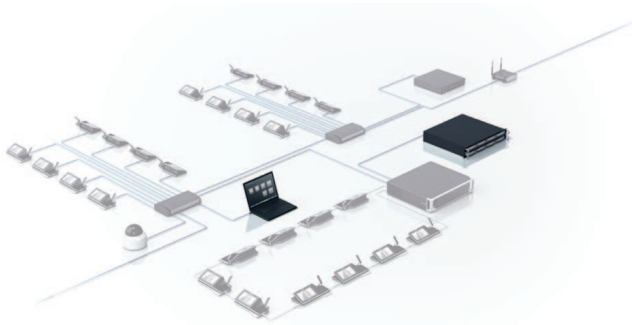


DCNM-LSYS System server software license

DICENTIS



The DICENTIS System Software is used as a platform for controlling the entire DICENTIS Conference System. Basic functions are included; additional functions can be added depending on the required functionality.

System overview

The DICENTIS Conference System can be kept up-to-date by means of regular software updates. These software updates are free-of-charge for the first year after activating the DICENTIS system. After the first year, Software Maintenance Agreements (SMAs) can be purchased for one (DCNM-1SMA), two (DCNM-2SMA), or five (DCNM-5SMA) years. For more information, refer to the product related information on www.boschsecurity.com.

Functions

DICENTIS System Software is a server client solution and consists of two main components: The Server Software and the Meeting Application.

Server Software

The Server Software is a set of Windows services. The individual services do not have user interfaces and are run in the background to control and monitor all DICENTIS components and optionally the Meeting Application(s) running on client PCs. A user interface is present for system state and diagnostics. The Server Software also contains a license activation module. This module is needed to activate the license of a complete DICENTIS Conference System.

- ▶ Automatic device discovery
- ▶ Controls up to 750 DICENTIS devices for participants
- ▶ Client server solution
- ▶ No user interaction needed to run the system
- ▶ Dante™ inputs and outputs for floor audio

Once, the Server Software has been configured by means of the Meeting Application, the Server Software can run autonomically without any user intervention.

Meeting Application

The Meeting Application acts as a PC user interface, and is used to configure the system and manage and prepare meetings. Besides the Multimedia device, this application is the user interface of the system. To prepare and manage a meeting from the Meeting Application, the DICENTIS Meeting Preparation and Management software module is needed.

If required, the software server and meeting application(s) can be run on separate computers. This allows functionality to be assigned to different users and/or PCs – for instance, one or more users can configure the system (configure), while other users:

- register persons and assign them as participants (prepare meeting).
- manage the meeting (manage meeting) on a separate PC.

The system software contains the following basic functionality:

Configuration from the Meeting application:

- Devices are automatically discovered and can be automatically or manually assigned to a seat.
- Setup chairperson seat.
- User management.

- Setup volumes of multimedia loudspeakers and sound reinforcement output on DCNM-APS (both Line Input /Output and Dante Input / Output are available).
- Enable/disable Acoustic feedback suppression.
- 5-band parametric room equalization.
- User definable priority and summon tones.
- Speech timer per speaking turn, to distribute speaking time more evenly amongst participants and make the meeting more efficient.

Functions that can be accessed from a multimedia device which is setup as a chairperson seat:

- Microphone modes:
 - Open mode automatic, Open mode manual managed, Override mode, Voice mode.
- Number of open microphones: 1 to 25.
- Number of waiting speakers: 0 to 200.
- Enable/disable automatic microphone off after 30 seconds.
- Enable/disable priority tone.
- Master volume control.
- Initiate a summon chime.

The PC running the software server must be activated with a license before it can be used. When DCNM-LSYS DICENTIS system software is ordered, it is sent by e-mail; the e-mail contains all information how to activate the system.

If the PC running the software server needs to be replaced, an easy-to-use solution is in place to activate the replacement PC, without the need to order new software. Your Bosch representative can provide more information on this, if required.

Web based synoptic microphone control

The Server also hosts a web server which allows for web based synoptic microphone control. The web based synoptic microphone control has the following functionality:

- Enabling and disabling microphones
- Displaying the microphone state of the seat
- Uploading a background to mimic the room layout
- Automatically scaling the layout to the used target device
- Displaying if the discussion device is in error state

- Updating the user rights automatically upon activating and deactivating meetings
- Displaying participant pictures

Web server for meeting documents

The Server also hosts a web server that allows for storing and retrieving documents related to the meeting. Web based synoptic microphone control. The web server has the following functionality:

- Uploading meeting related documents
- Linking web pages and documents to meetings and agenda items

Parts included

Quantity	Component
1	E-mail with license activation information.

Technical specifications

Technical

This section lists the minimal requirements for each part of the system. For an overview of which parts are required or optional, see the DICENTIS manual System Overview sections.

PC

PC requirements for the computer running the services in a DICENTIS system can be categorized as follows:

- Up to 100 devices without identification or participants images
- Up to 100 devices with identification or participants images
- Up to 750 devices without identification or participants images
- Up to 750 devices with identification or participants images

For each use the minimal requirements are.

	PC running server software (meeting application, optional):
Less than 100 devices & without identification or participant images	<ul style="list-style-type: none"> • Windows Server 2016 (including .NET Framework 3.5 feature), or: • Windows Server 2019 (including .NET Framework 3.5 feature).
CPU passmark	• >= 6000*
RAM	• 8 GB

Free disk space	• 20 GB
Ethernet card	• 1 GB
Less than 100 devices with identification or participant images	<ul style="list-style-type: none"> • Windows Server 2016 (including .NET Framework 3.5 feature), or: • Windows Server 2019 (including .NET Framework 3.5 feature).
CPU passmark:	• >= 7000*
RAM:	• 16 GB
Free disk space:	• 50 GB
Ethernet card:	• 1 GB
Up to 750 devices & without identification or participant images	<ul style="list-style-type: none"> • Windows Server 2016 (including .NET Framework 3.5 feature), or: • Windows Server 2019 (including .NET Framework 3.5 feature).
CPU passmark	• >= 9000*
RAM	• 16 GB
Free disk space	• 50 GB
Ethernet card	• 1 GB
Up to 750 devices with identification or participant images	<ul style="list-style-type: none"> • Windows Server 2016 (including .NET Framework 3.5 feature), or: • Windows Server 2019 (including .NET Framework 3.5 feature).
CPU passmark	• >= 10000*
RAM	• 16 GB
Free disk space	• 50 GB
Ethernet card	• 1 GB
	PC running the meeting application only:
Up to 750 devices with or without identification or participant images	<ul style="list-style-type: none"> • Windows 8.1 Pro/Windows 10 Pro 64 bits (including .NET Framework 3.5 feature). • Note: Windows 10 is only suitable for use with the client PC.
CPU passmark	• >= 6000*

RAM	• 8 GB
Free disk space	• 20 GB
Ethernet card	• 1 GB

Note: The power of the processor is measured by a CPU passmark score, because this gives a more reliable benchmark score than just the processor family:

- many different processor brands and families are available
- a processor intended for a laptop is not as powerful as the processor intended for a desktop, although both can be for example, an i7
- newer versions of the same processor are faster than older versions

To check the passmark score of a processor.

1. Go to: https://www.cpubenchmark.net/CPU_mega_page.html
2. Enter the processor (for example, i3-8100) in the CPU Name text box
3. Check the CPU Mark column for the CPU passmark score (for example, i3-8100 scores 8079)

Alternatively, you can clear the textbox CPU Name and sort the CPU Mark column and see which processor scores above for example, 7000.

Switches

The following minimum requirements and recommendations apply to switches used in a DICENTIS:

Requirement	Standard	Settings
Gbit Ethernet	IEEE802.3	Switch latency is maximally 10µSec with Gbit. Valid for both copper and/or fiber ports.
Packet forwarding in HW per port >1.2Mpps	n.a.	If SW is responsible for packet switching, this would result in variable latency which is unacceptable.
Quality of Service With strict priority	DiffServ	To make sure PTP synchronization packets and audio packets get priority over control packets. OMNEO uses QoS on IP level to avoid synchronization and

Requirement	Standard	Settings
		audio problems on busy networks. Although the system does work without problems on relatively quiet networks (< 10% network load) it is important to configure your network switches correctly. The used QoS is Differentiated Services or DiffServ, which is part of the Type of Services field (ToS) in the IP header. For more details on DiffServ & IP header , see Wikipedia.

Warning: IEEE802.1p is also used for QoS, but is limited to layer 2. Since OMNEO uses IP communication, this mechanism is not suitable, so make sure the used equipment uses DiffServ QoS!

The table below gives an overview of the used **DSCP values** which need to be configured in the switch:

Data	DSCP dec	DSCP hex	DSCP Label	TOS byte (hex)	Switch Priority queue
PTP sync, delay req	56	0x38	CS7	0xE0	Highest
PTP follow-up, delay response, audio	46	0x2E	EF	0xB8	High
(reserved)	8	0x08	CS1	0x20	Low
Control	0	0x00	Best effort	0x00	None

Warning: Please check thoroughly if your switch's highest priority queue is label as #1 or e.g. #8, because this may differ per brand. Unfortunately this is not consistent over the different brands. Setting it wrong is worse than not having priority.

Switches must be configured to support DiffServ (DSCP) quality of service. The switch needs to have 4 priority queues for the DiffServ mechanism to work.

Warning: Never use VOIP QoS settings!

Requirement	Standard	Settings
MAC table >1000	n.a.	To avoid the switch starts broadcasting unicast packets because it runs out of space.
Disable EEE	IEEE 802.3az	Most implementations of EEE cause problems because of implementation flaws. A good implementation should work, but does not save energy since the PTP synchronization avoids this. Therefore, EEE (green or low power Ethernet) <i>must</i> always be disabled.
Disable RSTP (when no cable loops are used)		Rapid Spanning Tree Protocol (RSTP) is required when (cable) loops are created for redundancy. When no loops are created, RSTP needs to be <i>disabled</i> for optimal operation. When enabled, it can cause slow connections to the switch.
Possibility to create VLANs	n.a.	VLAN separation is recommended instead of IGMP snooping, because most switches are unable to handle the multicast changes in the system. Filtering multicast data may be necessary for some devices, such as 100 Mb devices (Sony cameras, TVOne, AMX, and others).
IGMPv3 IGMPv2 snooping in hardware		IGMPv3 or IGMPv2 snooping. To optimize bandwidth usage, IGMP snooping can be used. This is useful in systems with >10 multicast streams, although not absolutely required. Sufficient performance for handling a large number of IGMP query responses, depends on the number of (directly or indirectly) connected devices to that switch. Hardware support for IGMP snooping is strongly recommended.

Requirement	Standard	Settings
Requirements when Redundant wiring is used	Standard	Settings
RSTP	IEEE802.1D-2004	<p>RSTP is used to allow the creation of loops for redundancy. The switch must support changing the following parameters to the listed values:</p> <ul style="list-style-type: none"> Hello_Time = 9 seconds Forwarding_delay = 30 seconds Max_age = 22 seconds
Diagnostics		
Link Layer discovery	IEEE 802.1AB	For network diagnoses using Network Docent.
SNMP	SNMP	For network diagnoses using Network Docent.

Routers

The following minimal requirements apply to routers:

- 1 Gbit or higher Ethernet ports.
- Supports PIM-DM or Bidirectional PIM.
- Performs IP routing in hardware (i.e. a 'layer 3 switch') to minimize the routing delay.
- Packet forwarding rate > 1,000,000 packets per second per port (e.g. 8 Mpps for an 8-port router).
- Non-blocking backplane per switching port, i.e. 2 Gbit per port (e.g. 16 Gbps for an 8-port router).
- MAC address table of at least 1000 addresses per directly connected subnet.

Ordering information

DCNM-LSYS System server software license

DICENTIS System Software, software platform for controlling the DICENTIS system. Additional software modules can be added to extend functionality. The system is configured with the Meeting Application. Order number **DCNM-LSYS | F.01U.287.751**

Software Options

DCNM-LMPM Meeting preparation and manage license

The DICENTIS Meeting Preparation and Management software module enables the prepare and manage meetings functions in the Meeting Application. Order number **DCNM-LMPM | F.01U.287.752**

DCNM-LPD Participant database license

DICENTIS Participant Database gives the ability to define participant's names and assign participants to seats. Order number **DCNM-LPD | F.01U.287.754**

DCNM-LMS Presenter license

DICENTIS Media Sharing enables the display of a remote presentation computer to be shared on all DICENTIS Multimedia devices. Order number **DCNM-LMS | F.01U.287.756**

DCNM-LCC Camera control license

DICENTIS Camera Control enables the use of cameras in the DICENTIS Conference system and DICENTIS Wireless system. Order number **DCNM-LCC | F.01U.287.755**

DCNM-LSVT License for voting at 1 seat

DICENTIS software license for enabling voting at seat in the DICENTIS Multimedia, DICENTIS Discussion device with touchscreen, and DICENTIS wireless Extended. The DICENTIS Discussion device with voting has the functionality built-in. Order number **DCNM-LSVT | F.01U.300.532**

DCNM-LSID License for identification at 1 seat

DICENTIS software license for enabling identification at seat in the DICENTIS Discussion device with voting, DICENTIS Discussion device with language selector, DICENTIS Discussion device with touchscreen, DICENTIS Multimedia device, and DICENTIS wireless Extended. Order number **DCNM-LSID | F.01U.300.533**

DCNM-LSSL License for language selector at 1 seat

The DICENTIS Select Language at Seat license enables the language selection feature of the DICENTIS Multimedia and DICENTIS Discussion device with touchscreen. The DICENTIS Discussion device with language selector has the functionality built-in. Order number **DCNM-LSSL | F.01U.300.534**

DCNM-LVPM Voting preparation and manage license

Enables the preparation and management of voting rounds. Requires licenses DCNM-LMPM, and DCNM-LPD. An individual seat license (DCNM-LSVT) is required for each DICENTIS Discussion device with touchscreen and/or Multimedia device, the Meeting Application, and the API client. Order number **DCNM-LVPM | F.01U.308.595**

DCNM-LIPM Interpreting prepare and manage license

This software license enables the configuration and management of the interpreter desk via the Meeting application or the API. Order number **DCNM-LIPM | F.01U.345.402**

DCNM-LDANTE License for 1 Dante stream

This software license enables the sending or receiving of Dante multicast audio streams. Order number **DCNM-LDANTE | F.01U.354.449**

DCNM-1SMA Software maintenance agreement 1 year

DICENTIS Software Maintenance Agreement for one additional year. Includes the licensed system and seat software upgrades, as well as third-party compatible updates.

Order number **DCNM-1SMA | F.01U.289.628**

DCNM-2SMA Software maintenance agreement 2 years

DICENTIS Software Maintenance Agreement for two additional years. Includes the licensed system and seat software upgrades, as well as third-party compatible updates.

Order number **DCNM-2SMA | F.01U.289.629**

DCNM-5SMA Software maintenance agreement 5 years

DICENTIS Software Maintenance Agreement for five additional years. Includes the licensed system and seat software upgrades, as well as third-party compatible updates.

Order number **DCNM-5SMA | F.01U.289.630**

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