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1 Introduction

Welcome to METTLER TOLEDO Collect⁺

Congratulations to your choice of Collect⁺ as a system to be closely evaluated and welcome to our fast growing community of proud Collect⁺ users. Collect⁺ as your system software ensures seamless traceability of your production processes, which in turn contributes to your ability to meet your quality standards, as well as requirements of regulations.

Collect⁺ is by design a web application for collecting, monitoring and reporting production data of devices. Its multi tier and service oriented architecture assures high scalability. As a result the product family is scalable and can grow together with your company.

Collect⁺ with its customizable dashboard representation ensures seamless traceability of your production process, which in turn contributes to your ability to meet your quality standards, as well as requirements of regulations.

Collect⁺ as part of METTLER TOLEDO product portfolio benefits from a world wide service of competence provided locally by your METTLER TOLEDO partner of trust. That assures the excellent services as you as a METTLER TOLEDO customer are used to.

METTLER TOLEDO Collect⁺ is a trademark of Mettler-Toledo AG in Switzerland and/or other countries.

Windows, Windows 7 and Windows 8 are either registered trademarks or trademarks of Microsoft Corporation in the United States and/or other countries.

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2 Purpose of the software

The core focus of Collect+ is to:

Collect: Collect raw data from devices in your production environment.

Visualize: Derive information by performing a meaningful analysis on the combination of collected data and additional production attributes.

Publish: Distribute the information analysis in an easy to use manner to individuals and systems.

The intention of the application is to provide a user friendly means to deliver information and full process transparency to your employees so that actions can be taken to enhance productivity or quality. This all-in-one tool is flexible enough to fit a wide variety of production processes in various market segments.

The following types of devices can be connected to Collect+ via a local or network computer and monitor them from a central location:

- METTLER TOLEDO balances/scales
- 3rd-party devices

Having full control over your production process not only helps you adhere to standards or legislation - it also puts you in the right position to demonstrate your process due diligence while helping to optimize your production process as well as offering many other benefits:

- Enhanced productivity due to reduced production downtime, faster product changeovers, and more efficient use of personnel through centralized monitoring
- Fewer risks at all stages of production, plus the availability of comprehensively documented data at any time
- Fewer rejects and higher yields thanks to proactive monitoring of machine health and production performance.

3 Purpose of this document

This document is intended to provide a structured overview of METTLER TOLEDO Collect+ v1.0 software. It serves as a walkthrough guide to plan an upcoming installation as well as to identify and provide the optimal network infrastructure to run Collect+ smoothly.

IT technicians, managers and key users will find information about:

- preparation and planning of the installation
- the general layout of the software
- the implemented components
- dimensioning and scalability of the system
- typical and recommended installation

Target audience

For installation and maintenance, an experienced PC user is required. If the software is operated in the distributed installation mode, an IT specialist for installation and maintenance is required, who has knowledge of Microsoft Active Directory, networks configuration, Microsoft SQL Server and Internet Information Services (IIS).

Operators at instruments do not need additional knowledge. An operator who is trained in operating a stand-alone instrument is able to operate it the same way as when it is connected to the software.

Operators at the PC Client need the following skills: Good knowledge of company internal processes and standard operating procedures as well as good general computer knowledge.

4 How to use the document

As we do know, each installation is a unique project and has special requirements to the software as well as to the documentation. Taking this into consideration, this document focusing upon common criteria and questions by preparing an installation of Collect*. However, it is essential that the intended installation has to be chosen in forehand. Within three main parts you will be guided through:

Sections 1 to 7 are providing information about the software in general. The required components as well as the built-in frameworks are mentioned here. Influences on the design and layout of your installation are addressed in section 7 as well.

Section 8 The main installation types are listed within this section. Information about hardware with good performance, communication blueprint, ports and firewall settings, as well as infra structural information can be found in this section. Please choose your installation type and go directly to the appropriate paragraph:

- Single PC [► 12]
- Distributed System [► 15]
- Virtualized environment [► 17]

Section 9 and Appendix General information and follow ups are provided in this section. If you need further documentation, access to METTLER TOLEDO Services and Support or familiarize with the glossary used: it can be found in here.

All devices natively supported by Collect* and the embedded software version are mentioned in the table Compatibility matrix [► 18].

General instructions

The current document will be updated regularly. It can be found for download on the METTLER TOLEDO extranet in the corresponding product community. Please contact your METTLER TOLEDO representative for an updated version.

Where to find further information:

- The **Installation Instructions** on the Collect* USB stick enables you to quickly become familiar with the easy installation on a single PC.
- The context-sensitive **Online Help** integrated in the software provides a complete description of all components and modules.

It can be accessed via **Help** the upper right-hand corner of the page.

5 System specifications

5.1 Available systems

Collect+ is a web application for collecting, monitoring and reporting production data of various devices. The current Collect+ system is available on USB memory stick. Make sure an appropriate connector will be available for the installation.

5.2 Licensing structure

Once Collect+ has been installed, the application will run with an **evaluation license for 45 days**. This 45-day trial period gives you the opportunity to test out the functions that Collect+ offers.

One license is required per installation.

Once you have purchased the system, you must **activate** the software.

5.3 Languages

The following 6 languages are fully implemented with resource text for the user interface and online help:

Languages supported

Language	Application	Online Help
English	•	•
German	•	•
French	•	•
Italian	•	•
Spanish	•	•
Chinese	•	•

Collect+ and connected devices sometimes do not support the same languages for the user interface.

6 Software specifications

Collect+ is a web application.

Clients are implemented as web clients. They are web-based and require a web browser (Internet Explorer 11 or higher).

Server components are hosted in a Windows Service and are controlled by the Windows Service Control Manager.

The application is built for Microsoft 64-bit and 32-bit platforms.

6.1 Application components

Collect+ consists of the following components:

- The **Web application** forms the front end of Collect+. It is required for configuring the system, connecting devices, configuring data to be collected, and dashboards for the supervision of the collected data.
- The **Application server** is the server component of the actual program and performs all interactions within Collect+. Furthermore, it establishes the connection to the devices and is responsible for communication with these.
- You need a database management system for the database. The DBMS (**SQL Server Instance**) may be installed on a dedicated computer or combined with the application server on a single computer.
- **DB Utility** is a database management tool to create, connect, backup and archive Collect+ databases. It requires administration privileges.

User privileges

Normal user privileges are sufficient for the web application. DB Utility, the database management tool of Collect+, requires administration privileges.

Collect+ has just one user: **admin**, password **admin123**. All configuration related features are secured with this user. The password may be changed in the DB Utility.

Dashboards can be accessed without restrictions but the URL is obfuscated. Dashboard URLs can be sent to recipients by mail.

The **CollectPlus service** is installed with the credentials of the Network Service Account by default and can be changed during installation. It does not interact with the Windows desktop and is accessible through the Windows Service Control Manager.

System configuration

During installation, the ports needed for communication are opened in the firewall.

The default ports are (can be changed in the distributed installation):

- Application server: Port 57000
- Web client: Port 57001
- Device connection server 57003
- Devices: Port range 57100...57300

During installation, Collect+ is granted write permission to following directories in the installation location:

- DriverPackages
- Drivers
- Licensing
- Log

6.2 Third party components

Collect+ depends on the following third party components:

.NET Framework is a software framework developed by Microsoft that runs primarily on Microsoft Windows.

MS SQL Server is a database management system developed by Microsoft to store all configurations and any transaction data from devices. The installation USB memory stick includes the English version of Microsoft SQL Server 2014 - Express Edition. The Management Tools are not included. The server is installed with the credentials of the Network Service Account. On x64 operating systems the x64 version is deployed. Alternatively, an existing Standard or Enterprise edition of the SQL Server can host the Collect+ database.

The database collation for Collect+ is Latin1_General_CI_AS. This configuration is not part of the installation program.

A **PDF Reader** is required to access installation documents only.

An **email program** needs to be installed on the client PC in order to send dashboard links out of the web client.

Collect+ installation enables the **Internet Information Services (IIS)** feature on the computer where the "Web Application" is installed.

7 System dimension and scalability

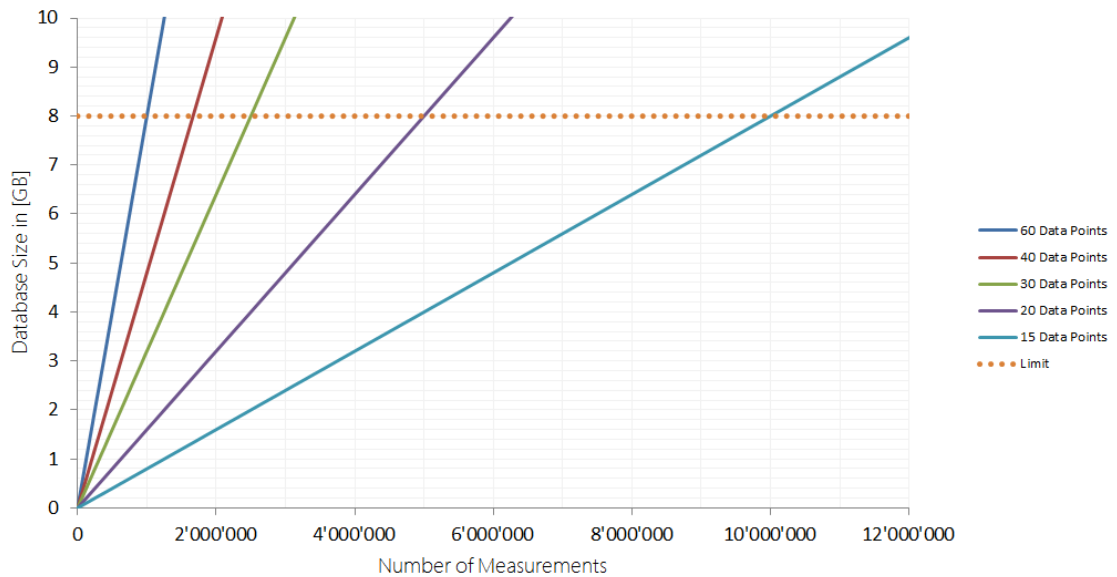
Dimensioning the system

Collect* is a highly reliable and scalable system. It can be run on a single PC hardware or in distributed environments with multiple servers. This chapter should support you by identifying and choosing the installation of Collect* which fits best to your needs.

Database Size

Collect* limits the database size to 8 GB which fits into SQL Express Edition. The duration to reach this limit depends on the number of measurements and on the number of data points that are stored for a measurement. **Data Points** are the parts that a measurement consists of, e.g. net, tare and additional information such as product or batch number.

The following chart shows how many measurements can be stored in a database with 8 GB space. Use this chart to calculate the interval you need for exporting your data to an external archive.



NOTICE

Data loss

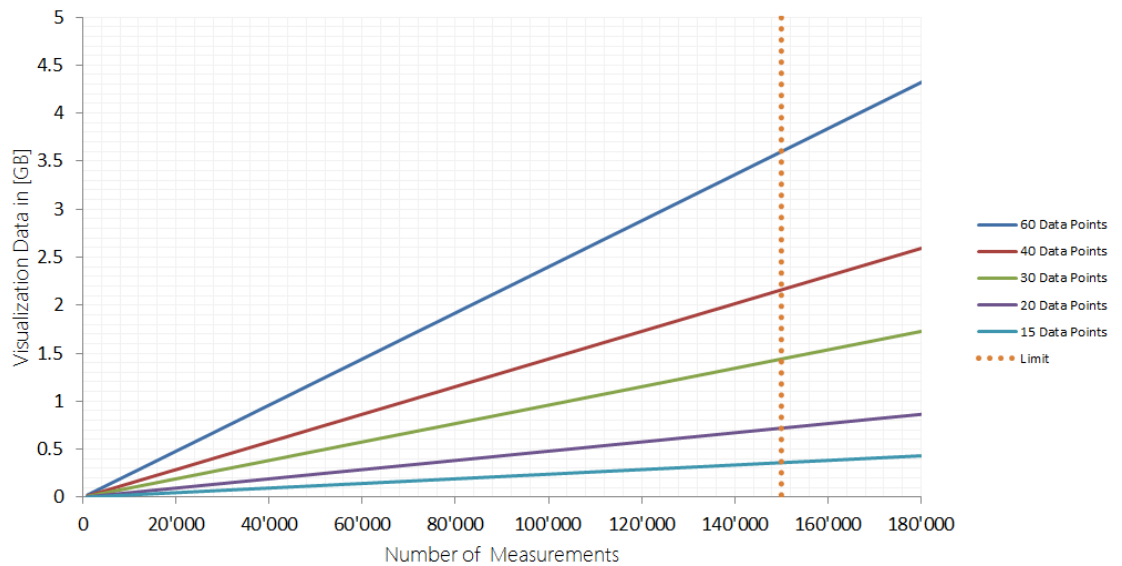
If the limit is reached the oldest 100,000 measurements are deleted without further notice.

Visualizing Data in Dashboards

Collect* is caching the latest 150,000 measurements for visualization in dashboards. The memory consumption of these measurements depends on the number of data points collected with each measurement.

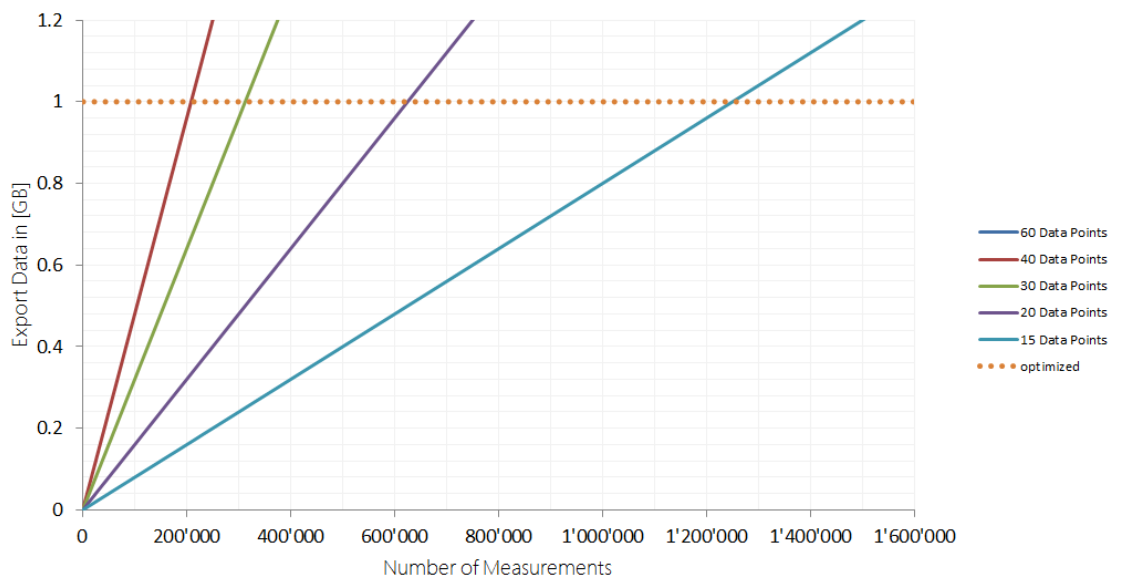
With this diagram the following system requirements need to be considered when setting up Collect* in your environment:

- 5...10 data points collected => 2 GB Memory on Application Server and Client
- 10...30 data points collected => 4 GB Memory on Application Server and Client
- 30...50 data points collected => 8 GB Memory on Application Server and Client



Data Export

Collect+ offers the possibility to export data. The export format is CSV. The file size depends on the number of data points collected with each measurement. Collect+ does not limit the size of the file but it is optimized for 1 GB CSV files. The following chart shows how many measurements can be stored in one file with 1 GB size. When planning data processing in another application, plan the frequency of downloading data with the following chart.



It is essential to choose the right environment to run Collect+.

System recommendations

	Small	Medium	Large
Measurements per minute	< 300	>= 300	>= 1200
Data points per measurement	< 10	>= 10	>= 30
RAM	4 GB	8 GB	12 GB
CPU	2 Cores	4 Cores	8 Cores
OS	32 bits	64 bits	64 bits
Disk	200 GB	200 GB	200 GB
SQL Server	Express Edition	Express Edition	Standard Edition

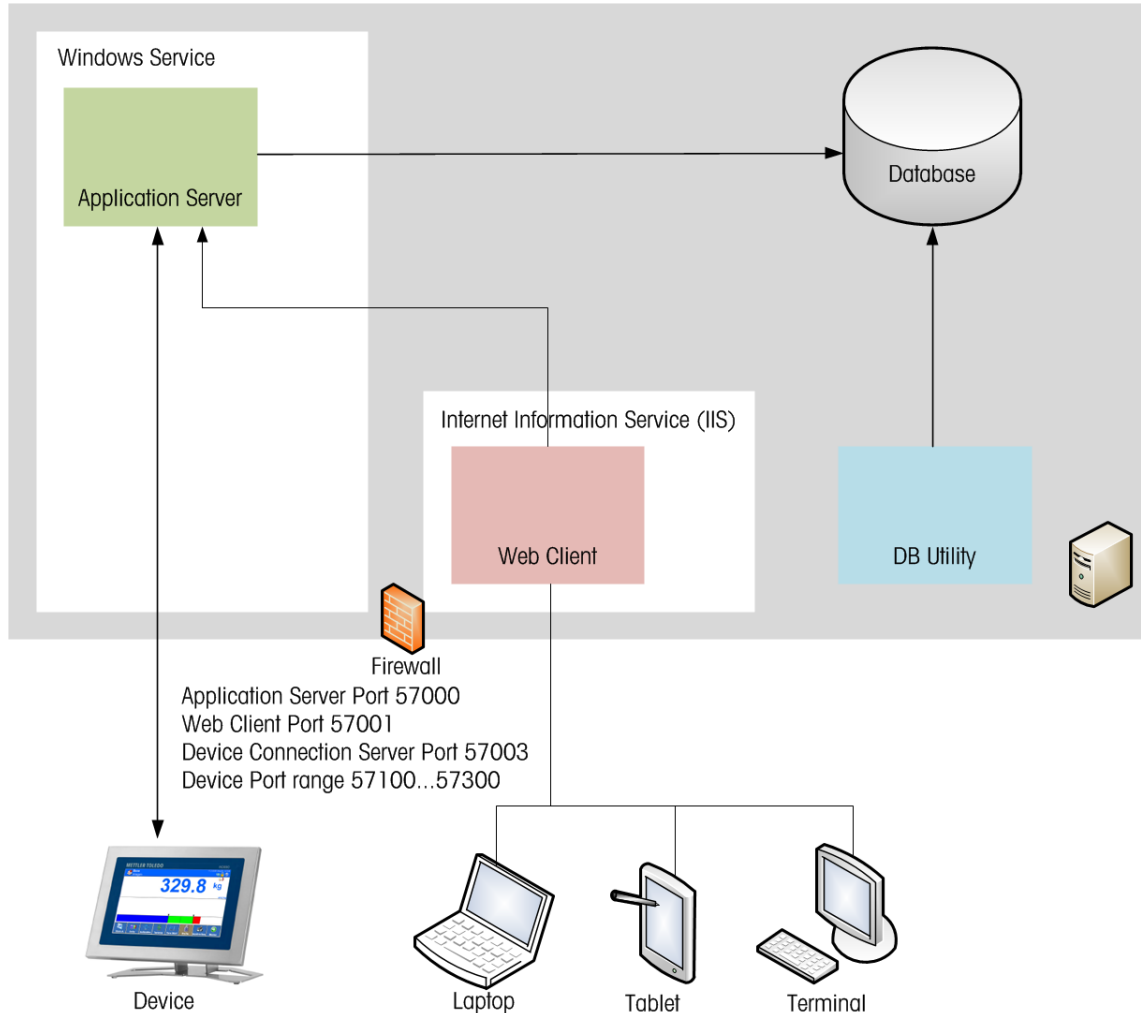
All values are recommendations based upon best practices and experience.

8 Typical installation / Preparing the installation

8.1 Single PC

8.1.1 Introduction

On a single PC deployment, all Collect+ components are installed on a single workstation. This scenario is applicable for small installations with low data volume.



8.1.2 System requirements

Hardware

For client application components only

	Minimum
Graphics	1280 × 1024, display size >= 10" class

The following table gives the minimum, medium and the optimum hardware requirements for running a Collect+ system.

System recommendations

	Small	Medium	Large
Measurements per minute	< 300	>= 300	>= 1200
Data points per measurement	< 10	>= 10	>= 30
RAM	4 GB	8 GB	12 GB
CPU	2 Cores	4 Cores	8 Cores

	Small	Medium	Large
OS	32 bits	64 bits	64 bits
Disk	200 GB	200 GB	200 GB
SQL Server	Express Edition	Express Edition	Standard Edition

8.1.3 Operating systems

- Microsoft Windows 7 (Professional, Ultimate, Enterprise) Service Pack 1 or
 - Microsoft Windows 8.1 with Update, or
 - Microsoft Windows 8.1 with Update Pro, or
 - Microsoft Windows 8.1 with Update Enterprise, or
 - Microsoft Windows Server 2008 R2 (Standard, Enterprise), Service Pack 1, or
 - Microsoft Windows Server 2012 (Foundation, Essentials, Standard, Datacenter), or
 - Microsoft Windows Server 2012 R2 with Update (Foundation, Essentials, Standard, Datacenter)
- 64bit/32bit versions are supported.

8.1.4 Database server

The following list shows an overview over the supported Microsoft SQL Server Editions. During the installation of Collect*, the setup offers to install an English Server 2014 Express Edition with SP 2. For larger systems we recommend using Microsoft SQL Server 2014 Standard or Enterprise Edition, due to the size and performance limitations of the Express Edition.

- MS SQL Server 2008 (Standard and Enterprise), Service Pack 3, or
- MS SQL Server 2008 R2 (Express, Standard and Enterprise), Service Pack 2 or
- MS SQL Server 2012 (Express, Standard and Enterprise), Service Pack 2 or
- MS SQL Server 2014 (Express*, Standard and Enterprise)

* Default: DB server is installed by Collect*

8.1.5 3rd-party software

The following 3rd-party software is required to run Collect*. The Collect* installation will install the necessary components.

- .Net Framework 4.5
- Internet Information Services (IIS)
- MS SQL Server 2014 Express Edition

8.1.6 Instruments

Most instruments connect with Ethernet to Collect*, using an IPv4 address. Collect* currently does not support IPv6 addresses for instrument connections.

RS232 devices can be connected to the computer running the Application.

A table with Natively Supported Devices and Interfaces [► 18] can be found in the Appendix.

8.1.7 Network and firewalls

The deployment diagram shows the Collect* components and their communication links with the respective ports.

All communication is based on TCP/IP. Connections are closed after use, but are pooled.

The Application Server is the only component which requires database access.

8.1.8 Security and maintenance

The installer of the Collect* system requires administrator privileges on all Collect* computers and on the database system. For creating a backup or maintaining the Collect* database, administrator privileges are required as well. Web client users and users on the instrument do not require any additional rights.

A **backup** system should be available, which supports a periodical backup of the SQL database. If no such tool is available, the built in DB Utility tool of Collect+ can be used to perform a backup, but using a professional backup tool is highly recommended.

Rebuilding database indexes should be done regularly.

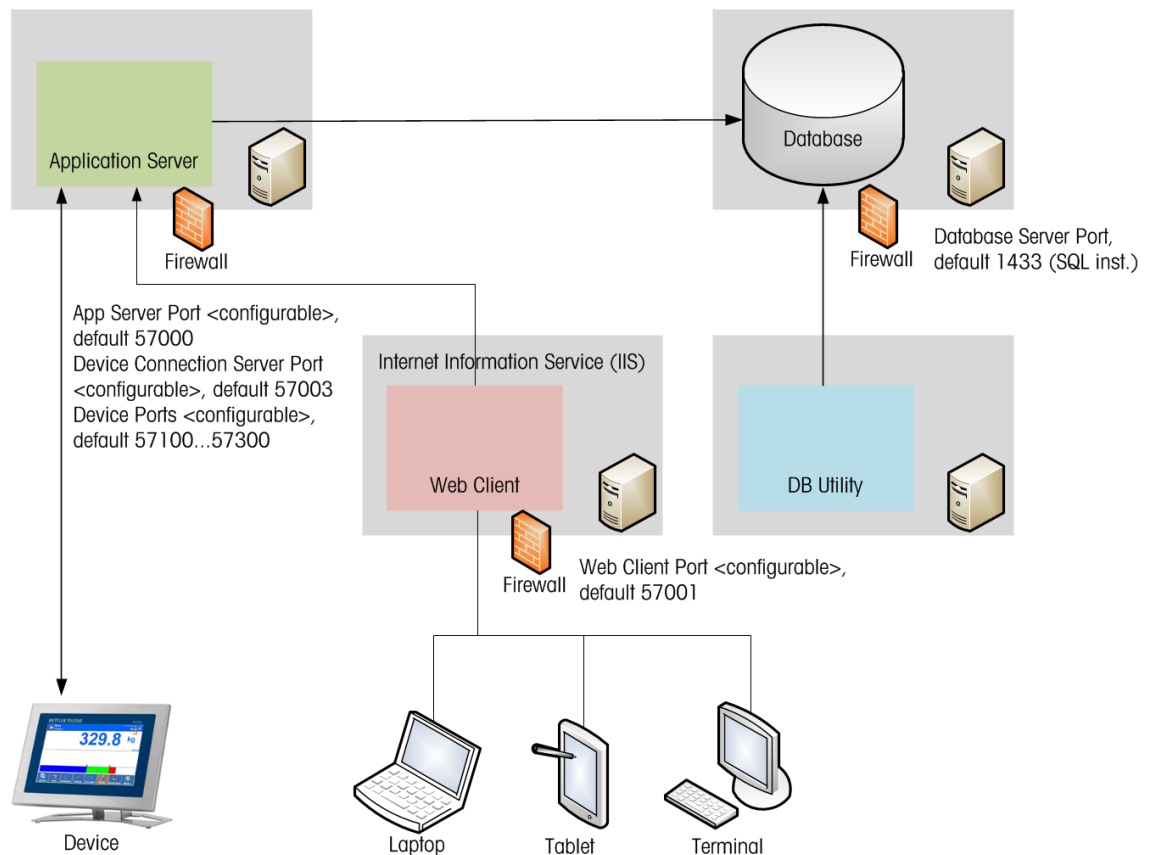
More information <http://msdn.microsoft.com/en-us/library/ms189858.aspx>

Data archiving can be done with the **Data Export** function in the Collect+ web application. The interval for archiving data depends on the number of devices and the amount of data points. When the database size exceeds 8 GB, the oldest 100,000 measurements are deleted without further notice.

8.2 Distributed system

8.2.1 Introduction

With the increasing size of the system, it is advisable for performance reasons to install certain components on separate computers. For example, the application server and the database server can be installed on a dedicated computer.



User definition

With a distributed installation of SQL Server, Application Server and DB Utility, a dedicated **Active Directory** user has to be configured as a user for the **Application Server**.

In workgroup environments, single place installations should be used.

Installation order

In case of a distributed installation, where every package can be installed on a separate PC, the order of the packages must be:

1. SQL Server
2. Application Server
3. Web Application

DB Utility can be installed as soon as the SQL Server is available.

8.2.2 System requirements

System recommendations

	Small	Medium	Large
Measurements per minute	< 300	>= 300	>= 1200
Data points per measurement	< 10	>= 10	>= 30
RAM	4 GB	8 GB	12 GB
CPU	2 Cores	4 Cores	8 Cores
OS	32 bits	64 bits	64 bits

	Small	Medium	Large
Disk	200 GB	200 GB	200 GB
SQL Server	Express Edition	Express Edition	Standard Edition

8.2.3 Operating systems

- Microsoft Windows 7 (Professional, Ultimate, Enterprise) Service Pack 1 or
 - Microsoft Windows 8.1 with Update, or
 - Microsoft Windows 8.1 with Update Pro, or
 - Microsoft Windows 8.1 with Update Enterprise, or
 - Microsoft Windows Server 2008 R2 (Standard, Enterprise), Service Pack 1, or
 - Microsoft Windows Server 2012 (Foundation, Essentials, Standard, Datacenter), or
 - Microsoft Windows Server 2012 R2 with Update (Foundation, Essentials, Standard, Datacenter)
- 64bit/32bit versions are supported.

8.2.4 Database server

The following list shows an overview over the supported Microsoft SQL Server Editions. During the installation of Collect*, the setup offers to install an English Server 2014 Express Edition with SP 2. For larger systems we recommend using Microsoft SQL Server 2014 Standard or Enterprise Edition, due to the size and performance limitations of the Express Edition.

- MS SQL Server 2008 (Standard and Enterprise), Service Pack 3, or
- MS SQL Server 2008 R2 (Express, Standard and Enterprise), Service Pack 2 or
- MS SQL Server 2012 (Express, Standard and Enterprise), Service Pack 2 or
- MS SQL Server 2014 (Express*, Standard and Enterprise)

* Default: DB server is installed by Collect*

8.2.5 3rd-party software

The following 3rd-party software is required to run Collect*. The Collect* installation will install the necessary components.

- .Net Framework 4.5
- Internet Information Services (IIS)
- MS SQL Server 2014 Express Edition

8.2.6 Instruments

Most instruments connect with Ethernet to Collect*, using an IPv4 address. Collect* currently does not support IPv6 addresses for instrument connections.

RS232 devices can be connected to the computer running the Application.

A table with Natively Supported Devices and Interfaces [► 18] can be found in the Appendix.

8.2.7 Network and firewalls

The deployment diagram shows the Collect* components and their communication links with the respective ports.

8.2.8 Security and maintenance

The installer of the Collect* system requires administrator privileges on all Collect* computers and on the database system. For creating a backup or maintaining the Collect* database, administrator privileges are required as well. Web client users and users on the instrument do not require any additional rights.

During installation, Windows' "file and printer sharing" must be enabled on the SQL Server.

Encrypted communication

Apart from user passwords, the communication between Collect* components is not encrypted.

Backup system

A backup system should be available, which supports a periodical backup of the SQL database. If no such tool is available, the built in DB Utility tool of Collect+ can be used to perform a backup, but using a professional backup tool is highly recommended.

Database maintenance

As any other database, the Collect+ database should be governed by a database maintenance plan:

Information about maintenance plans for SQL Server 2008 R2 [http://msdn.microsoft.com/en-us/library/ms187658\(v=sql.105\).aspx](http://msdn.microsoft.com/en-us/library/ms187658(v=sql.105).aspx)

Information about maintenance plans for SQL Server 2012 <http://msdn.microsoft.com/en-us/library/ms187658.aspx>

The following list includes tasks that are part of a maintenance plan:

- **Backup**
A regular incremental and full backup is mandatory. DB Utility supports full backups only. Backing up the database during production time is possible, but impacts the overall system performance.
- **Rebuilding database indexes**
More information <http://msdn.microsoft.com/en-us/library/ms189858.aspx>
- **Update Statistics**
More information <http://msdn.microsoft.com/en-us/library/ms187348.aspx>
- **Consistency Check**
More information <http://msdn.microsoft.com/en-us/library/ms176064.aspx>

Data Archiving

Data archiving can be done with the **Data Export** function in the Collect+ web application. The interval for archiving data depends on the number of devices and the amount of data points. When the database size exceeds 8 GB, the oldest 100,000 measurements are deleted without further notice.

8.3 Virtualized environment

In general, Collect+ runs in a virtualized environment if the host system has been dimensioned reasonably. This depends on the system load and is situated between a single place system and a high end system. However, a reserve capacity has to be taken into account, since the host system itself needs its resources. As a rule of thumb double the required resources of the hardware direct installation (without virtualization). Although the possibility is given to run Collect+ in a virtualized environment, METTLER TOLEDO does not support this operation mode. The customer is responsible for possible failure and security risk himself and METTLER TOLEDO rejects every liability which results from the virtualization.

9 METTLER TOLEDO support

METTLER TOLEDO Service knows exactly on what the fulfilment of your specific company's demands depend. Profit from the market leader's experience and guarantee by us the best possible availability, achievement and conformance of your instruments and equipment. In connection with the necessary professionalism you make thus the maximum from your investment – for a long lifetime.

METTLER TOLEDO Service recommends that you consider the following key elements before finalizing a services program:

- You need your equipment to be up and running all the time.
- You want to maintain the accuracy and functionality of your equipment, regardless of circumstances and usage, for many years of dependable operations.
- You want optimal instrument configuration for your environment and applications that save you time and money.
- You are concerned with staying compliant to your quality requirements, applicable laws and regulations and you need to pass any audit flawlessly.
- Your operators and technical staff need to be safe and productive. They need to know how to operate and maintain your instruments.

Please find your country and the corresponding Service & Support here:

[METTLER TOLEDO, Your Global Provider of Precision Instruments and Weighing Equipment](#)

10 Appendix

10.1 Compatibility matrix

Natively Supported Devices and Interfaces

Device Families	Models	Supported Interfaces	Firmware versions
ICS4_5 Family	ICS425-BW ICS435-BW ICS445-CT ICS465-CT	RS232, TCP/IP	01.02.01, 01.02.06 01.02.01, 01.02.06 01.02.01, 01.02.06 01.02.01, 01.02.06
ICS4_9 Family	ICS429 SW ICS439 SW ICS449 OU ICS469 OU	RS232, TCP/IP	01.04.09, 01.05.01 01.05.01 01.04.09, 01.05.01 01.04.09, 01.05.01
ICS6_9 Family	ICS629 SW ICS639 SW ICS649 CL ICS669 CL ICS649 OU ICS669 OU	RS232, TCP/IP	01.04.09, 01.05.01 01.04.09, 01.05.01 01.04.09, 01.05.01 01.04.09, 01.05.01 01.04.09, 01.05.01 01.05.01
ICS685	ICS685-MF ICS685-RM	RS232, TCP/IP	01.02.06 01.02.02a, 01.02.06
IND231		RS232	30047226 1.00.0004
IND236		RS232	30047226 1.00.0004
IND245		RS232, TCP/IP	V1.6 2.0
IND246		RS232, TCP/IP	V1.6 1.03
IND560		TCP/IP	4.02, 4.05
IND570		TCP/IP	1.00.0041, 1.00.0042, 1.00.0044, 1.00.0055
IND690		RS232, TCP/IP	2.11
IND780		TCP/IP	7.3.13
IND880		TCP/IP	1.01
IND890	IND 890-10	TCP/IP	v1.3.0

10.2 Checklist

PC

No.	Description	Criterion	Pass	N/A
Minimum system requirements				
1	CPU	2 Cores	<input type="checkbox"/>	<input type="checkbox"/>
2	RAM	2 GB	<input type="checkbox"/>	<input type="checkbox"/>
3	Ethernet	100 Mbps	<input type="checkbox"/>	<input type="checkbox"/>
4	Display Resolution	1280 × 1024, display size >= 10" class	<input type="checkbox"/>	<input type="checkbox"/>
5	Hard Disk	200 GB	<input type="checkbox"/>	<input type="checkbox"/>
Operating systems				
6	Windows 7 (without Home Edition)	SP 1	<input type="checkbox"/>	<input type="checkbox"/>
7	Windows 8.1	with Update	<input type="checkbox"/>	<input type="checkbox"/>
8	Windows Server 2008 R2	SP1	<input type="checkbox"/>	<input type="checkbox"/>
9	Windows Server 2012	no SP	<input type="checkbox"/>	<input type="checkbox"/>
10	Windows Server 2012 R2	with Update	<input type="checkbox"/>	<input type="checkbox"/>
Database server				
11	SQL Server 2008	SP 3	<input type="checkbox"/>	<input type="checkbox"/>
12	SQL Server 2008 R2	SP 2	<input type="checkbox"/>	<input type="checkbox"/>
13	SQL Server 2012	SP 2	<input type="checkbox"/>	<input type="checkbox"/>
14	SQL Server 2014	no SP	<input type="checkbox"/>	<input type="checkbox"/>

To protect your product's future:

METTLER TOLEDO Service assures the quality, measuring accuracy and preservation of value of this product for years to come.

Please request full details about our attractive terms of service.

www.mt.com/collectplus

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