settings (advanced)	The following parameters can be defined: • ID • Path • File name • Extension • Initial size • File growth • Maximum size
Settings for the database-files	
ID	ID (name) of the database-file
Path	Path to the database-file: (%data5): <Path of the root directory Data\ID> (%index%): <Path of the root directory Index\ID> (%log%): <Path of the root directory Log\ID>
File name	Name of the database-file
Extension	File extension Examples for full path consisting of ID, Path, File name and Extension: • C:\mssql\D3P\data\d3_phys_01.ndf • C:\mssql\D3P\index\d3_phys_idx.ndf
Initial size	Initial size of the database-file
File growth	Size by which the file grows, if the allocated memory is exceeded
Maximum size	Maximum size for the respective database-file

If you did not import a profile, then the respective sizes **Initial size**, **File growth** and **Maximum size** are equivalent to a productive d.3 repository.

However, if you imported the profile `D3T.profile` then the sizes are those of a d.3 test repository.

Create directories

Create directories



This creates the directories on this machine (local).	Selection button: The directories are created locally on the machine.
Create the directories on the database machine (remote, sysadmin rights required).	Selection button: The directories are created on the database machine. In this case, the machine must be available on the network and you must have the right sysadmin .
Do not create directories.	Selection button: No directories are created. Please make sure that the directories exist, if you do not create them automatically.

Summary

Summary

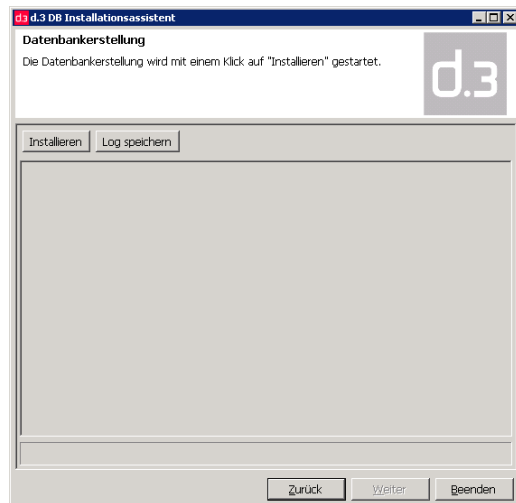


The summary displays an overview of the configured settings.

Save summary	This saves the summary to a text-file.
Save profile	This saves the profile to a <code>.profile</code> file, which can be read later by this wizard.
Create batch files	This generates the database creation scripts (<code>md3run.bat</code> and <code>md3spache.SQL</code>). The database creation is then started executing the file <code>md3run.bat</code> . Please note that you have to create the d.3 ODBC data source manually, if you abort the wizard here.

Database creation

Database creation



Installing	In this case, the database and optionally the ODBC data source are created. The lower pane then displays feedback information relating to the installation.
Save log	After the installation, you can save the log displayed in the lower pane to a text-file.

Adjusting the d3addon.ini prior to the first login

If you are operating d.3ecm with a **Microsoft SQL**-database, then you might have to adjust the file `d3addon.ini` before you [create the database](#). This is located in the subdirectory `d3\d3server.prg\<archive name>`, e.g. `C:\d3\d3server.prg\d3P`.

- Edit the file `d3addon.ini` with a text editor such as Notepad.
- Enter the actually existing database user here, e.g. `DBUSER_MSQL= "Master"`.
- Adjust the user name if required.

Note

This is the [administrative database user](#), which you also used when [configuring the database](#).

Manual configuration (as an alternative)

As an alternative to the [configuration in the wizard](#), you can also perform the individual steps manually. However, this is usually no longer necessary.

Creating an empty database with the scripts

You can create an empty database for d.3 in various ways. In the following chapters, the easiest method will be explained using the example of Microsoft SQL Server 2008 R2. The names of the Microsoft SQL Server applications or directories might vary in your Microsoft SQL Server version.

Note

If this is the case, please consult the documentation of your DBMS.

Copy the script and batch files

- Create the directory `C:\D3inst`, if it does not exist.

The directory can be removed after the installation is complete.

- Copy the files from the **d.3** DVD directory \02_DB\Msql\Installationsskripte into this directory.

Afterwards, the following files should be located in the directory C:\D3\<Name of the d.3 database installation>, e.g. C:\D3\D3P:

- md3run.bat
- md3space.sql

Warning

The scripts md3run.bat and md3space.sql must always be adjusted! These two files can be edited with a text editor such as Notepad. You have to apply the changes before executing the file md3run.bat!

Please also note the comments in both scripts and in the chapter [Creating an empty database using the DB-installation wizard MSSQL](#). There, the settings are described.

It is not possible to create a d.3ecm database from within the Microsoft SQL Server Enterprise Manager.

Adjusting the batch and script file

- Change the custom parameters in the files md3run.bat and md3space.sql:
 1. database names
 2. the directory names
 3. user name and password of the **Microsoft SQL**-administrator.

If the instance name of the **Microsoft SQL Server** 20x instance is not MSSQLSERVER, note the following additional information:

- Specify the instance name in addition to the database name.

The database of the productive system should be named **d3P**, while the test system should be named **d3T**.

Warning

Never change the names of the database files and filegroups. Further information can be found in the comment lines of the respective script file.

Starting the batch process

- Execute the batch file md3run.bat.

The scripts are run one after another, creating an instance with the defined filegroups. Furthermore, the user Master is defined with the respective rights as a database administrator for d.3ecm.

The result of the batch run is then written to the file md3space.log.

The batch process can take more than one hour of time, depending on the size of the filegroups. Please do NOT abort the process.

Note

If you want to create a second database for testing purposes, you perform the above steps again.

Adjusting the DB-user in the d3addon.ini

Before you create the database tables during start-up, note the information in the chapter [Adjust d3addon.ini before logging in for the first time](#).

Registering the d.3 ODBC data source

Once the configuration is complete, please start the service for the Microsoft SQL database.

The ODBC data sources are registered in the Windows administration with the ODBC data source administrator.

Warning

If you are using a 64-bit server system with a 64-bit database on the server and a 32-bit version of the database application, you must install the 32-bit ODBC driver. The ODBC driver cannot be configured under **Control Panel > Administrative Tools > Data sources (ODBC)**. Only ODBC drivers for 64-bit versions are available under **Data sources (ODBC)**.

Instead, manually open the file `odbcad32.exe`, which is located by default at `C:\Windows\SysWOW64`. You will then need to configure the settings for the ODBC drivers for the 32-bit version.

Prerequisites and conditions for creating a new system data source

- The new system data source must have the same name as the database created, e.g. **d3A** (d3 with the abbreviation for the d.3 repository).
- Always use the driver provided by your DBMS and not the Microsoft Windows default driver.
- The driver name for SQL Server is **ODBC Driver for SQL Server**.

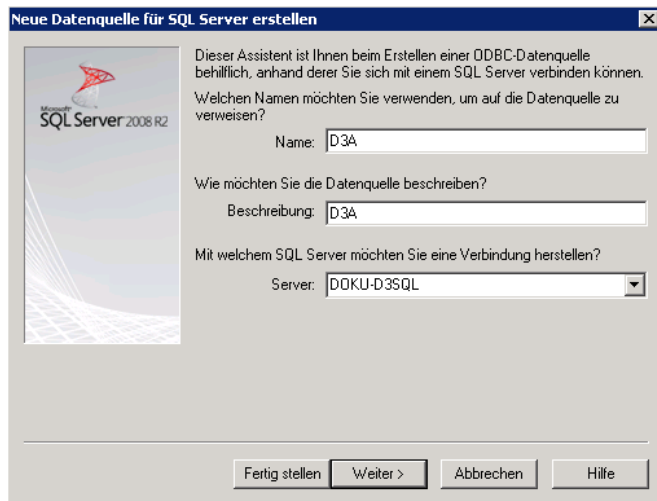
To create a new system data source, follow the steps below:

1. Open the ODBC data source administrator (32-bit) manually under `C:\Windows\SysWOW64\odbcad32.exe`.
2. Click **Add** to create a new system data source(system DSN).
3. Select the appropriate driver in **Create new data source**.

Example installation of a server with SQL Server 2008

The following installation steps may differ in higher versions of SQL Server.

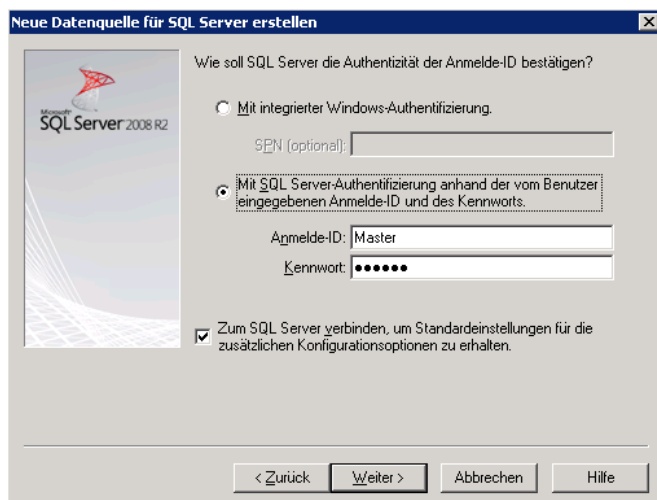
1. Select the appropriate database driver and click **Finish**.
2. In the wizard for creating a new data source, enter the correct name for the data source under **Name**, e.g. **d3P**.
3. Optionally, enter a short description under **Description** to make it easier for you and your team to differentiate, especially if there are many data sources.
4. Select the SQL server hosting the database under **Server**. If you have selected a different instance, you must enter the server **(local)\instance name**, e.g. **(local)\test**, as the server instead of **(local)**.
5. Click on **Next**.



Warning

Do not click Finish yet, otherwise the data source will not be created correctly and will refer to the **master database** instead of the created d.3 database.

6. Choose the mode of authentication which you configured installing the Microsoft SQL Server.
7. Activate **Connect to SQL Server** to retain the default settings for the additional configuration options.
8. Enter the name of the [administrative database user for d.3](#) (e.g. **Master**) and the password.
9. Click on **Next**.

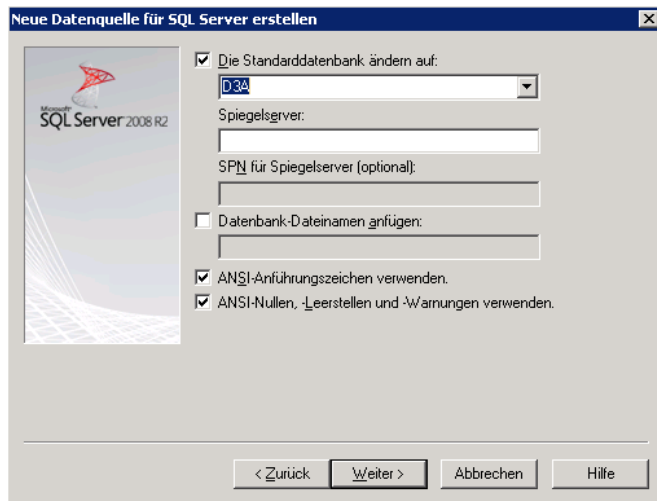


10. Activate the checkbox **Change the default database auf**, um eine d.3-Datenbank auszuwählen.

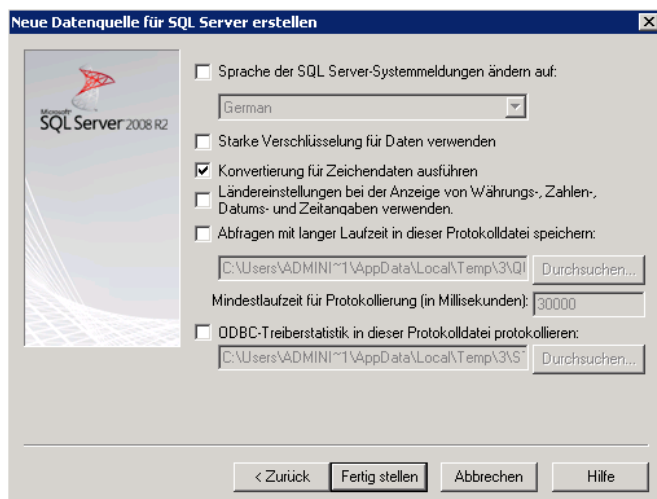
Warning

Never select the default SQL Server database named **Master**.

11. Activate **Use ANSI quoted identifiers** and **Use ANSI-nulls, -paddings and -warnings**. You can leave other options deactivated.
12. Click on **Next**.



13. Activate **Execute conversion for character data** and deactivate **Use strong encryption for data** if required.
14. You can use **Language of SQL Server system messages** to specify a language.
15. Enable the checkbox **Log ODBC driver statistics to the log file**.
16. Then, click on **Finish**.



17. In the final step, click on **Test data source**.
18. To finish creating the app, click **OK**.

Publishing the database on the network

Having created the database, it is automatically published in the network.

However, if the DBMS and d.3 have been configured in different servers,

- Install the converter Microsoft SQL client on the application server.

Oracle

d.3ecm can be operated with different versions of the Oracle database management system. The supported versions are listed in the current release notes for your **d.3** version.

Oracle combines the database files in so called "Tablespaces". The following tablespaces are required for a d.3ecm database:

Tablespaces	Description	Comment
SYSTEM	Oracle system information	Tablespace-name can be freely assigned

Tablespaces	Description	Comment
D3_DAT	Tables for the storage of the index values for all d.3 documents	Tablespace-name can be freely assigned. If deviating from the default value D3_DAT the name for d.3ecm must be specified in the config parameter ORACLE_DATA_TABLESPACE_NAME
D3_IDX	Oracle table indexes	Tablespace-name can be freely assigned. If deviating from the default value D3_IDX the name for d.3ecm must be specified in the config parameter ORACLE_INDEX_TABLESPACE_NAME
D3_USR	User specific content such as favorites and mailboxes	Tablespace name must not be changed
D3_TMP	Temporary Oracle objects	Tablespace name must not be changed
D3_UNDO	UNDO Tablespace - automatically managed	Tablespace-name can be freely assigned

Size of the tablespaces

The tablespace SYSTEM is not required by d.3ecm. However, Oracle requires it for internal purposes. A size of at least 100 MByte is recommended depending on the used Oracle-version and functions.

The size of the tablespaces D3_DAT and D3_IDX depends on the number of documents to be archived in d.3ecm and the extent of attributes and keywords. For 1 million documents without full-text indexing and an average number of attributes, approximately 1.5 GByte are required per tablespace. The initial size should be at least 200 MByte.

The size of the tablespaces D3_USR, D3_TMP and D3_RBS depends on the system activity and the number of concurrent d.3ecm users. The initial size for the tablespaces D3_USR and D3_TMP should not be lower than 20 MByte; the tablespace D3_RBS should at least amount to 100 MByte.

You should monitor the fill level of the tablespaces during the productive operation and to be able to adjust the size if necessary. Using the option **Autoextend**, you can increase the size of the tablespaces automatically. However, this may lead to fragmentation with negative effects on the performance.

In the template "d3-Prod-DB-*.dbt" provided for the installation of a productive d.3ecm database instance in the Oracle database configuration assistant (DBCA), all values are set adequately.

Multiple d.3 repositories in one shared Oracle-database

By default, every d.3ecm repository installs and uses a dedicated Oracle database instance. This is the recommended procedure.

However, there may be some constellations or preconditions in the existing database infrastructure requiring the use of **one** database instance for the operation of multiple d.3 repositories.

For this effect, an individual schema must be created for each d.3ecmRepository repository in the database. The default schema is named MASTER. Additional schemas are created, generating a new database user (e.g. MASTER_T) and assigning the data tablespaces for this repository to him. It is also recommended to adjust the name of the first schema accordingly (e.g. MASTER_P). The database user is edited accordingly in the SQL script d3-DB.sql provided with the template to create the database instance.

This DB user must be registered in d.3ecm using the configuration parameter DBUSER_ORACLE **before the first start of the server interface** against the new DB instance.

For this effect, please enter the value in the configuration file d3addon.ini for the repository. (Bsp.: (EXAMPLE: DBUSER_ORACLE = "MASTER_P"))

When logging in to the **d.3 server interface** in the login-form, the user name there must remain "Master" and not e.g. "MASTER_P", since "Master" is always the logical d.3 name for the main data user in the respective database instance disregarding the used database management system, to which the actual database user belonging to the scheme is mapped.

The tables and indexes for a schema and thus for a repository must be stored in separate tablespaces. To do so, the Data-tablespace and the Index-tablespace must also be adjusted complying with the Master user to ensure a distinct naming.

- As a DB admin, create both schemas with a distinct name.
- Assign them to the Master-user.

To do so, edit the SQL script `d3-DB.sql` provided with the template to create the database instance, accordingly.

Note

```
CREATE USER Master_P
  IDENTIFIED BY sicheres_passwort_eintragen
  DEFAULT TABLESPACE D3_DAT_P
  TEMPORARY TABLESPACE D3_TMP
  QUOTA UNLIMITED ON D3_DAT_P
  QUOTA UNLIMITED ON D3_IDX_P
  QUOTA UNLIMITED ON D3_USR
  PROFILE d3;
```

- In `d.3ecm`, register the two tablespaces via the config parameters `ORACLE_DATA_TABLESPACE_NAME` and `ORACLE_INDEX_TABLESPACE_NAME`.

For this effect, enter the values in the `d3addon.ini` config-file of the repository.

Note

```
ORACLE_DATA_TABLESPACE_NAME = "D3_DAT_P"

ORACLE_INDEX_TABLESPACE_NAME = "D3_IDX_P"
```

Oracle 23ai

Creating an empty database

As of version 21c, Oracle only supports the newer multi-tenant architecture of the database. This architecture allows multiple integrated databases to be run and managed in a common container database (CDB). Such an integrated database is also called pluggable database (PDB). The PDBs executed in a CDB share the main memory and the background processes but are separate autonomous databases in everything else.

Installing an Oracle 23ai database instance for d.3 server

Prerequisites: Successfully completed Oracle 23ai installation.

Creating a container database (CDB)

Note

If you already use a CDB, you can use this CDB as a container for a d.3server database instance. In this case, you can proceed directly to [Creating a pluggable database \(PDB\)](#).

1. Start the Database Configuration Assistant (DBCA) as a user with administrative permissions.
 - Windows: **Start menu > Oracle > Configuration and Migration Tools**
 - Linux: Start DBCA as the user `oracle` using the following command: `$ORACLE_HOME/bin/dbca`
2. Click on **Create a database**.
3. Select the default configuration. Use the advanced configuration if necessary.

4. Select the database character set **AL32UTF8**. This is the default setting.
5. Create the container database with a pluggable database (PDB).

Note

For a productive system, enable the option **Enable Archiving**. Please adjust the target directories for the archived log data. The archived redo log-files should be located on a physically different partition than the storage files.

About Oracle database options

d.3 server does not require any of the Oracle database options such as JVM, Vault, TEXT, OLAP, Spatial, In-Memory, etc.

If you use this CDB only for d.3-related PDBs, you can deactivate the options.

Creating a pluggable database (PDB)

Note

If you have created a CDB with an empty PDB, you can use this CDB as a database instance for d.3 server. In this case, you can proceed directly to [Prepare the PDB as the database instance for d.3 server](#).

1. Start the Database Configuration Assistant (DBCA) as a user with administrative permissions.
 <listitem>
 Windows: **Start menu > Oracle > Configuration and Migration Tools**
 </listitem>
 <listitem>
 Linux: Start DBCA as the user **oracle** using the following command: **\$ORACLE_HOME/bin/dbca**
 </listitem>
2. Select **Manage pluggable databases**.
3. Select **Create pluggable database**.
4. Select the container database you created earlier.
5. Click on **Create new Pluggable database from another PDB**.
6. Select **PDB\$SEED** as source.
7. When identifying the PDB, enter the name of the database to be integrated (e.g. "D3P") and enter the administrator name (e.g. d3padmin) and a password.
8. Under **Pluggable Database Options**, specify the storage type and storage location.
9. Disable **Create user default tablespace**.
10. Check the overview and click on **Finish** to create the PDB.

Prepare the PDB as the database instance for d.3 server

To prepare an Oracle pluggable database (PDB) for use as a database instance for d.3 server, execute the SQL script **d3-PDB.sql**.

Note

The operations performed by the script are listed in the script header and are output when the script is executed.

You can use Oracle tools such as SQL Developer or SQL Plus for the execution.

1. Log in to the newly created PDB as the user **system**.

2. Executethe script **d3-PDB.sql**.

Required database users, roles, profiles and permissions

The following list describes the database users, roles, profiles and permissions required for an installation of d.3 under Oracle.

You need the following DB users:

User

MASTER

Permission/Description

Owner and thus the schema for all d.3 database objects (tables, indexes, sequences, etc.)

Note

MASTER is the predefined standard owner or schema name to be used for a default installation.

This can also be changed.

For this effect, you specify it separately in the d.3ecm configuration (d3addon.ini - parameter DBUSER_ORACLE = "<OWNER>").

Right	Details
CONNECT	
CREATE TABLE	
ALTER TABLE	
DROP TABLE	
CREATE ANY INDEX	WITH ADMIN OPTION
DROP ANY INDEX	WITH ADMIN OPTION
CREATE SEQUENCE	
ALL	On all tables and sequences of the owner MASTER
SELECT	for the following Oracle system tables and Views : SYS.ALL_TABLES SYS.ALL_TAB_COLUMNS SYS.ALL_IND_COLUMNS SYS.ALL_USERS SYS.ALL_SYNONYMS SYS.ALL_SEQUENCES SYS.DBA_ROLES SYS.DBA_PROFILES SYS.DBA_TABLESPACES SYS.DBA_INDEXES SYS.DBA_SEGMENTS SYS.DBA_LOBS SYS.DBA_PROFILES
CREATE ROLE	Note These three rights are only required during the d.3ecm installation and can then be removed again.
CREATE USER	
CREATE PROFILE	

The following tablespaces must be assigned to the DB user MASTER:

Property	Value
DEFAULT TABLESPACE	D3_DAT
TEMPORARY TABLESPACE	D3_TMP
QUOTA	UNLIMITED on D3_DAT
	UNLIMITED on D3_IDX
	UNLIMITED on D3_USR

D3_SERVER_56992

Standard database user for d.3 server-processes

D3_ASYNC_45824

Standard database user for d.3ecm background processes

HOSTIMP_80096

ecmStandard database user for d.3ecm hostimport processes

User	Permission/Description																
D3SELECT	This additional DB user is optional but recommended (e.g. for analyses and queries) <table> <tr> <th>Right</th><th>Details</th></tr> <tr> <td>CONNECT</td><td></td></tr> <tr> <td>CREATE TABLE</td><td></td></tr> <tr> <td>ALL</td><td>on SELECT for all tables of the owner MASTER</td></tr> </table> Tablespace-assignment for this DB user: <table> <tr> <th>Property</th><th>Value</th></tr> <tr> <td>DEFAULT TABLESPACE</td><td>D3_USR</td></tr> <tr> <td>TEMPORARY TABLESPACE</td><td>D3_TMP</td></tr> <tr> <td>QUOTA</td><td>UNLIMITED on D3_USR</td></tr> </table>	Right	Details	CONNECT		CREATE TABLE		ALL	on SELECT for all tables of the owner MASTER	Property	Value	DEFAULT TABLESPACE	D3_USR	TEMPORARY TABLESPACE	D3_TMP	QUOTA	UNLIMITED on D3_USR
Right	Details																
CONNECT																	
CREATE TABLE																	
ALL	on SELECT for all tables of the owner MASTER																
Property	Value																
DEFAULT TABLESPACE	D3_USR																
TEMPORARY TABLESPACE	D3_TMP																
QUOTA	UNLIMITED on D3_USR																

Note

The d.3ecm standard DB users are automatically generated during the d.3ecm installation by the user MASTER.

These users automatically receive a password as part of the generation. The passwords can, however, also be specified during the installation.

These must then be stored in the d.3ecm configuration (encrypted) using the program `<d3server.prg>\Tools\DBChangePWD.exe`.

The default tablespace must be created with the following properties:

Property	Value
DEFAULT TABLESPACE	D3_DAT

The following tablespaces must be assigned to the default users:

Property	User
DEFAULT TABLESPACE	D3_USR
TEMPORARY TABLESPACE	D3_TMP
QUOTA	UNLIMITED on D3_DAT
	UNLIMITED on D3_IDX
	UNLIMITED on D3_USR

Moreover, you need a role and a profile:

Role/profile	Details																				
SAMSON	The role is created during the installation by the user MASTER. This rule requires the following rights: <table><thead><tr><th>Right</th><th>Details</th></tr></thead><tbody><tr><td>CONNECT</td><td></td></tr><tr><td>CREATE TABLE</td><td></td></tr><tr><td>ALL</td><td>On all tables and sequences of the owner MASTER</td></tr><tr><td>CREATE ANY INDEX</td><td></td></tr><tr><td>DROP ANY INDEX</td><td></td></tr><tr><td>SELECT</td><td>for the following Oracle system tables and Views:</td></tr><tr><td></td><td>SYS.ALL_TABLES</td></tr><tr><td></td><td>SYS.ALL_TAB_COLUMNS</td></tr><tr><td></td><td>SYS.ALL_IND_COLUMNS</td></tr></tbody></table>	Right	Details	CONNECT		CREATE TABLE		ALL	On all tables and sequences of the owner MASTER	CREATE ANY INDEX		DROP ANY INDEX		SELECT	for the following Oracle system tables and Views:		SYS.ALL_TABLES		SYS.ALL_TAB_COLUMNS		SYS.ALL_IND_COLUMNS
Right	Details																				
CONNECT																					
CREATE TABLE																					
ALL	On all tables and sequences of the owner MASTER																				
CREATE ANY INDEX																					
DROP ANY INDEX																					
SELECT	for the following Oracle system tables and Views:																				
	SYS.ALL_TABLES																				
	SYS.ALL_TAB_COLUMNS																				
	SYS.ALL_IND_COLUMNS																				
	These d.3ecm default DB users must be members of the role SAMSON: <table><thead><tr><th>User</th></tr></thead><tbody><tr><td>D3_SERVER_56992</td></tr><tr><td>D3_ASYNC_45824</td></tr><tr><td>HOSTIMP_80096</td></tr></tbody></table>	User	D3_SERVER_56992	D3_ASYNC_45824	HOSTIMP_80096																
User																					
D3_SERVER_56992																					
D3_ASYNC_45824																					
HOSTIMP_80096																					
D3	This profile must have the following properties: <table><thead><tr><th>Property</th><th>Value</th></tr></thead><tbody><tr><td>FAILED_LOGIN_ATTEMPTS</td><td>UNLIMITED</td></tr><tr><td>PASSWORD_LIFE_TIME</td><td>UNLIMITED</td></tr></tbody></table>	Property	Value	FAILED_LOGIN_ATTEMPTS	UNLIMITED	PASSWORD_LIFE_TIME	UNLIMITED														
Property	Value																				
FAILED_LOGIN_ATTEMPTS	UNLIMITED																				
PASSWORD_LIFE_TIME	UNLIMITED																				

By default, the password lifetime and the failed login attempts are limited.

The following profile must be assigned to the DB users:

User	Profile
D3_SERVER_56992	d3
D3_ASYNC_45824	
HOSTIMP_80096	
D3SELECT	

Registering the d.3ecm ODBC data source and creating the directories

The d.3 server processes access the Oracle database via ODBC. For this effect, an ODBC data source must be registered for the d.3ecm database. This can be done using the program **ODBC Data Source Administrator** in the Microsoft Windows Control Panel.

Warning

Should you be using a 64 bit server system and a 64-bit database on the server in combination with a 32-bit version of the database client, then you must install the 32-bit ODBC driver. The ODBC driver cannot be configured under **Control Panel | Administrative Tools | Data Sources (ODBC)**; this only provides ODBC-drivers for 64-bit versions. Instead, you have to execute the file `odbcad32.exe` which is usually located under `C:\Windows\SysWOW64`. You must configure the settings for the ODBC drivers for the 32-bit version here.

- Click **Add** in the tab **System DSN** to create a new system data source.

This should have the same name (Data Source Name) as the previously configured Net Service Name (default = d3P).

- Enter the **Data Source Name** and the **TNS (Net) Service Name**.
- Click **Test Connection** to validate your ODBC connection.
- Use your user name and password again (Master and geheim).

After successfully testing the connection, the database installation for the d.3 system is complete.

Information on the system ODBC data source can also be found in the Oracle documentation.

Information on the database user Master

The DB user Master requires the following rights:

- Creating / editing / deleting the d.3ecm database tables and indexes
- Assign rights to the d.3ecm tables
- Selection in the Oracle system tables and views
- Create database users for the d.3ecm system-users d3_server, d3_async, and hostimp.

This right is only required during the system installation.

A detailed list of the required Oracle authorizations for the User Master can be found under [Required DB users, roles, profile and authorizations](#)

The user Master is not required for the general system operation. It is intended for the following purposes only:

- System installation
- Installing updates
- Problem analysis
- Reporting

Notes on disabling the case-sensitive search

These notes apply to Oracle from version 8i Enterprise and 10g Standard.

This prevents the "case-sensitive" search and the search no longer differentiates upper- and lower-case letters. The matches, however, are displayed in their original spelling.

ORACLE_CASE_INSENSITIVE_SEARCH

Set the parameter ORACLE_CASE_INSENSITIVE_SEARCH in the d.3ecm configuration file d3ad-don.ini (for each archive) to the value 1:

Note

ORACLE_CASE_INSENSITIVE_SEARCH=1

Executing the external JPL-script cre_ora_fbidx.jpl

This script creates the **Function Based Indexes**.

Execute the external JPL script cre_ora_fbidx.jpl.

After you have executed the three steps, restart the d.3 processes.

Regenerating the Oracle-statistics

If the [parameter above](#) is enabled later and there are already documents stored in the d.3 repository, then the Oracle statistics must be recreated.

To do this, run the following command in SQL Plus for each database:

Note

```
execute dbms_utility.analyze_schema ('MASTER', 'COMPUTE')
```

1.4. File server

1.4.1. System requirements

For the file server, please note the system requirements of the operating-system vendors.

Please refer to the central [system requirements for d.velop products \(on-premises\)](#). You can find deviating or more extensive system requirements in the documentation.

Security

To minimize the risk of losing data, we recommend using RAID systems.

- Ideally use Raid level 5.
- Furthermore, ensure the regular backup of the document files.

Note

Please note the chapter [d.3ecm system operation](#) and the backup manual.

Partition sizes

Make sure that you have enough hard disc capacity to hold all expected document files on the file server. The hard disc capacity should at least be sufficient for the next three years of operation.

Note

Notes on how to determine the required disc space:

The necessary disk space depends on the number of documents to be stored on the file server, their average size, and if the documents are to be offloaded to a secondary storage system.

Note

When using NTFS, never use more than 90% of the overall capacity of a logical drive at any time, as even a short-term fall below the minimum reserve can lead to significant fragmentation.

1.4.2. Document tree

All documents are stored in a directory tree on the file server.

If you install the directory tree and the d.3ecm application on the same machine, you do not need to share any directory. The directory structure is also created by the setup.

- In this case continue with the following [chapter](#).

If you want to use a separate server as a file server,

- please use a UNC-path.

Please also note that the service d.3 gateway and the d.3 server processes require editing rights for the directory.

- Change the accounts accordingly for the services d.3 gateway and d.3 process manager as well as the access rights to the shared drive.

Note

To avoid performance issues due to the large number of parallel disk accesses, you must create an individual partition for each d.3 document tree.

If you do not do this, this may lead to the fact that the parallel systems slow each other down. In the worst case this can lead to system malfunctions.

1.5. Creating additional repositories

Depending on the d.3 license, you can operate up to 50 d.3ecm repositories with one d.3 gateway. The previous chapters have explained how to configure a d.3 repository during the installation process.

The following chapter describes how to add a d.3 repository later on.

1.5.1. Create new d.3 repository

For an additional d.3 repository you require the following elements:

1. an additional d.3ecm database
2. an additional d.3 directory tree
3. a jStoreBucket
4. an additional configuration.

Follow the steps below to configure a database:

- Read the chapter on the respective database system ([MSSQL](#) or [Oracle](#)).
- Then execute the d.3 Repository Configuration application by clicking the Start menu entry below the program group **d.3 Open** and enter the required parameters for the new d.3 repository.
- Start the d.3 gateway again.
- Generate a new client software package.
- Finally, create the d.3-specific database tables.

1.6. d.3ecm system operation

You as the customer are responsible for the d.3ecm system operation of your repository system.

In the d.3ecm environment, system operation includes the areas of [Backup](#) , [Monitoring](#) and [Maintenance](#).

Please also note the practical information provided by our technical staff.

1.6.1. Backup

In the d.3ecm environment, a backup contains (among others) the following steps:

Warning

The list does not claim to be complete and must be checked in the respective project context.

- Regularly create backups of all relevant elements of your d.3ecm system. This especially applies to the database.
- Always activate the creation of complete transaction protocols (also for test systems).
- Create backups of the transaction logs at least once per hour.

- Regularly create full backups of the database.

1.6.2. Monitoring

It is essential to monitor your d.3ecm system at runtime in order to identify and respond to issues quickly.

Among other things, you can monitor the d.3ecm system with the following applications:

- d.3 logview
- d.3 object monitor

The database should also be monitored. Please note the following aspects here:

- Fill level of the tablespaces / filegroups and disks
- DB-job-execution
- DB-error messages / DB-log-files

1.6.3. Maintenance and care

The maintenance and care of your d.3ecm system at least includes the following issues:

- Please organize the maintenance of the d.3ecm systems and the databases.
- Ensure sufficient disk space on all related machines.
- Please perform the usual optimizations such as the recreation of statistics and indexes with maintenance jobs or maintenance schedules regularly.

Warning

If disks or directories run full or databases are not maintained, this can quickly lead to errors which are very difficult to resolve. These issues can then only be resolved by our support against payment!

1.6.4. Notes on the handling of virus scanners

Since d.3ecm is a system potentially processing bulk data, i.e. a large number of individual files, it is also sensitive for performance issues caused by external systems such as virus scanning software. However, it is almost impossible to give a general assessment of how to configure the virus scanning software as this has to be individually considered in each project. In the end, the data of the d.3ecm system must always be integrated in the customers' virus scanning concept according to their respective policies.

Note

This chapter should only give some hints with regards to the operation of virus scanning software in the context of a d.3ecm system.

It does not make any claim to be complete. Moreover, no general recommendations are given.

Excluding individual processes, directories, file types and other adjustments

If you are experiencing reduced performance when working in d.3ecm in combination with virus scanning software, you should exclude individual processes, directories or file types from the virus scan after a thorough analysis of the individual risk.

Warning

Such exceptions **always** pose a remaining risk which must be evaluated by each customer individually. It is urgently recommended to individually assess the security risk for each machine on which d.3ecm is operated, individually.

Here, the e-mail processing will pose a significantly higher risk than a local scanning pc only digitizing paper documents. You should also consider, if a repository only manages heritage data or if the documents are actively edited in sensitive formats.

In the context of a scanning chain, however, you also have to consider, if only paper documents are digitized or if other processes also provide digital files (e.g. from the e-mail processing).

The same notes on security of the source and the risk for individual file formats resulting from renewed editing apply to evaluating the data in the d.3 document tree.

Here, the security of the delivered and processed data must be assessed individually.

Note

The responsibility for this lies with the customer.

To assess a possible performance gain by limiting the virus protection, you should execute sufficient load tests before and after the reconfiguration of the virus scanning software.

Security aspects and possible performance gains must be weighed against each other before the virus protection for certain elements is restricted in any way.

Note

Security must **always** take precedence.

Generally, you should thus always extend your (virtual) hardware resources to resolve performance issues before the security is compromised limiting the virus protection.

1.7. Additional information sources and imprint

If you want to deepen your knowledge of d.velop software, visit the d.velop academy digital learning platform at <https://dvelopacademy.keelelearning.de/>.

Our E-learning modules let you develop a more in-depth knowledge and specialist expertise at your own speed. A huge number of E-learning modules are free for you to access without registering beforehand.

Visit our Knowledge Base on the d.velop service portal. In the Knowledge Base, you can find all our latest solutions, answers to frequently asked questions and how-to topics for specific tasks. You can find the Knowledge Base at the following address: <https://kb.d-velop.de/>

Find the central imprint at <https://www.d-velop.com/imprint>.