

Canon

CANON MEDICAL SYSTEMS DO BRASIL



UNIVERSIDADE
FEDERAL
DE PERNAMBUCO

DCM Uploader: um sistema de informação para garantia de confidencialidade, integridade e disponibilidade no tráfego de imagens médicas baseadas no padrão DICOM

Resultados da Sprint 03

28/03/2023

Time Greenfield

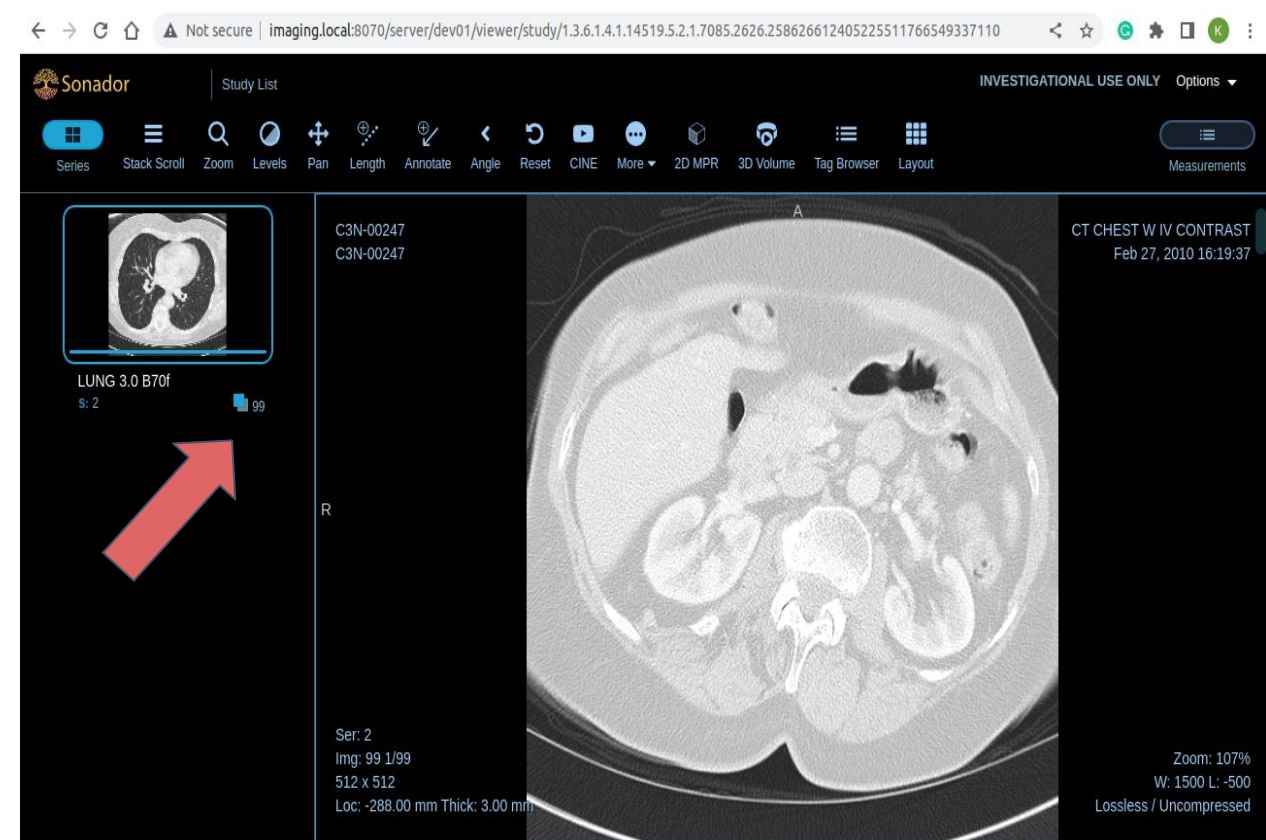
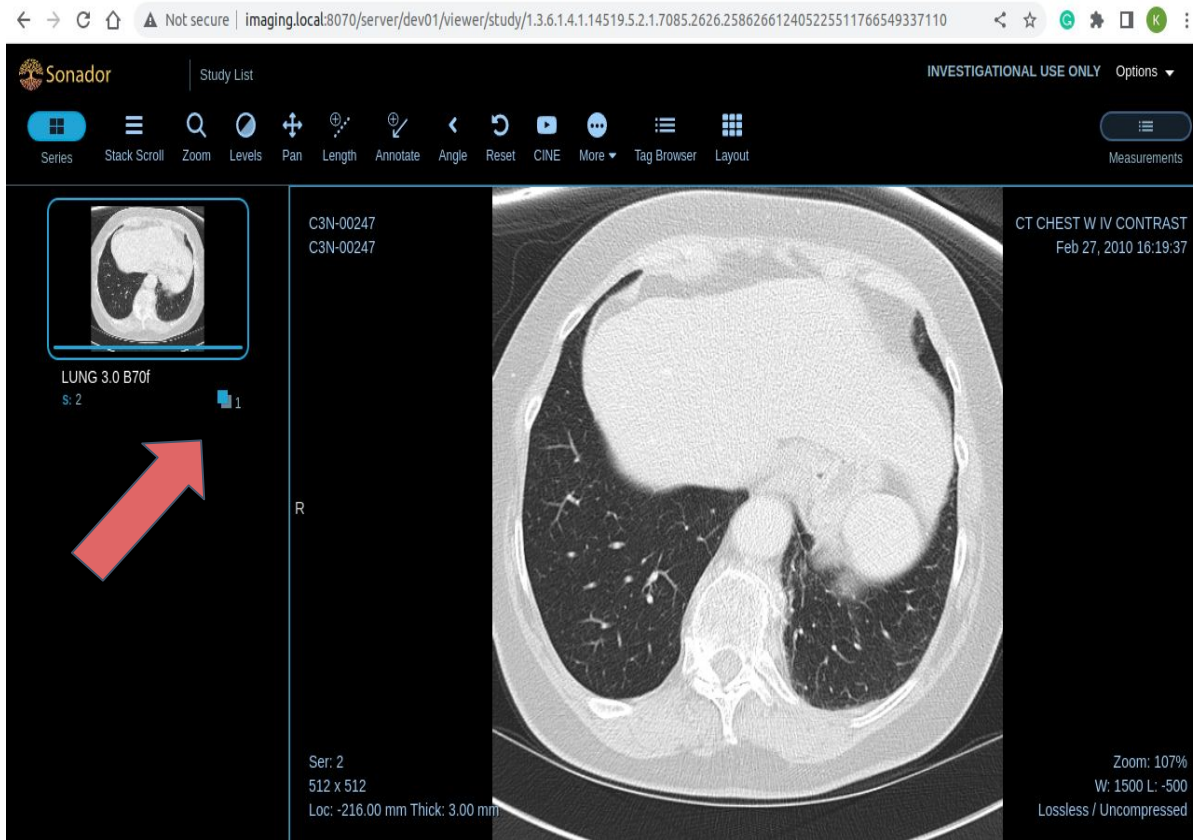
Contexto da Sprint 03

- Realização de testes de transferência de dados na plataforma Sonador
- Análise de código da plataforma Sonador

Time Greenfield

Resultados

- Cenário 1: Transmissão “pausada”




Time Greenfield

Resultados

- Cenário 2: Estudo duplicado

← → ↻ 🏠 ⚠ Not secure | imaging.local:8070 🔍 ☆ 🌐 ⚙ 📄 K ⋮


 INVESTIGATIONAL USE ONLY Options ▾

Dev01 ▾ / Study List ↻ + 2 Studies

Patient Name / MRN ⚡	Description ⚡	Study Date ⚡
		Start Date → End Date
C3N-00247 C3N-00247	CT CHEST W IV CONTRAST	CT 15982526... Feb 27, 2010
CARDIAC CA SCORE*DLP 50 AA1G-CV-007	CANON CACS ANALYSIS	CT GEN_CA... Sep 29, 2016

Show 25 rows per page Previous Next

← → ↻ 🏠 ⚠ Not secure | imaging.local:8070 🔍 ☆ 🌐 ⚙ 📄 K ⋮

 INVESTIGATIONAL USE ONLY Options ▾

Dev01 ▾ / Study List ↻ + 2 Studies

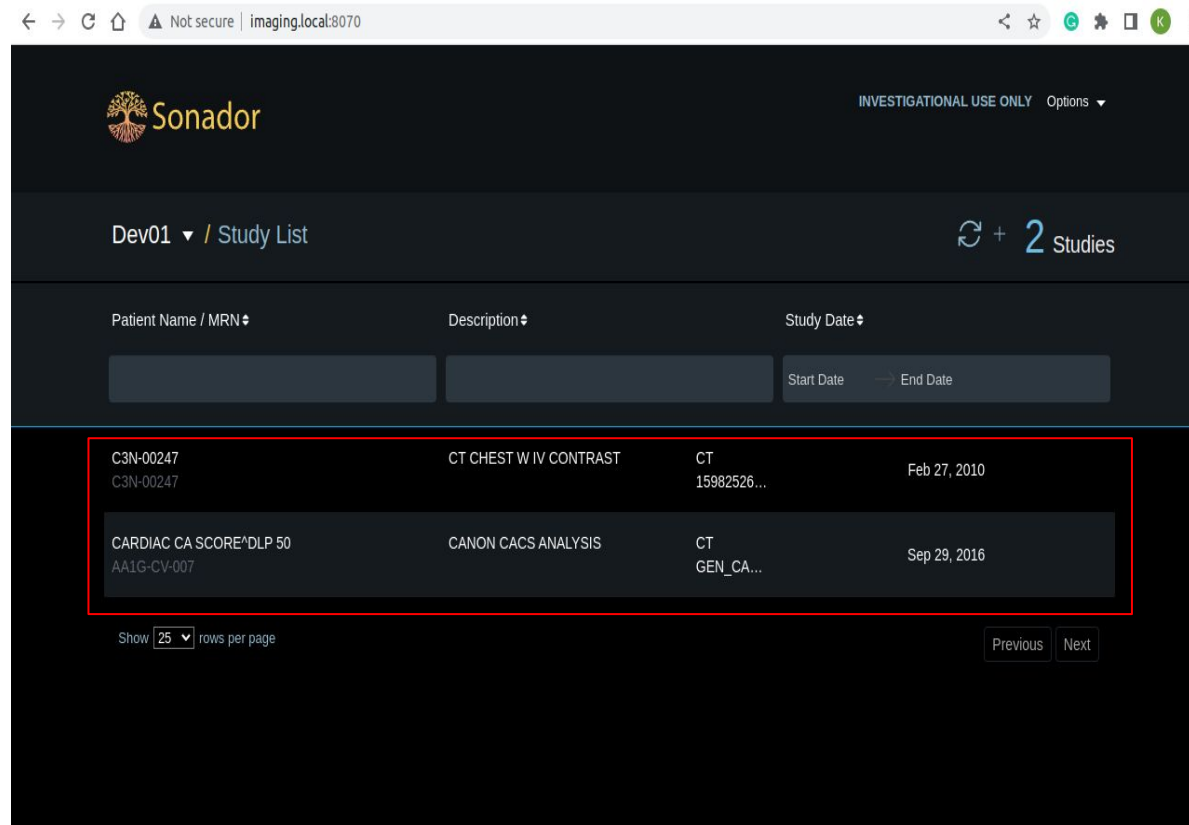
Patient Name / MRN ⚡	Description ⚡	Study Date ⚡
		Start Date → End Date
C3N-00247 C3N-00247	CT CHEST W IV CONTRAST	CT 15982526... Feb 27, 2010
CARDIAC CA SCORE*DLP 50 AA1G-CV-007	CANON CACS ANALYSIS	CT GEN_CA... Sep 29, 2016

Show 25 rows per page Previous Next

Time Greenfield

Resultados

- Cenário 3: Envio de 2 estudos concorrentemente



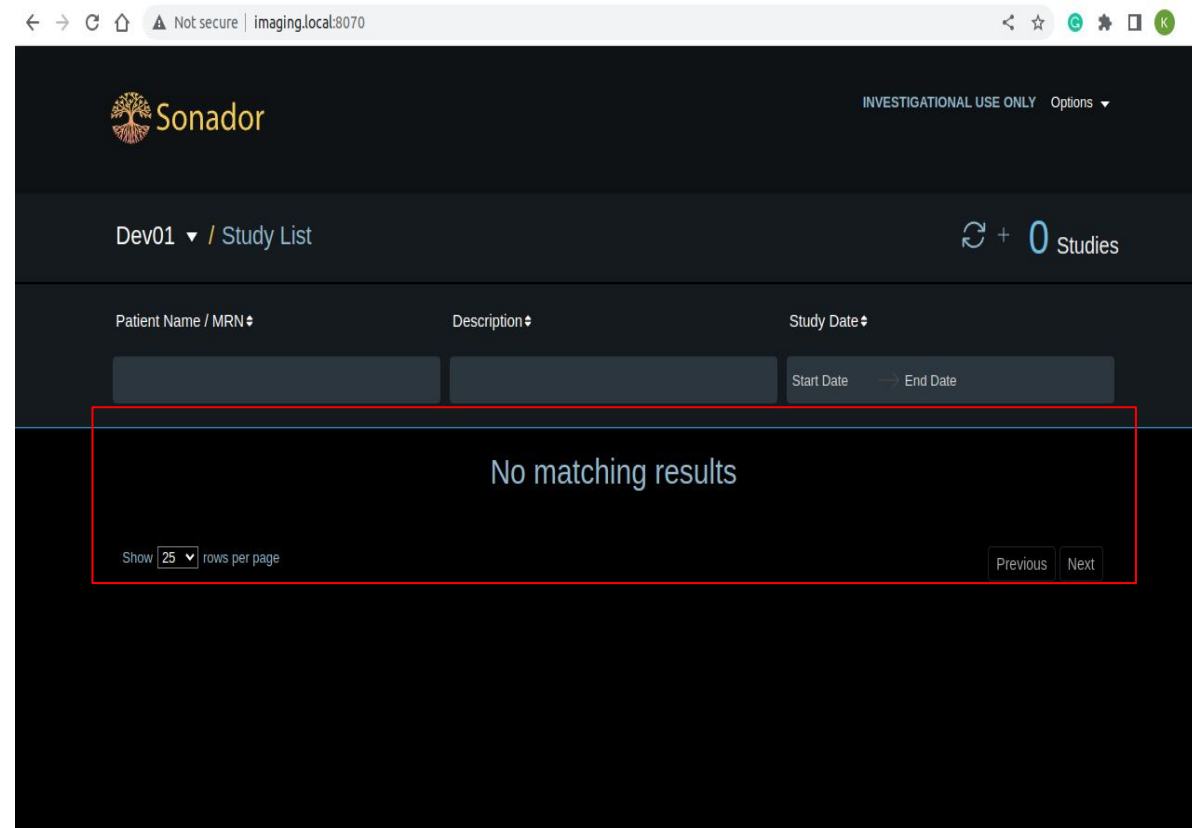
The screenshot displays the Sonador web application interface. The browser address bar shows 'Not secure | imaging.local:8070'. The application header includes the Sonador logo and the text 'INVESTIGATIONAL USE ONLY' with an 'Options' dropdown. Below the header, the breadcrumb 'Dev01 / Study List' is visible, along with a refresh icon and '+ 2 Studies'. A search bar is present with fields for 'Patient Name / MRN', 'Description', and 'Study Date' (with 'Start Date' and 'End Date' sub-fields). The main content area contains a table with two rows of study data, which is highlighted by a red rectangle. The first row shows 'C3N-00247' (CT CHEST W IV CONTRAST) dated 'Feb 27, 2010'. The second row shows 'CARDIAC CA SCORE*DLP 50' (CANON CACS ANALYSIS) dated 'Sep 29, 2016'. At the bottom, there is a pagination control showing 'Show 25 rows per page' and 'Previous'/'Next' buttons.

Patient Name / MRN	Description	Study Date
C3N-00247 C3N-00247	CT CHEST W IV CONTRAST	CT 15982526... Feb 27, 2010
CARDIAC CA SCORE*DLP 50 AA1G-CV-007	CANON CACS ANALYSIS	CT GEN_CA... Sep 29, 2016

Time Greenfield

Resultados


- Cenário 4: Remoção de 2 estudos concorrentemente



Time Greenfield

Resultados


- Teste pequeno - médio - grande

 INVESTIGATIONAL USE ONLY Options ▾

Dev01 ▾ / Study List ↻ + 5 Studies

Patient Name / MRN #	Description #	Study Date #	
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
	Start Date → End Date		
C3N-00247 C3N-00247	CT CHEST W IV CONTRAST	CT 15982526...	Feb 27, 2010
CARDIAC CA SCORE'DLP 50 AA1G-CV-007	CANON CACS ANALYSIS	CT GEN_CA...	Sep 29, 2016
COLON LOW DOSE P&S POLYP JA1G-APH-001	CANON COLON ANALYSIS WITH POLYP	CT GENESIS	Mar 16, 2016
STENT PLANNING A/P CTA AAA	Endovascular Stent Planning - EVSP	CT	Jul 26, 2018
Vitrea Cardiac 1.5T Vitrea WMT QFlow		MR 20150214...	Feb 14, 2015

Show rows per page Previous Next

 INVESTIGATIONAL USE ONLY Options ▾

Dev01 ▾ / Study List ↻ + 5 Studies

Patient Name / MRN #	Description #	Study Date #	
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
	Start Date → End Date		
C3N-00247 C3N-00247	CT CHEST W IV CONTRAST	CT 15982526...	Feb 27, 2010
CARDIAC CA SCORE'DLP 50 AA1G-CV-007	CANON CACS ANALYSIS	CT GEN_CA...	Sep 29, 2016
COLON LOW DOSE P&S POLYP JA1G-APH-001	CANON COLON ANALYSIS WITH POLYP	CT GENESIS	Mar 16, 2016
STENT PLANNING A/P CTA AAA	Endovascular Stent Planning - EVSP	CT	Jul 26, 2018
Vitrea Cardiac 1.5T Vitrea WMT QFlow		MR 20150214...	Feb 14, 2015

Show rows per page Previous Next

Time Greenfield

Próximos Passos

- Ampliação dos cenários de testes
- Construção de uma base de testes baseada nos cenários propostos
- Realização de testes comparativos (Sonador vs. DCM uploader) para os cenários propostos
- Implantar um servidor de autenticação na AWS

Time Brownfield

Contexto da Sprint 03

28/03/2023

- Investigar o porquê do software não executa em alguns ambientes.
 - Testar transmissões em *localhost*
 - Testar transmissões em nuvem
 - Reproduzir erros descritos nos relatórios de testes
-
- 1) Entender e depurar o código;
 - 2) Estudar o protocolo + planejar e executar bateria de testes.

Time Brownfield

Contexto da Sprint 03

28/03/2023

<https://canon4000.cin.ufpe.br>

g

<https://canon4001.cin.ufpe.br>

r

<https://canon4002.cin.ufpe.br>

t

<https://scdedeploy4000.cin.ufpe.br>

g

<https://scdedeploy4001.cin.ufpe.br>

r

<https://scdedeploy4002.cin.ufpe.br>

t

Time Brownfield

Contexto da Sprint 03

28/03/2023

```
File "/usr/lib/python3/dist-packages/urllib3/connectionpool.py", line 699, in urlopen
    httplib_response = self._make_request(
File "/usr/lib/python3/dist-packages/urllib3/connectionpool.py", line 394, in _make_request
    conn.request(method, url, **httplib_request_kw)
File "/usr/lib/python3.10/http/client.py", line 1282, in request
    self._send_request(method, url, body, headers, encode_chunked)
File "/usr/lib/python3.10/http/client.py", line 1328, in _send_request
    self.endheaders(body, encode_chunked=encode_chunked)
File "/usr/lib/python3.10/http/client.py", line 1277, in endheaders
    self._send_output(message_body, encode_chunked=encode_chunked)
File "/usr/lib/python3.10/http/client.py", line 1037, in _send_output
    self.send(msg)
File "/usr/lib/python3.10/http/client.py", line 975, in send
    self.connect()
File "/usr/lib/python3/dist-packages/docker/transport/unixconn.py", line 30, in connect
    sock.connect(self.unix_socket)
FileNotFoundError: [Errno 2] No such file or directory

During handling of the above exception, another exception occurred:
```

Time Brownfield

Contexto da Sprint 03

28/03/2023

canon4000.cin.ufpe.br/source_config

Configuração de Origem

Configuração de Destino

Modalidades

Transmissões

Origem

Transmissor

Mudar essas configurações reinicia o StoreSCP

119B50B031D

AE Title

UP-T

IP

192.168.200.135

Localização

Hospital de Teresina

Porta

6000

Limite de Transmissão (em Kbps)

1335

Time Brownfield

Contexto da Sprint 03

28/03/2023



This site can't be reached

canon4001.cin.ufpe.br's DNS address could not be found. Diagnosing the problem.

DNS_PROBE_POSSIBLE

Reload

Time Brownfield

Contexto da Sprint 03

28/03/2023

CONTAINER ID	IMAGE	NAMES	COMMAND	CREATED	STATUS	PORTS
5f65c149f100	uploader_r_phoenix	uploader_r_phoenix_1	"/app/entrypoint.sh"	5 days ago	Up 49 seconds	0.0.0.0:4001->4001/tcp, :::4001->4001/tcp, >22/tcp, :::3022->22/tcp
0a1e08306966	postgres:9.6	uploader_r_db_1	"docker-entrypoint.s..."	5 days ago	Up 3 days	5432/tcp
d52e2e5171de	uploader_t_phoenix	uploader_t_phoenix_1	"/app/entrypoint.sh"	5 days ago	Up 41 seconds	0.0.0.0:4000->4000/tcp, :::4000->4000/tcp,
f9767df21e1c	postgres:9.6	uploader_t_db_1	"docker-entrypoint.s..."	5 days ago	Up 3 days	5432/tcp
4b08eb65270a	uploader_g_phoenix	uploader_g_phoenix_1	"/app/entrypoint.sh"	5 days ago	Up 22 seconds	0.0.0.0:4002->4002/tcp, :::4002->4002/tcp
36e22cbd07d0	postgres:9.6	uploader_g_db_1	"docker-entrypoint.s..."	5 days ago	Up 3 days	5432/tcp

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DCM Uploader: um sistema de informação para garantia de confidencialidade, integridade e disponibilidade no tráfego de imagens médicas baseadas no padrão DICOM

Resultados da Sprint 02

14/03/2023

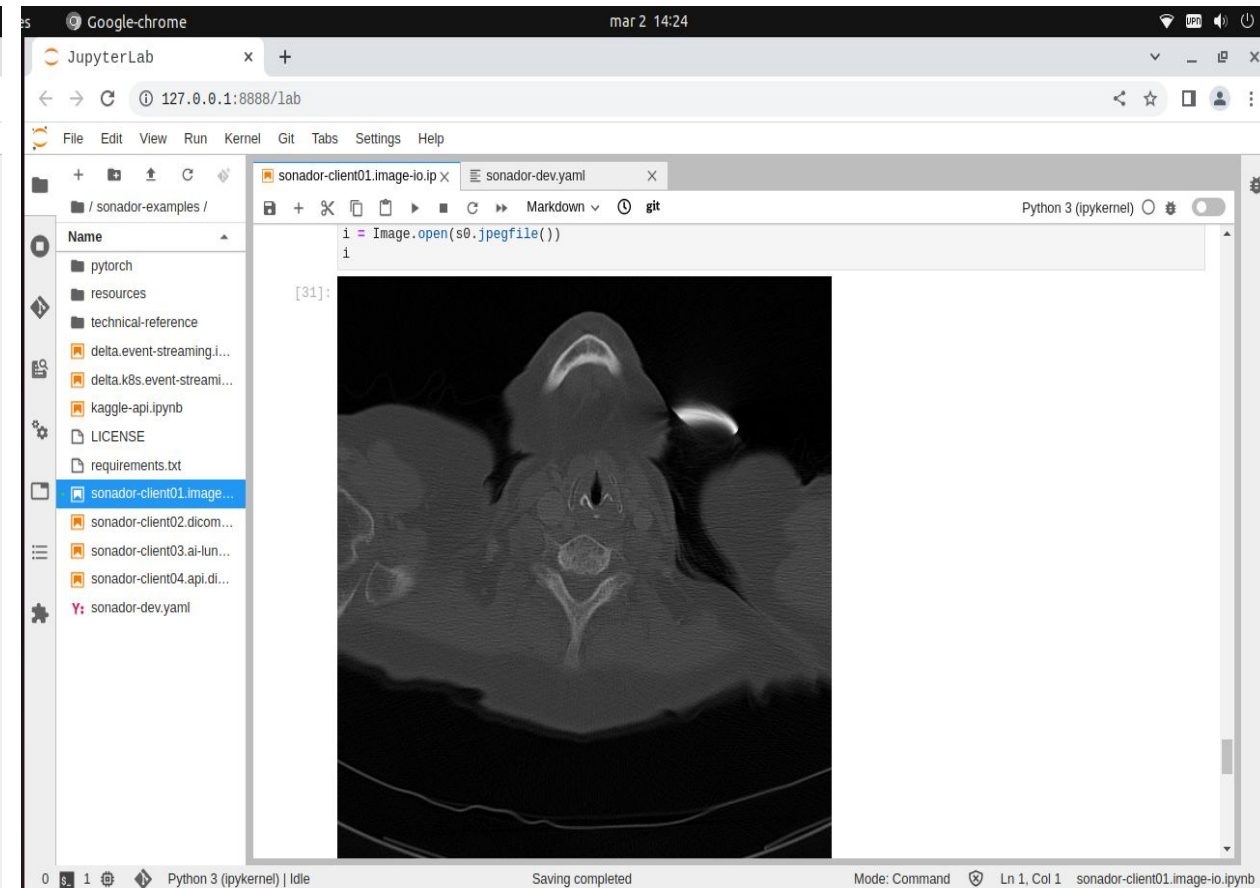
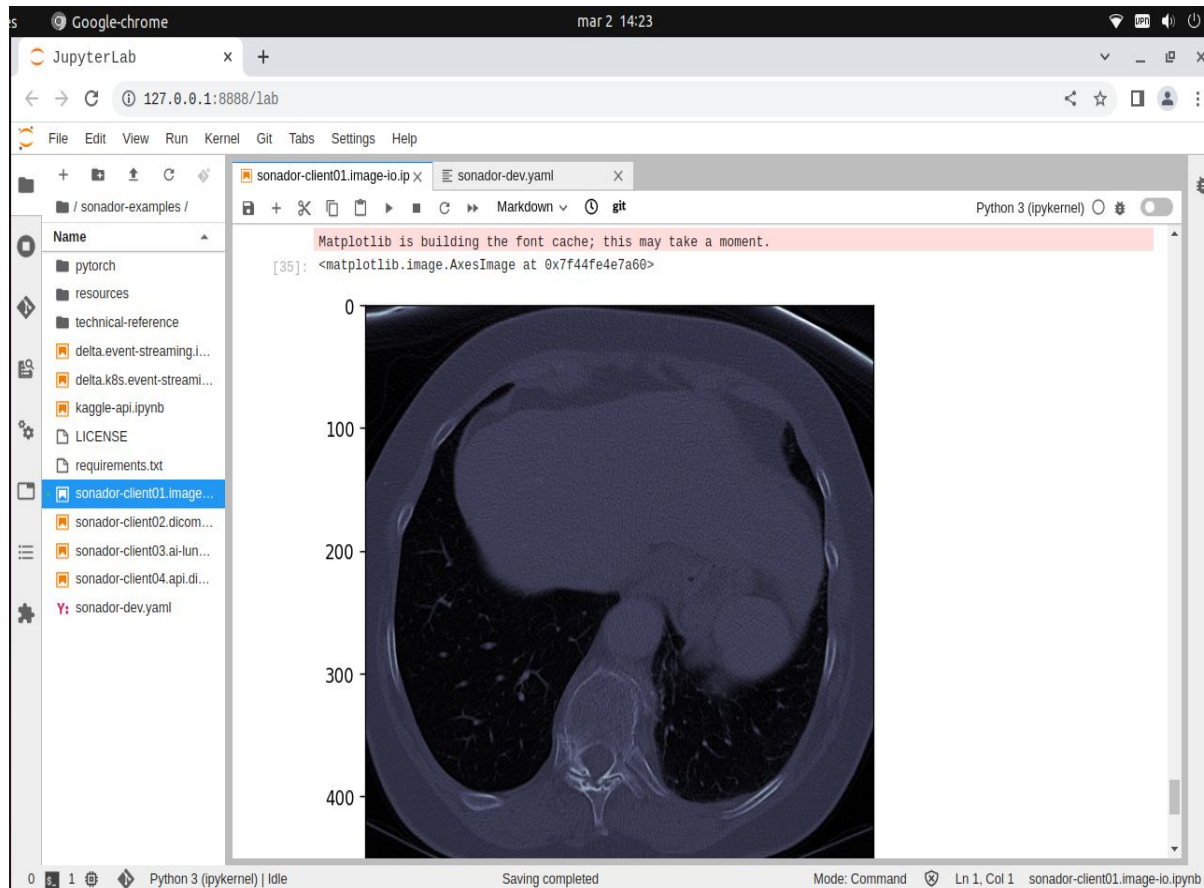
Time Greenfield

Contexto da Sprint 02

- Simular o protocolo DICOM através do Sonador utilizando o ambiente remoto
- Sonador Gateway
- Consolidação de uma base de dados DICOM para testes

Time Greenfield

Resultados



Time Greenfield

Resultados


Google-chrome

mar 2 15:03

JupyterLab

Viewer | Sonador

Not secure | imaging.local:8070

Sonador

INVESTIGATIONAL USE ONLY Options

Dev01 / Study List

2 Studies

Patient Name / MRN	Description	Study Date
		Start Date — End Date
C3N-00247 C3N-00247	CT CHEST W IV CONTRAST	CT 15982526... Feb 27, 2010
CARDIAC CA SCORE'DLP 50 AA1G-CV-007	CANON CACS ANALYSIS	CT GEN_CA... Sep 29, 2016

Show 25 rows per page

PreviousNext


Google-chrome

mar 2 15:04

JupyterLab

Viewer | Sonador

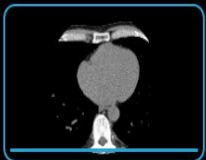
Not secure | imaging.local:8070/server/dev01/viewer/study/1.2.392.200036.9116.2.6.1.3268.2054276606.1476299250.733362

Sonador

Study List


INVESTIGATIONAL USE ONLY Options

Series Stack Scroll Zoom Levels Pan Length Annotate Angle Reset CINE More 2D MPR 3D Volume Tag Browser Layout Measurements


Cardiac 3.000
S: 4 47

CARDIAC CA SCORE, DLP 50
AA1G-CV-007

CANON CACS ANALYSIS
Sep 29, 2016 10:33:06


A
R

Ser: 4
Img: 47 1/47
512 x 512
Loc: 138.13 mm Thick: 3.00 mm

Zoom: 107%
W: 380 L: 40
Lossless / Uncompressed

Time Greenfield

Próximos Passos

- Realização dos testes remotos
- Depuração do código do Sonador

Time Brownfield

Contexto da Sprint 02

14/03/2023

- Objetivo era implantar o software em ambientes local e remoto;
- Testar transmissão em diferentes ambientes;
- Tentar reproduzir os erros descritos nos relatórios de testes;
- Depurar o código ou planejar nova bateria de testes.

Time Brownfield

Resultados

- Diversos problemas encontrados no build
 - Versões legadas de Erlang instaladas no *host* parecem interferir na aplicação
 - Versão padrão do docker-compose incompatível
 - Outros (a averiguar)

Time Brownfield






























Resultados - Falha

CONTAINER ID	IMAGE	COMMAND	CREATED	STATUS	PORTS	NAMES
cbc0f1499213	uploader_g-phoenix	"/app/entrypoint.sh"	About a minute ago	Restarting (1) 32 seconds ago		
	uploader_g-phoenix-1					
98b31b9ab383	postgres:9.6	"docker-entrypoint.s..."	About a minute ago	Up About a minute	5432/tcp	uploader_g-db-1

[illegible]


































































Time Brownfield

Resultados - Sucesso

<input type="checkbox"/>	Name	Image	Status	Port(s)	Last started	Actions
<input type="checkbox"/>	 frosty_chandrasekhar f77c23581b5e 	-	Exited (100)		4 days ago	  
<input type="checkbox"/>	 nostalgic_dewdney 4fc8310d01f2 	docker/getting-started	Exited (255)	80:80 	4 days ago	  
<input type="checkbox"/>	 cranky_ritchie dc0ee46478d2 	docker/getting-started	Exited (255)	80:80 	4 days ago	  
<input type="checkbox"/>	 uploader_t	-	Running (2/2)		1 minute ago	  
<input type="checkbox"/>	 uploader_r	-	Running (2/2)		1 minute ago	  
<input type="checkbox"/>	 uploader_g	-	Running (2/2)		1 minute ago	  

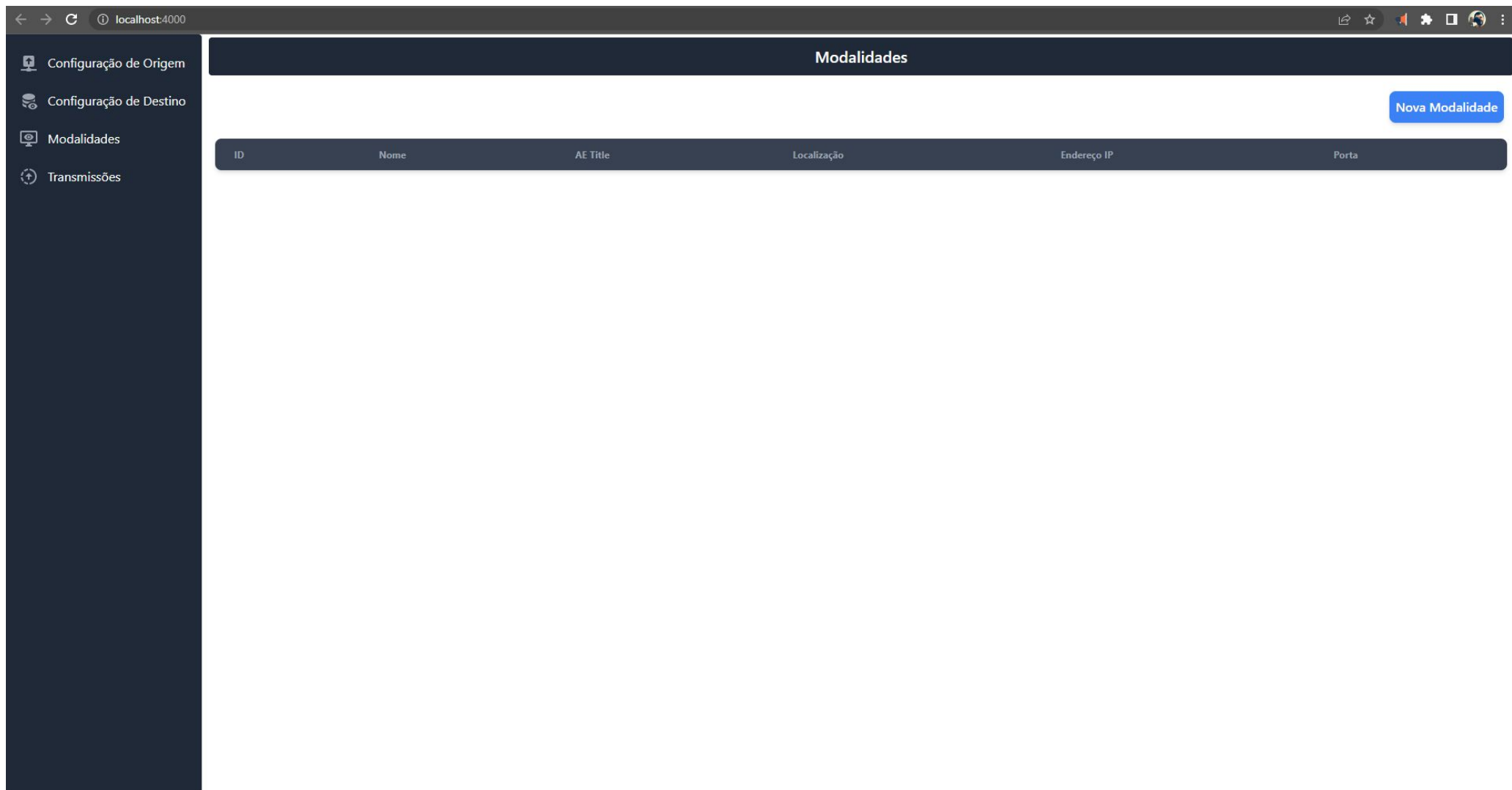
Time Brownfield

Resultados

<input type="checkbox"/>	Name	Image	Status	Port(s)	Last started	Actions
<input type="checkbox"/>	 frosty_chandrasekhar f77c23581b5e 	-	Exited (100)		4 days ago	  
<input type="checkbox"/>	 nostalgic_dewdney 4fc8310d01f2 	docker/getting-started	Exited (255)	80:80 	4 days ago	  
<input type="checkbox"/>	 cranky_ritchie dc0ee46478d2 	docker/getting-started	Exited (255)	80:80 	4 days ago	  
<input type="checkbox"/>	  uploader_t -	-	Running (2/2)		3 minutes ago	  
<input type="checkbox"/>	 uploader_t_phoenix_1 4cfd0904d391 	uploader_t_phoenix	Running	4000:4000  Show all ports (2)	3 minutes ago	  
<input type="checkbox"/>	 uploader_t_db_1 82351f6bdd8f 	postgres:9.6	Running		3 minutes ago	  
<input type="checkbox"/>	  uploader_r -	-	Running (2/2)		3 minutes ago	  
<input type="checkbox"/>	 uploader_r_phoenix_1 c2dae4c1afe6 	uploader_r_phoenix	Running	3022:22  Show all ports (3)	3 minutes ago	  
<input type="checkbox"/>	 uploader_r_db_1 9a811d5f00fd 	postgres:9.6	Running		3 minutes ago	  
<input type="checkbox"/>	  uploader_g -	-	Running (2/2)		3 minutes ago	  
<input type="checkbox"/>	 uploader_g_phoenix_1 7b7176237214 	uploader_g_phoenix	Running	4002:4002 	3 minutes ago	  
<input type="checkbox"/>	 uploader_g_db_1 ea9a6cc7858b 	postgres:9.6	Running		3 minutes ago	  

Time Brownfield

Resultados



The screenshot shows a web application running on localhost:4000. The interface has a dark theme. On the left is a sidebar with four menu items: 'Configuração de Origem', 'Configuração de Destino', 'Modalidades', and 'Transmissões'. The 'Modalidades' menu item is selected. The main content area has a header bar labeled 'Modalidades'. Below the header is a table with six columns: ID, Nome, AE Title, Localização, Endereço IP, and Porta. A blue button labeled 'Nova Modalidade' is located in the top right corner of the table area.

ID	Nome	AE Title	Localização	Endereço IP	Porta
----	------	----------	-------------	-------------	-------

Time Brownfield

Resultados

Unidades

Transmissões

Logs

Dashboard

ID da Unidade	Localização	Host	Porta	Tipo	Status	
1				Receptor	Pendente	Detalhes Editar Recusar Aceitar
2				Transmissor	Pendente	Detalhes Editar Recusar Aceitar

ID da Unidade	Localização	Host	Porta	Tipo	Status
---------------	-------------	------	-------	------	--------

Time Brownfield

Resultados

← → ↻ ⓘ localhost:4001

🔗 ☆ 🔊 ⚙️ □ 👤 ⋮

☁️ Config. do Uploader R

💻 Config. do Repositório

Configurando Uploader R

Receptor

Mudar essas configurações reinicia o EchoSCP

4B2E8DE17F8📄

Localização

Hospital de João Pessoa

AE Title do Receptor

CSTMM

Timeout de STORE (em minutos)

Timeout de Processamento (em minutos)

Salvar

Time Brownfield

Próximos Passos

- Investigar o porquê do software não executa em alguns ambientes.
 - Testar transmissões em *localhost*
 - Testar transmissões em nuvem
 - Reproduzir erros descritos nos relatórios de testes
-
- 1) Entender e depurar o código;
 - 2) Estudar o protocolo + planejar e executar bateria de testes.

Canon

CANON MEDICAL SYSTEMS DO BRASIL



UNIVERSIDADE
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DCM Uploader: um sistema de informação para garantia de confidencialidade, integridade e disponibilidade no tráfego de imagens médicas baseadas no padrão DICOM

Resultados da Sprint 01

28/02/2023

Time Greenfield

Contexto da Sprint 01


- Entender como DICOM se estrutura em um contexto prático
- Sondar possíveis gargalos experimentais
- Exercitar o uso do protocolo DICOM utilizando a plataforma Sonador

Time Greenfield

Resultados

●

← → ↻ 🏠 ⚠ Not secure | imaging.local:8070 🔍 ☆ 🌐 🛠 📱 🟢 K ⋮

Sonador

INVESTIGATIONAL USE ONLY Options ▾

Dev01 ▾ / Study List

↻ + 2 Studies

Patient Name / MRN ▾Description ▾Study Date ▾

Start Date → End Date

C3N-00247 C3N-00247	CT CHEST W IV CONTRAST	CTISR 15982526...	Feb 27, 2010
CARDIAC CA SCORE [®] DLP 50 AA1G-CV-007	CANON CACS ANALYSIS	CT GEN_CA...	Sep 29, 2016

Show


25 ▾

 rows per page

PreviousNext

Show Applications

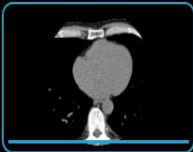
← → ↻ 🏠 ⚠ Not secure | imaging.local:8070/server/dev01/viewer/study/1.2.392.200036.9116.2.6.1.3268.2054276606.1476299250.733362 🔍 ☆ 🌐 🛠 📱 🟢 K ⋮

Sonador

Study List

INVESTIGATIONAL USE ONLY Options ▾

SeriesStack ScrollZoomLevelsPanLengthAnnotateAngleResetCINEMore ▾2D MPR3D VolumeTag BrowserLayoutMeasurements




Cardiac 3.000
S: 4 47

CARDIAC CA SCORE, DLP 50
AA1G-CV-007

CANON CACS ANALYSIS
Sep 29, 2016 10:33:06

A



R

Ser: 4
Img: 47 1/47
512 x 512
Loc: 138.13 mm Thick: 3.00 mm

Zoom: 107%
W: 380 L: 40
Lossless / Uncompressed

 **Sonador**

Study List

INVESTIGATIONAL USE ONLY Options ▾

Series

Stack Scroll

Zoom

Levels

Plan

Length

Annotate

Angle

Reset

CINE

More ▾

2D MPR

3D Volume

Tag Browser

Layout

Measurements



Cardiac 3.000

S: 4

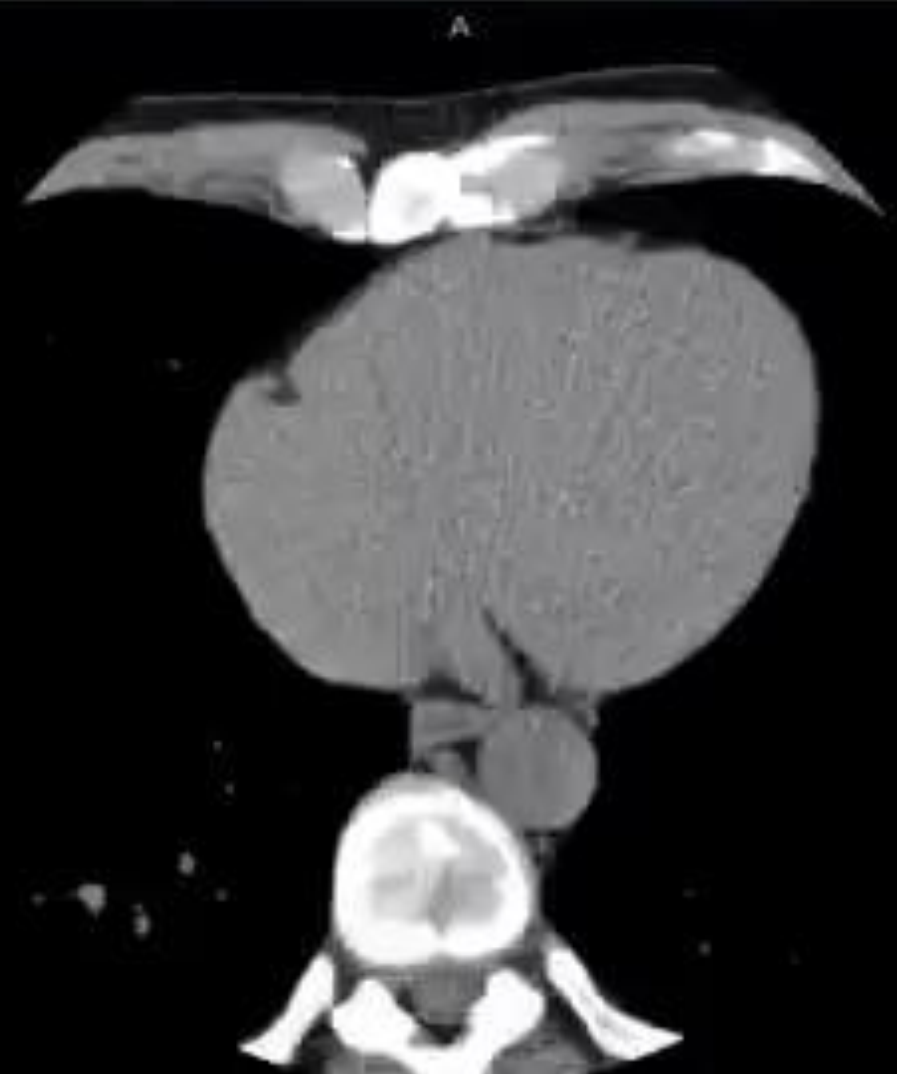
47

CARDIAC CA SCORE, DLP 50
AA1G-CV-007

CANON CACS ANALYSIS
Sep 29, 2016 10:33:06

R

Ser: 4
Img: 28 20/47
512 x 512
Loc: 81.13 mm Thick: 3.00 mm



Zoom: 107%

W: 380 L: 40

Lossless / Uncompressed

Time Greenfield

Próximos Passos

- Replicar o que foi feito localmente em uma infraestrutura em nuvem
- Compreender o funcionamento do Sonador Gateway
- Consolidação de uma base de dados DICOM para testes

Time Brownfield

Contexto da Sprint 01

- Análise inicial do projeto
- Implantação do software em ambientes local e remoto

Time Brownfield

Resultados

- Ambientes configurados
- Software rodando: PC windows e VM cin*

Time Brownfield

Próximos Passos

- Instalar outra instância externa à rede do Cin (AWS)
 - Testar
 - Reproduzir um problema
 - Base: relatórios de testes do DCM*
- 1) Depurar; ou
 - 2) Estudar o protocolo DICOM + Elaboração e a execução de testes funcionais e de desempenho da solução implementada.

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DCM Uploader: um sistema de informação para garantia de confidencialidade, integridade e disponibilidade no tráfego de imagens médicas baseadas no padrão DICOM

Resultados da Sprint XX

DD/MM/AAAA

Time Greenfield

Contexto da Sprint XX

- ...

Time Greenfield

Resultados

- ...

Time Greenfield

Próximos Passos

- ...

Time Brownfield

Contexto da Sprint XX

- ...

Time Brownfield

Resultados

- ...

Time Brownfield

Próximos Passos

- ...