

R-CARD M5

Technical Requirements

R-CARD M5 version 5.49.5 and later.



R-CARD M5

R-CARD M5 consists of the following main components:

- R-CARD M5 Server. Manages communication with the access control system and the database server. All database transactions go through R-CARD M5 Server, whether it is data being changed by the operator or data coming from the outside, for example log data from a door.
- R-CARD M5 Client (R-CARD M5 Arbetsstation). This is the program that the operator uses when managing the system. It is connected to R-CARD M5 Server, either directly in the same computer or over a network.

The client connection is counted per concurrent user. For multiple concurrent users of the client program, additional client licenses are required.

- Microsoft SQL Server database and database server.
- OPC communication with the presentation system.

Technical requirements

Hardware recommendations

- PC that fulfils the requirements of the chosen operating system
- Free space on hard disk:
 - Server installation:
At least 10 GB in addition to space required by the operating system.
If SQL Server Express is installed on the same PC, at least 16 GB more is required.
 - Client installation only:
At least 4 GB in addition to space required by the operating system.
- Monitor with resolution 1024 x 768 or higher
- Keyboard and mouse
- USB port for connecting a card reader, if desired
- Serial port (RS-232) if a modem or a Reader-20 card reader is to be used
- Network card

Operating systems

R-CARD M5 (both Server and Client) can run on the following Microsoft operating systems:

- Windows 10
- Windows 11
- Windows Server 2016 or later

Microsoft .NET Framework

R-CARD M5 requires Microsoft .NET Framework version 2.0 *and* 4.8 or later.

Microsoft .NET Framework 4.8 is included in the Windows 10 and Windows Server 2016 and later operating systems. Early versions of Windows 10 which have not been updated need to be updated using Windows Update.

If Microsoft .NET Framework 2.0 is missing, the installation program for R-CARD M5 can install it for you. This requires that the PC have a working Internet connection. You can also install it manually before installation of R-CARD M5; see the R-CARD M5 installation manual.

Microsoft SQL Server

R-CARD M5 can use Microsoft SQL Server 2012 and later (all editions).

We recommend using only versions that are still maintained by Microsoft. At the time of this writing, this includes SQL Server 2017, SQL Server 2019 and SQL Server 2022. See Microsoft's [Lifecycle Policy](#) for current information.

Express Edition has the following limitations and is not recommended for large systems:

- Max. RAM usage: 1.4 GB
- Max. size of database file: 10 GB
- Number of processors: 1 (up to 4 cores)

Standard Edition or Enterprise Edition is recommended if the system includes:

- More than 2 to 5 connections (300–500 units)
- More than 2500 cards¹
- More than 2 concurrent R-CARD M5 operators
- R-CONTROL, Electrolux PAYMENT (Debiting), or any of the web applications
- Multiple databases in the same SQL Server instance

For maximum reliability, SQL Server and R-CARD M5 should use the same network segment.



A database that has been used in a newer version of SQL Server cannot be connected or restored in an *earlier* version of SQL Server. This applies to SQL Server 2008 and 2008 R2, as well. More information about this can be obtained from Microsoft.

Network requirements

Communication between R-CARD M5 Server and R-CARD M5 Client

In a distributed system (with R-CARD M5 Server and one or more clients that communicate with the server over a network), DCOM and web services (TCP port 8090) are used. This requires certain additional settings. What needs to be done depends on if the server computer is part of a Workgroup or if it belongs to a domain (AD). Some additional settings are made with tools that are included with R-CARD M5, "Administrera M5-databaser" (Manage M5 Databases) and "R-CARD M5 Client Security".

Parts of the client, for example ODM and the floor plan tool, use the Windows service "R-CARD M5 Service Host" (RaServiceHost). By default, RaServiceHost uses TCP port 8090 for communication with the server. This means that RaServiceHost needs DCOM rights to the server if these newer parts of the client program are to be used.

DCOM also requires that the Windows service RPC (Remote Procedure Call) be activated on the computers that are used by R-CARD M5.

¹ Cards (*access cards, fobs, tags*) is a general term that is used for various types of code carriers that can take different forms.

Communication between the server and client require any firewalls to be configured to allow traffic on the following ports:

- TCP 135, Service Control Manager (SCM) calls from DCOM
- Freely definable range of ports open for DCOM traffic both in and out (Microsoft recommends using TCP ports 50000 – 50100)

 **External firewalls that use NAT address translation cannot be used.**

In systems with many clients or a complex network environment, for example with response times affected by many jumps between routers, temporary interruptions or high traffic, it can be advantageous to run the R-CARD M5 application on a distributed client such as Citrix, instead of the standard client.

In addition to reducing interruptions in the client application and improving performance, this simplifies support and maintenance of R-CARD M5. For example, upgrades need only be performed on one computer, regardless of how many use the client.

Communication between R-CARD M5 Server and controller units (UC-50)

The communication module IP-50 is used to connect UC-50 units to a TCP/IP network:

- The transfer rate is 100 Mbit/s full duplex with IP-50 Gen2, 10 Mbit/s half duplex with earlier versions
- Bandwidth 20 – 200 kbit/s
- IP addresses:
 - Fixed IP
 - DHCP combined with for example DYNDNS
 - MAC addresses (controller units communicate their address to R-CARD M5 Server)

IP communication uses UDP port 1000 by default (port number freely configurable).