MODALIZER

White Paper

SAVE TIME = SAVE MONEY

1. Introduction

H.R.Z. Software Services LTD is a software company that specializes in developing Medical Imaging, Healthcare IT, DICOM and HL7 solutions.

2. Medical Software Development

The medical imaging and communication standards, namely DICOM and HL7, are very detailed and complicated. It requires a lot of investment in time and money to get things right. On the other hand, after acquiring the knowledge and skill, the tasks tend to repeat over and over again with minor variations. This is why it makes a lot of sense to integrate a proven solution to make the development much easier and faster.

3. MODALIZER

MODALIZER is medical imaging device software that can be easily integrated with an external program for performing the image acquisition. MODALIZER implements all the transactions of the Imaging Modality actor within the SWF Integration Profile and provides the Configuration and Setup functions. With MODALIZER the medical devices manufacturers get ready-to-integrate application of modality station so they can focus on the developing pictures acquisition software. The MODALIZER will take care for the rest.

The intended audience of MODALIZER consists of medical devices manufacturers and medical software developers.

The purpose of the MODALIZER is to provide an OEM product for developers of imaging devices to operate within the Radiology Workflow as an Imaging Modality. The MODALIZER provides the implementation of all the services expected from Imaging Modality and Image Display according to the specification of IHE. This includes:

1. Image Display
2. Evidence Creator
3. Imaging Modality

The DICOM Services the MODALIZER provides are:

1. Verification SCU
2. Storage SCU
3. Modality Worklist SCU
4. Query/Retrieve SCU
5. Modality Performed Procedure Step SCU
6. Media Creator

One option is to use MODALIZER is as a complete application that has all the capabilities the modern modality station must have and fully integrated with DICOM.
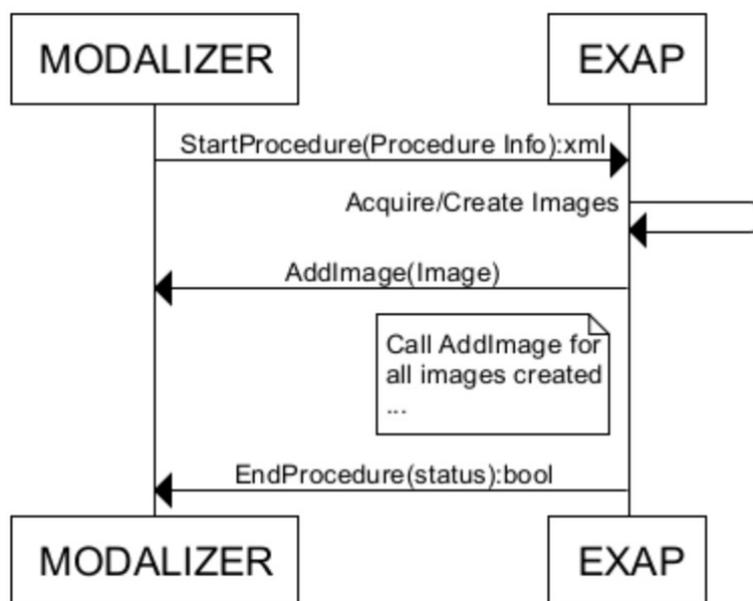
Another option is to use MODALIZER as a source code DICOM library for creating a powerful modality station.

4. Design

MODALIZER is a Windows Forms application developed using Visual Studio in C# (.net framework 3.5). All UI components are standard Windows Forms UI components.

5. Integrating your imaging device with MODALIZER

EXAP - External Acquisition Program – the application that acquires the images from the medical device. The following sequence diagram describes the interface between MODALIZER and an EXAP.

The integration of MODALIZER and EXAM (your medical device imaging acquisition application) is done via shared folder.

Start Procedure: When the image acquisition phase starts, MODALIZER creates an XML file named PatientData.xml with the Patient Name and Patient ID and saves it in the shared folder. Then MODALIZER starts the EXAP as a new process passing the XML file full path in the first command line argument.

Add Image: The EXAP saves the acquired images in the shared folder.

End Procedure: When the acquisition phase is finished, The EXAP terminates, MODALIZER takes over, and collects all the images in the shared folder.
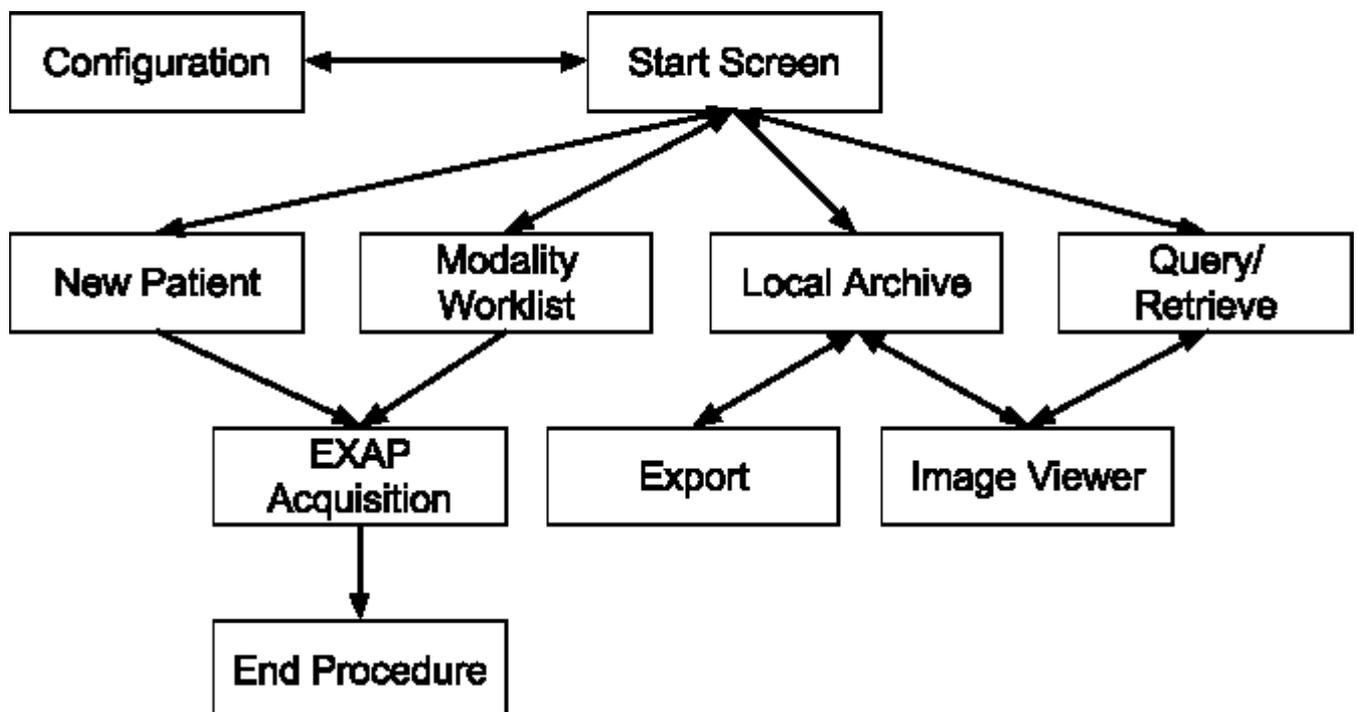
6. User Interfaces

The MODALIZER has the following screens:

- Start Screen
- Configuration Screen
- Local Archive Screen
- New Patient Screen
- Modality Worklist Screen
- EXAP Acquisition Screen
- End Procedure
- Query/Retrieve Screen
- Image Viewer Screen
- Export Screen

The screen transitions are described in the following diagram:

7.   MODALIZER's Features

This chapter describes in a high level the MODALIZER's functionality:

- Configuration
- New Patient
- Modality Worklist Query
- Acquisition using EXAP Interface
- Store Images
  - o Store on Local Archive
  - o Create Media
  - o Store in remote Image Archive
- View Images
  - o From local archive
  - o From remote Image Archive using DICOM Query/Retrieve
  - o From Storage Media (CD/DVD/USB/Hard Disk)

8.   Licensing

MODALIZER has two options to be used:

- As unique application – in this case MODALIZER serves as a modality station that should be integrated with medical device pictures acquisition software.
- As a source code licensing – in order to use MODALIZER as a source code there is a need to procure RZDCX DICOM Toolkit that used by MODALIZER for the DICOM implementation.