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# synedra View

Feature overview  
Version 3.1.0.x "Artemis"

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## 1. Feature overview

### 1.1. General features

- Easy to use, configurable visibility of each of the program components
- Available in German, English and French
- Online help available in German, English and French, tutorial available in German and French
- Customizable design of synedra View
- Supported operating systems: Microsoft Windows XP, XP Professional x64, Windows 7, Windows 7 x64
- Can be run as a native 64-bit application; for an optimized performance and quick loading of very big studies > 4GB
- Intelligent mechanism to swap documents for loading and editing big amounts of data (e.g. DICOM multi-frame studies and DICOM embedded MPEG videos,...) on 32-bit and 64-bit operating systems
- DICOM image data can be loaded in reduced quality for an optimized performance on slow network connections
- Silent installer for a rollout without user interaction
- Host- or user-specific client configuration with central administration
- Individually configurable, server-based update of the clients

- Integration of synedra View with RIS, HIS or web applications also in terminal server environments
- Patient-oriented, hierarchical document overview
- Patient record view of all patient-related documents, adjustable to comply with organization-specific parameters
- Direct display of all relevant image formats as well as PDF/PDF/A documents without the need to change the application
- Integrated media player for the display of video files (AVI, DICOM MPEG2); streaming function for an immediate loading and viewing of videos from the archive
- Integrated call of external applications (MS Word, MS PowerPoint, MS Mediaplayer, Adobe Photoshop,...)
- Depending on the permissions, documents can be copied to all relevant office and graphic programs for further editing
- The resolution of images can be configured for clipboard copies and for Drag & Drop
- Export function for data to local media:
  - Data can be anonymized
  - Options: one out of n images; marked images
- Convenient creation of patient CDs (with their own viewer - synedra View Personal - on the CD, support of DICOMDIR and anonymization option)
- Support of Rimage and Epson burn robots: CDs with patient data and an integrated viewer can be created easily and customized to fit customers' needs
- Integrated file and CD browser with preview function
- Extensive WYSIWYG print functions (What You See Is What You Get):
  - for DICOM printers (also in color)
  - for paper printers
  - selective printing (one out of n images, marked images) is possible
- State tab providing feedback about synedra View activities running in the background (e.g., saving, sending,...)
- Individually configurable shortcuts enable an efficient access to tools and functions for key users
- Different functions can be assigned to mouse keys
- IHE-compliant implementation of the following components:
  - Patient CD
  - DICOM Query/Retrieve
  - Viewer
    - Consistent Presentation of Images (CPI)
    - DICOM Presentation States
    - "Same Size" and "True Size" functions

## 1.2. Diagnostic imaging, image viewing and image editing

- DICOM display

- All DICOM image types: x-ray (CR), MR, CT, nuclear medicine, PET, angiographies, fluoroscopy,...
- DICOM embedded data: MPEG2, PDF
- DICOM Structured Reports
- DICOM Presentation States
- Support of HL7 CDA
- Display of graphic image formats: JPEG, JPEG 2000, TIFF, PNG, BMP (Windows Bitmap), XPM, PNM, GIF,...
- Can be run on single- and multiple-monitor systems
  - Regular clinical application on standard PCs with 1 monitor on each workstation in the hospital possible
  - Diagnostic imaging usually on 3-monitor workstations: 1 control monitor and 2 high-contrast screens (2, 3 or 5 mega pixels)
- Display of images on all available monitors possible
- Automated arrangement of series/sequences via an integrated script engine for hanging-protocols
- Specific user interface for the creation of individual hanging-protocols (creation, activation and deactivation of hanging rules)
- Individually created hanging-protocols can be activated with buttons
- Automated arrangement of examinations/series in 1x2, 2x1, 2x2, 2x3, 3x2 and 3x3 modes (also available for multiple-selections of examinations or series)
- Specific hanging-protocols for the alignment of mammographies
- Screens can be filled individually from one another; screen contents can be distributed to the available monitors and flexibly moved
- Automated masking of series, e.g. localizer/scout overview series
- Comparison with previous examinations via the automated arrangement of the series
- Images can be viewed already during the loading process, intelligent loading of big studies
- Display of loaded, but not yet visualized images
- Extensive selection of standard image viewing functions: window, zoom, loupe function, shutter tool, scroll, pan, rotate, mirror, false colors,...
- Synchronizing tools for synchronous scrolling and windowing as well as zooming and panning in several series
- Window values can be entered manually
- User-specific window presets can be saved individually
- Window values can be transferred from one image of a series to an image of another series
- The Window tool also allows to adjust the contrast and luminosity of color images
- Splitting of DICOM series in sequences based on pre-defined criteria (e.g., resolution, slice thickness, MR weighting,...)
- Individually configurable window presets for CT examinations: bone window, lung window,...
- Images of a series can be manipulated synchronously or independently from one another
- Component for multiplanar reconstruction (MPR):

- Rotation cube for an easy handling of the MPR view
- Support of thickslab reconstructions (MinIP, MIP, AVG, MED)
- Tools for synchronizing several open MPR views
- MPR reconstructions can be saved as series or as individual images in the archive
- Marker functions to mark key images
- Annotations in the form of arrows, circles and text
- Tool to find the position of an image point in different series of the same study
- Extensive measurement functions:
  - Length and surface measurement (also in percent), angle measurement (3 and 4 point), freehand measurement
  - Density/grey values measurement (mean value, standard deviation, minimum, maximum)
- Calibration of measurements in different measurement units possible
- Length, circle, density and angle measurements can be annotated
- Measurements, calibrations and annotations can be saved; measurements and annotations are also transferred when copying or dragging & dropping images
- The original version of an already edited file can be loaded
- All text displays contained in the image can be magnified and/or reduced independently from one another
- A grid, which can be moved and adjusted in size, can be put over a loaded image
- Display of the position (with localizers) when scrolling in studies of sliced images
- Undo and redo for image editing functions
- The toolbar can be customized by the users
- The font size of the context menu and the toolbox is adjustable, with the icons' size changing accordingly
- Toolbox: modality-specific and customizable tool selection (e.g. for CT, MR, CR,...)
- Cine Loops: Display of multiframe sequences (angiographies, nuclear medicine, ultrasound sequences) and series of sliced images (CT, MR,...) as film
- Extensive possibilities for format conversion:
  - Multiframe sequences and series of sliced images as video (AVI). (The set window values are preserved.)
  - DICOM in JPEG
  - DICOM in DICOM
- Synchronous display of the ECG graph in cardiac catheter loops
- Configurable image texts
- Presentation function:
  - Intuitive options for the selection of relevant cases (limited date range, adding of previous examinations)
  - Several presentations can be prepared simultaneously
  - Notes can be added to each case

- The cases within a presentation can be sorted automatically in a specific order
- Favorites can be created for regularly held presentations
- Performance-optimized loading of presentations
- Clear display of the prepared presentations in a component
- The monitor content can be mirrored on a projector
- Support of DICOM Presentation States
- Easy selection of key images for printing on film (or paper)
- The current work context can be saved and restored by the users at a later moment
- Image data can be loaded from the clipboard

### 1.3. Keyword functions

- Centrally administrable and freely configurable keyword function; read, write, search and administration permissions can be assigned to the users
- Keywords can be assigned independently to each level (e.g. series, studies)
- Keywords can be assigned as free text as well as by using predefined catalogs
- Keywords can be retrieved in subtrees of catalogs The input field for keywords allows users to search for generic terms as well
- Measurement values of a measurement drawn in the image can be saved as keywords
- Keywords can also be assigned to a multiple-selection of documents
- Fulltext search on documents with keywords possible
- Specific keywords can be defined to be mandatory. When mandatory keywords are not set, the documents are marked in color.
- Default keywords for keyword classes
- Templates allow to quickly assign keywords
- EXIF information can be saved automatically as keywords upon import

### 1.4. Communication with synedra Archive - search function

- Role-based user permission system with personal login
- Users and permissions can be synchronized with an active directory server
- Support of biometrical login (Siemens biometry module)
- Multitenant search possible: examinations are only displayed if a user has the required permissions
- Patient search and extended search fields: ordering provider, date ranges, formats (images, video, texts), keywords,...
- Photo search for an image-oriented search for documents
- Configurable display of search fields
- Personal and global search templates can be stored for frequent workflows

- Dates in search templates can be saved relatively (e.g., to find all images of the last 5 days)
- Easy search for the previous examinations of a patient
- Search option and convenient loading of key-images
- Markers can be sought on the study as well as on the image level
- User-specific storing of search requests possible
- Search can be triggered automatically in configurable intervals
- Support of barcode scanners for a search without tipping
- Clearly structured and configurable display of search results
- The number of series and images are displayed in the search result list
- Detail view for a clear and structured display of all data (context information, markers, keywords) of a patient with preview function

## 1.5. Integrated special features

- Orders for producing worklists can be created for DICOM-worklist-compatible devices as well as for synedra View Import and Print
- Multitenant data quality tools for power users:
  - Logbook function to verify if specific tasks concerning a document or a patient have already been carried out (e.g., creating a CD, sharing an examination,...)
  - Relink images to other patients
  - Data corrections: correcting descriptions, deleting images archived by accident, matching patient data entered manually with the HIS,...
- Document sending
- Document sharing for the transfer to external users, e.g. for local doctors
- Anatomy browser module for the interpretation of accident examinations
- DICOM Query/Retrieve: Requests can be made to a DICOM archive or a modality and data can be transferred from this external system to synedra View
- DICOM/EXIF Dump: display of the DICOM and EXIF information contained in the image
- Clinical document management: tools for the scanning and editing of patient records
- 3D visualization and reconstruction with the Voxar 3D module: MPR, MIP, SSD
- Pre-operative endoprotheses with the mediCAD II module
- TomTec Image-Arena for cardiologic examinations

## 2. synedra View accessory modules

### 2.1. synedra View Import accessory module

The synedra View Import and Import/Video accessory modules, both of which are integrated in synedra View, support the acquisition of images, videos, and documents. Typical application scenarios of these accessory modules are the integration of endoscopy and ultrasound devices, intraoral cameras and microscopes, and the archiving of scanned x-ray films, DICOM and DICOMDIR data from CDs, digital photos and videos. These accessory

modules can also be used for the flexible integration of older radiologic devices without a DICOM interface (ultrasound, angiography, etc.) by converting the image data to valid DICOM formats.

The users have different options to put the data to be archived in the correct patient and examination context, e.g., worklists, patient search in the HIS and barcode scanners. Regardless of the data source or the format, there is one consistent way for the users to archive documents.

### 2.1.1. General features

- Workstation-specific worklists for patient assignment
- Search for patients and visits in the HIS
- Barcode scanner
- Automatic transfer of the patient and the case context to synedra View Import via a DLL interface
- Loading and archiving of DICOM images, graphic formats and generic files from the hard disc via browser, menu or Drag & Drop
- Optionally, generic images can be saved in the DICOM format and vice versa

### 2.1.2. Archiving functions

- Auditing of the user upon archiving
- Archiving of DICOM images
- Archiving of all relevant image formats: JPEG, TIFF, PNG, BMP, XPM, PNM,... and acquisition of meta information
- Archiving of video and audio sequences
- Archiving of general documents: MS Word files, PDF files,...
- Automatic archiving of DICOMDIR CDs
- The clipboard can be selected as data source for archiving
- Patient-related data as well as data contained in the image can be anonymized when archiving
- Save options: Select one out of n images for saving; Select marked image for saving
- Support of digital cameras and scanners via a Twain interface (also in Duplex mode)

## 2.2. synedra View Import/Video accessory module

synedra View Import/Video includes the following additional features compared to synedra View Import:

- Capturing of snapshots and video sequences from devices with a video output: sonography, endoscopy, fluoroscopy, intraoral camera, video recorder, ...
- Digital and analog video and audio sources can be integrated
- Capturing of analog and digital video sources in SD and HD (720p and 1080i)
- The recording time is displayed and can be limited
- Support of the following video filters: Deinterlacer, Framerate Converter and Image Scaler
- Video recording with and without sound
- Video management in the OR: convenient signal switch for OR monitors in synedra View possible (router control)

- Control of the recording by using a foot switch and hand switch from endoscopy devices
- Archiving in the standardized multimedia formats in MPEG2 or H264 for video and AAC for audio
- Intuitive video crop functions to store the newly created video
- Bookmark function to mark and retrieve interesting scenes from long videos

### 2.3. synedra View fulltext search accessory module

The fulltext search is an optional module of synedra View. All archived documents are indexed and can be browsed based on this index. This enables users to search not only for meta information, but also to browse document contents, e.g. text in PDF files.

### 2.4. synedra View Diagnostic accessory module

View Diagnostic is another accessory module of synedra View. In principle, this module has the same range of features as synedra View, with the difference that View Diagnostic has been specifically designed to be used on diagnostic monitors and may therefore be used for primary diagnosis.