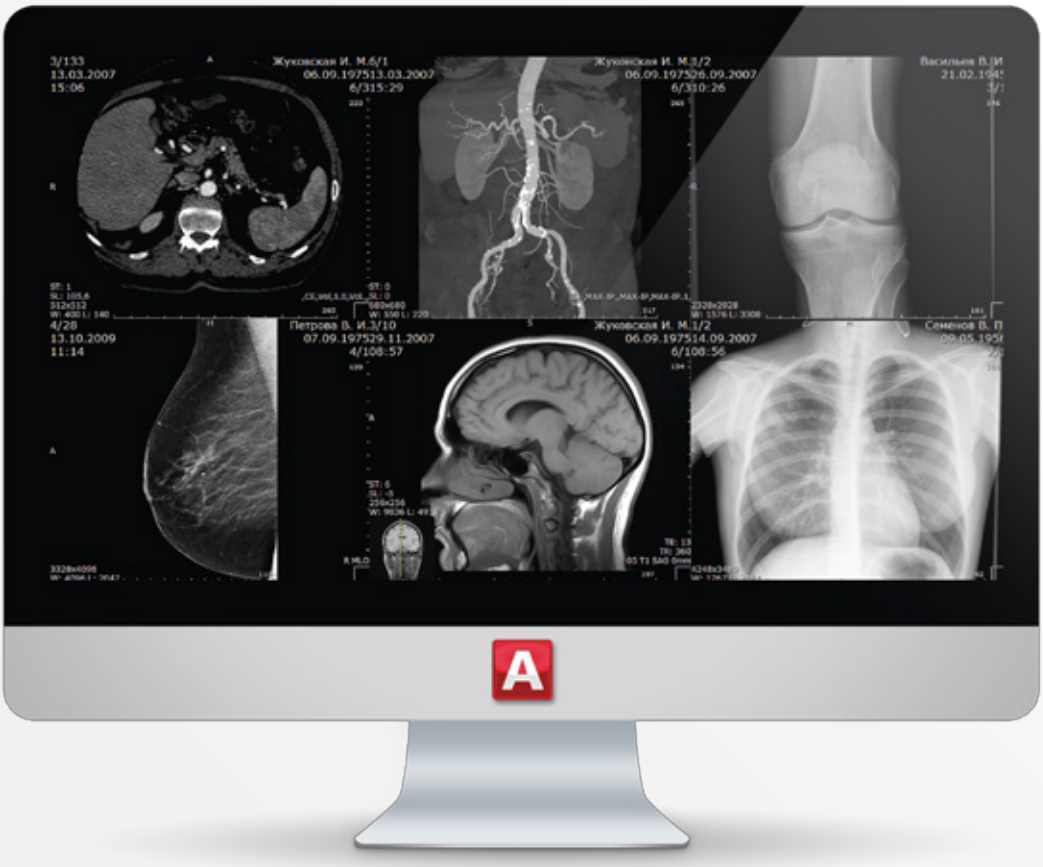
APC ARCHIMED

Radiological Information System



MED RAY software

Developing company
www.med-ray.ru

About the distributor:

ABOUT MED-RAY

Permanent member of:

Association of Development of Medical Information Technologies (ARMIT)

DiaMA Diagnostic Medical Association

Permanent participant of:

- Nevsky Radiology Forum
- MedSoft International Forum
- Radiology All-Russian National Congress of Radiation Diagnostics and Therapists
- Congress of the Russian Society of Radiology
- Healthcare International Exhibition
- ECR European Congress of Radiology

Cooperation in the field of personal data protection:

Infotecs is a recognized leader in the Russian information security market. For 25 years the company has solved complex tasks in the field of data protection.

The company is a leading integrator and provider of solutions from the following companies:

Intrasense - software developer for oncology, cardiology, neurosurgery, mammography, virtual colonoscopy, pulmonary and vascular examinations

HecTec - developer of best solutions for orthopedics

OUR PROJECTS

The APC ArchiMed software has been installed in over 150 Russian cities and abroad, which is more than 600 healthcare centers of various profiles and over 2300 workstations.

The projects include:

- 3rd Central Military Clinical Hospital named after A.A. Vishnevsky of the Ministry of Defense of the Russian Federation
- Institute of Surgery named after the outstanding Russian surgeon A. V. Vishnevsky of the Ministry of Healthcare of the Russian Federation
- Saint Petersburg Mariinskaya Municipal Hospital
- Saint Petersburg State University
  N.I. Pirogov Clinic of High Medical Technologies
- A.N. Bakulev National Medical Research Center of Cardiovascular Surgery of the Ministry of Healthcare of Russia
- Scientific Research Institute of Traumatology, Orthopedics and Neurosurgery of Saratov State Medical University named after V.I. Razumovsky of the Ministry of Healthcare of the Russian Federation
- Main Military Clinical Hospital of the National Guard Troops of the Russian Federation
- Saint Petersburg Children's City Hospital No. 1
- State Research Center Burnasyan Federal Medical Biophysical Center of Federal Medical Biological Agency of Russia
- Republic of Sakha (Yakutia) Republican Hospital No. 1 - National Centre of Medicine

NONINCLUSIVE LIST OF CITIES:

Moscow
Saint Petersburg
Amursk
Arkhangelsk
Astrakhan
Adygeysk
Balashikha
Barnaul
Batyrevo
Belgorod
Blagoveshchensk
Veliky Novgorod
Vladivostok
Vladikavkaz
Volgograd
Vologda
Voronezh
Grozny
Dmitrov
Elizovo
Yekaterinburg
Yessentuki
Zheleznogorsk
Zvezdny
Ivanovo
Izhevsk
Irkutsk
Yoshkar-Ola
Kaluga
Kemerovo
Kirov
Kostroma
Krasnodar
Kronshtadt
Kurgan
Kursk
Kyzyl
Leninsk-Kuznetsky
Lesnoy
Lyantor
Megion
Murmansk
Nalchik
Naro-Fominsk
Naryan-Mar
Nevinnomyssk
Nizhnevartovsk
Nizhny Novgorod
Nizhny Tagil
Novokuznetsk
Novosibirsk
Novotroitsk
Obninsk
Oktyabrsky
Omsk
Orenburg
Perm
Petropavlovsk-Kamchatsky
Prokhladny
Pskov
Pyt-Yakh
Pyatigorsk
Rostov-on-Don
Rubtsovsk
Rybinsk
Samara
Saransk
Sarapul
Saratov
Severodvinsk
Smolensk
Snezhinsk
Solikamsk
Sochi
Stavropol
Syzran
Syktyvkar
Tambov
Tver
Tomsk
Tuapse
Tula
Tymovsk
Tyumen
Udachny
Ulyanovsk
Ufa
Khabarovsk
Khanty-Mansiysk
Tskhinvali
Chaykovsky
Cheboksary
Cherepovets
Cherkessk
Schlusselburg
Elista
Yakutsk
Yaroslavl

OUR CUSTOMERS

Our regular customers are official suppliers of the leading manufacturers of diagnostic equipment:

Canon
CANON MEDICAL SYSTEMS
GE Healthcare
PHILIPS
HITACHI
Inspire the Next
SIEMENS
Healthineers
AGFA
HealthCare
Carestream

NEED FOR IMPLEMENTATION OF INFORMATION TECHNOLOGIES IN MEDICINE

IT implementation ensures:

- Storage and comprehensive analysis of the data received from multiple diagnostic devices
- Improvement of the quality of diagnostics and increase of the reasonability of medical decisions
- Increase of the economic feasibility and efficiency of the diagnostic and treatment process
- Increase of labor efficiency of medical personnel by means of automation of labor intensive and routine tasks
- Reduction of the period of patient's stay in the clinic
- Reduction of the financial costs of purchasing new diagnostic equipment
- Creation of a television and radio network within several municipalities or a region

PACS\RIS APC ARCHIMED

The radiological information system on the basis of APC ArchiMed is a key tool for solving the tasks of a radiologist. The PACS\RIS allows to work with any diagnostic equipment, compile an archive of examinations and patient data over a number of years, and comprises various functions for viewing and processing of images.

The 20 years of APC ArchiMed development experience facilitate easy adaptation of solutions to user requests, implementation of required functionality and integration with any medical information systems.

Med-Ray is a partner of domestic and foreign manufacturers of diagnostic equipment. The multimodal workstations based on APC ArchiMed have no limitations in terms of the number of connected devices and completed examinations, and allow to significantly reduce the cost of packaged supply.

A regional radiological information system (RRIS) or central archive of medical images (CAMI) can be created on the basis of APC ArchiMed. The interaction of various medical institutions at municipal or regional level provides a number of opportunities and resolves the issue of a lack of qualified specialists. Teleradiology is a top priority healthcare system development area.

Med-Ray is the holder of Marketing Authorizations by Roszdravnadzor, Manufacturing and Maintenance Authorization for medical devices and other necessary certificates for all provided solutions. The APC ArchiMed software is included in the register of domestic software of the Ministry of Communications.

MAIN FUNCTIONS OF APC ARCHIMED:

- Standardized and optimized data accumulation, creation and maintenance of a unified archive of medical images, examinations protocols, patient cards, and other data
- Storage of the required number of medical images in the database for long-term monitoring of the patient's condition
- Various types of processing of diagnostic examinations with all required functionality, including multiplanar and volumetric reconstruction
- Automated filling of examination protocols using firmware guides and templates
- Spelling check during the creation of descriptions and opinions for examinations protocols
- Issue of examinations results in the form of opinions and standardized protocols with a printing device, recording of images on disks using an integrated viewer
- Management of statistics, which implies the capability to obtain various statistical data over a selected time period (for instance, the number of examined patients, organs, revealed pathologies, physician's workload, and other parameters)
- Assessment of diagnostic room (department) performance in units equivalent to the labor intensity of services
- Data access via web browsers from any computer or mobile device
- Quick integration with any medical information system
- Automatic generation of a list of assignments for diagnostic equipment using DICOM WorkList during the creation of an examination assignment
- Export of images to a remote DICOM server
- Capability to automatically retranslate (forward) images received by the DICOM server to any number of registered remote DICOM servers
- Remote telemedicine consultation system
- Remote consultations with selected images transferred to a consultant along with an examination protocol and automated acquisition of consultative opinions
- A consulting physician works with several remote bases of various healthcare centers from his/her workplace
- Unlimited number of diagnostic devices connected using the DICOM 3.0 protocol
- Unlimited number of performed examinations

TYPES OF LICENSES AND KEY FEATURES

Unlike the other solutions by competitors, the APC ArchiMed licensing scheme is very simple. Each type of software is provided with maximum functionality with no separation into multiple modules or terms of use. At the same time, the price remains at the lowest level in the market, with a possibility of most flexible selection of the payment schedule depending on the Customer's capabilities.

Main types of licenses:

- APC ArchiMed Diagnostic
- APC ArchiMed Viewing
- APC ArchiMed 3D
- APC ArchiMed Web Viewer
- APC ArchiMed Unlimited

APC ArchiMed Diagnostic

The delivery scope of any diagnostic device (CT, MRI, X-ray apparatus, mammograph, digitizer, ultrasonic radiation device, etc.) or the initial stage of an X-ray department's automation require at least one APC ArchiMed Diagnostic license, as it includes the server side which allows to accumulate an archive of images and other medical information with no restrictions in terms of the number of connected devices or completed examinations, and also view and process images, create examinations protocols, etc. The diagnostic license is installed on a server or diagnostician's workplace, which can also function as a server. It is recommended to install one license for each diagnostician.

APC ArchiMed Viewing

A simplified version of the diagnostic license. The main differences are the absence of the server side and the capability to create and edit examinations protocols. The viewing license can be used:

- By managers of medical institutions
- In record departments
- At laboratory assistant workplaces
- In doctor's rooms
- In meeting, conference and council halls
- In any other places where access to radiological information system data is required

TYPES OF LICENSES AND KEY FEATURES

APC ArchiMed 3D

The option of 3D visualization and processing of imaging examinations expands the functionality of the Diagnostic and Viewing licenses. This option enables the use of the visualization of a selected series of images based on the volumetric rendering algorithm, select preset color palette and transparency parameters, and includes basic 3D image processing tools.

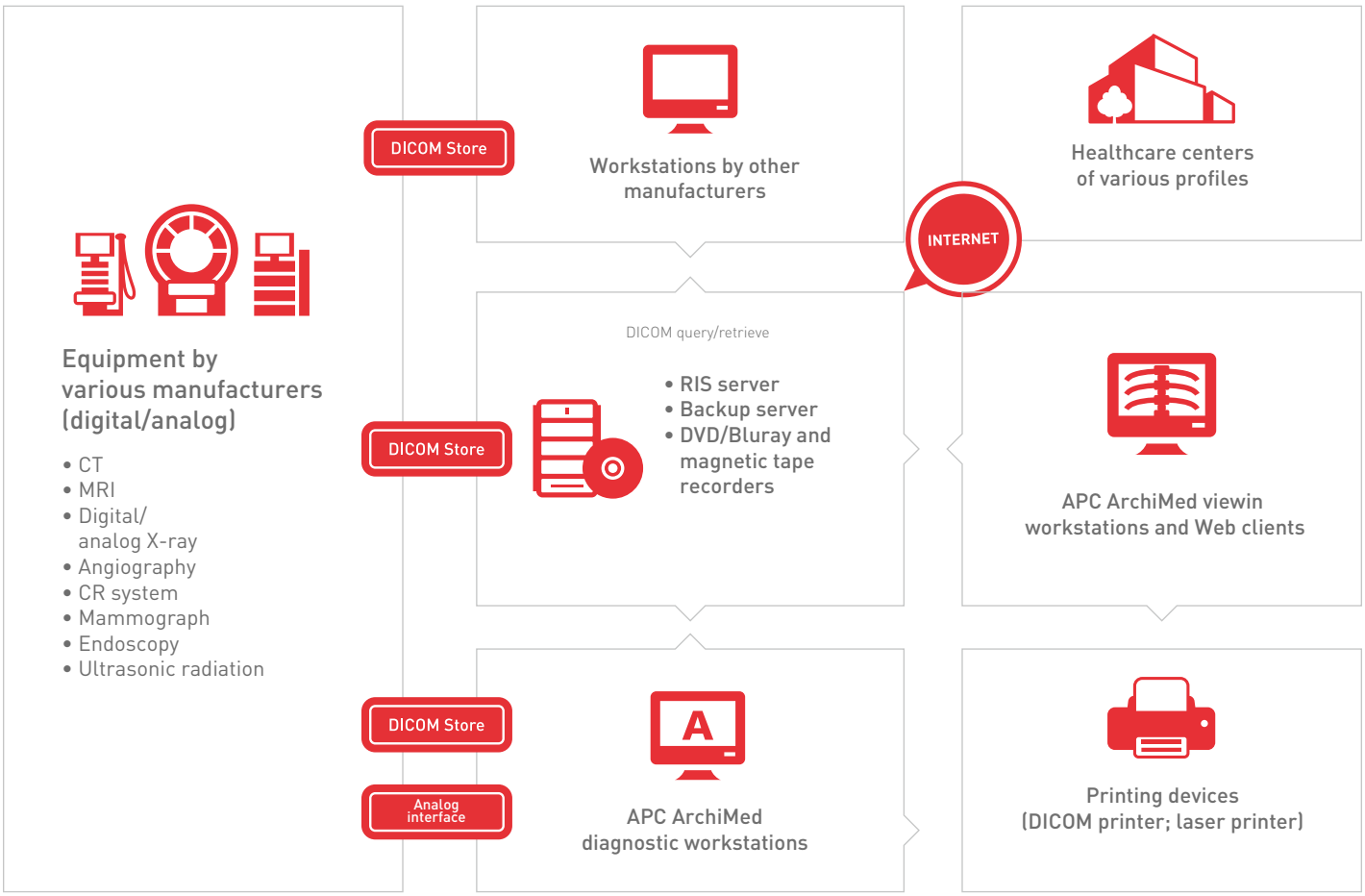
APC ArchiMed Web Viewer

APC ArchiMed Web Viewer is a module installed on any computer which functions as a server in addition to the Diagnostic license. The software is used as a viewer for of medical images and examination protocols. No software installation is required for operation, and data can be accessed from any computer or mobile device via web browsers of the main developers. Unlimited number of simultaneous connections. All required tools are available for image processing.
This solution may be used for quick access to the archive of examination, and as an alternative to the viewing license.

APC ArchiMed Unlimited

The unlimited license includes all types of APC ArchiMed software licenses and allows to install an unlimited number of copies within a single medical institution. This is the most advantageous licensing scheme for major projects, which provides a significant cost reduction.

EXAMPLE OF TYPICAL IMPLEMENTATION OF RIS APC ARCHIMED IN A HEALTHCARE CENTER



TELEMEDICINE AND TELERADIOLOGY

Telemedicine is a top priority healthcare system development area which covers a wide range of services:

- Postponed consultation
- Real-time consultation, including patient-physician consultations
- Council of physicians
- Remote monitoring of the patient's physiological parameters
- Remote control of medical devices which directly affect a patient's body, or those used for measuring the parameters characterizing the patient's condition
- Other types of remote medical care for patients

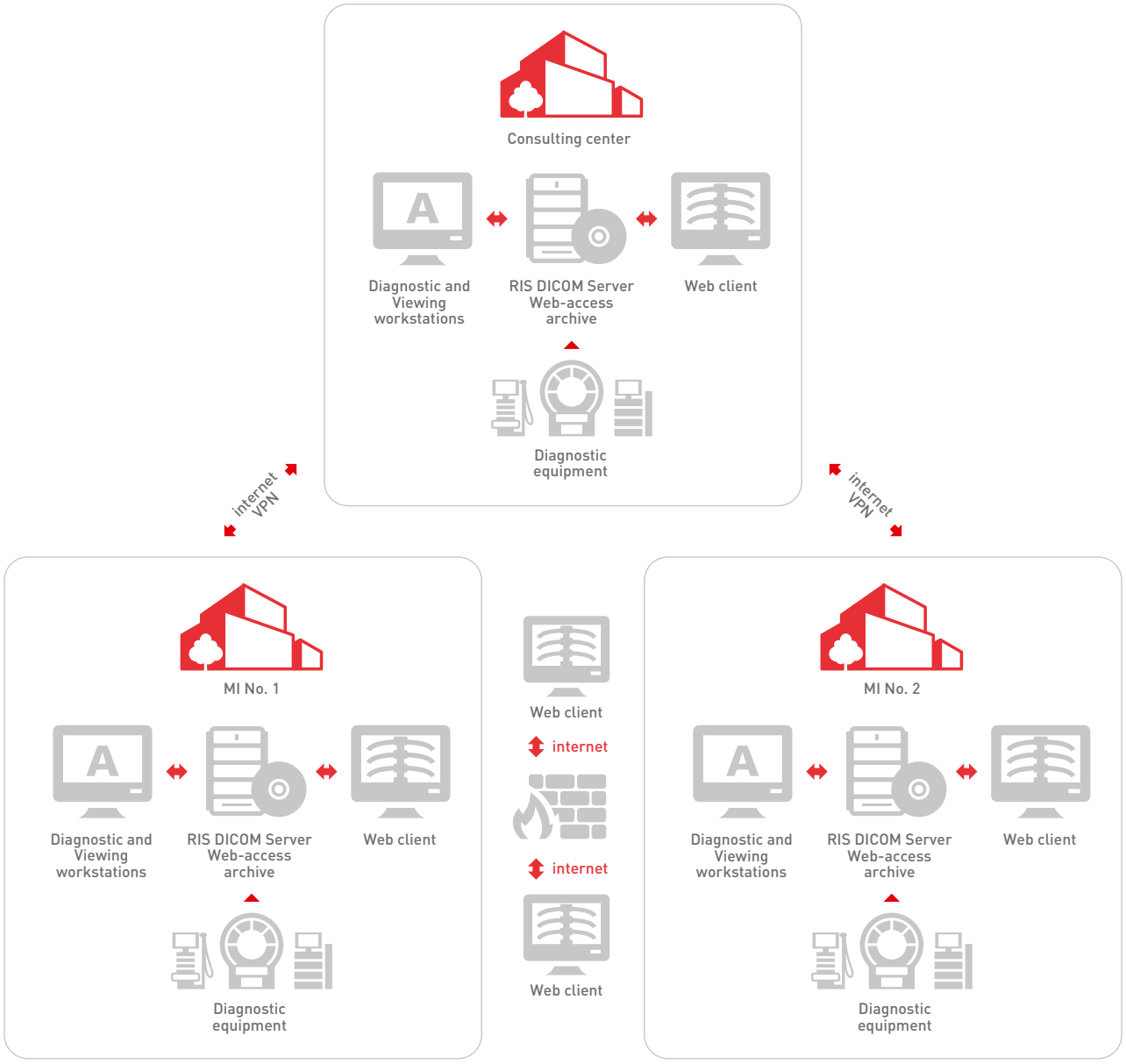
Teleradiology is the most important element of telemedicine.
With the appearance of modern radiological equipment and software, X-ray diagnostics has taken a special place in the improvement of the efficiency and quality of public services, and the high-quality Internet connection in medical institutions has allowed to create not only teleradiological networks between several medical institutions or diagnosticians, but also regional radiological information systems (RRIS) and central archives of medical images (CAMI). In fact, the main executed tasks are almost the same as those in the framework of a single healthcare center, but on a regional level it is possible to resolve the issue of a lack of specialists, analyze larger volumes of data, manage most accurate statistics, monitor the operation of diagnostic equipment, and carry out quality control of completed examinations.

Med-Ray is one of the first companies to adopt teleradiology. In addition to major projects for state medical institutions, there are actively developing services for various commercial projects which can be implemented, in particular, on the basis of cloud technologies, and with no initial costs for the Customer. All solutions are provided with certified information protection tools by our partner Infotecs, a leading company in the field of personal data protection.

TELERADIOLOGY SOLUTION OPTION

1. Medical institutions (MIs) of various profiles forward images and test reports to a selected Consulting Center to obtain consultations.

2. The Consulting Center forwards replies to received inquiries back to the medical institution

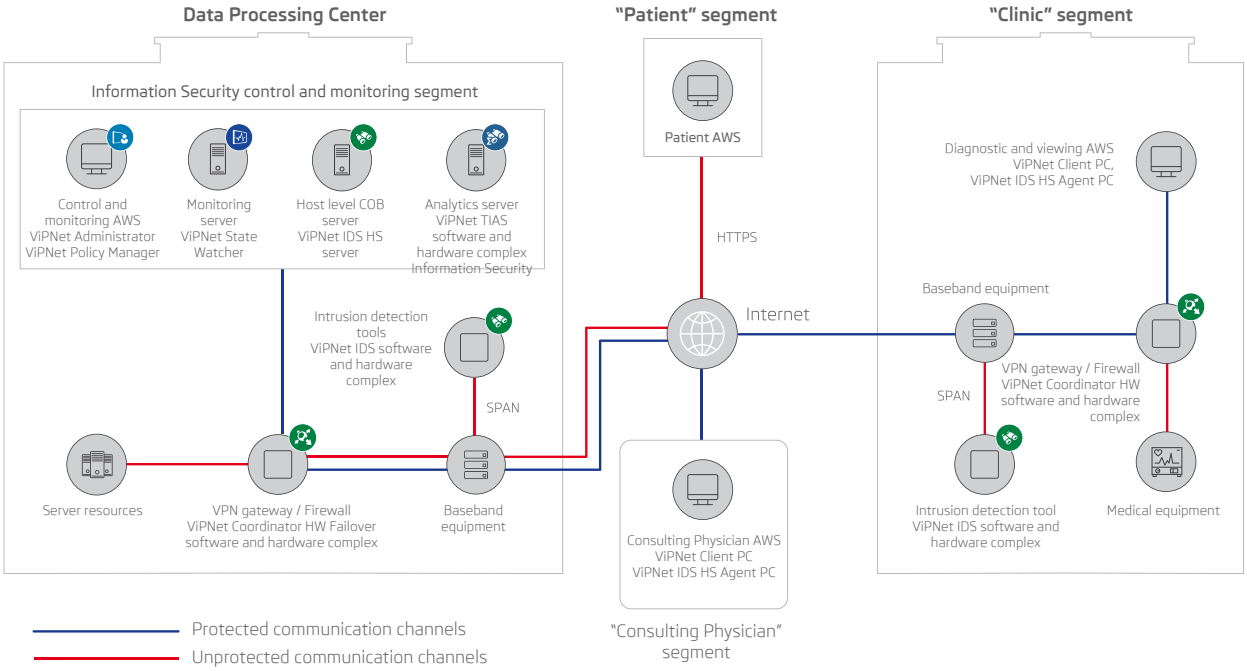


TMIS INFORMATION SECURITY

Secure information exchange is arranged using the technologies of virtual private networks (VPN), firewalling, detection of intrusions and analysis of information security incidents, which are implemented on the basis of certified ViPNet security tools developed and produced by Infotecs JSC.

This solution complies with the requirements of the legislative and regulatory framework of the Russian Federation in the field of personal data protection:

- No. 152-FZ "Concerning Personal Data";
- No. 323-FZ "On Fundamental Healthcare Principles in the Russian Federation";
- Order of the Government of the Russian Federation No. 1119 "On Approval of Requirements for Protection of Personal Data while Processing thereof in the Personal Data Information Systems";
- normative legal documents of Federal Service for Technical and Export Control and Federal Security Service of Russia in the field of personal data protection.



The solution displayed on the diagram is focused on the implementation of the following information protection measures in accordance with the provisions of Orders No. 17, 21 of the Federal Service for Technical and Export Control of Russia:

IAF.1,	UPD.6,	RSB.1,	ANZ.3,	ZIS.4,
IAF.2,	UPD.9,	RSB.2,	ANZ.5,	ZIS.10,
IAF.3,	UPD.10,	RSB.3,	OTsL.1,	ZIS.11,
IAF.4,	UPD.11,	RSB.5,	OTsL.3,	ZIS.12,
IAF.5,	UPD.13,	RSB.6,	ODT.2,	ZIS.13,
IAF.6,	UPD.14,	RSB.7,	ODT.4,	ZIS.16,
UPD.1,	UPD.15,	SOV.1,	ODT.5,	ZIS.17,
UPD.2,	UPD.16,	SOV.2	ZIS.1,	ZIS.19,
UPD.4,	OPS.3,	ANZ.2,	ZIS.3,	ZIS.20.

(protection of Personal Data Information Systems and Geoinformation Systems)

SPECIALIZED PROGRAMS FOR ANALYSIS AND PROCESSING OF EXAMINATIONS

Most modern diagnostic devices (CT, MRI, Ultrasonic Radiation, etc.) are supplied with workstations and a software package, whose functionality allows to carry out most complex examination processing and analysis operations. Few are aware that the cost of workstations can be equal to, and sometimes even greater than the cost of the diagnostic apparatus.

We continuously analyze the global market and have selected the best developers of specialized software for all areas which use the radiological examination methods.
As a result of our collaboration, these solutions have been integrated and adapted to the PACS\RIS APC ArchiMed system, and are more affordable as compared to similar solutions by diagnostic equipment manufacturers.

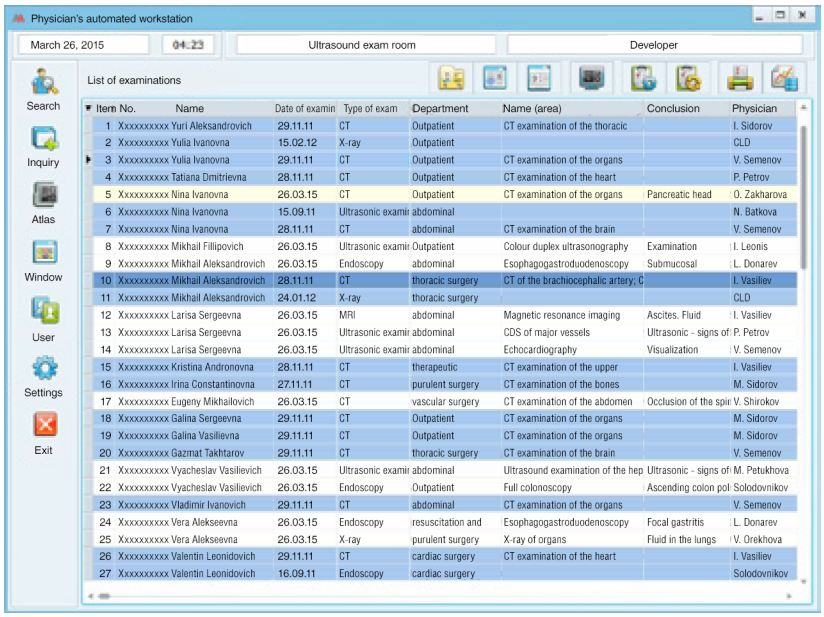
BENEFITS

- Proprietary solution independent of foreign technologies and components
- Marketing Authorization by Roszdravnadzor
- Most advantageous solutions in the market
- Over 20 years of experience
- Continuous development of technology
- Broad dealer network
- Enhanced reliability of the system, which does not require ongoing maintenance
- Ease of implementation and use
- Flexible pricing policy
- Capability to adjust and adapt of the software depending on the C ustomer's tasks
- Experience of integration with MIS at any level
- Development of the areas of telemedicine and teleradiology
- Integration and supply of software for specialized post-processing of all types of examinations (oncology, orthopedics, neurosurgery, cardiology, mammography, virtual colonoscopy, lung examinations, etc.)

SCREENSHOTS

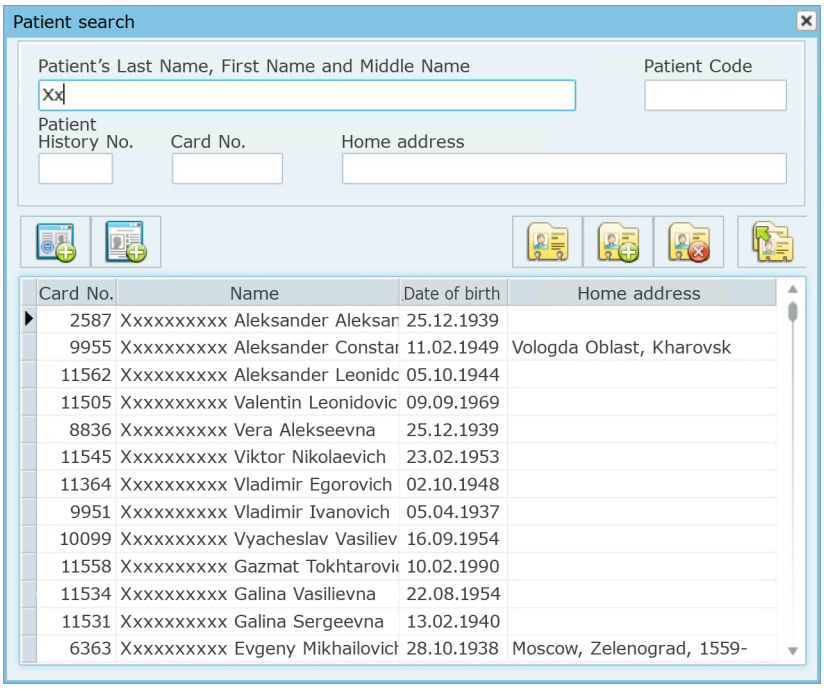
Main diagnostician's form

The major portion of the main form is a table with a list of examinations



Patient search

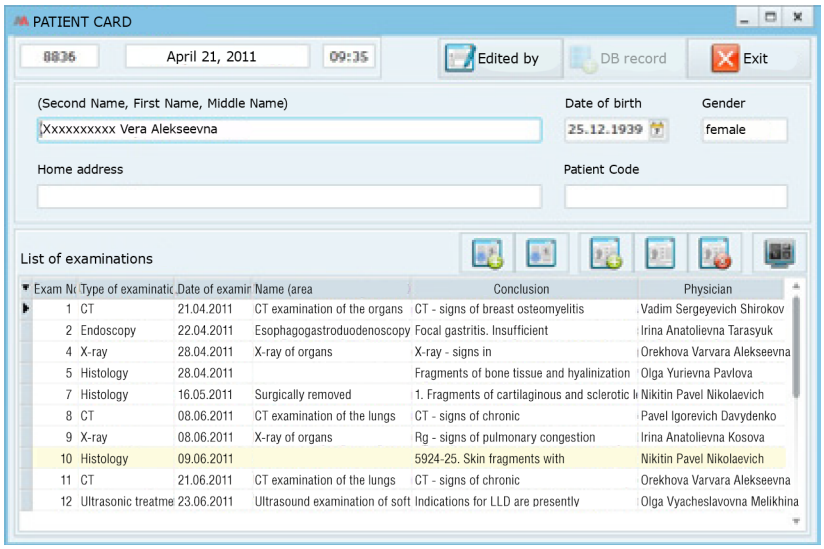
The window is intended for quick searches for patient cards



SCREENSHOTS

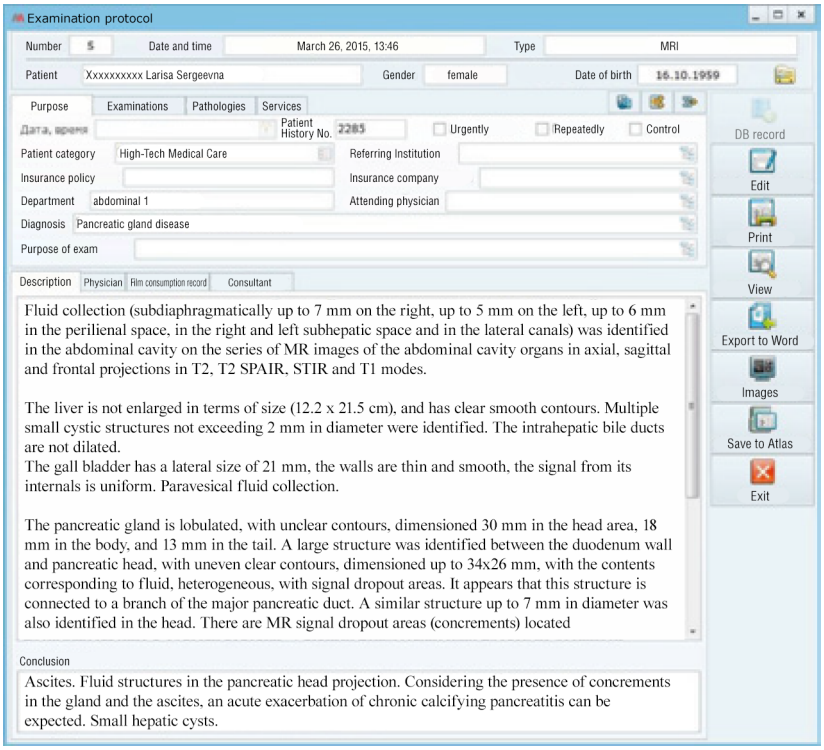
Patient card

The card is used for initial patient registration, editing and viewing of registration data, and displaying of a list of completed diagnostic examinations



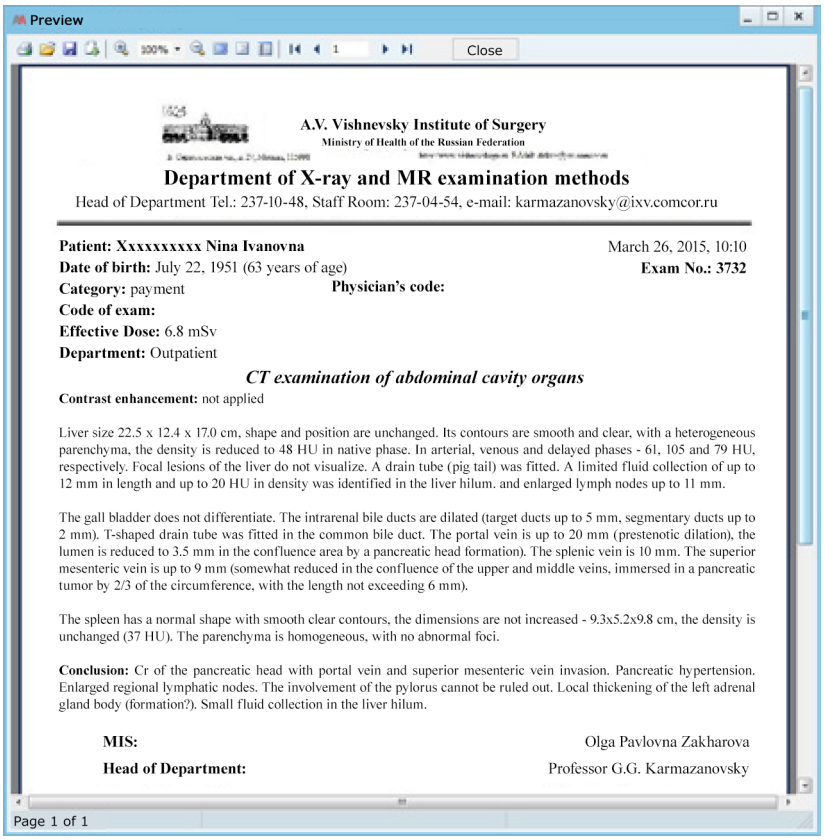
Examination protocol

The protocol is designed for recording and displaying of examination results



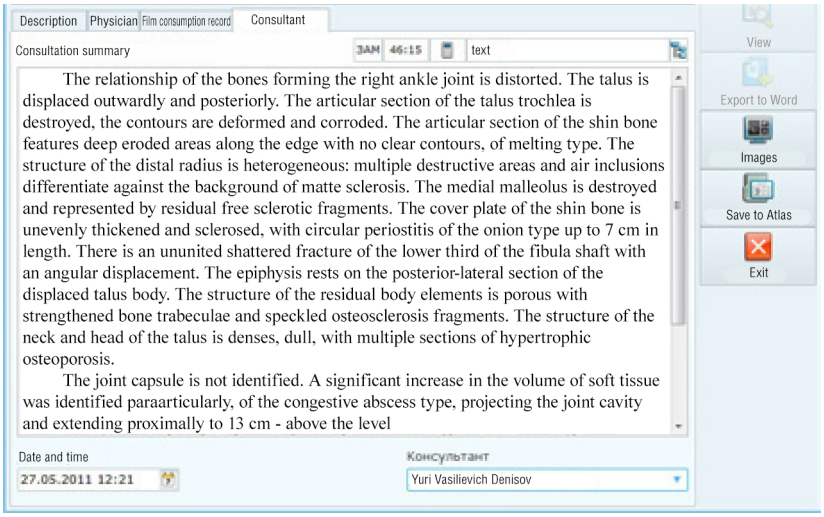
SCREENSHOTS

Printing of examination protocol



"Consultant" page of examination protocol

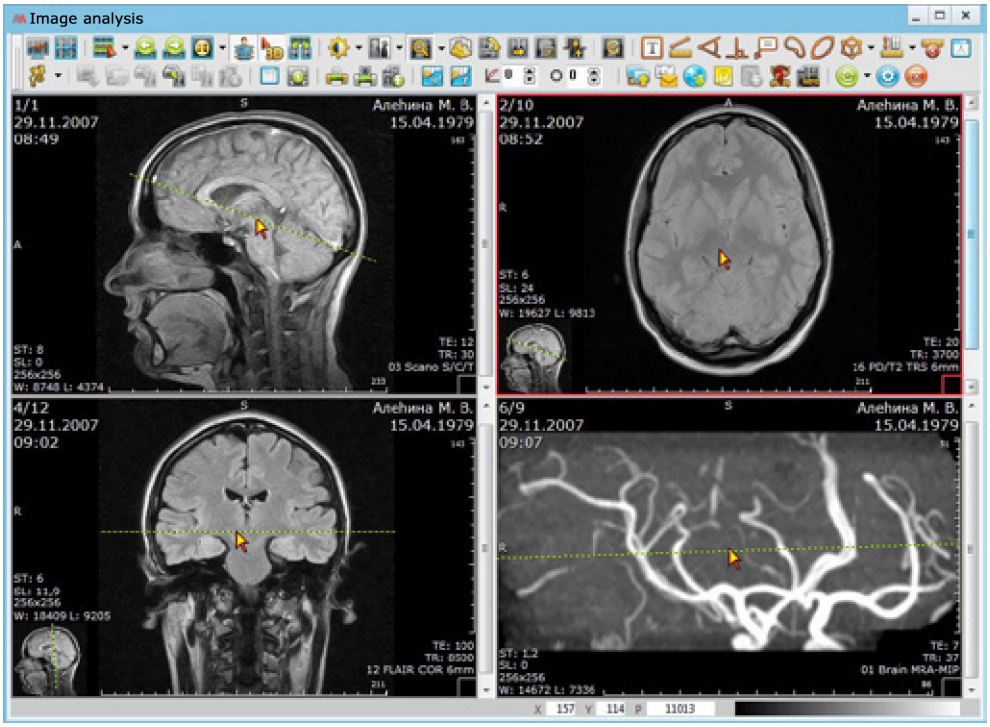
The page is used at a consulting physician's workplace in the telemedicine system for entering and displaying of consultative opinions concerning the examination



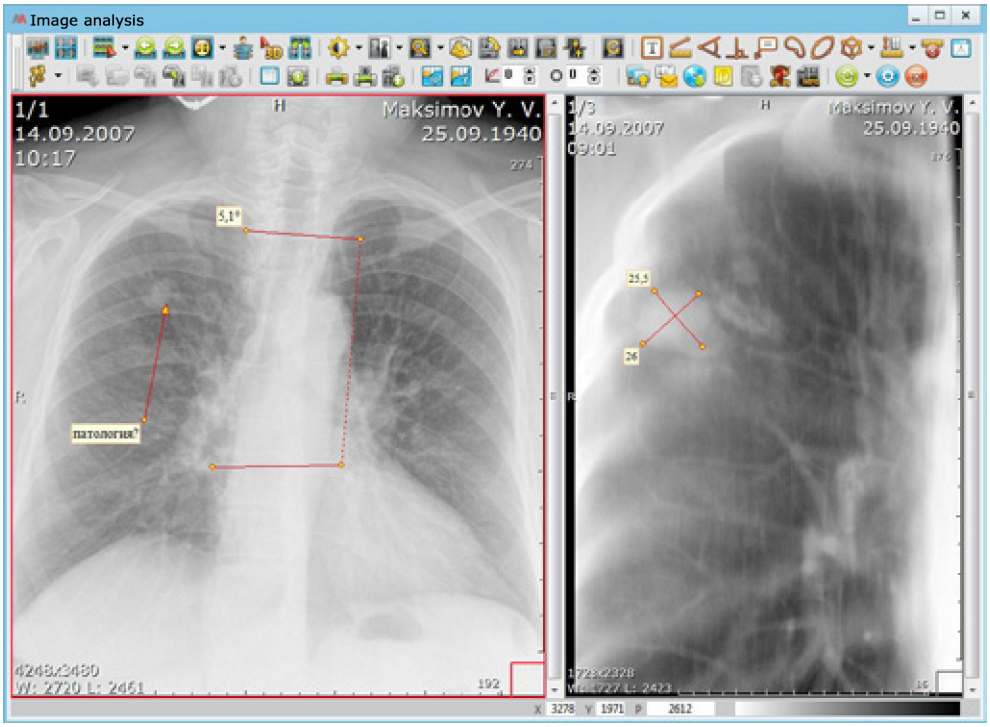
SCREENSHOTS

“Images analysis” window (MRI)

The window is intended for viewing, analysis and processing of images within the current examination (or several examinations at once)



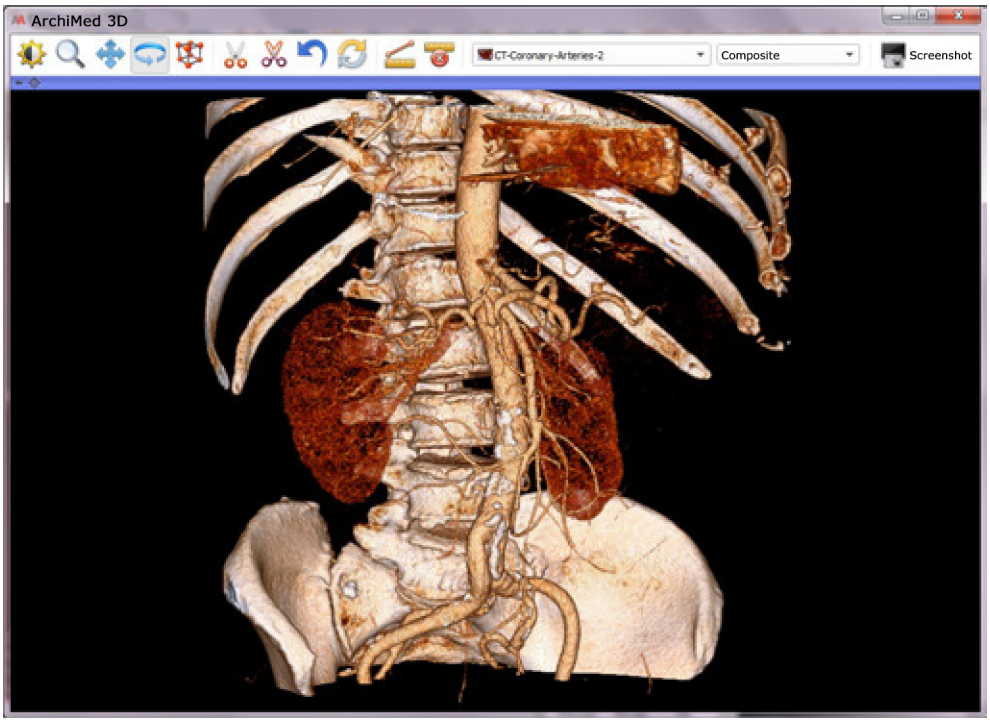
“Image analysis” window (X-ray)



SCREENSHOTS

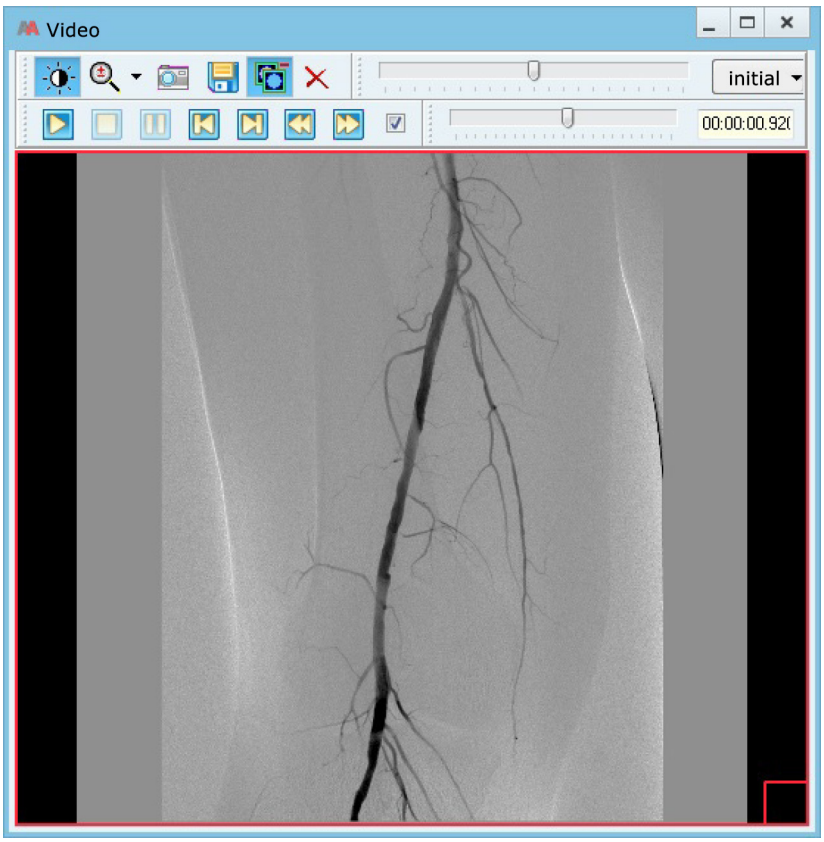
3D visualization module

The module is designed for creating 3D reconstructions of CT and MRI examinations



Viewing in video mode (Angiography)

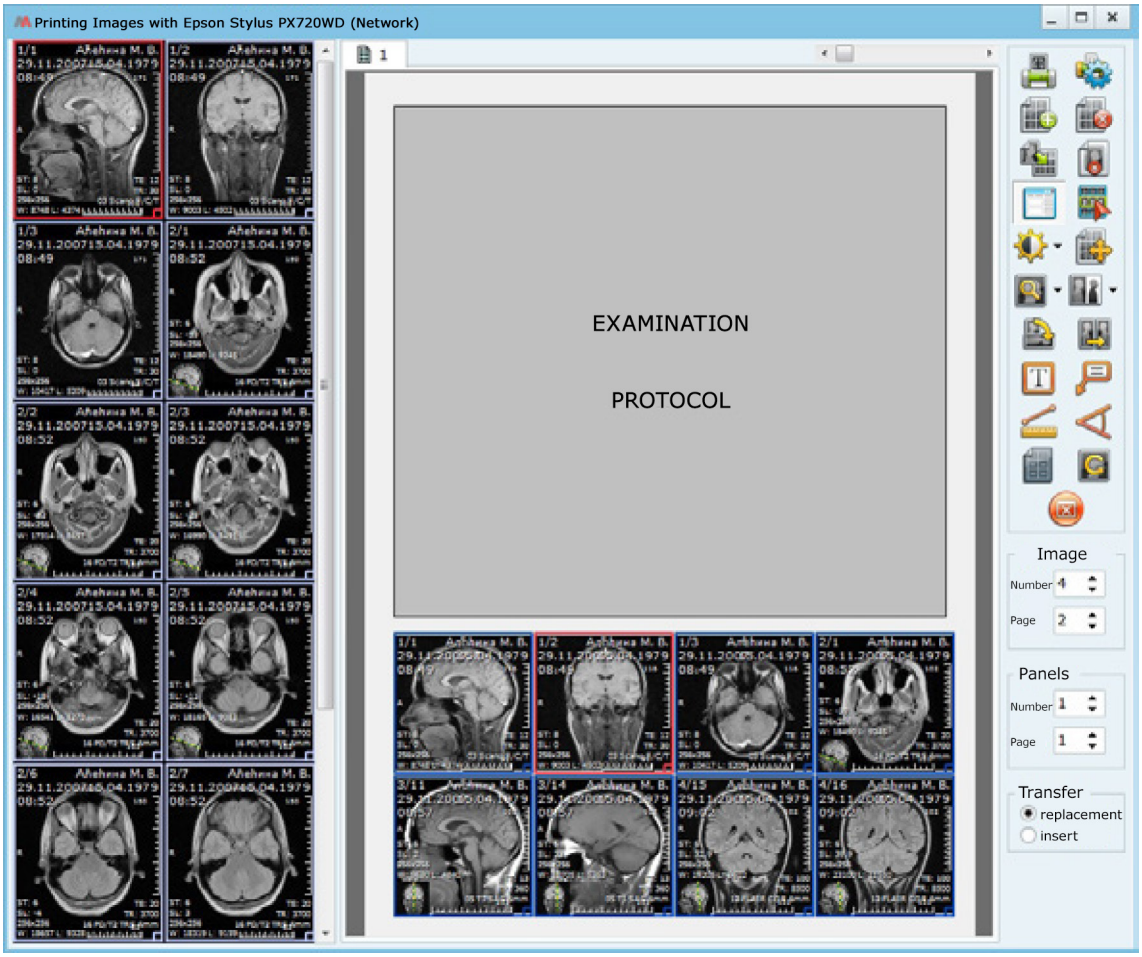
The mode allows to view any examinations received in video format



SCREENSHOTS

“Image printing” window (for paper media)

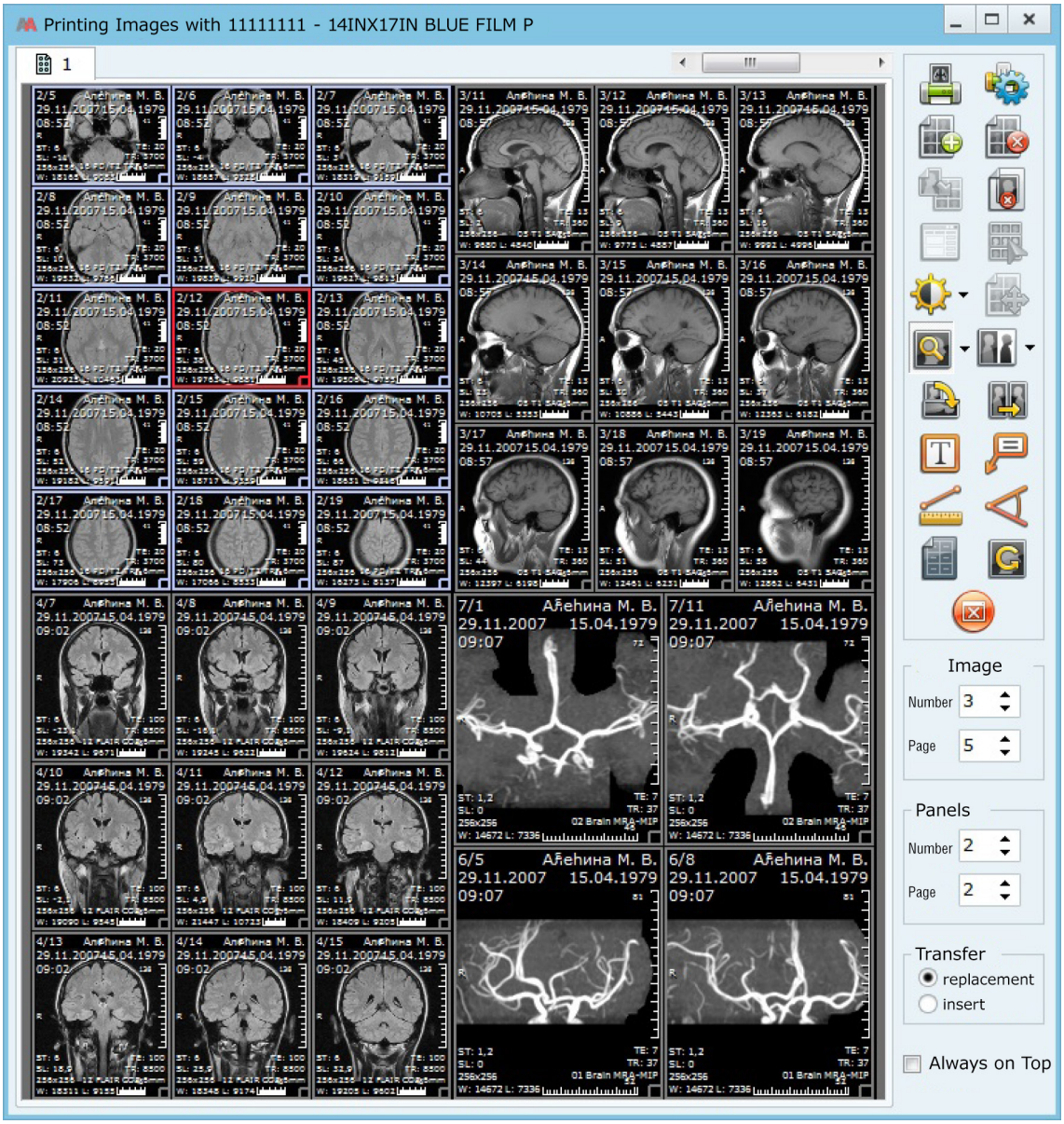
The window is intended for creating previews and printing images using standard printers with a capability to print images together with examination protocols



SCREENSHOTS

“Film image printing preview” window

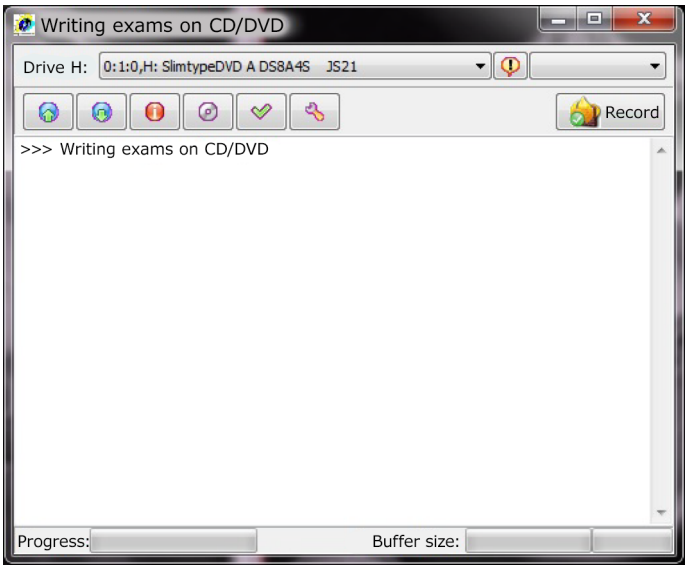
The window is designed for preparing previews and printing images using DICOM printers.



SCREENSHOTS

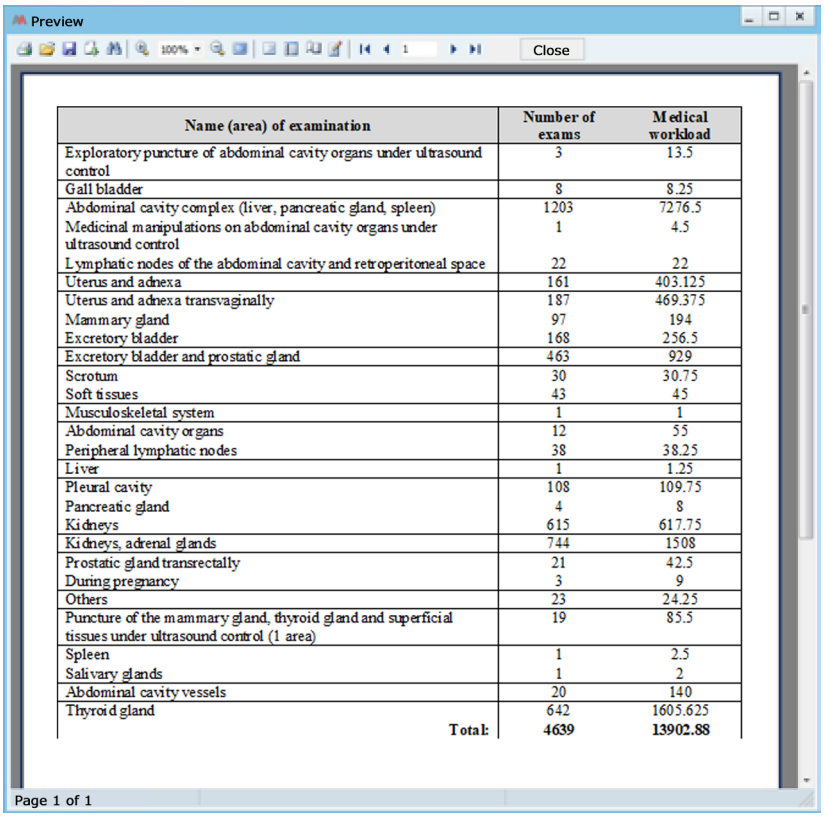
Image recording on CD\DVD

This feature allows to record images on discs using a free integrated viewer.
The disc can be given to patients and used on any computer.



Examinations area report

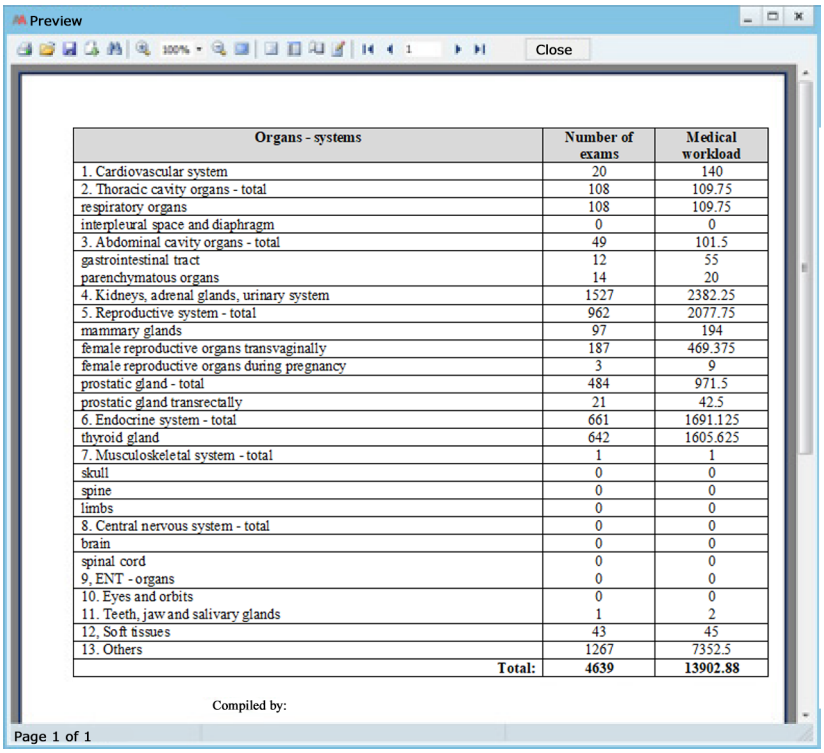
The report provides accurate information on the number of completed examinations and physician's workload



Name (area) of examination	Number of exams	Medical workload
Exploratory puncture of abdominal cavity organs under ultrasound control	3	13.5
Gall bladder	8	8.25
Abdominal cavity complex (liver, pancreatic gland, spleen)	1203	7276.5
Medicinal manipulations on abdominal cavity organs under ultrasound control	1	4.5
Lymphatic nodes of the abdominal cavity and retroperitoneal space	22	22
Uterus and adnexa	161	403.125
Uterus and adnexa transvaginally	187	469.375
Mammary gland	97	194
Excretory bladder	168	256.5
Excretory bladder and prostatic gland	463	929
Scrotum	30	30.75
Soft tissues	43	45
Musculoskeletal system	1	1
Abdominal cavity organs	12	55
Peripheral lymphatic nodes	38	38.25
Liver	1	1.25
Pleural cavity	108	109.75
Pancreatic gland	4	8
Kidneys	615	617.75
Kidneys, adrenal glands	744	1508
Prostatic gland transrectally	21	42.5
During pregnancy	3	9
Others	23	24.25
Puncture of the mammary gland, thyroid gland and superficial tissues under ultrasound control (1 area)	19	85.5
Spleen	1	2.5
Salivary glands	1	2
Abdominal cavity vessels	20	140
Thyroid gland	642	1605.625
Total:	**4639**	**13902.88**

SCREENSHOTS

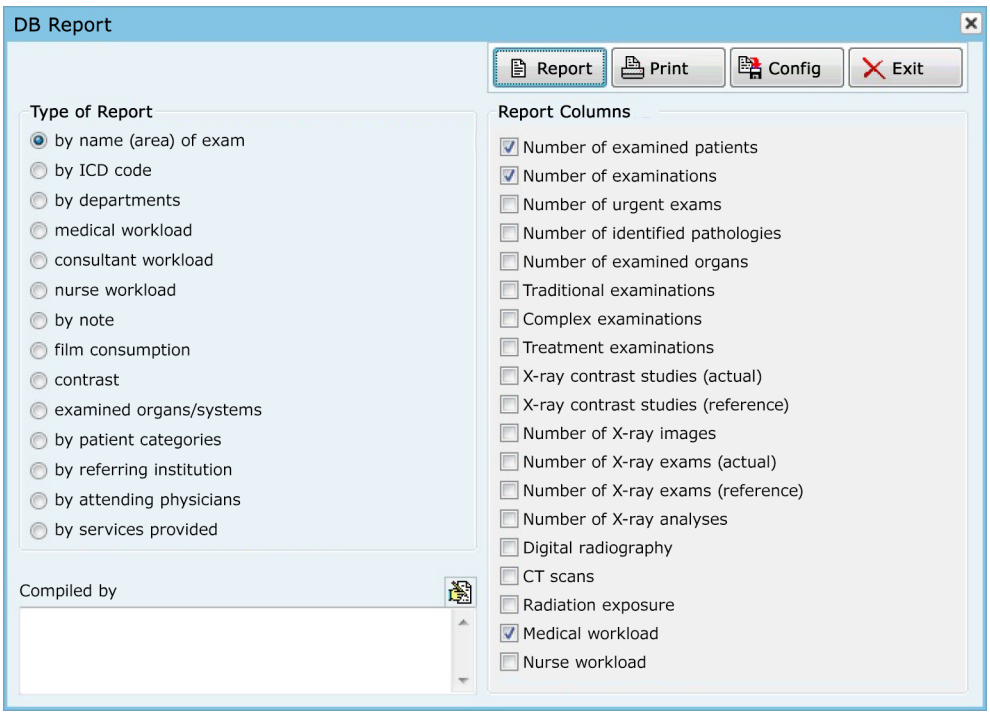
Organ and system report



Organs - systems	Number of exams	Medical workload
1. Cardiovascular system	20	140
2. Thoracic cavity organs - total	108	109.75
respiratory organs	108	109.75
interpleural space and diaphragm	0	0
3. Abdominal cavity organs - total	49	101.5
gastrointestinal tract	12	55
parenchymatous organs	14	20
4. Kidneys, adrenal glands, urinary system	1527	2382.25
5. Reproductive system - total	962	2077.75
mammary glands	97	194
female reproductive organs transvaginally	187	469.375
female reproductive organs during pregnancy	3	9
prostatic gland - total	484	971.5
prostatic gland transrectally	21	42.5
6. Endocrine system - total	661	1691.125
thyroid gland	642	1605.625
7. Musculoskeletal system - total	1	1
skull	0	0
spine	0	0
limbs	0	0
8. Central nervous system - total	0	0
brain	0	0
spinal cord	0	0
9, ENT - organs	0	0
10. Eyes and orbits	0	0
11. Teeth, jaw and salivary glands	1	2
12, Soft tissues	43	45
13. Others	1267	7352.5
Total:	**4639**	**13902.88**

Acquisition of reports from the Database

The function allows to obtain any required report with flexible adjustment capabilities



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