DcmStoreService (Dicom Store Service)

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Executable tool that implements the Dicom "Storage SCP" service class and runs as a background service on computers with OS MS Windows (x86 platform Win 7-8-10-11).

Dicom Store Service (Storage SCP service class) – *light and efficient server for receiving and storing Dicom objects (images and radiation dose structured reports)*

DcmStoreService.exe (***vers. 1.1***). The standalone application must be installed as a Windows service and run in "unattended" mode (runs in the background 24 hours a day). It listens for association and connection requests from Dicom clients that implement the "Storage SCU" class (sending images or radiation dose structured objects). It also accepts the "Dicom Ping" message (Echo SCU) to remotely verify its ready and listening status. It was developed and compiled in C++ with multithreaded code for better management of multiple accesses. During installation, the Windows registry is not modified, leaving it clean even in the event of deletion ("zero foot print").

What do I need to do?

1. Unzip the archived files into a folder in which you have write and execute rights, e.g. c:\DcmStore. Put the executable "*DcmStoreService.exe*" in the release folder (e.g. c:\DcmStore\release), while leaving the remaining files in the main folder. *Wow, you have everything you need !*

2. Now, you need to customize some parameters in a configuration file, "DcmStore.ini", using any text editor (e.g. notepad). The parameters to edit are quite self-explanatory for the following goals:

    a. Dicom network node setting (*AE Title, port number*);

    b. choose of the root folder where you want the images and structured reports to be stored;

    c. setting the hierarchy for creating subfolders into which downloaded images can be distributed (see details in the next paragraph)

3. You have the possibility to install the application in two ways as you wish (you must have the computer administrator policy):

    a. use Windows tools to install a service program (automatic restart required), e.g. via the Services module in the Windows Control Panel or directly via the ***services.msc*** command by clicking on start+run (Win+R) or from ***cmd*** shell;

b. (recommended) use the scripts that you can find in the main folder, for installing and activating the service, stopping it, and querying the OS to check its running status in the background (see details below). Once you have installed and verified that it is working properly, you no longer must worry about its execution, even after switching off or restarting the computer, the service will restart automatically, unless there are malfunctioning problems.

Configuration file ***DcmStore.ini: parameters***

The first two parameters must be set based on the Dicom node configuration provided by the company network administrator. The other parameters concern the position and organization of the root folders from which the images must be stored, divided into any subfolders. These folders must be previously created before starting the service. Be careful, you can only modify the parameters after the '**=**' symbol, being careful not to modify the strings to the left of it, otherwise it might cause malfunctions.

- **localAE**= **XXX** (*string data*) - as Application Entity Title of the Dicom Storage server, choose a name agreed with the PACS system administrator and defined as a device enabled for the Storage SCP service class;
- **port**= **YYYY** (*number data*) TCP port number on which the Application Entity negotiates and establishes a connection with the PACS or the radiologic equipment console;
- **RDSR-DIR**= **X:\path1** (root folder in which the RD structured reports received are stored, which can be modified as desired, respecting the syntax, even on different disks e.g. D:\, E:\ etc.);
- **IMG-DIR**= **Y:\ path2** (root folder in which the received images are stored, editable as desired, respecting the syntax, even on different disks e.g. D:\, E:\ etc.);
- **logfile**= **0** *or* **1** (0/1 = does not create/create a logfile for any error messages useful for debugging; not easy to interpret for non-experts and it is recommended to keep it deactivated after testing the correct functioning of the dicom server);
- **folder-tree**= **0** *or* **1** (= 0 the image files are all saved in the **IMG-DIR** folder only); (= 1 the image files are stored in a tree structure of subfolders, starting from a *master folder* nested under the root folder **IMG-DIR**, based on the sorting criterion chosen with the following three parameters:
- **order-by-patientID**= **0** *or* **1**
- **order-by-study**= **0** *or* **1**
- **order-by-series**= **0** *or* **1**
    - setting ***order-by-patientID*** = **1** a master folder is created with the same name as the Patient-ID, = **0** the master folder is created with the same name as the Patient-Name;
    - setting ***order-by-study*** = **0** or **1**, ***order-by-series***= **0** or **1** *options***,** determines whether subfolders corresponding to the "*Study-ID"* and/or the "*Series-number"* respectively are not or are created. Please note that the simultaneous choice of the option = 1 for both parameters determines the increase in the nesting level of the folder tree structure;
    - for RD structured reports it may be convenient, in some circumstances, to use a single folder for storing files (folder-tree option= 0) and periodically move them to other folders of your choice.

In the main folder there are five useful scripts that facilitate the management tasks of the Dicom server service, described below:

1) ***install-service.bat*** : it must be run first to install the application as "windows service"; it can only be used later for a new installation. Let's refer to a generic main folder: x:\path\DcmStore, We recommend you modify it according to your needs
2) ***start-service.bat*** : runs the service (status running)
3) ***stop-service.bat*** : stops the service from running (status stopping)
4) **query-service.bat** : checks the execution status of the service (*running* or *stopping)*
5) ***delete-service.bat***: uninstall the service

Scripts 1, 2, 3, 5 must be run as administrator (right-click “run as administrator”) while it is not necessary for script 4.

Note:

In the event of an execution error due to the lack of the C/C++ runtime library, the Microsoft VS2010-vcredist_x86 installation package is present in the main folder, which must be executed without any risk (the library may have already been installed on the computer by others applications that need it, in which case it is not necessary to install it again).

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