

ExPACS 2.X.x DICOM Conformance Statement



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Tabela 1: Info about document

Wersja:	Data:	Author:	Description:
1.0	25.07.2007	J.M.	Document created
1.1	30.07.2008	P.W.	Document statements added for DICOM specification
1.2	21.09.2009	J.M.	Adding new SOP Class
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2.1	12.05.2011	J.M.	Document verified for IHE profiles integration
2.2	21.07.2011	J.M.	Adding support for key note and mammography storage

Tabela 2: Changelog for document

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1 Wstęp

1.1 Document content

The main goal of this document is:

- To describe ExPACS – PACS system, with it's futures , describe data workflow for SOP as SCP, SCU,
- List DICOM standards and provide information about what part of it we're using,
- Present list of referenced documents for bigger picture.

1.2 Used standards

- Digital Imaging and Communications in Medicine (DICOM) 3.0 PS 3 -2009 with next supplements,
- RFC 793 with next release RFC 3168,
- RFC 791 with next release RFC 2474,
- RFC 4346.

1.3 Related documents

- User / installation guide for ExPACS,
- Administration guide for ExPACS,

1.4 Dictionary

Term	English meaning	Polish meaning
AE	Application Entity	Urządzenie Dicom (stacja lub Server PACS, MWL)
AET	Application Entity Title	Identyfikator stacji lub Servera PACS, MWL
CallingAET	Calling Application Entity Title	AET strony nawiązującej połączenie
CalledAET	Called Application Entity Title	AET strony z którą połączenie jest nawiązywane
API	Application Programming Interface	Interfejs programowania aplikacji
CT	Computed Tomography	Tomografia Komputerowa
DICOM	Digital Imaging and Communications In Medicine	Standard komunikacji, dekodowania plików medycznych
HIS	Hospital Information System	System ogólnie szpitalny
RIS	Radiology Information System	System radiologiczny
MR / RM	Magnetic Resonance	Rezonans Magnetyczny
PDU	Protocol Data Unit	Fragment transmitowanych danych
Query – Q	Query	Akcja przeszukania w protokole DICOM celem odnalezienia określonych danych
Retrieve – R	Retrieve	Akcja pobierania w protokole DICOM celem transmisji danych we wskazane miejsce
RLE	Run Length Encoded	Algorytm kompresji danych
RT	Radiotherapy	Radioterapia
SCP	Service Class Provider	Usługodawca DICOM
SCU	Service Class User	Client DICOM
SOP	Service Object Pair	Para obiekt - usługa opisująca realizowaną funkcjonalność
SSL	Secure Socket Layer	Bezpieczny, szyfrujący protokół transmisji danych
TCP/IP	Transmission Control Protocol / Internet Protocol	Protokół transmisji danych oraz protokół adresów IP służący do transmitowania danych
UID	Unique Identifier	Unikalny identyfikator w protokole DICOM
VR	Value Representation	Reprezentacja danych dla konkretnego elementu z danymi opisywana typem, formatem, długością

Tabela 3: Dictionary

2 ExPACS – network connection statement

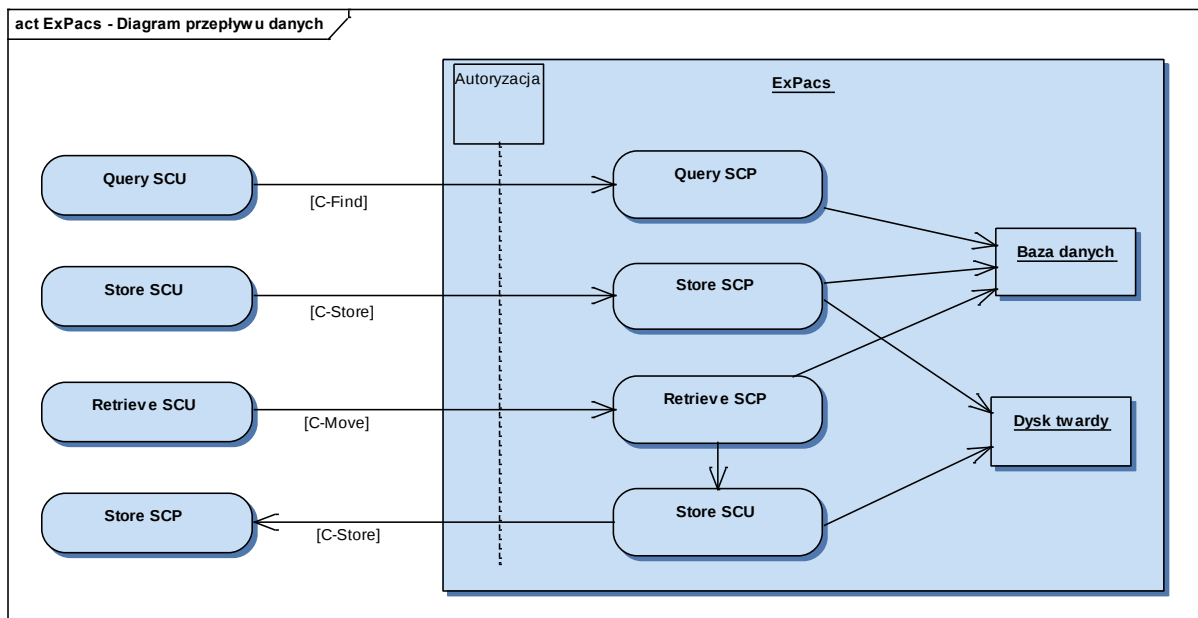
2.1 Implementation

ExPACS is a PACS server which is compliant with DICOM Storage, Verification, Query / Retriever , MWL, MPPS , Storage Commitment

ExPACS has also a diagnostic DICOM browser for radiologist - Exhibeon.

ExPACS can be integrated with RIS , HIS systems and it can be done by HL7 standard, for more information look at ExPACS HL7 Conformance Statement.

2.1.1 Dataflow diagram



Rysunek 1: Data flow diagram

2.1.2 ExPACS – main function and requirements

- ExPACS is compatible with Linux, Windows (we prefer Debian or RedHat, SuSE)
- ExPACS requires a TCP port for DICOM connection, TCP port for management and TCP or socket connection to database.
- ExPACS does DICOM security through IP / TCP Port / AET verification or SSL with X509 verification
- ExPACS is compliant with DICOM Storage , Verification, Query / Retriever , MWL, MPPS , Storage Commitment
- ExPACS is provided with monitoring module for supervision of its module

2.2 ExPACS - specification

2.2.1 Common futures

2.2.1.1 Presentation context – non image data

Name	UID
Implicit VR Little Endian	1.2.840.10008.1.2
Explicit VR Little Endian	1.2.840.10008.1.2.1

Tabela 4: Basic presentation context

2.2.1.2 Presentation context – image data

Name	UID
Implicit VR Little Endian	1.2.840.10008.1.2
Explicit VR Little Endian	1.2.840.10008.1.2.1
JPEG Baseline	1.2.840.10008.1.2.4.50
JPEG Extended	1.2.840.10008.1.2.4.51
JPEG Lossless, Non-Hierarchical	1.2.840.10008.1.2.4.57
JPEG Lossless, Non-Hierarchical, First-Order Prediction	1.2.840.10008.1.2.4.70
JPEG-LS Lossless Image Compression	1.2.840.10008.1.2.4.80
JPEG-LS Lossy (Near-Lossless) Image	1.2.840.10008.1.2.4.81
JPEG 2000 Image Compression (Lossless Only)	1.2.840.10008.1.2.4.90
JPEG 2000 Image Compression	1.2.840.10008.1.2.4.91

Tabela 5: Extended presentation context

2.2.2 ExPacs Storage Server

2.2.2.1 Accepted SOP class

ExPACS archive DICOM data for specific SOP classes:

Name	UID	Scu	Scp
Verification SOP Class	1.2.840.10008.1.1	Yes	Yes
Storage Commitment Push Model	1.2.840.10008.1.20.1	No	Yes
Hardcopy Grayscale Image Storage SOP Class	1.2.840.10008.5.1.1.29	No	Yes
Hardcopy Color Image Storage SOP Class	1.2.840.10008.5.1.1.30	No	Yes
Computed Radiography Image Storage	1.2.840.10008.5.1.4.1.1.1	No	Yes
Digital X-Ray Image Storage Presentation	1.2.840.10008.5.1.4.1.1.1.1	No	Yes
Digital X-Ray Image Storage Processing	1.2.840.10008.5.1.4.1.1.1.1.1	No	Yes
Digital Mammography X-Ray Image Storage Presentation	1.2.840.10008.5.1.4.1.1.1.2	No	Yes
Digital Mammography X-Ray Image Storage Processing	1.2.840.10008.5.1.4.1.1.1.2.1	No	Yes
Digital Intra-Oral X-Ray Image Storage Presentation	1.2.840.10008.5.1.4.1.1.1.3	No	Yes
Digital Intra-Oral X-Ray Image Storage Processing	1.2.840.10008.5.1.4.1.1.1.3.1	No	Yes
CT Image Storage	1.2.840.10008.5.1.4.1.1.2	No	Yes
Enhanced CT Image Storage	1.2.840.10008.5.1.4.1.1.2.1	No	Yes
MR Image Storage	1.2.840.10008.5.1.4.1.1.4	No	Yes
Enhanced MR Image Storage	1.2.840.10008.5.1.4.1.1.4.1	No	Yes
Ultrasound Multi-frame Image Storage (wycofane)	1.2.840.10008.5.1.4.1.1.3	No	Yes
Ultrasound Multi-frame Image Storage	1.2.840.10008.5.1.4.1.1.3.1	No	Yes
Ultrasound Image Storage (Retired)	1.2.840.10008.5.1.4.1.1.6	No	Yes
Ultrasound Image Storage	1.2.840.10008.5.1.4.1.1.6.1	No	Yes
Secondary Capture Image Storage	1.2.840.10008.5.1.4.1.1.7	No	Yes

Name	UID	Scu	Scp
Multi-frame Single Bit Secondary Capture Image Storage	1.2.840.10008.5.1.4.1.1.7.1	No	Yes
Multi-frame Grayscale Byte Secondary Capture Image Storage	1.2.840.10008.5.1.4.1.1.7.2	No	Yes
Multi-frame Grayscale Word Secondary Capture Image Storage	1.2.840.10008.5.1.4.1.1.7.3	No	Yes
Multi-frame True Color Secondary Capture Image Storage	1.2.840.10008.5.1.4.1.1.7.4	No	Yes
Standalone Overlay Storage	1.2.840.10008.5.1.4.1.1.8	No	Yes
Standalone Curve Storage	1.2.840.10008.5.1.4.1.1.9	No	Yes
Standalone Modality LUT Storage	1.2.840.10008.5.1.4.1.1.10	No	Yes
Standalone VOI LUT Storage	1.2.840.10008.5.1.4.1.1.11	No	Yes
Grayscale Softcopy Presentation State Storage	1.2.840.10008.5.1.4.1.1.11.1	No	Yes
X-Ray Angiographic Image Storage	1.2.840.10008.5.1.4.1.1.12.1	No	Yes
X-Ray Radiofluoroscopic Image Storage	1.2.840.10008.5.1.4.1.1.12.2	No	Yes
Nuclear Medicine Image Storage	1.2.840.10008.5.1.4.1.1.20	No	Yes
VL Endoscopic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.1	No	Yes
VL Microscopic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.2	No	Yes
VL Slide-Coordinates Microscopic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.3	No	Yes
VL Photographic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.4	No	Yes
Positron Emission Tomography Image Storage	1.2.840.10008.5.1.4.1.1.128	No	Yes
RT Image Storage	1.2.840.10008.5.1.4.1.1.481.1	No	Yes
Basic Text SR	1.2.840.10008.5.1.4.1.1.88.11	No	Yes
Enhanced SR	1.2.840.10008.5.1.4.1.1.88.22	No	Yes
Comprehensive SR	1.2.840.10008.5.1.4.1.1.88.33	No	Yes
Key Object Selection Document	1.2.840.10008.5.1.4.1.1.88.59	No	Yes
Mammography CAD SR	1.2.840.10008.5.1.4.1.1.88.50	No	Yes
Raw Data Storage	1.2.840.10008.5.1.4.1.1.66	No	Yes
Structured Report Comprehensive Storage (Retired)	1.2.840.10008.5.1.4.1.1.88.4	No	Yes
Structured Report Detail Storage (Retired)	1.2.840.10008.5.1.4.1.1.88.3	No	Yes
Structured Report Audio Storage (Retired)	1.2.840.10008.5.1.4.1.1.88.2	No	Yes
Structured Report Text Storage (Retired)	1.2.840.10008.5.1.4.1.1.88.1	No	Yes
VL Multi-frame Image Storage (retired)	1.2.840.10008.5.1.4.1.1.77.2	No	Yes
Digital Intra-oral X-Ray Image Storage - For Processing	1.2.840.10008.5.1.4.1.1.1.3.1	No	Yes
X-Ray Angiographic Bi-plane Image Storage (Retired)	1.2.840.10008.5.1.4.1.1.12.3	No	Yes
Digital X-Ray Image Storage - For Processing	1.2.840.10008.5.1.4.1.1.1.1.1	No	Yes
Digital X-Ray Image Storage - For Presentation	1.2.840.10008.5.1.4.1.1.1.1	No	Yes

Tabela 6: Storage SCP – acceptable SOP sopclass

2.2.2.2 New connection policy

Server ExPACS for it's default configuration:

- Accepts unlimited numer of connection (is configurable)
- Accepts only permitted AET, added by configuration
- ExPACS doesn't suport asynchronous requests

Name	Value
Implementation Class UID	1.2.22410.2.1.100.1
Implementation Version Name	expacs2

Tabela 7: ExPACS OID

2.2.2.2.1 If dicom connection is rejected – this is one of cause

Result	Error source	Reason	Description
2 – rejected once	Server	Connection limit exceeded	The maximum concurrent connection has been reached. Connection should be made for some time
1 – permanent rejection	Client	Application context is not supported	Connection is initiated with not supported application context.
1- permanent rejection	Client	Unknown Calling AET	Calling AET is not added as secure node that have access to ExPACS

Tabela 8: List of reason why connection was refused

2.2.2.2.2 Accepted SOP class presentation

Name	UID	Presentation context	Role
Verification SOP Class	1.2.840.10008.1.1	Implicit VR Little Endian - 1.2.840.10008.1.2	Scp
Storage Commitment Push Model	1.2.840.10008.5.1.1.29	Extended presentation context	Scp
Hardcopy Grayscale Image Storage SOP Class	1.2.840.10008.5.1.1.30	Extended presentation context	Scp
Hardcopy Color Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.1	Extended presentation context	Scp
Computed Radiography Image Storage	1.2.840.10008.5.1.4.1.1.1.1	Extended presentation context	Scp
Digital X-Ray Image Storage Presentation	1.2.840.10008.5.1.4.1.1.1.1.1	Extended presentation context	Scp
Digital X-Ray Image Storage Processing	1.2.840.10008.5.1.4.1.1.1.2	Extended presentation context	Scp
Digital Mammography X-Ray Image Storage Presentation	1.2.840.10008.5.1.4.1.1.1.2.1	Extended presentation context	Scp
Digital Mammography X-Ray Image Storage Processing	1.2.840.10008.5.1.4.1.1.1.3	Extended presentation context	Scp
Digital Intra-Oral X-Ray Image Storage Presentation	1.2.840.10008.5.1.4.1.1.1.3.1	Extended presentation context	Scp
Digital Intra-Oral X-Ray Image Storage Processing	1.2.840.10008.5.1.4.1.1.2	Extended presentation context	Scp
CT Image Storage	1.2.840.10008.5.1.4.1.1.2.1	Extended presentation context	Scp
Enhanced CT Image Storage	1.2.840.10008.5.1.4.1.1.3	Extended presentation context	Scp
MR Image Storage	1.2.840.10008.5.1.4.1.1.3.1	Extended presentation context	Scp
Enhanced MR Image Storage	1.2.840.10008.5.1.4.1.1.6	Extended presentation context	Scp
Ultrasound Multi-frame Image Storage (wycofane)	1.2.840.10008.5.1.4.1.1.6.1	Extended presentation context	Scp
Ultrasound Multi-frame Image Storage	1.2.840.10008.5.1.4.1.1.7	Extended presentation context	Scp
Ultrasound Image Storage (Retired)	1.2.840.10008.5.1.4.1.1.7.1	Extended presentation context	Scp

Name	UID	Presentation context	Role
Ultrasound Image Storage	1.2.840.10008.5.1.4.1.1.7.2	Extended presentation context	Scp
Secondary Capture Image Storage	1.2.840.10008.5.1.4.1.1.7.3	Extended presentation context	Scp
Multi-frame Single Bit Secondary Capture Image Storage	1.2.840.10008.5.1.4.1.1.7.4	Extended presentation context	Scp
Multi-frame Grayscale Byte Secondary Capture Image Storage	1.2.840.10008.5.1.4.1.1.8	Extended presentation context	Scp
Multi-frame Grayscale Word Secondary Capture Image Storage	1.2.840.10008.5.1.4.1.1.9	Extended presentation context	Scp
Multi-frame True Color Secondary Capture Image Storage	1.2.840.10008.5.1.4.1.1.10	Extended presentation context	Scp
Standalone Overlay Storage	1.2.840.10008.5.1.4.1.1.11	Extended presentation context	Scp
Standalone Curve Storage	1.2.840.10008.5.1.4.1.1.11.1	Extended presentation context	Scp
Standalone Modality LUT Storage	1.2.840.10008.5.1.4.1.1.4	Extended presentation context	Scp
Standalone VOI LUT Storage	1.2.840.10008.5.1.4.1.1.12.1	Extended presentation context	Scp
Grayscale Softcopy Presentation State Storage	1.2.840.10008.5.1.4.1.1.12.2	Extended presentation context	Scp
X-Ray Angiographic Image Storage	1.2.840.10008.5.1.4.1.1.20	Extended presentation context	Scp
X-Ray Radiofluoroscopic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.1	Extended presentation context	Scp
Nuclear Medicine Image Storage	1.2.840.10008.5.1.4.1.1.77.1.2	Extended presentation context	Scp
VL Endoscopic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.3	Extended presentation context	Scp
VL Microscopic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.4	Extended presentation context	Scp
VL Slide-Coordinates Microscopic Image Storage	1.2.840.10008.5.1.4.1.1.128	Extended presentation context	Scp
VL Photographic Image Storage	1.2.840.10008.5.1.4.1.1.481.1	Extended presentation context	Scp
Positron Emission Tomography Image Storage	1.2.840.10008.5.1.4.1.1.88.11	Extended presentation context	Scp
RT Image Storage	1.2.840.10008.5.1.4.1.1.88.22	Extended presentation context	Scp
Basic Text SR	1.2.840.10008.5.1.4.1.1.88.33	Basic presentation context	Scp
Enhanced SR	1.2.840.10008.5.1.4.1.1.88.59	Basic presentation context	Scp
Comprehensive SR	1.2.840.10008.5.1.4.1.1.88.50	Basic presentation context	Scp
Key Object Selection Document	1.2.840.10008.1.20.1	Basic presentation context	Scp
Mammography CAD SR	1.2.840.10008.3.1.2.3.3	Basic presentation context	Scp
Raw Data Storage	1.2.840.10008.5.1.4.1.1.66	Basic presentation context	Scp

Name	UID	Presentation context	Role
Structured Report Comprehensive Storage (Retired)	1.2.840.10008.5.1.4.1.1.88.4	Basic presentation context	Scp
Structured Report Detail Storage (Retired)	1.2.840.10008.5.1.4.1.1.88.3	Basic presentation context	Scp
Structured Report Audio Storage (Retired)	1.2.840.10008.5.1.4.1.1.88.2	Basic presentation context	Scp
Structured Report Text Storage (Retired)	1.2.840.10008.5.1.4.1.1.88.1	Basic presentation context	Scp
VL Multi-frame Image Storage (retired)	1.2.840.10008.5.1.4.1.1.77.2	Extended presentation context	Scp
Digital Intra-oral X-Ray Image Storage - For Processing	1.2.840.10008.5.1.4.1.1.1.3.1	Extended presentation context	Scp
X-Ray Angiographic Bi-plane Image Storage (Retired)	1.2.840.10008.5.1.4.1.1.12.3	Extended presentation context	Scp
Digital X-Ray Image Storage - For Processing	1.2.840.10008.5.1.4.1.1.1.1.1	Extended presentation context	Scp
Digital X-Ray Image Storage - For Presentation	1.2.840.10008.5.1.4.1.1.1.1	Extended presentation context	Scp

Tabela 9: Acceptable presentation context list

2.2.2.2.3 Additional information for Verification SOP Class

Verification process is based on processing incoming connection, when incoming connection is rejected, verification will fail with on of the following status.

2.2.2.2.3.1.1 C-ECHO answer message

Status	Status description	Error code	Expected result
Success	Success	0000	C-ECHO was accepted

Tabela 10: C-ECHO response message status

2.2.2.2.4 Additional information for Storage SOP Class

2.2.2.2.4.1 C-STORE answer message

Status	Status description	Error code	Expected result
Success	Success	0000	Send data was accepted and stored.
Error	Error przetwarzania	0110	Internal error (f.e. database error, file system error)
Warn	Data inconsistency	B000	Występuje w przypadku niespójności danych w otrzymanym komunikacie. Komunikat zwrotny do C-STORE będzie zawierał SUCCESS, a Warn zostanie odnotowane w systemie logującym.
Warn	SOP data inconsistency	B007	Występuje gdy zawartość komunikatu C-STORE jest z SOP klasą samego komunikatu. Komunikat zwrotny do C-STORE będzie zawierał SUCCESS, a Warn zostanie odnotowane w systemie logującym.

Tabela 11: C-STORE response message status

2.2.2.2.5 Additional information for Storage Commitment

ExPACS after receiving N-ACTION (from Storage Commitment Push Model) will get a list of SOP instance and check if they are accessible under repository. Next it will send N-EVENT-REPORT-RQ to specific AE, from which it receives N-ACTION (in this message there will be confirmation for received instance).

If ExPACS cannot find specific instance in N-ACTION because it doesn't receive it, it will not confirm in response message this instance as received.

2.2.2.2.5.1 N-ACTION answer message

Status	Status description	Error code	Expected result
Success	Success	0000	Server poprawnie odebrał komunikat Storage Commitment Push Model N-ACTION i może przetwarzać żądanie dla zawartych w nim SOP Instancji.
Error	Processing Error	0110	Error wewnętrzny (np. Error z wewnętrznej bazy danych lub systemu plików).
Error	Required attribute is missing	0120	Występuje w przypadku braku jednego z wymaganych atrybutów w zestawie danych zawartych w komunikacie N-ACTION.
Error	Required value is missing	0121	Występuje w przypadku braku wartości w jednym z wymaganych atrybutów w zestawie danych zawartych w komunikacie N-ACTION.

Tabela 12: N-ACTION response message status

2.2.2.2.5.2 N-EVENT answer message

Status	Status description	Error code	Expected result
Success	Success	0000	SCU poprawnie otrzymało komunikat N-EVENT-REPORT. Zostaje to odnotowane w systemie logującym.
Warn	Attribute list Error	0107	Transmisja komunikatu Storage Commitment Push Model N-EVENT-REPORT jest traktowana jako zakończona z Sukcessem. Warn jest odnotowane w systemie logującym.
*	*	*	Traktowane jako Error permanentny i odnotowane w systemie logującym.

Tabela 13: N-EVENT response message status

2.2.2.3 New connection establishment

ExPACS może inicjować połączenia w ramach Storage Commitment Notification (potwierdzenie przyjęcia danych do magazynu).

ExPACS wysyła żądanie nawiązania nowego połączenia do AE, od którego otrzymał żądanie Storage Commitment Push Model i jeśli połączenie zostanie nawiązane, wysłany jest odpowiedni komunikat N-EVENT-REPORT.

2.2.2.3.1 Context presentation proposal for new connection

Name	UID	Presentation context	Role
Verification	1.2.840.10008.1.1	1.2.840.10008.1.2	Scu
Storage Commitment Push Model	1.2.840.10008.1.20.1.1.1	Basic presentation context	Scu

Tabela 14: Presentation context list

2.2.3 Expacs Query/Retrieve Server

Name	Value
Implementation Class UID	1.2.22410.2.1.100.1
Implementation Version Name	expacs2

Tabela 15: ExPACS OID

2.2.3.1 Used SOP class

Name	UID	Scu	Scp
Verification SOP Class	1.2.840.10008.1.1	Yes	Yes
Patient Root Query/Retrieve Info Model – FIND	1.2.840.10008.5.1.4.1.2.1.1	No	Yes
Patient Root Query/Retrieve Info Model – MOVE	1.2.840.10008.5.1.4.1.2.1.2	No	Yes
Study Root Query/Retrieve Info Model – FIND	1.2.840.10008.5.1.4.1.2.2.1	No	Yes
Study Root Query/Retrieve Info Model – MOVE	1.2.840.10008.5.1.4.1.2.2.2	No	Yes
Patient StudyOnly Query/Retrieve Information Model – FIND (wycofane)	1.2.840.10008.5.1.4.1.2.3.1	No	Yes
Patient StudyOnly Query/Retrieve Information Model – MOVE (wycofane)	1.2.840.10008.5.1.4.1.2.3.2	No	Yes
Storage Commitment Push Model	1.2.840.10008.1.20.1	Yes	No
Hardcopy Grayscale Image Storage SOP Class	1.2.840.10008.5.1.1.29	Yes	No
Hardcopy Color Image Storage SOP Class	1.2.840.10008.5.1.1.30	Yes	No
Computed Radiography Image Storage	1.2.840.10008.5.1.4.1.1.1	Yes	No
Digital X-Ray Image Storage Presentation	1.2.840.10008.5.1.4.1.1.1.1	Yes	No
Digital X-Ray Image Storage Processing	1.2.840.10008.5.1.4.1.1.1.1.1	Yes	No
Digital Mammography X-Ray Image Storage Presentation	1.2.840.10008.5.1.4.1.1.1.2	Yes	No
Digital Mammography X-Ray Image Storage Processing	1.2.840.10008.5.1.4.1.1.1.2.1	Yes	No
Digital Intra-Oral X-Ray Image Storage Presentation	1.2.840.10008.5.1.4.1.1.1.3	Yes	No
Digital Intra-Oral X-Ray Image Storage Processing	1.2.840.10008.5.1.4.1.1.1.3.1	Yes	No
CT Image Storage	1.2.840.10008.5.1.4.1.1.2	Yes	No
Enhanced CT Image Storage	1.2.840.10008.5.1.4.1.1.2.1	Yes	No
MR Image Storage	1.2.840.10008.5.1.4.1.1.4	Yes	No
Enhanced MR Image Storage	1.2.840.10008.5.1.4.1.1.4.1	Yes	No
Ultrasound Multi-frame Image Storage (wycofane)	1.2.840.10008.5.1.4.1.1.3	Yes	No
Ultrasound Multi-frame Image Storage	1.2.840.10008.5.1.4.1.1.3.1	Yes	No
Ultrasound Image Storage (Retired)	1.2.840.10008.5.1.4.1.1.6	Yes	No
Ultrasound Image Storage	1.2.840.10008.5.1.4.1.1.6.1	Yes	No
Secondary Capture Image Storage	1.2.840.10008.5.1.4.1.1.7	Yes	No
Multi-frame Single Bit Secondary Capture Image Storage	1.2.840.10008.5.1.4.1.1.7.1	Yes	No
Multi-frame Grayscale Byte Secondary Capture Image Storage	1.2.840.10008.5.1.4.1.1.7.2	Yes	No
Multi-frame Grayscale Word Secondary Capture Image Storage	1.2.840.10008.5.1.4.1.1.7.3	Yes	No
Multi-frame True Color Secondary Capture Image Storage	1.2.840.10008.5.1.4.1.1.7.4	Yes	No

Name	UID	Scu	Scp
Standalone Overlay Storage	1.2.840.10008.5.1.4.1.1.8	Yes	No
Standalone Curve Storage	1.2.840.10008.5.1.4.1.1.9	Yes	No
Standalone Modality LUT Storage	1.2.840.10008.5.1.4.1.1.10	Yes	No
Standalone VOI LUT Storage	1.2.840.10008.5.1.4.1.1.11	Yes	No
Grayscale Softcopy Presentation State Storage	1.2.840.10008.5.1.4.1.1.11.1	Yes	No
X-Ray Angiographic Image Storage	1.2.840.10008.5.1.4.1.1.12.1	Yes	No
X-Ray Radiofluoroscopic Image Storage	1.2.840.10008.5.1.4.1.1.12.2	Yes	No
Nuclear Medicine Image Storage	1.2.840.10008.5.1.4.1.1.20	Yes	No
VL Endoscopic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.1	Yes	No
VL Microscopic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.2	Yes	No
VL Slide-Coordinates Microscopic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.3	Yes	No
VL Photographic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.4	Yes	No
Positron Emission Tomography Image Storage	1.2.840.10008.5.1.4.1.1.128	Yes	No
RT Image Storage	1.2.840.10008.5.1.4.1.1.481.1	Yes	No
Basic Text SR	1.2.840.10008.5.1.4.1.1.88.11	Yes	No
Enhanced SR	1.2.840.10008.5.1.4.1.1.88.22	Yes	No
Comprehensive SR	1.2.840.10008.5.1.4.1.1.88.33	Yes	No
Key Object Selection Document	1.2.840.10008.5.1.4.1.1.88.59	Yes	No
Mammography CAD SR	1.2.840.10008.5.1.4.1.1.88.50	Yes	No
Raw Data Storage	1.2.840.10008.5.1.4.1.1.66	Yes	No
Structured Report Comprehensive Storage (Retired)	1.2.840.10008.5.1.4.1.1.88.4	Yes	No
Structured Report Detail Storage (Retired)	1.2.840.10008.5.1.4.1.1.88.3	Yes	No
Structured Report Audio Storage (Retired)	1.2.840.10008.5.1.4.1.1.88.2	Yes	No
Structured Report Text Storage (Retired)	1.2.840.10008.5.1.4.1.1.88.1	Yes	No
VL Multi-frame Image Storage (retired)	1.2.840.10008.5.1.4.1.1.77.2	Yes	No
Digital Intra-oral X-Ray Image Storage - For Processing	1.2.840.10008.5.1.4.1.1.1.3.1	Yes	No
X-Ray Angiographic Bi-plane Image Storage (Retired)	1.2.840.10008.5.1.4.1.1.12.3	Yes	No
Digital X-Ray Image Storage - For Processing	1.2.840.10008.5.1.4.1.1.1.1.1	Yes	No
Digital X-Ray Image Storage - For Presentation	1.2.840.10008.5.1.4.1.1.1.1	Yes	No

Tabela 16: Query/Retrieve Server list of SOP Class for SCP and SCU

2.2.3.2 New connection policy

Server ExPACS w domyślnej konfiguracji:

- Akceptuje nielimitowaną ilość połączeń (konfigurowalne)
- Akceptuje tylko AET wpisane do systemu jako uprawnione
- ExPACS nie wspiera asynchroniczności komunikacji

2.2.3.2.1 If dicom connection is rejected – this is one of cause

Status	Status description	Why did it happend ?	Description
2 - odrzucone jednorazowo	Server	Przekroczony limit połączeń	Maksymalna liczba równoczesnych połączeń została osiągnięta. Połączenie może zostać nawiązane z w późniejszym czasie
1 - odrzucone permanentnie	Client	Kontekst aplikacji nie jest	Połączenie zawiera nieobsługiwany kontekst aplikacji.

Status	Status description	Why did it happen ?	Description
		obsługiwany	
1- odrzucone permanentnie	Client	Nieznane Calling AET	Połączenie nawiązuje AE o nieznanym identyfikatorze. .

Tabela 17: Possible connection rejection cause status

2.2.3.2.2 Accepted presentation context

Name	UID	Presentation context	Role
Patient Root Query/Retrieve Info Model – FIND	1.2.840.10008.5.1.4.1.2.1.1	Basic presentation context	Scp
Patient Root Query/Retrieve Info Model – MOVE	1.2.840.10008.5.1.4.1.2.1.2	Basic presentation context	Scp
Study Root Query/Retrieve Info Model – FIND	1.2.840.10008.5.1.4.1.2.2.1	Basic presentation context	Scp
Study Root Query/Retrieve Info Model – MOVE	1.2.840.10008.5.1.4.1.2.2.2	Basic presentation context	Scp
Patient StudyOnly Query/Retrieve Information Model – FIND (wycofane)	1.2.840.10008.5.1.4.1.2.3.1	Basic presentation context	Scp
Patient StudyOnly Query/Retrieve Information Model – MOVE (wycofane)	1.2.840.10008.5.1.4.1.2.3.2	Basic presentation context	Scp

Tabela 18: Acceptable presentation context

2.2.3.2.3 Additional information for SOP Class

Proces weryfikacji podlega standardowym testom na akceptację połączeń przychodzących. Jeśli połączenie przychodzące zostanie odrzucone, weryfikacja nie powiedzie się.

2.2.3.2.3.1.1 C-ECHO answer message

Status	Status description	Error code	Expected result
Success	Success	0000	C-ECHO was accepted

Tabela 19: C-ECHO response message status

2.2.3.2.4 Additional information for Query / Retrieve

2.2.3.2.4.1 Used tags for „Patient Root Query/Retrieve Information Model”

Level	Description	DICOM Tag
Patient	Patient's Name	(0010,0010)
Patient	Patient ID	(0010,0020)
Patient	Patient Birth Date	(0010,0030)
Patient	Patient Birth Time	(0010,0032)
Patient	Patient Sex	(0010,0040)
Study	Study Date	(0008,0020)
Study	Study Time	(0008,0030)
Study	Study Instance UID	(0020,000D)
Study	Accession Number	(0008,0050)

Level	Description	DICOM Tag
Study	Study ID	(0020,0010)
Study	Study Description	(0008,1030)
Study	Referring Physician Name	(0008,0090)
Study	Patient Age	(0010,1010)
Study	Patient Size	(0010,1020)
Study	Patient Weight	(0010,1030)
Series	Modality	(0008,0060)
Series	Series Number	(0020,0011)
Series	Series Instance UID	(0020,000E)
Series	Body Part Examined	(0018,0015)
Image	SOP Instance UID	(0008,0018)
Image	Image Number	(0020,0013)
Image	SOP Class UID	(0008,0016)
Image	Samples Per Pixel	(0028,0002)
Image	Rows	(0028,0010)
Image	Columns	(0028,0011)
Image	Bits Allocated	(0028,0100)
Image	Bits Stored	(0028,0101)
Image	Pixel Representation	(0028,0103)

Tabela 20: List of tags for "Patient Root Query/Retrieve Information Model"

2.2.3.2.4.2 *Used tags for „Study Root Query/Retrieve Information Model“*

Level	Description	DICOM Tag
Study	Patient's Name	(0010,0010)
Study	Patient ID	(0010,0020)
Study	Patient Birth Date	(0010,0030)
Study	Patient Birth Time	(0010,0032)
Study	Patient Sex	(0010,0040)
Study	Study Date	(0008,0020)
Study	Study Time	(0008,0030)
Study	Study Instance UID	(0020,000D)
Study	Accession Number	(0008,0050)
Study	Study ID	(0020,0010)
Study	Study Description	(0008,1030)
Study	Referring Physician Name	(0008,0090)
Study	Patient Age	(0010,1010)

Level	Description	DICOM Tag
Study	Patient Size	(0010,1020)
Study	Patient Weight	(0010,1030)
Series	Modality	(0008,0060)
Series	Series Number	(0020,0011)
Series	Series Instance UID	(0020,000E)
Series	Body Part Examined	(0018,0015)
Image	SOP Instance UID	(0008,0018)
Image	Image Number	(0020,0013)
Image	SOP Class UID	(0008,0016)
Image	Samples Per Pixel	(0028,0002)
Image	Rows	(0028,0010)
Image	Columns	(0028,0011)
Image	Bits Allocated	(0028,0100)
Image	Bits Stored	(0028,0101)
Image	Pixel Representation	(0028,0103)

Tabela 21: List of tags for „Study Root Query/Retrieve Information Model”

2.2.3.2.4.3 Used tags for „Patient Study Only Query/Retrieve Information Model”

ExPACS wspiera także zapytania w trybie „Patient Study Only Query/Retrieve Information Model”. Klucze wspierane dla tego modelu zapytań odpowiadają kluczom z poziomów Patient oraz Study w modelu „Patient Root Query/Retrieve Information Model”.

Level	Description	DICOM Tag
Patient	Patient's Name	(0010,0010)
Patient	Patient ID	(0010,0020)
Patient	Patient Birth Date	(0010,0030)
Patient	Patient Birth Time	(0010,0032)
Patient	Patient Sex	(0010,0040)
Study	Study Date	(0008,0020)
Study	Study Time	(0008,0030)
Study	Study Instance UID	(0020,000D)
Study	Accession Number	(0008,0050)
Study	Study ID	(0020,0010)
Study	Study Description	(0008,1030)
Study	Referring Physician Name	(0008,0090)
Study	Patient Age	(0010,1010)

Study	Patient Size	(0010,1020)
Study	Patient Weight	(0010,1030)

Tabela 22: List of tags for „Patient Study Only Query/Retrieve Information Model”

2.2.3.3 New connection policy

W przypadku otrzymania prawidłowego komunikatu C-MOVE od zewnętrznego AE, moduł Query/Retrieve nawiąże połączenie z AE określonym w komunikacie i prześle do niego wszystkie dane obrazowe określone w komunikacie, następnie zwolni połączenie.

W przypadku błędu w transmisji danych obrazowych transmisja zostanie przerwana i zewnętrzne AE zostanie o tym poinformowane w komunikacie zwrotnym.

2.2.3.3.1 Presentation context

Name	UID	Presentation context	Role
Computed Radiography Image Storage	1.2.840.10008.5.1.4.1.1.1.1	Extended presentation context	Scu
Digital X-Ray Image Storage Presentation	1.2.840.10008.5.1.4.1.1.1.1.1	Extended presentation context	Scu
Digital X-Ray Image Storage Processing	1.2.840.10008.5.1.4.1.1.1.2	Extended presentation context	Scu
Digital Mammography X-Ray Image Storage Presentation	1.2.840.10008.5.1.4.1.1.1.2.1	Extended presentation context	Scu
Digital Mammography X-Ray Image Storage Processing	1.2.840.10008.5.1.4.1.1.1.3	Extended presentation context	Scu
Digital Intra-Oral X-Ray Image Storage Presentation	1.2.840.10008.5.1.4.1.1.1.3.1	Extended presentation context	Scu
Digital Intra-Oral X-Ray Image Storage Processing	1.2.840.10008.5.1.4.1.1.2	Extended presentation context	Scu
CT Image Storage	1.2.840.10008.5.1.4.1.1.2.1	Extended presentation context	Scu
Enhanced CT Image Storage	1.2.840.10008.5.1.4.1.1.3	Extended presentation context	Scu
MR Image Storage	1.2.840.10008.5.1.4.1.1.3.1	Extended presentation context	Scu
Enhanced MR Image Storage	1.2.840.10008.5.1.4.1.1.6	Extended presentation context	Scu
Ultrasound Multi-frame Image Storage (wycofane)	1.2.840.10008.5.1.4.1.1.6.1	Extended presentation context	Scu
Ultrasound Multi-frame Image Storage	1.2.840.10008.5.1.4.1.1.7	Extended presentation context	Scu
Ultrasound Image Storage (Retired)	1.2.840.10008.5.1.4.1.1.7.1	Extended presentation context	Scu
Ultrasound Image Storage	1.2.840.10008.5.1.4.1.1.7.2	Extended presentation context	Scu
Secondary Capture Image Storage	1.2.840.10008.5.1.4.1.1.7.3	Extended presentation context	Scu
Multi-frame Single Bit Secondary Capture Image Storage	1.2.840.10008.5.1.4.1.1.7.4	Extended presentation context	Scu

Name	UID	Presentation context	Role
Multi-frame Grayscale Byte Secondary Capture Image Storage	1.2.840.10008.5.1.4.1.1.8	Extended presentation context	Scu
Multi-frame Grayscale Word Secondary Capture Image Storage	1.2.840.10008.5.1.4.1.1.9	Extended presentation context	Scu
Multi-frame True Color Secondary Capture Image Storage	1.2.840.10008.5.1.4.1.1.10	Extended presentation context	Scu
Standalone Overlay Storage	1.2.840.10008.5.1.4.1.1.11	Extended presentation context	Scu
Standalone Curve Storage	1.2.840.10008.5.1.4.1.1.11.1	Extended presentation context	Scu
Standalone Modality LUT Storage	1.2.840.10008.5.1.4.1.1.4	Extended presentation context	Scu
Standalone VOI LUT Storage	1.2.840.10008.5.1.4.1.1.12.1	Extended presentation context	Scu
Grayscale Softcopy Presentation State Storage	1.2.840.10008.5.1.4.1.1.12.2	Extended presentation context	Scu
X-Ray Angiographic Image Storage	1.2.840.10008.5.1.4.1.1.20	Extended presentation context	Scu
X-Ray Radiofluoroscopic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.1	Extended presentation context	Scu
Nuclear Medicine Image Storage	1.2.840.10008.5.1.4.1.1.77.1.2	Extended presentation context	Scu
VL Endoscopic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.3	Extended presentation context	Scu
VL Microscopic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.4	Extended presentation context	Scu
VL Slide-Coordinates Microscopic Image Storage	1.2.840.10008.5.1.4.1.1.128	Extended presentation context	Scu
VL Photographic Image Storage	1.2.840.10008.5.1.4.1.1.481.1	Extended presentation context	Scu
Positron Emission Tomography Image Storage	1.2.840.10008.5.1.4.1.1.88.11	Extended presentation context	Scu
RT Image Storage	1.2.840.10008.5.1.4.1.1.88.22	Extended presentation context	Scu
Basic Text SR	1.2.840.10008.5.1.4.1.1.88.33	Extended presentation context	Scu
Enhanced SR	1.2.840.10008.5.1.4.1.1.88.59	Extended presentation context	Scu
Comprehensive SR	1.2.840.10008.5.1.4.1.1.88.50	Extended presentation context	Scu
Key Object Selection Document	1.2.840.10008.1.20.1	Extended presentation context	Scu
Mammography CAD SR	1.2.840.10008.3.1.2.3.3	Extended presentation context	Scu
Raw Data Storage	1.2.840.10008.5.1.4.1.1.66	Extended presentation context	Scu

Name	UID	Presentation context	Role
Structured Report Comprehensive Storage (Retired)	1.2.840.10008.5.1.4.1.1.88.4	Extended presentation context	Scu
Structured Report Detail Storage (Retired)	1.2.840.10008.5.1.4.1.1.88.3	Extended presentation context	Scu
Structured Report Audio Storage (Retired)	1.2.840.10008.5.1.4.1.1.88.2	Extended presentation context	Scu
Structured Report Text Storage (Retired)	1.2.840.10008.5.1.4.1.1.88.1	Extended presentation context	Scu
VL Multi-frame Image Storage (retired)	1.2.840.10008.5.1.4.1.1.77.2	Extended presentation context	Scu
Digital Intra-oral X-Ray Image Storage - For Processing	1.2.840.10008.5.1.4.1.1.1.3.1	Extended presentation context	Scu
X-Ray Angiographic Bi-plane Image Storage (Retired)	1.2.840.10008.5.1.4.1.1.12.3	Extended presentation context	Scu
Digital X-Ray Image Storage - For Processing	1.2.840.10008.5.1.4.1.1.1.1.1	Extended presentation context	Scu
Digital X-Ray Image Storage - For Presentation	1.2.840.10008.5.1.4.1.1.1.1	Extended presentation context	Scu

Tabela 23: Presentation context list

2.2.3.3.2 Additional information for Query/Retrieve , in case of C-STORE (when C-MOVE was initiated)

Status	Status description	Error code	Expected result
Success	Success	0000	Zewnętrzne AE z powodzeniem zmagazynowało wysłane dane obrazowe. Status PENDING lub SUCCESS jest wysyłany w komunikacie zwrotnym na C-MOVE.
Rejected	Error zasobów	A700-A7FF	Traktowane jako Error permanentny. Nie będzie kolejnej próby wysyłania. W komunikacie zwrotnym na C-MOVE zostanie wysłana informacja o błędzie.
Error	Error nieznan	C000-CFFF	Traktowane jako Error permanentny. Nie będzie kolejnej próby wysyłania. W komunikacie zwrotnym na C-MOVE zostanie wysłana informacja o błędzie.
Warning	Niespójność danych	B000	Traktowane jako transmisja zakończona Sukcessem. Status PENDING lub SUCCESS jest wysyłany w komunikacie zwrotnym na C-MOVE.
Warning	Niezgodność danych z klasą SOP	B007	Traktowane jako transmisja zakończona Sukcessem. Status PENDING lub SUCCESS jest wysyłany w komunikacie zwrotnym na C-MOVE.
Warning	Element pominięty	B006	Traktowane jako transmisja zakończona Sukcessem. Status PENDING lub SUCCESS jest wysyłany w komunikacie zwrotnym na C-MOVE.
Warning	Error listy atrybutów	0107	Traktowane jako transmisja zakończona Sukcessem. Status PENDING lub SUCCESS jest wysyłany w komunikacie zwrotnym na C-MOVE.
Warning	Zbyt długa wartość atrybutu	0116	Traktowane jako transmisja zakończona Sukcessem. Status PENDING lub SUCCESS jest wysyłany w komunikacie zwrotnym na C-MOVE.

Status	Status description	Error code	Expected result
*	*	Any other error	Traktowane jako Error permanentny. Nie będzie kolejnej próby wysyłania. W komunikacie zwrotnym na C-MOVE zostanie wysłana informacja o błędzie.

Tabela 24: Query/Retrive server code list

2.2.4 Expacs Modality Worklist Server

2.2.4.1 Accepted SOP class

Name	UID	Scu	Scp
Verification SOP Class	1.2.840.10008.1.1	nie	tak
Modality Worklist Information Model – FIND	1.2.840.10008.5.1.4.31	nie	tak

Tabela 25: Acceptable SOP class for Modality Worklist Server

2.2.4.2 New connection, acceptance policy

Server ExPACS w domyślnej konfiguracji:

- Akceptuje nielimitowaną ilość połączeń (konfigurowalne)
- Akceptuje tylko AET wpisane do systemu jako uprawnione
- ExPACS nie wspiera asynchroniczności komunikacji

2.2.4.2.1 If dicom connection is rejected – this is one of cause

Status	Status description	Why did it happend ?	Description
2 – rejected once	Server	Connection limit exceeded	The maximum concurrent connection has been reached. Connection schould be made for some time
1 – pernament rejection	Client	Application context is not supported	Connection is initiated with not supported application context.
1- pernament rejection	Client	Calling AET not known	Calling AET is not added as secure node that have access to ExPACS

Tabela 26: List of reason why connection was rejected by Worklist Server

2.2.4.2.2 Acceptable presentation context

Name	UID	Presentation context	Role
Verification SOP Class	1.2.840.10008.1.1	Implicit VR Little Endian - 1.2.840.10008.1.2	Scp
Modality Worklist Information Model – FIND	1.2.840.10008.5.1.4.31	Basic presentation context	Scp

Tabela 27: Acceptable context presentation by Modality Worklist Server

2.2.4.2.3 Additional information for Verification SOP Class

Proces weryfikacji podlega standardowym testom na akceptację połączeń przychodzących. Jeśli połączenie przychodzące zostanie odrzucone, weryfikacja nie powiedzie się.

2.2.4.2.3.1.1 C-ECHO response message

Status	Status description	Error code	Expected result
Success	Success	0000	Komunikat C-ECHO został zaakceptowany

Tabela 28: C-ECHO response message

2.2.4.2.4 Additional information for Modality Worklist SOP Class

2.2.4.2.4.1 C-FIND response message

Status	Status description	Error code	Expected result
Processing	W trakcie przetwarzania	FF00	Taki status ustawiany jest we wszystkich odpowiedziach spełniających kryteria określone w żądaniu, za wyjątkiem ostatniej odpowiedzi.
Success	Success	0000	Taki status ustawiany jest w ostatniej pasującej odpowiedzi, o ile przetwarzanie przebiegło poprawnie. Zostaje to odnotowane w systemie logującym.
Error	Processing Error	0110	Traktowane jako Error permanentny. Odpowiedni status jest wysyłany w komunikacie zwrotnym C-FIND-RSP i następuje odnotowanie błędu w systemie logującym.
Anulowane	Processing stop because canceled was requested	FE00	Status zwracany w przypadku otrzymania od SCU żądania anulowania w czasie przetwarzania komunikatu C-FIND-RQ. Odnotowane w systemie logującym.

Tabela 29: C-FIND message code list

2.2.4.3 New connection policy

Modality Worklist Server doesn't initiate connection.

2.2.5 Expacs MPPS Server

2.2.5.1 Acceptable SOP classes

Name	UID	Scu	Scp
Verification SOP Class	1.2.840.10008.1.1	No	Yes
Modality Performed Procedure Step	1.2.840.10008.3.1.2.3.3	No	Yes

Tabela 30: MPPS Server acceptable SOP class

2.2.5.2 New connection policy

Server ExPACS for it's default configuration:

- Accepts unlimited number of connection (is configurable)
- Accepts only permitted AET, added by configuration
- ExPACS doesn't support asynchronous requests

2.2.5.2.1 If dicom connection is rejected – this is one of cause

Result	Error source	Reason	Description
2 - odrzucone jednorazowo	Server	Przekroczony limit połączeń	Maksymalna liczba równoczesnych połączeń została osiągnięta. Połączenie może zostać nawiązane z w późniejszym czasie
1 - odrzucone permanentnie	Client	Kontekst aplikacji nie jest obsługiwany	Połączenie zawiera nieobsługiwany kontekst aplikacji.
1- odrzucone permanentnie	Client	Nieznane Calling AET	Połączenie nawiązuje AE o nieznanym identyfikatorze. .

Tabela 31: List of reasons why MPPS Server could reject connection

2.2.5.2.2 Acceptable context presentation

Name	UID	Presentation context	Role
Verification SOP Class	1.2.840.10008.1.1	Implicit VR Little Endian - 1.2.840.10008.1.2	Scp
Modality Performed Procedure Step	1.2.840.10008.3.1.2.3.3	Basic presentation context	Scp

Tabela 32: Acceptable context presentation by MPPS Server

2.2.5.2.3 Additional information for Verification SOP Class

Proces weryfikacji podlega standardowym testom na akceptację połączeń przychodzących. Jeśli połączenie przychodzące zostanie odrzucone, weryfikacja nie powiedzie się.

2.2.5.2.3.1.1 C-ECHO response message

Status	Status description	Error code	Expected result
Success	Success	0000	Komunikat C-ECHO został zaakceptowany

Tabela 33: Server Storage C-ECHO response code

2.2.5.2.4 Additional information for Modality Performed Procedure Step SOP Class

Expacs MPPS Server obsługuje komunikaty N-CREATE oraz N-SET.

2.2.5.2.4.1 N-CREATE study status

Status	Description
IN PROGRESS	Oznacza, że badania jest w trakcie wykonywania.

Tabela 34: N-CREATE study status code

2.2.5.2.4.2 N-SET study status

Status	Description
DISCONTINUED	Oznacza, że badania zostało anulowane.
COMPLETED	Oznacza, że badania zostało zakończone.

Tabela 35: N-SET study status code

2.2.5.3 New connection policy

Mpps Server doesn't initiate connection.

2.3 Communication protocol

2.3.1 TCP/IP stack

Komunikacja z Serverem ExPacs przebiega z zastosowaniem protokołu komunikacyjnego TCP/IP zgodnego z Dicom 3.0 zdefiniowanym w rozdziale 8 standardu Dicom.

2.3.2 TCP/IP API

ExPACS is using TCP/IP stack on operating system under it's running.

2.3.3 Requirements for physical layer

There is no special requirements for physical layer.

2.4 Extension to standard

There is no extension to standard implementation.

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