DCMprinter 7.1

Installation and User Manual

DICOM Print Server for Windows

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Sup-C - Belgium - sup-c.com
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1 Introduction

1.1 Purpose and scope

DCMprinter 7.1 is a Windows application that receives DICOM Print requests and produces pages on a Windows printer or exports them as PDF or JPEG files. It is intended for hospital IT teams, PACS administrators, biomedical engineers, installers and technically capable operators who configure and supervise DICOM printing workflows.

The application consists of a graphical controller and a local DICOM Print service process. The graphical controller starts and stops the listener, watches incoming sessions, selects an output profile and renders each Film Box into a printable page.

1.2 How DCMprinter works

1. A modality or workstation opens a DICOM association to the computer running DCMprinter.
2. The DICOM Print service receives a Film Session, one or more Film Boxes and their Image Boxes.
3. After a valid print action, the received images and job metadata are handed to the DCMprinter application.
4. DCMprinter selects a profile by the received Called AE Title, applies its page, printer and header settings, and processes every Film Box as a page.
5. The page is submitted to a Windows printer or exported to the current user’s Documents folder as PDF or JPEG.

1.3 Safety and intended use

Important: DCMprinter is for documentation, printing, export and distribution workflows. It is NOT FOR DIAGNOSTIC USE and must not be used for primary diagnosis or clinical interpretation.

The operator is responsible for validating printer drivers, page size, image quality, patient-data handling, output retention and access controls in the intended environment. Always verify a representative print or export before production use.

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2 System requirements

Item	Requirement
Operating system	Windows 10 or Windows 11. Install current Windows updates and a supported printer driver where physical output is required.
Architecture	Win32 package for 32-bit Windows and x86-compatible deployment; Win64 package for 64-bit Windows. Use the package matching the required application architecture.
Privileges	Local administrator rights for setup, upgrade, repair and uninstall. Normal operation is designed for standard local users after installation.
.NET	Microsoft .NET Framework 4.8 or later. Setup checks for it and stops with instructions if it is missing.
Visual C++	Matching Microsoft Visual C++ v14 runtime. The accepted setup includes the offline x86 or x64 redistributable and verifies the installed runtime. A restart can be required.
PowerShell	Windows PowerShell 5.1 or later is required by the hardened deployment workflow.
Network	A fixed or resolvable host address and an available inbound TCP port. The default listener port is 1024. Configure the Windows firewall separately if required.
Printer	For physical output, install and test a Windows printer and driver that supports the required paper sizes and orientation. PDF and JPEG output do not require a physical printer.

Tip: Use a TCP port above 1023 when local policy restricts privileged or reserved ports. Whatever port you choose must match the modality configuration and firewall rule.

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3 Installation

3.1 Choose Win32 or Win64

Package	Use it when
DCMprinter-7.1.0.0-x86-Setup.exe	Installing the Win32 edition. On 64-bit Windows it defaults to the 32-bit Program Files location.
DCMprinter-7.1.0.0-x64-Setup.exe	Installing the native Win64 edition on 64-bit Windows. It defaults to the native Program Files location.

Important: Do not install one architecture over an active installation of the other architecture. Uninstall the existing edition first, then run the new architecture setup. Preserved licensing and customer data are reused.

3.2 Run setup

1. Close DCMprinter normally. If print jobs are pending, choose the appropriate pending-job action and wait until the application closes.
2. Run the selected setup executable as an administrator.
3. Read the DCMprinter End User License Agreement. Continue only if you accept it.
4. Confirm the destination folder. Setup remembers a valid existing location during same-architecture upgrade or reinstall.
5. On the Installation history page, select Upgrade or reinstall if DCMprinter has ever been installed on this computer. Select Genuine first installation only for a new machine with no DCMprinter installation, data or licensing history.
6. Allow setup to check .NET Framework 4.8 and the matching Visual C++ runtime. If the Visual C++ package requests a restart, restart Windows and run setup again.
7. Complete the wizard. The optional Launch DCMprinter task is unchecked by default and is offered only after installation verification succeeds.

Location	Content and purpose
Program Files\DCMprinter	Read-only application binaries, DICOM libraries, uninstaller and factory defaults. The exact Program Files root depends on architecture and Windows.
C:\ProgramData\Sup-C\DCMprinter	Managed configuration, headers, licensing, logs, runtime spool and deployment preservation data.
Current user Documents\DCMprinter	PDF and JPEG output folders, created when first used.
Current user Desktop	Convenience copy of a newly created license request file.

3.3 Upgrade reinstall and architecture changes

A same-architecture upgrade or reinstall preserves existing customer configuration, profiles, managed headers, licenses and licensing history. Factory defaults seed only missing managed files; they do not overwrite customer settings.

An architecture change is allowed only after the existing edition has been completely uninstalled and no active product files, process or unresolved deployment transaction remain. The new installer reuses the preserved licensing state and customer data. It does not create a new license identity or reset license dates.

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3.4 Uninstall

Use Windows Apps and Features or the DCMprinter uninstaller. Close the application normally first. Uninstall removes the installed application files, dependencies, shortcuts and uninstaller. It intentionally preserves ProgramData configuration, profiles, headers, logs, output and licensing state so a later reinstall can continue safely.

> Important: Uninstall is not a customer-data eraser. Apply your organization’s retention and decommissioning procedure if the computer is being retired.

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4 Licensing

4.1 Create a license request

When no usable license is present, DCMprinter displays the license request window. Enter a contact name and email address, then choose Request license key. Use non-patient administrative contact details only.

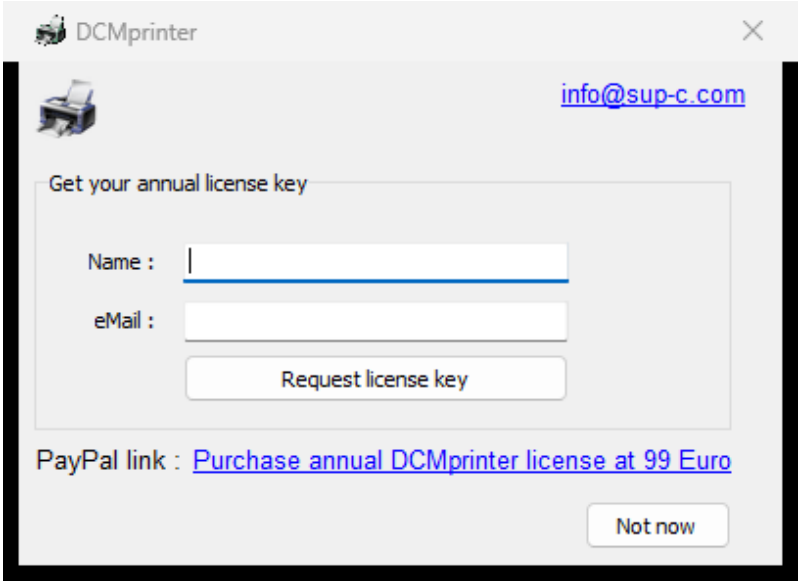

Figure 1 License request window shown by the current Release application

DCMprinter creates the request in its managed license request folder and attempts to place a convenience copy on the current user's Desktop. The Desktop filename starts with DCMprinter_license_request and uses the .enc extension. If a file with that name already exists, a numbered name is used so the existing file is not overwritten.

1. Create the request and confirm the success message.
2. Send the Desktop .enc file to the authorized DCMprinter supplier using your organization's approved transfer method.
3. Do not rename or edit the request contents unless instructed by the supplier.
4. Retain the request until the matching license has been received and installed.

4.2 Install a license

The supplier returns one .lic file for the licensed computer. Start DCMprinter and drag exactly one .lic file onto the main window. The application validates the file before replacing any installed license. A success message confirms installation, and the title bar shows Valid license and the expiry date.

Important: A license is computer-specific. DCMprinter rejects a wrong, expired, modified or otherwise invalid file. If replacement fails, the previous installed license is retained when possible.

4.3 Expiry and date protection

DCMprinter checks the license period and the computer date. An expired license prevents licensed operation. If the computer date is earlier than the last accepted date, the application displays a message asking you to correct the computer date and stops. Correct the Windows date and time from an authorized administrative account; do not remove or edit licensing files.

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4.4 Reinstallation and preserved licensing

Uninstall and reinstall preserve the managed license file and the accepted licensing history. A same-architecture reinstall or a supported post-uninstall architecture change reuses that state. Reinstalling does not extend a license, reset an expiry date or clear a recorded date check.

5 Quick start

1. Install the Win32 or Win64 edition and satisfy the setup prerequisite checks.
2. Create a license request, obtain the matching .lic file and drag it onto the DCMprinter main window.
3. Open Preferences. Record the host address, set the listener AE Title and port, and save the DICOM Server settings.
4. Open Profiles. Configure the Default profile or create a profile for the Called AE Title used by the modality. Select a Windows printer, Export to PDF or Export to Jpeg, then configure paper, margins and optional page header.
5. Return to the main window and choose Start. Confirm that the button changes to Stop and the status reports that the print service has started.
6. On the modality, configure DICOM Print with the DCMprinter host, port and Called AE Title. Use the modality’s own Calling AE Title.
7. Send a non-sensitive test print and watch Incoming sessions, Active AE-Title, Print Page and the progress ring.
8. Verify the physical page or the PDF/JPEG output in Documents\DCMprinter. Confirm orientation, layout, header content and image quality before production use.

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6 Main window

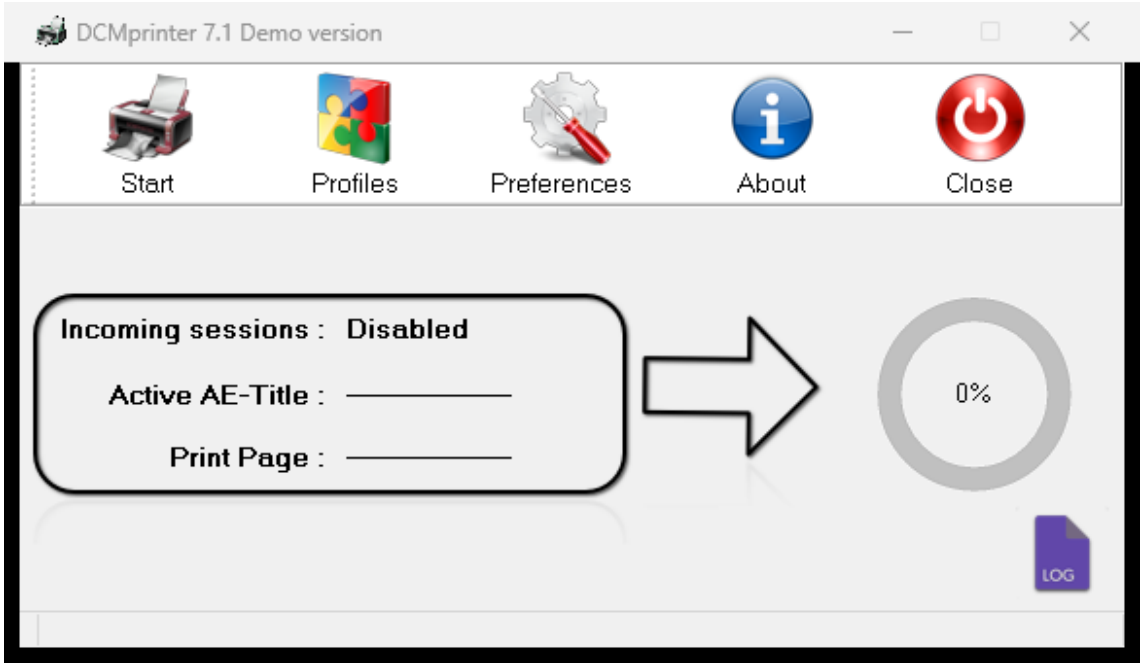

Figure 2 Main window in the unlicensed demonstration state

Control or indication	Purpose
Start or Stop	Starts the owned DICOM Print service or requests a controlled stop. The icon and caption change with the state.
Profiles	Opens output profiles. The listener must be stopped and no job may be processing.
Preferences	Opens listener and shutdown settings. The listener must be stopped and no job may be processing.
About	Shows product information, support links and the license agreement.
Close	Requests controlled application shutdown. Pending work can require a choice before the window closes.
Incoming sessions	Shows Disabled when stopped, Waiting when active with no ready job, or a count of ready or processing sessions.
Active AE-Title	Shows the AE Title associated with the page currently being processed.
Print Page	Shows the current page number and total pages while rendering a job.
Progress ring	Provides a visual indication of queued/processing session count.
LOG icon	Opens the current SCP log file when it exists.

When Minimize on run is enabled, the application minimizes to the Windows notification area after startup. Use the tray icon to show or hide the main window. The tray menu also provides Show, Start Printserver, Stop Printserver and Exit commands.

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7 Profiles

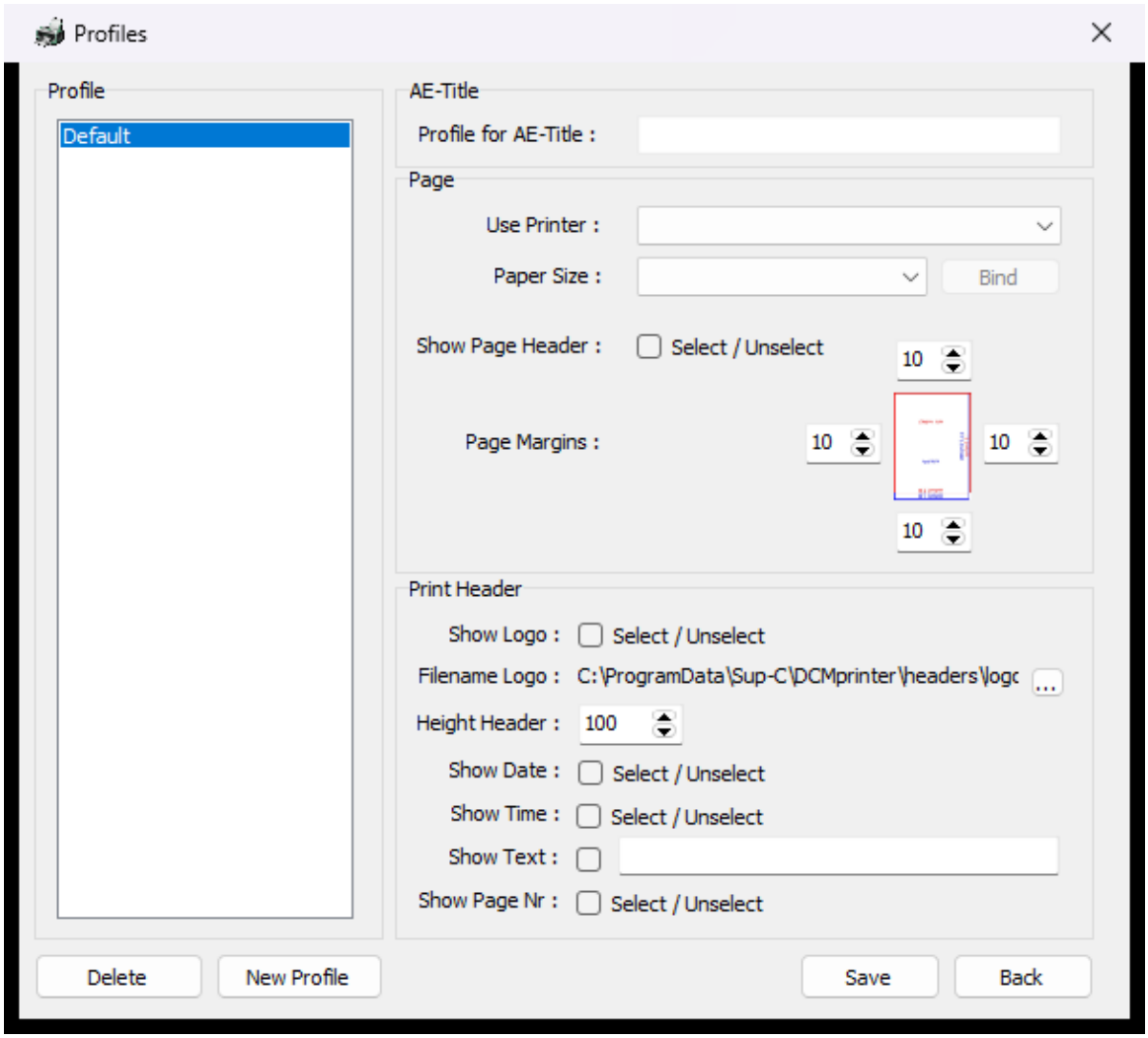

Figure 3 Profiles window with the Default profile selected

7.1 Profile selection

A profile groups the output destination, paper choice, margins and optional page header. At job time DCMprinter compares the received Called AE Title with the AE Title stored in each profile. The matching profile is used. The factory Default profile is associated with DCMPRINTER.

If an unknown Called AE Title arrives and the license allows another modality profile, DCMprinter can create a profile cloned from the Default profile. If the licensed profile limit has been reached, the job cannot be printed and the runtime log records the failure.

Button	Function
New Profile	Creates a profile using the Default profile values, subject to the licensed modality/profile limit.
Save	Confirms and stores the selected profile values.
Delete	Deletes the selected non-Default profile after confirmation. The Default profile cannot be deleted.
Back	Closes the Profiles window without an additional save operation.

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7.2 Printer and output settings

Setting	Meaning
Use Printer	Select an installed Windows printer, Export to PDF or Export to Jpeg. A blank physical printer selection cannot produce output.
Paper Size	Choose a fixed Windows paper mapping or USE_MODALITY. With USE_MODALITY, DCMprinter maps the incoming DICOM Film Size ID through its managed Film Size ID table.
Bind	Opens the Film Size ID mapping editor when USE_MODALITY is selected. Add or delete mappings only as part of an approved configuration change.
Page Margins	Left, top, right and bottom margins applied to the rendered page. Validate them with the actual printer driver and paper.

7.3 Page header and logo

Setting	Meaning
Show Page Header	Enables the configured header area.
Height Header	Size of the header area in the internal page bitmap.
Show Logo and Filename Logo	Includes a bitmap logo. The selection dialog accepts .bmp files.
Show Date and Show Time	Adds the processing date and/or time.
Show Page Nr	Adds page number and total pages.
Show Text	Adds the adjacent free-text value.

When a logo is selected, DCMprinter copies it byte-for-byte into the managed headers folder. If a different file already uses the same name, a numbered filename is created. The profile is updated only after the managed copy has been created and verified.

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8 Preferences

8.1 DICOM Server

Setting	Meaning
Hostname	Read-only Windows computer name shown for administrator reference.
IP-Address	Resolved local IP address shown for reference. Confirm the correct interface in multi-homed systems.
AE Title	AE Title passed to the DICOM Print service and used as the Default profile AE Title when saved. Factory value: DCMPRINTER.
Port	TCP listen port. Factory value: 1024. The port must be available and allowed through local/network firewalls.
Minimize on run	Minimizes DCMprinter to the notification area after startup.
Save	Stores the DICOM Server settings. Stop and restart the listener to apply changed AE Title or port values.

Privacy: The DICOM Server page shows the actual computer name and IP address. This manual intentionally omits that screenshot so no real workstation identifier is published.

8.2 Shutdown

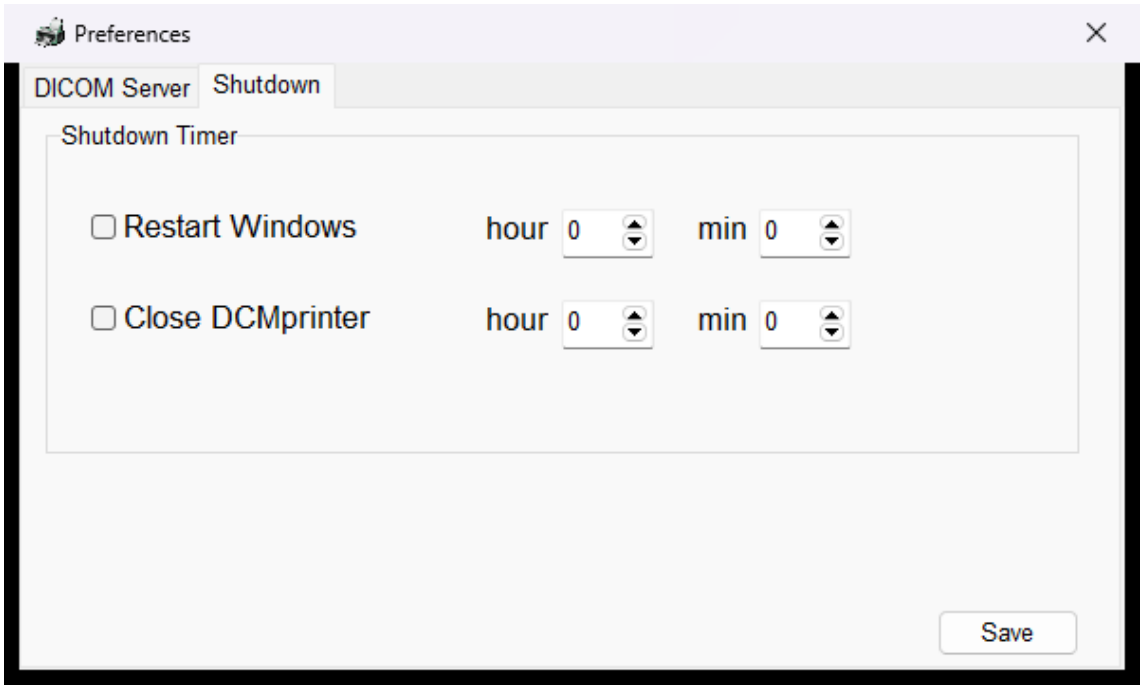

Figure 4 Shutdown preferences

Setting	Meaning
Restart Windows	At the configured hour and minute, requests a forced Windows restart after a 300-second delay. Save work in other applications before enabling this schedule.
Close DCMprinter	At the configured hour and minute, requests normal application close and therefore uses the normal pending-job logic.
Save	Confirms and stores the two scheduled actions and their times.

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9 DICOM Print operation

9.1 Association and addressing

Configure the sender with the DCMprinter computer address, TCP port and intended Called AE Title. The sender's Calling AE Title is recorded for status and optional header text. The current SCP accepts the supported print presentation contexts without rejecting an association solely because the Called AE Title differs; however, the received Called AE Title still controls profile selection. For predictable operation, configure it exactly as the profile AE Title.

9.2 Film Session Film Box and Image Boxes

The SCP supports Basic Film Session and Basic Film Box creation, grayscale and color Image Box updates, deletion, printer status queries and print actions. A Film Session contains one or more Film Boxes. Each Film Box defines one output page and its Image Display Format defines the image-box grid.

Image Boxes containing pixel data are rendered into their grid positions. Empty Image Boxes remain blank. Senders should populate boxes in sequential position order; leaving an earlier box empty can also prevent later numbered images from appearing in the current page renderer.

9.3 Orientation size layout and copies

DICOM attribute	DCMprinter behavior
Film Orientation	PORTRAIT selects portrait. Other values are processed as landscape by the page renderer.
Film Size ID	If the profile uses USE_MODALITY, the value is mapped to a Windows paper name through FilmSizeID.ini. A fixed profile paper selection overrides modality paper mapping.
Image Display Format	STANDARD\columns,rows is parsed to determine the page grid. Invalid or zero dimensions fail the job.
Number of Copies	Applied to physical printer submission. Each Film Box is still rendered as a separate page.

9.4 Multiple Film Boxes and N ACTION

A print action on the Film Session prints all Film Boxes in that session. A print action on one Film Box prints that Film Box. The supported action type is 1. DCMprinter validates that the requested session or Film Box belongs to the active association before accepting the action. Acceptance of N-ACTION means the print job was handed to background processing; later physical-printer or export failure is reported in the application log, not by changing the already returned action response.

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10 Printing and output

10.1 Physical printers

Select an installed Windows printer in the profile. DCMprinter renders each Film Box, sets the requested orientation and selected paper, prepares the page and submits it without showing a printer dialog. If Print Preview is enabled in the managed configuration, the prepared report is shown instead of being submitted.

Printer availability, tray selection, media compatibility, scaling and color management are controlled by the Windows driver and printer. Test A4, A3 and any modality-derived Film Size ID mappings required by your site.

10.2 PDF

Choose Export to PDF in the profile. DCMprinter creates the folder Documents\DCMprinter\PDF for the current Windows user and verifies that it is writable before export. Filenames use dcmprinter_YYYYMMDDhhmmsszzz.pdf. Each processed Film Box is exported by the current per-page workflow.

10.3 JPEG

Choose Export to Jpeg in the profile. Files are written below Documents\DCMprinter\JPEG with a timestamp-based name beginning dcmprinter_. The JPEG exporter uses quality 100 and 200 dpi. Depending on the exporter, a page-number suffix such as .1.jpg can be added.

10.4 Headers and page layout

The image grid preserves each source image’s aspect ratio and centers it in its cell. Unused image-box cells remain blank. In portrait output the optional header occupies a band at the top. In landscape output it occupies a band along the left side. The header can include the managed logo, date, time, page number, Calling AE, Called AE and configured text.

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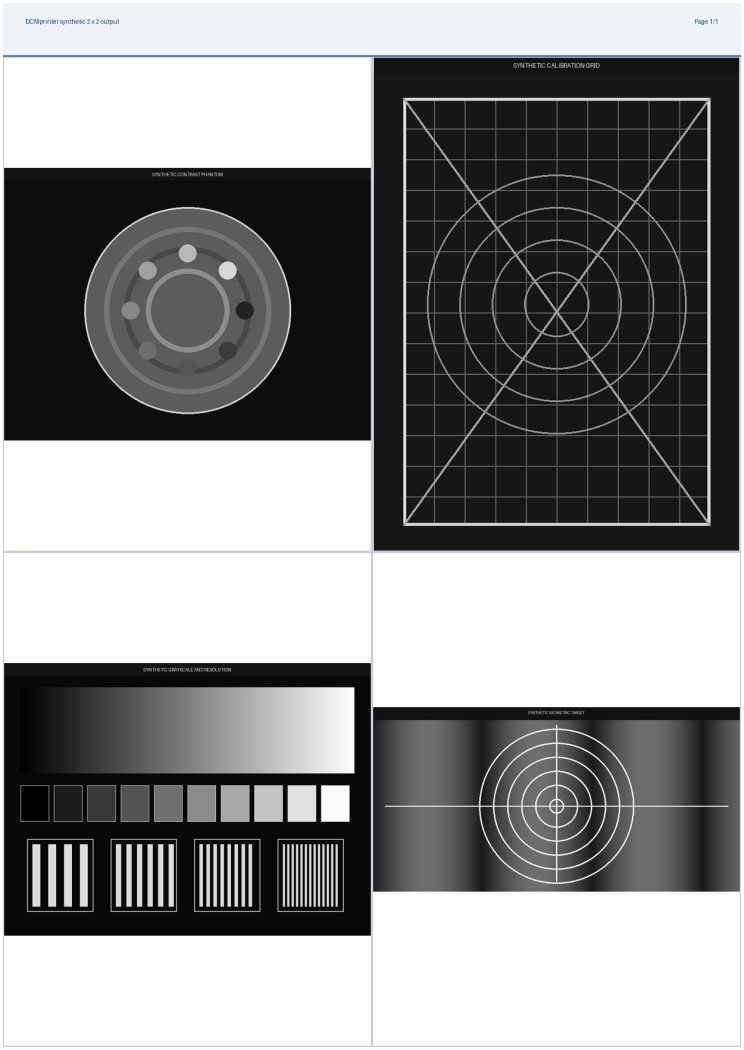

Figure 5 Synthetic 2 x 2 output example with non-diagnostic calibration patterns

Note: This documentation-only example contains generated calibration patterns with different aspect ratios. It contains no patient, customer or license information.

11 Print job processing

11.1 Incoming sessions and progress

The SCP writes received work into the managed runtime sessions folder and publishes a ready marker only after the required job metadata and image files are closed and verified. DCMprinter scans ready markers, records the job state, selects a profile, renders each page and then removes completed session data.

The main window shows the number of ready or processing sessions, the active AE title, the current page and a progress ring. Processing is sequential at the graphical application boundary. Each job reaches one terminal state: success or failure. A terminal job is not automatically retried during the same application run.

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11.2 Stop close and pending jobs

Choice	Effect
Stop Now or Close Now	Requests cooperative cancellation at the next safe boundary, stops the owned SCP process and abandons remaining ready work. A close request then closes the application.
Finish Ready Jobs	Takes a fixed snapshot of jobs that are already ready, stops accepting an unlimited stream of new work, finishes that snapshot and then stops or closes. A second selection does not enlarge the snapshot.
Cancel	Cancels the shutdown request and resumes normal scanning.

Important: Finish Ready Jobs means jobs that were ready when the choice was made. Jobs still being received are not part of the snapshot and may not complete.

11.3 Success failure and partial output

On success, the ready/start markers and session folder are removed after all pages complete. On failure, DCMprinter records the failing stage, exception and the count of completed pages. Previously submitted printer pages or previously exported pages can remain, so the log marks possible partial output where relevant. Failed spool data remains only until the existing stop/start cleanup removes runtime sessions and temporary files.

The current runtime log uses one line per lifecycle or job event, including UTC timestamp, job UID, Calling AE, Called AE, profile, output type, page, stage, completed page count and error text.

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12 Files and folders

Location	User-relevant content and handling
Program Files\DCMprinter	Application and SCP binaries, DICOM dependencies and read-only factory defaults. Do not edit or replace files here.
C:\ProgramData\Sup-C\DCMprinter\config	Managed preferences, profiles, Film Size ID and paper mappings. Use the application UI; do not edit these files during normal operation.
C:\ProgramData\Sup-C\DCMprinter\headers	Managed copies of selected .bmp header logos.
C:\ProgramData\Sup-C\DCMprinter\license	Installed license, request/work folders and licensing state. Do not copy, delete or edit files here except through documented licensing procedures.
C:\ProgramData\Sup-C\DCMprinter\log	SCP console logs and DCMprinter runtime lifecycle/job logs.
C:\ProgramData\Sup-C\DCMprinter\runtime	Transient sessions and temporary rendering data. DCMprinter cleans these areas during normal startup and shutdown.
Documents\DCMprinter\PDF	PDF output for the Windows user running DCMprinter.
Documents\DCMprinter\JPEG	JPEG output for the Windows user running DCMprinter.
Desktop\DCMprinter_license_request*.enc	Convenience copy of a generated license request.

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13 Troubleshooting

Symptom	Likely cause	Action
Print service cannot start	Missing SCP executable, inaccessible log/spool path, invalid settings or another owned instance.	Stop other instances. Verify installation, permissions and the configured port. Review the newest ProgramData log.
Service starts but cannot accept connections	Port already in use or listener failure after process creation.	Use netstat or an approved network tool to identify the listener. Select an unused port, update the modality and restart DCMprinter.
Association reaches the computer but no expected profile is used	Called AE Title differs from the profile AE Title.	Compare the modality Called AE with the profile AE Title exactly. Remember that profile selection uses the received Called AE.
No output	Profile printer is blank, job failed, output path is not writable, or the job used an unavailable profile.	Check the profile, main-window status and runtime log. Verify Documents access or physical printer availability.
Physical printer unavailable	Printer removed, offline, driver failure or unsupported paper.	Test the printer from Windows, reinstall or correct the driver, then select it again in the profile.
PDF or JPEG export fails	Current user Documents folder is unavailable, redirected location is offline, or access is denied.	Restore Documents availability and write access. Check free space and the runtime log, then resend a safe test job.
License file rejected	Wrong computer, wrong extension, expired, damaged or multiple files dropped.	Use exactly one supplier-issued .lic file for this computer. Request a new license if necessary.
License expired	The licensed period has ended.	Obtain a renewed license from the supplier and install it by drag-and-drop. Reinstalling does not extend the license.
Computer date is earlier than recorded date	Windows date/time was moved backward.	Correct Windows date, time and time zone from an authorized account. If the message remains, contact support; do not delete licensing state.
Images after an empty first slot do not appear	The current renderer advances image filenames only when the expected sequential file exists.	Configure the sender to populate Image Boxes sequentially from position 1, or avoid gaps before populated boxes.
Application cannot close cleanly	Pending work, protected configuration path or another environmental error.	Use the pending-jobs dialog, then review the log. Confirm the installed ProgramData permissions with an administrator.

Information to provide to support

- DCMprinter version and Win32 or Win64 edition.
- Windows edition, architecture and whether the user is standard or administrative.
- Configured listener AE Title and port; do not send credentials or unrelated network details.
- Calling AE and Called AE used by the failing sender.
- Output profile name and output type.
- Exact time of the test and the relevant DCMprinter and SCP log files.
- Whether the failure affects all jobs or only a layout, Film Size ID, orientation, color mode or printer.
- A non-sensitive reproducible test description. Remove patient-identifying information before sharing any images or DICOM objects.

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14 About and support

Figure 6 About window with support links and the license agreement

Resource	Value
Website	https://sup-c.com
Email	info@sup-c.com
Product	DCMprinter 7.1
Release version	7.1.0.0

The About window provides the website, support email link and the DCMprinter End User License Agreement. The installer also displays the final EULA before installation. The EULA is embedded for installer agreement and is not installed as a separate runtime documentation file in the accepted 7.1 package.

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Appendix A Advanced DICOM Print

Supported presentation contexts

- Verification SOP Class (C-ECHO).
- Basic Grayscale Print Management Meta SOP Class.
- Basic Color Print Management Meta SOP Class.
- Printer SOP Class.
- Basic Film Session SOP Class.
- Basic Film Box SOP Class.
- Basic Grayscale Image Box SOP Class.
- Basic Color Image Box SOP Class.
- Print Job SOP Class, including status queries and optional event reporting when negotiated.

Transfer syntaxes

Transfer syntax	Supported
Explicit VR Little Endian	Yes
Explicit VR Big Endian	Yes
Implicit VR Little Endian	Yes

Normalized operations

Operation	Behavior
N-CREATE	Creates one Film Session per association and one or more Film Boxes. Film Box initialization creates the referenced Image Boxes.
N-SET	Updates Film Session, Film Box or grayscale/color Image Box attributes. A Film Box N-SET may update non-structural attributes but cannot change its existing Image Display Format or referenced hierarchy.
N-GET	Returns printer, print-job or printer-configuration information where supported.
N-DELETE	Deletes the current Film Session or a Film Box when the requested instance exists.
N-ACTION type 1	Prints the referenced Film Session or Film Box after validating the active association object. Unsupported action types and unknown objects return the appropriate DICOM failure status.

Processing notes

- A second Film Session on the same association is not accepted while one already exists.
- The Film Session print action includes every Film Box currently in that session.
- Grayscale and color Image Boxes are accepted and rendered to PNG spool images before page composition.
- Print action success acknowledges background-job acceptance. Subsequent Windows printing or export errors are operational failures recorded in logs.
- Association release or connection close clears the in-memory Film Session after received work has been handed off as applicable.

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Appendix B License Agreement

The following agreement is the final DCMprinter 7.1 installer agreement. The installer presents it before installation, and the About window displays the same agreement. It is not installed as a separate runtime file in the accepted package.

DCMprinter End User License Agreement

Important: NOT FOR DIAGNOSTIC USE. DCMprinter is intended for documentation and distribution purposes only. It is not intended to be used for primary diagnosis or clinical interpretation of medical images.

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